MONROE COUNTY

STREET AND ROAD MANAGEMENT SYSTEM THOROUGHFARE PLAN AND CAPITAL IMPROVEMENT PROGRAM

DECEMBER, 1995

for

THE BOARD OF COUNTY COMMISSIONERS
MONROE COUNTY, INDIANA

Joyce Poling	President
Tim Tilton	Commissioner
Norman Anderson	Commissioner
David Hamilton	President
Donna Richardson	Vice-President
Morris Binkley	County Council
Al Cobine	County Council
Anthony Musgrave	County Council
Joni Reagan	County Council
John Lee Smith	County Council
Bill Williams	County Engineer
John Chambers	County Superintendent

PREPARED BY:
BERNARDIN, LOCHMUELLER & ASSOCIATES, INC.
20-24 NW 4TH STREET
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EVANSVILLE, IN 47708

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ORDINANCE 95-28

An ordinance to adopt the Monroe County Street and Road Management System Thoroughfare Plan and Capital Improvement Program.

WHEREAS, the Board of Commissioners of the County of Monroe, Indiana ("Commissioners") are charged with the duty to plan for the opening, the vacation and the maintenance of roads within the unincorporated areas of Monroe County, Indiana;

WHEREAS, the Commissioners believe that their duty in that regard is better discharged when guided by a long-term, comprehensive, road construction and maintenance plan ("Plan");

WHEREAS, the Commissioners have caused a Plan to be created and have requested and obtained public input on the Plan; and,

WHEREAS, the Commissioners hereby find that the adoption of the Plan is consistent with their duty to plan for the opening, the vacating and the maintenance of roads within the unincorporated areas of Monroe County, Indiana, and would promote the public health, safety and general welfare;

NOW, THEREFORE, be it ordained by the Commissioners as follows.

Section 1. The street and road management system thoroughfare plan and capital improvement program, as set forth in Exhibit A to this Ordinance, shall be, and hereby is, adopted as the Monroe County Street and Road Management System Thoroughfare Plan and Capital Improvement Program. Unless repealed or amended, the Monroe County Street and Road Management System Thoroughfare Plan and Capital Improvement Program shall guide all decisions of the Board of Commissioners of the County of Monroe, Indiana, regarding the opening, the vacating and the maintenance of roads within the unincorporated areas of Monroe County, Indiana.

Section 2. This ordinance shall take effect upon adoption by the Commissioners.

SO ORDAINED, by the Board of Commissioners of the County of Monroe, Indiana, this 8th day of December, 1995.

BOARD OF COMMISSIONERS OF THE COUNTY OF MONROE, INDIANA

"AYES"	"NAYS"
JOYCE POLING, President	JOYCE POLING, President
NORMAN ANDERSON, Vice President	NORMAN ANDERSON, Vice President
TIM TILTON, Member	TIM TILTON, Member

ATTEST: _____
MARGARET COOK, Auditor

ORDINANCE 97-07

An ordinance to amend the Monroe County Street and Road Management System Thoroughfare Plan and Capital Improvement Program ("Thoroughfare Plan") to reflect the proposed route of Interstate 69 through Monroe County, Indiana.

WHEREAS, the Board of Commissioners of the County of Monroe, Indiana ("Commissioners"), adopted a Thoroughfare Plan in order to guide the long-term, comprehensive, road construction and maintenance activities of the County;

WHEREAS, the Thoroughfare Plan classifies all roads within the unincorporated areas of Monroe County, Indiana, and shows the routes of all existing and proposed County, State and Federal roads within those areas;

WHEREAS, the Monroe County Plan Commission has considered and approved a proposal to amend the Thoroughfare Plan to show the proposed route of Interstate 69 through Monroe County, Indiana;

WHEREAS, the Commissioners hereby find that the amendment of the Thoroughfare Plan, as proposed and as approved by the Plan Commission, is consistent with the Commissioners' duty to plan for the opening, the vacating and the maintenance of roads within the unincorporated areas of Monroe County, Indiana, and would promote the health, safety, comfort and general welfare of the citizens of Monroe County, Indiana;

NOW, THEREFORE, BE IT ORDAINED, by the Commissioners as follows:

Section 1. The Thoroughfare plan, which was approved and adopted through Monroe County Ordinance 95-28, shall be, and hereby is, amended as follows:

a. The Thoroughfare Plan is amended by the addition of the following provisions concerning interstate highways:

INTERSTATE

The Interstate is the highest type of principal arterial highway, with full access control, high design speeds, and a high level of driver comfort and safety. For these reasons, they are a special type of highway within the functional classification system, and separate design criteria have been developed for these facilities. Monroe County does not have an interstate, however, I-69 is proposed by the Indiana Department of Transportation in Monroe County. Interstate roads are at least four lanes wide with a median in rural areas. Rights-of-way are a minimum of 400 feet wide. Access control is exercised to give preference to through traffic by providing access connections with selected public roads only and by prohibiting crossings at grade or direct private driveway connections.

The foregoing provisions shall be added to page 40 so that they appear directly before the Principal Arterial provisions.

b. The Thoroughfare Plan Functional Classification Map (Figure 7) is amended by the addition of the interstate highway road classification ("Interstate") to the Map Legend.

c. The Thoroughfare Plan Functional Classification Map (Figure 7) is amended to show the proposed route of Interstate 69 through Monroe County, Indiana, as indicated on the amended Functional Classification Map that is attached hereto as "Exhibit A." The route is generally known and referred to as "Line C," as shown in the Indiana Department of Transportation's "National Highway System Proposal" that was submitted to the Federal Highway Administration on May 27, 1993 and to the United States Congress on December 9, 1993.

d. The Thoroughfare Plan Functional Classification Map (Figure 7) and the Thoroughfare Plan Table 10 are amended to classify and show the eleven miles of Line C Interstate 69 as Interstate for purposes of the Thoroughfare Plan.

e. The Thoroughfare Plan Functional Classification Map (Figure 7) and the Thoroughfare Plan Table 10 are amended to reclassify and show that section of State Road 37 which runs for sixteen miles from Victor Pike to the Morgan-Monroe County line as Interstate (formerly Principal Arterial).

f. Appendix B, which is entitled Typical Cross-Sections, is amended to show that the typical Interstate cross-section is identical to the typical Primary Arterial (four lane) cross section.

g. The above amendment (Interstate 69 route) to the Thoroughfare Plan shall be reviewed annually by the Monroe County Plan Commission for accuracy of the route as proposed by INDOT.

Section 2. This ordinance takes effect upon adoption.

[end of page]

SO ADOPTED AND ORDAINED by the Board of Commissioners of the County of Monroe, Indiana, this ____ day of January 1997.

BOARD OF COMMISSIONERS

AYES	NAYS
NORMAN ANDERSON, President	NORMAN ANDERSON, President
KIRK WHITE, Vice President	KIRK WHITE, Vice President
IRIS KIESLING, Member	IRIS KIESLING, Member

Attest: Barbara Clark
BARBARA CLARK, Auditor

SUMMARY

OF THE ROAD MAINTENANCE PROJECTS

FOR THE THOROUGHFARE PLAN

SUMMARY OF THE ROAD MAINTENANCE PROJECTS FOR THE THOROUGHFARE PLAN

In August of 1991, a report was released entitled Street and Road Management System and Thoroughfare Plan: Road Maintenance Projects. As the portion of the thoroughfare plan dealing with maintenance on the roads in Monroe County, this report outlined the maintenance work needed to be done on the road surfaces, drainage, and signs.

In May, June and July of 1991, all roads under the responsibility of Monroe County were driven by a two-man crew. Using the Street and Road Management System developed by Bernardin, Lochmueller & Associates, Inc., this crew identified all work to be done to the road surface (pavement strategies); to the ditches, shoulders, culverts, and foliage (drainage strategies). Using a computer program and a distance measuring instrument, all maintenance strategies were located by mileage points and entered into the computer while in the field.

In addition to the actual maintenance strategies, a series of information for each road segment was collected. This information included:

1. Common road name
2. Mileage point
3. Description
4. Surface type
5. Surface width
6. Left shoulder width
7. Right shoulder width
8. Right-of-way
9. Average daily traffic

10. Functional classification
11. Administrative classification
12. Township

Besides road section information, data was also collected on each culvert under county maintenance. This data included:

1. Common road name
2. Mileage point
3. Length
4. Width
5. Height
6. Number of pipes at this location
7. Work to be done
8. Shape
9. Material

Once the roads were driven and the information entered into the computer, a series of analysis tables were developed. The analysis including summaries of the costs of all the strategies; listing of road surface strategies by priority according to cost per vehicle mile; and a listing of road sections that, based upon their functional classification, did not meet the current American Association of State Highway and Transportation Officials (AASHTO) guidelines for road widths.

Tables 1, 2, and 3 show the total maintenance costs for pavement, drainage and sign strategies for all of the county roads in Monroe County. Detailed information showing costs by township; the priority listing of road surface maintenance; and roads not meeting the AASHTO guidelines can be

found in the report entitled Street and Road Management System and Thoroughfare Plan: Road Maintenance Projects.

Following the release of the report, the Monroe County engineer and superintendent immediately began to address these maintenance needs. Using work lists from the Street and Road Management System, county crews began to work on the drainage and sign maintenance needs. The resurfacing programs for 1992, 1993 and 1994 also incorporated many of the maintenance projects identified in the report. The totals shown in Table 1, 2, and 3 are being steadily reduced as county crews work on the various maintenance strategies.

TABLE 1

BUDGET TABLE
A LISTING OF ALL WORK TO BE DONE
TOTALS
PAVEMENT STRATEGIES

STRATEGY CODE	ASPHALT STRATEGIES	MILEAGE	TOTAL COST
100	No Action	84.15	$ 0
91	Potholes	0.21	42
92	Skip Patching	51.58	85,107
93	Crack Sealing	30.41	30,410
81	Potholes	.46	184
82	Skip Patching	160.74	884,070
71	Wedge and Level	2.75	71.632
72	Chip and Seal	9.25	47,172
73	Crack Sealing	5.69	8,535
61	Overlay 1-2 inch	121.34	3,684,221
62	Chip Seal & Wedge Level	16.77	438,862
63	Overlay & Wedge Level	30.51	1,031,279
64	Full Depth Patching	3.41	1,673,760
51	Potholes	0.43	301
52	Skip Patching	4.79	39,757
41	Overlay 2+ Wedge Level	1.13	45,230
42	Chip Seal Wedge Level	3.94	107,024
32	Chip Seal Wedge Level	2.88	62,546
	SUBTOTALS	530.44	8,210,137
STRATEGY CODE	CONCRETE STRATEGIES	MILEAGE	TOTAL COST
100	No Action	0.34	0
91	Isolate Slab Replace	0.27	135
92	Crack Sealing	0.22	220
81	Limited Slab Replace	0.31	620
82	Clean & Seal Joints	0.18	180
	SUBTOTALS	1.32	1,155

TABLE 1
(continued)

BUDGET TABLE
A LISTING OF ALL WORK TO BE DONE
TOTALS
PAVEMENT STRATEGIES

STRATEGY CODE	GRAVEL STRATEGIES	MILEAGE	TOTAL COST
100	No Action	1.25	0
92	Blading	14.63	4,389
81	Spot Regravelling	0.15	150
71	Spot Regravelling	1.58	1,580
72	Dust Control	0.15	634
73	Blading	120.00	60,000
61	Spot Regravelling	7.19	7,190
51	Spot Regravelling	2.96	5,920
41	Major Aggregate Add	0.27	2,160
42	Scarify & Recompact	2.83	28,300
31	Major Aggregate Add	0.04	320
22	Scarify & Recompact	0.13	1,300
11	Reconstruction	0.27	5,400
	SUBTOTALS	151.45	117,343
	TOTALS	683.21	$8,328,635

TABLE 2

BUDGET TABLE
A LISTING OF ALL WORK TO BE DONE
TOTALS
DRAINAGE STRATEGIES

STRATEGY CODE	DRAINAGE STRATEGIES	MILEAGE	TOTAL COST
101	Regrade Shoulders	672.16	$1,008,240
102	Dig Ditch - Soil	285.72	571,440
103	Dig Ditch - Rock	13.50	40,515
104	Trim Foliage	40.66	81,320
106	Install Sewer	0.18	30,413
107	Put in Private Culvert	0.00	527,400
108	Put in County Culvert	0.00	387,000
109	Clean County Culvert	0.00	309,500
110	Clean Inlet	0.00	2,100
111	Install Inlet	0.00	1,400
	SUBTOTALS	1012.22	$2,959,328
	TOTALS	1012.22	$2,959,328

TABLE 3

BUDGET TABLE
A LISTING OF ALL WORK TO BE DONE
TOTALS
SIGNAGE STRATEGIES

STRATEGY CODE	SIGNAGE STRATEGIES	MILEAGE	TOTAL COST
201	Install Stop Sign	0.00	$ 16,005
202	Replace Stop Sign	0.00	385
203	Install Yield Sign	0.00	2,035
204	Replace Yield Sign	0.00	165
208	Replace Bridge Sign	0.00	55
211	Install Info Sign	0.00	12,705
212	Replace Info Sign	0.00	550
213	Install Delineator	0.00	1,100
214	Replace Delineator	0.00	165
215	Install Speed Limit	0.00	165
	SUBTOTALS	0.00	33,330
	TOTALS	0.00	$33,330

DEVELOPING

THE

THOROUGHFARE

PLAN

DEVELOPING THE THOROUGHFARE PLAN

With the existing maintenance needs having been identified and receiving attention of the county crews, the second part of the Monroe County Thoroughfare Plan, the capital improvement projects, become the focus. Capital improvement projects include such work as road widening, realignment, extension, and reconstruction. These projects are needed to address accident problems; traffic congestion; anticipated future residential, industrial, or commercial growth; major roadway improvements on state highways as programmed by the Indiana Department of Transportation (INDOT); and future transportation trends as defined by the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). This act includes such trends as increased bicycle lanes, congestion management, road management, and protection of future road rights-of-way.

The protection of future road rights-of-way is a very important part of this thoroughfare plan. Once a series of improvements have been selected, the rights-of-way needed for these improvements will be shown on maps. As development occurs, land can be set aside for this right-of-way, thereby saving the cost of purchasing this land and any improvements in the future. The ISTEA of 1991 states that in urbanized areas of 50,000 population or more, transportation plans and programs shall consider (Section 136 or Title 23, United States Code, (f))

> "(10) Preservation of rights-of-way for construction of future transportation projects, including identification of unused rights-of-way which may be needed for future transportation corridors and identification of those corridors for which action is most needed to prevent destruction or loss."

In developing these capital improvements projects, a series of information is used. Existing traffic counts, road widths, accidents, and roadway capacities were used to identify existing transportation deficiencies in the county. Future land use policies and plans are used to determine the location of

future residential, commercial and industrial activity. Road projects can then be designed to best accommodate this growth. These capital improvement projects must also work together with and complement the existing transportation projects of the INDOT, the City of Bloomington, and Monroe County. The Monroe County Thoroughfare plan must also fit together with the City of Bloomington Thoroughfare Plan.

These individual items that help guide the development of the thoroughfare plan are discussed in the following pages.

Existing Transportation Problems - Accidents

Problems in the existing transportation system show up in the form of accidents and congestion. Accidents can be the result of a variety of problems including a very narrow road surface, poor sight distance for the driver, sharp highway curves, high vehicle speeds, or unanticipated road characteristics creating driver confusion (i.e. the travel lane automatically becomes a left turn lane at an intersection).

Monroe County has kept track of accidents by location since 1990. This accident analysis used accidents from 1990, 1991, 1992, 1993, to June of 1994. The top 10 to 15 accident locations for intersection and corridors are shown on Figure 1 and listed in Tables 4 and 5. Fairfax Road is listed in these tables for five different locations. While Fairfax Road is a 24 foot wide road with four foot shoulders on both sides from the Pointe to Business 37 South, the high traffic volumes (6,719 to 3,364 vehicles per day) together with the high speeds (50 to 46 mph - average speed) and the recreational nature of many of the trips have created the potential for a high accident corridor. According to the management system, the road surface is in excellent shape needing only an occasional patch and some crack sealing.

Business 37 South from S.R. 37 to Bloomington also shows up on these lists in five different locations. Business 37 South from S.R. 37 north to Bloomington is a 24 foot roadway with five foot shoulders on each side. Similar to Fairfax Road, the problem is high traffic volumes (12,097 to 7,803 vehicles per day) and high speeds (the average speed varies from 44 to 50 mph). The road surface is in excellent condition and has minimal maintenance needs.

Curry Pike/Smith Pike is on the lists in three different locations. This roadway is 22 feet wide with three foot shoulders on each side from north of S.R. 46 to S.R. 46. The traffic volumes range up to 13,928 vehicles per day from north of S.R. 45 to S.R. 46. This two lane roadway north of S.R. 45 has numerous curb cuts for the industrial, residential and commercial land uses along the road. This road is currently under construction for widening to four lanes.

In addition to being concerned with accidents, the Thoroughfare Plan also looks at traffic congestion problems on the county road system.

Existing Transportation Problems - Congestion

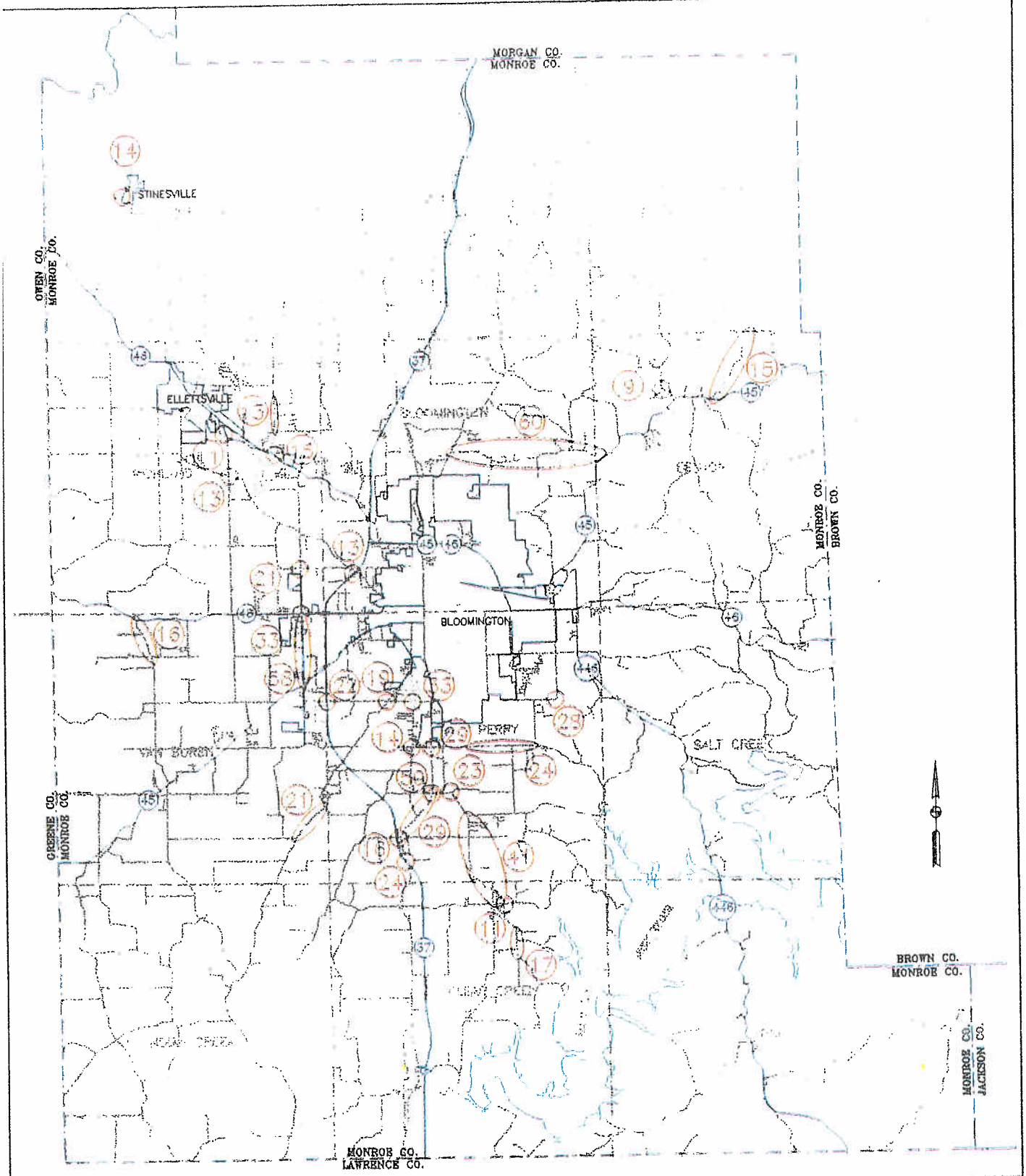
Traffic congestion is measured using the Highway Capacity Manual (Transportation Research Board Special Report 209) and the Highway Capacity Software which is based on the manual. Capacity is measured in terms of level of service (LOS). Level of service can vary from A (free flow, highest level of comfort and convenience to the motorist) to E (total breakdown resulting in long delays and long traffic backups). In designing roads, the engineer designs for a level of service of C.

While congestion can result due to mid-block problems such as curb cuts and narrow roadways, often the congestion problems are created by intersections. In identifying congestion problems on

the Monroe County roads (excluding Bloomington and Ellettsville), the level of service was calculated for the county roads. The state highways as well as dead end portions of county roads and subdivision roads were not included in this analysis. All road segments with levels of service at D or E are shown on Figure 2. These segments are show in Table 6.

FIGURE 1

MONROE COUNTY



LEGEND

(○) LOCATION

(○) NUMBER OF ACCIDENTS

ACCIDENT MAP

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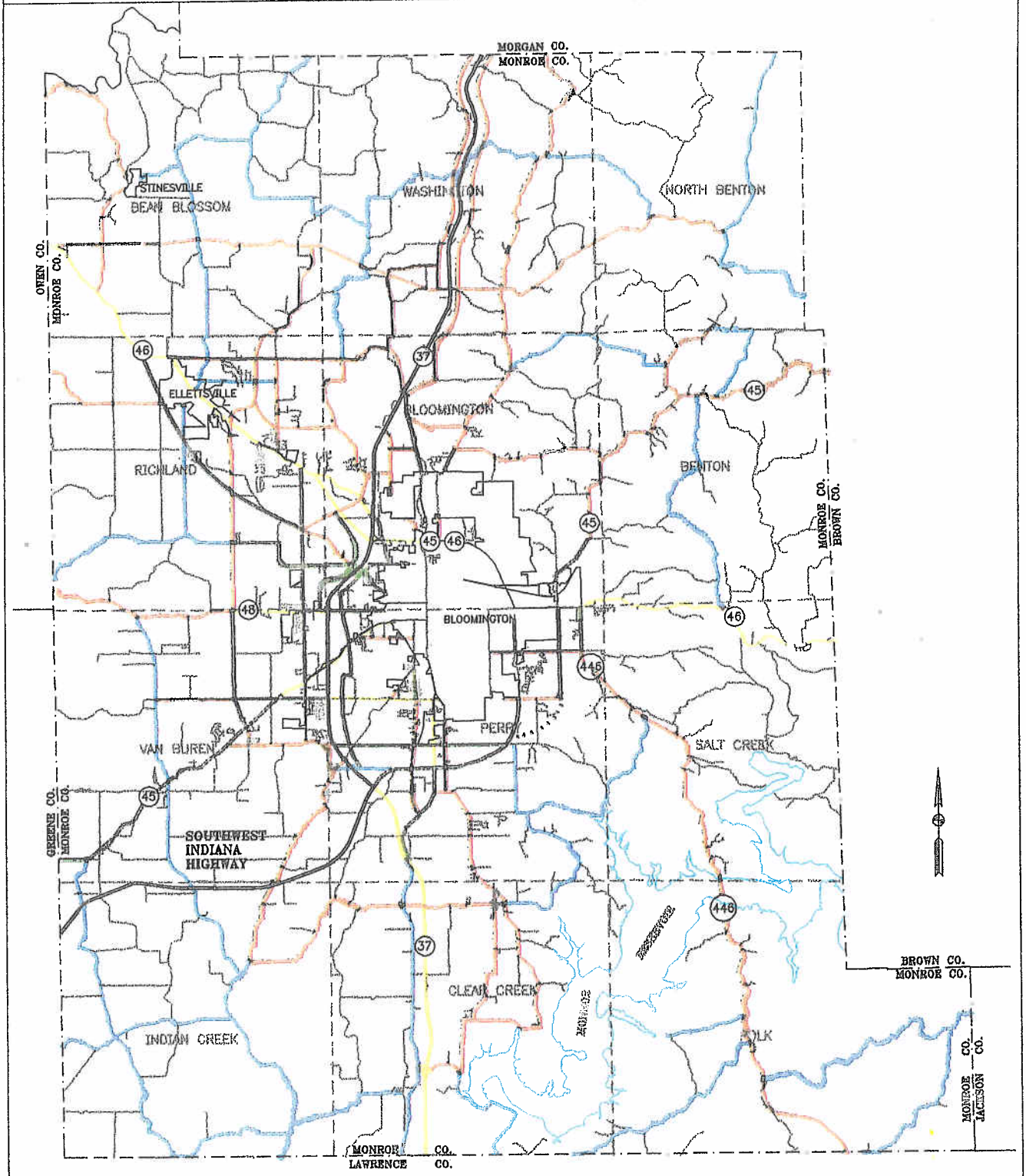
TABLE 4

HIGH ACCIDENT LOCATIONS - INTERSECTIONS

Total Accidents for 1990, 1991, 1992, 1993, Jan. - June 1994

NUMBER OF ACCIDENTS	INTERSECTIONS
50	Fairfax Road & Business 37 South
33	Curry Pike & S.R. 48
33	Country Club Drive & Rogers Street
29	Business 37 South and Rhorer Road
24	SR 37 and Business 37 South
22	S.R. 37 & Tapp Road
21	Smith Pike/Curry Pike and Vernal Pike
19	Rockport Road and Country Club Drive/Tapp Road
16	Business 37 South and Dillman Road
15	Union Valley & S.R. 46
14	Rogers Street & Gordon Pike
13	Ratliff Road and Hartstrait Road
11	Fairfax Road & Smithville Road
8	S.R. 37 & Dillman Road

MONROE COUNTY



LEGEND

- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

FUNCTIONAL CLASSIFICATION

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TABLE 5
HIGH ACCIDENT LOCATIONS - CORRIDORS
Total Accidents for 1990, 1991, 1992, 1993, Jan - June 1994

NUMBER OF ACCIDENTS	CORRIDORS
60	Bethel Lane from Old 37 North to S.R. 45
58	Curry Pike & S.R. 45 to S.R. 48
41	Fairfax Road from Moffitt Lane to Smithville Road
29	Business 37 South from Dillman Road to Fairfax Road
28	Rogers Road at Smith Road
24	Rhorer Road from Walnut Street to Snoddy Road
23	Fairfax Road from Walnut Street to Schacht Road
21	Rockport Road from May Road to Bolin Lane
17	Fairfax Road from Wisley Road to Will Sowders Road
16	Garrison Chapel Road from S.R. 48 to Rice Road
15	Shuffle Creek Road from S.R. 45 to South Shore Drive
14	Stinesville Road from Mt. Carmel Road to Stinesville
13	Vernal Pike from Woodyard Road to S.R. 37
13	Union Valley Road from Lost Man's Lane to McNeeley St.
11	Hartstrait Road from Harbison Road to Ellettsville
9	Tunnel Road from Murat Road to Robinson Road

FIGURE 2

MONROE COUNTY

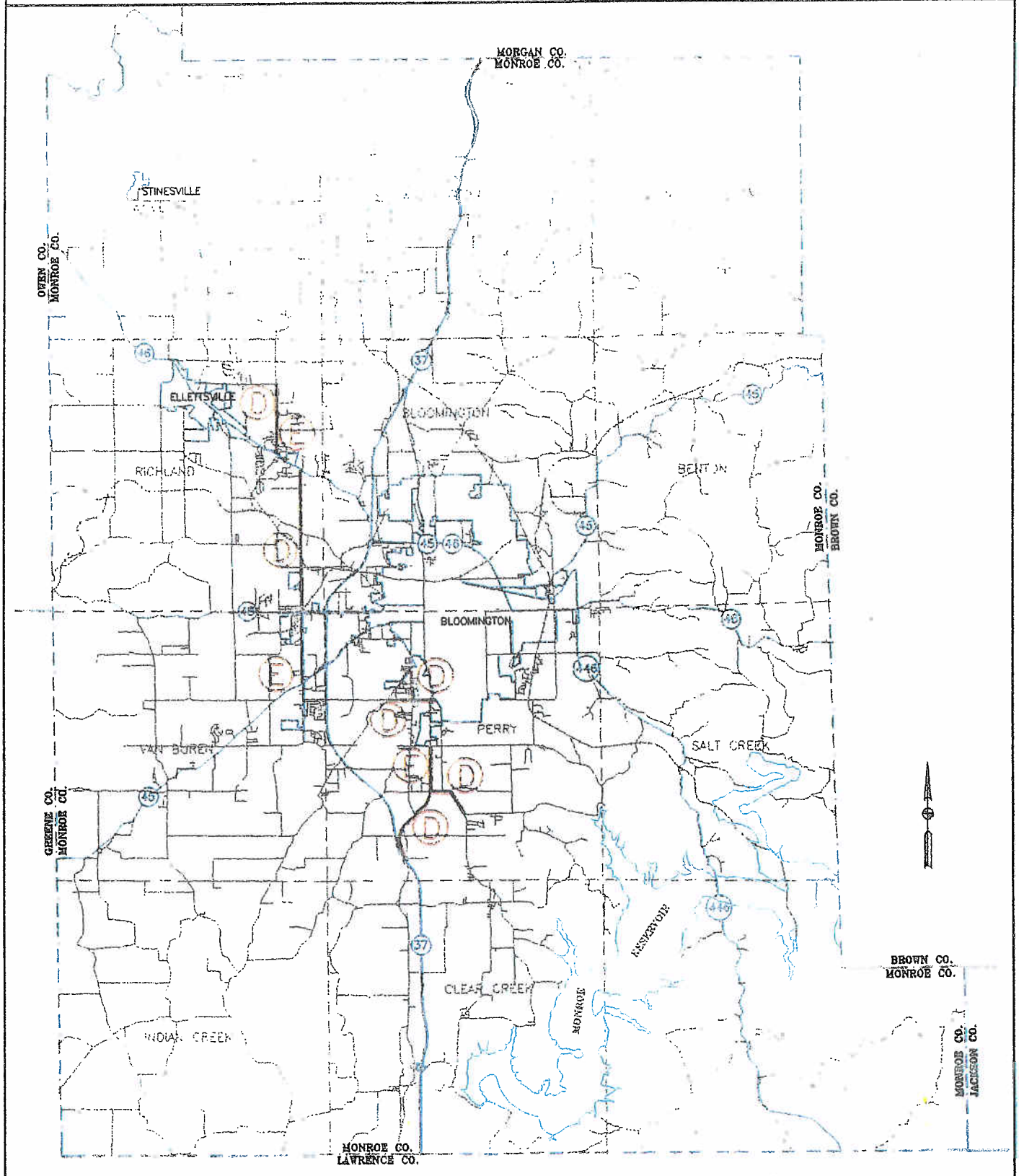


TABLE 6

CONGESTED ROAD SEGMENTS

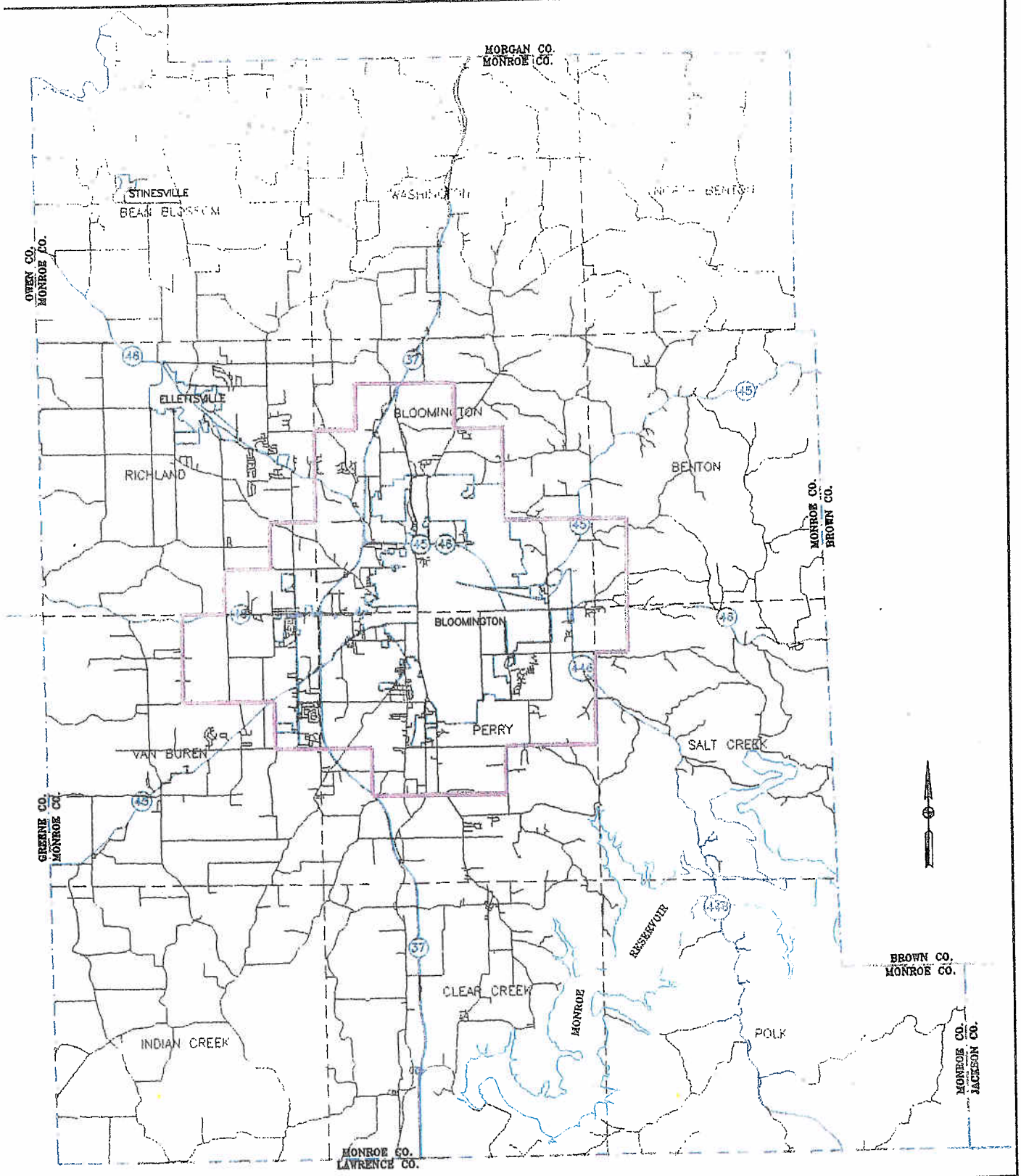
ROAD SEGMENTS	LEVEL OF SERVICE
Business 37 South from S.R. 37 to Fairfax Road	D
Business 37 South from Fairfax to Rhorer Road	E
Country Club Drive from Rockport Road to Business 37 South	D
Curry Pike from S.R. 45 to S.R. 48	E
Curry Pike From S.R. 48 to Vernal Pike	D
Fairfax Road from Business 37 South to Moffitt Lane	D
Rogers St. from County Club Drive to Bloomington City Limits	D
Smith Pike from Vernal Pike to S.R. 46	D
Union Valley from S.R. 46 to Lost Man's Lane	E
Union Valley from Lost Man's Lane to McNeely Street	D

The Curry Pike/Smith Pike corridor is currently planned to be widened to four lanes. Portions of this corridor are under construction while other sections are under design and right-of-way acquisition. This widening will resolve the congestion problems along this roadway.

Traffic signals have been installed at the intersections at Curry Pike and S.R. 48 and at Fairfax Road and Business 37 South. A traffic signal is under design for the Country Club Drive and Rogers Street intersection and for the Business 37 South and Rhorer Road/Gordon Pike intersection. These traffic signal improvements will reduce the accident problems at these locations.

FIGURE 3

MONROE COUNTY



LEGEND

2 Mile Fringe Area

2 MILE FRINGE AREA

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The level of service on the remaining roads varies from A to C. The present level of service and the remaining excess capacity (measured in vehicles per hour) before the level of service falls to the next lower level are shown on maps available in the county engineer's office. These maps can be used as a guide for identifying roads with excess capacity. The level of service is based on mid-block capacities and not intersection capacities.

Future Land Use Plan

As a guide to help Monroe County make decisions regarding physical development, public investment and maintenance of county facilities and service, a comprehensive plan is being developed for Monroe County. One of the key components of the plan is the discussion of land use policies. As stated in the Comprehensive Plan, it is very important that the Thoroughfare Plan and the land use policies work together to accomplish the goals and objectives of the Comprehensive Plan.

These three major concepts of physical development, public investment, and maintenance of county facilities led to the recommendation that Monroe County establish Public Service Areas or "Rural Communities". These areas are recommended for providing sewer and other public services over other scattered and less densely populated areas so that the county can control growth and plan for the efficient extension of facilities and services.

The Bloomington Comprehensive Plan and Land Use Policies regulate development and are responsible for the planning in the two mile fringe area outside of Bloomington. This area extends outward from the Bloomington city limits approximately two miles into Monroe County. Figure 3 shows this area and its relationship to the City of Bloomington.

INDOT Transportation Improvements in Monroe County

Besides coordinating the Thoroughfare Plan with the Comprehensive Plan for Monroe County, the Thoroughfare Plan must work with the transportation projects of the INDOT. Since the state highways are designed to carry large numbers of vehicles as well as heavy-duty trucks, the projects in the Thoroughfare Plan need to take advantage of the capacity of the state routes. Figure 4 shows the state highways in Monroe County.

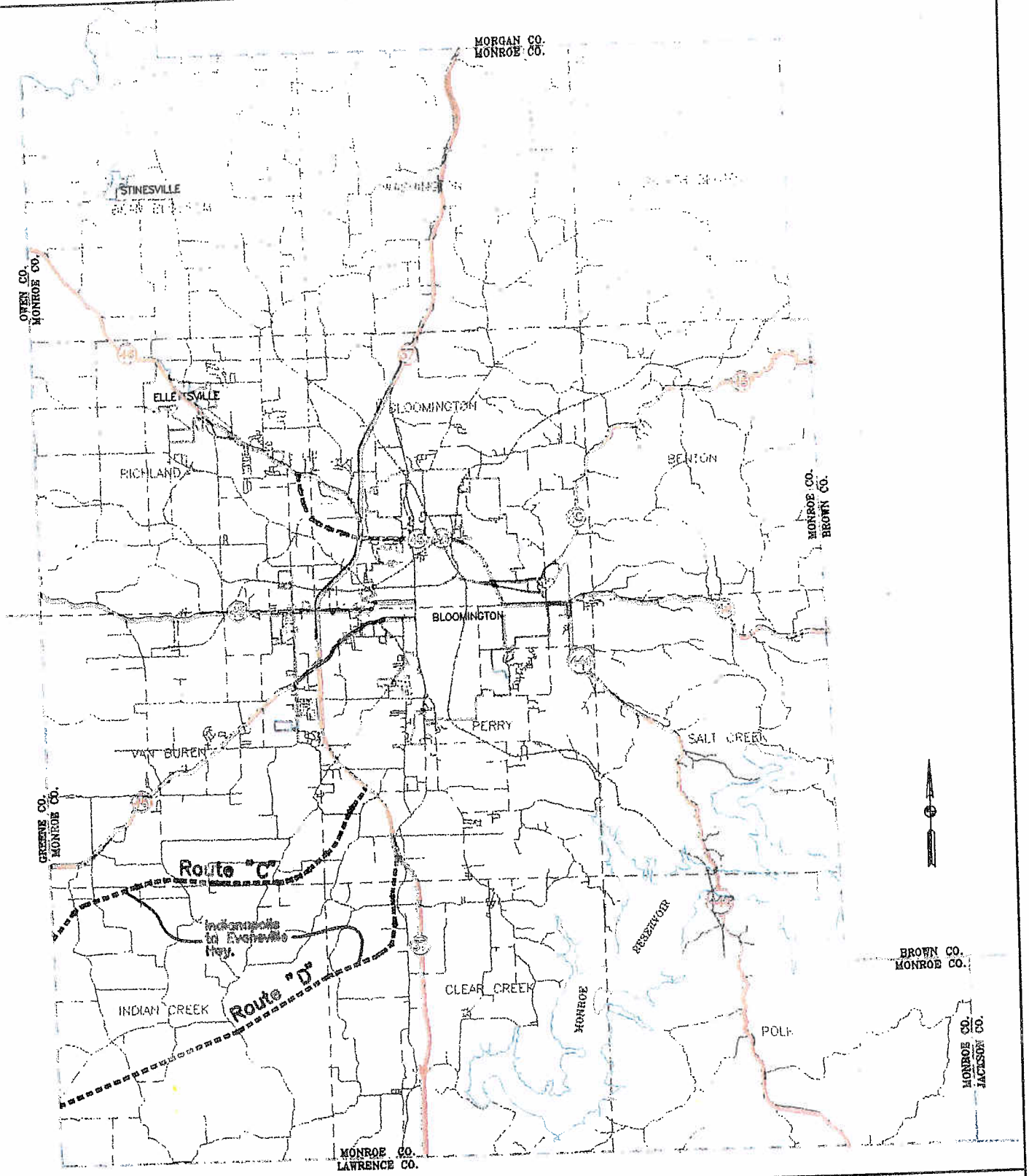
The state highways that serve Monroe County include S.R. 37, S.R. 45, S.R. 46, S.R. 48 and S.R. 446. INDOT is currently working on numerous transportation projects to improve this state highway system. These projects include:

1. The Indianapolis to Evansville Highway (I-69). At the present time two alternatives are under consideration. Route C begins at S.R. 37 between Rockport Road and Victor Pike and leads in a southwesterly direction to cross into Greene County south of Evans Road. Route D begins at the intersection of S.R. 37 and Business 37 South. Heading southwest, this route crosses into Greene County around Thacker Road. Either of these two routes would be a four-lane, divided highway with access controlled by interchanges (InDOT DES. No. 18933).

2. S.R. 37 Projects:
   a. Signing of SR 37 and SR 37X (InDOT DES. # 9123970).
   b. New or Modernize signal at SR 37 and Vernal Pike (InDOT DES. # 9302940).
   c. Reconstruction of Arlington Road bridge over SR 37 (InDOT DES. # 922311A).
   d. Bridge construction at SR 37 and SR 46 (InDOT DES. #9223118)

FIGURE 4

MONROE COUNTY



LEGEND

Proposed Highways

Existing Highways

HIGHWAY MAP

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3. S.R. 45 Projects:
   a. Intersection improvements at SR 45 at Airport Road (InDOT DES. # 9302710).
   b. Replacement of small structure on SR 45 East (Unionville Road) - 1.0 mile northeast of SR 45/46 Bypass (InDOT DES. # 8353630).
   c. Improvement of the SR 45 and Curry Pike/Leonard Springs intersection (InDOT DES. # 8571980).
   d. New or modernize signals at SR 45 and Curry Pike (InDOT DES. # 947198A).
   e. Improvement of the SR 45 East (Unionville Road) and Pete Ellis Drive/Range Road intersection (InDOT DES. # 8678970).
   f. New or modernize signals on SR 45 East (Unionville Road) at its intersection with Pete Ellis Drive (InDOT DES. # 947897A).
   g. Reconstruction of SR 45 from SR 46 to Pete Ellis Drive (InDOT DES. # 8824615).

4. S.R. 46 Projects:
   a. Realignment of SR 46 from Ellettsville to SR 37 including a new interchange at SR 37. At the present time, InDOT is preparing design plans for this project (InDOT DES. # 8823116, 8923117, 942311X, 942311W) and has held a public hearing.
   b. Bridge construction of the Arlington Road bridge over SR 46 (InDOT DES. # 922311B).
   c. New or modernize signing on SR 46 from SR 37 to Monroe/Brown County Line (InDOT DES. # 9302910).

d. Widen and add lanes to SR 46/45 Bypass from 3rd Street to Walnut Street (InDOT DES. # 9010075).

5. S.R. 48 Projects:

a. Widen and add lanes to SR 48 from 2.5 miles west of SR 37 to 0.5 mile west of SR 37. This widening would begin around Curry Pike and extend west to around Oard Road (InDOT DES. # 8461610)

b. The intersection of SR 48 and Kirby Pike/Hartstrait Road will be realigned to remove the existing offset of the roads and to correct the sight distance problem (InDOT DES. # 8572200).

6. Various County Roads:

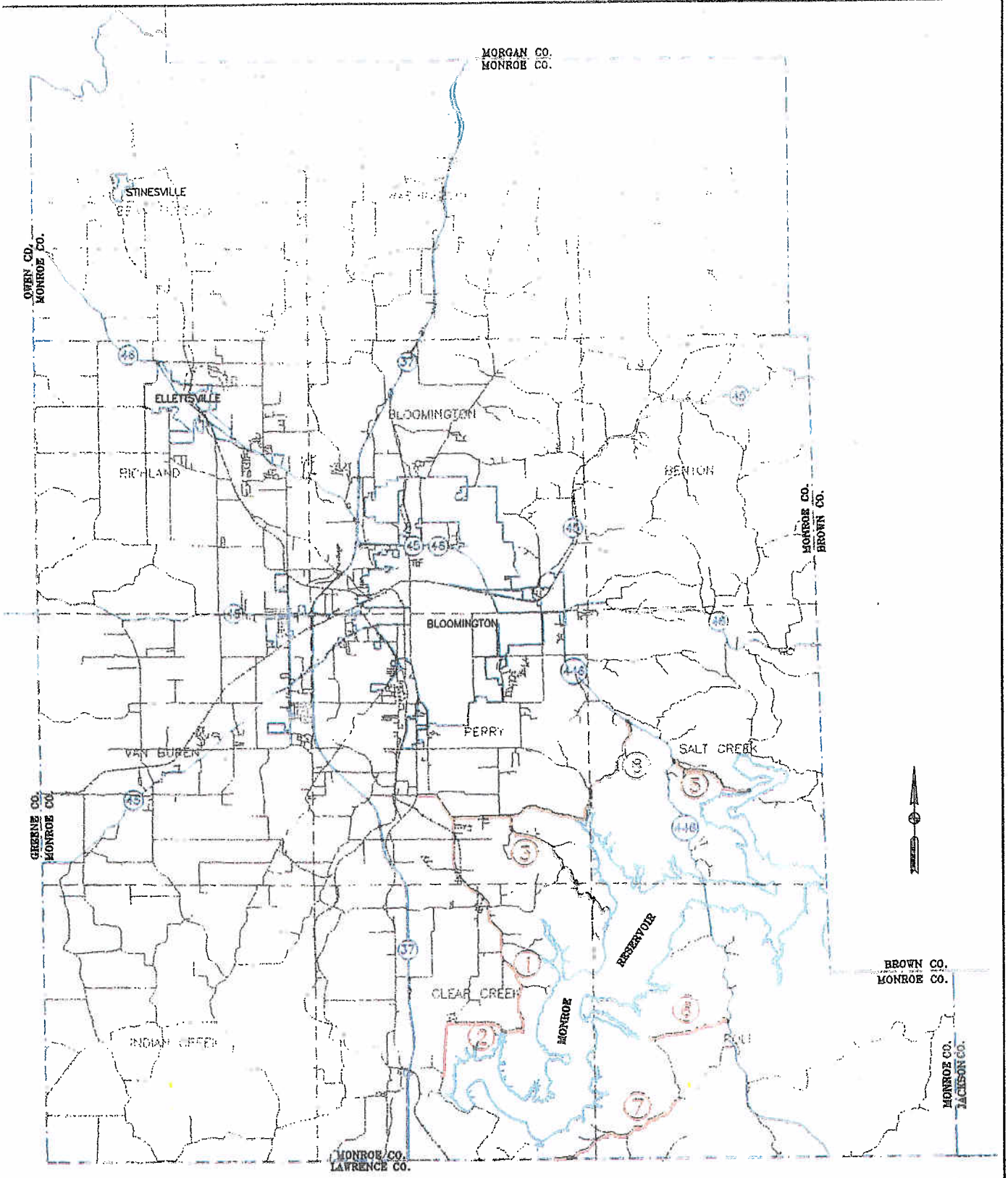
Besides work on the state highways, INDOT is working on various county roads that serve the Morgan/Monroe State Forest and the recreation areas around the Lake Monroe Reservoir. Figure 5 shows these road improvements in relation to the reservoir. Projects and their priorities were developed by the Department of Natural Resources for the Access Road Program included in Senate Bill 87 approved by the 1967 Indiana State Legislature. At the present time right-of-way acquisition is underway for the Allen's Creek Road project with construction scheduled for 1995.

PRIORITY "A" PROJECTS		
Number	Location	Status
1	Monroe County - S.R. 37 to Fairfax S.R. A	Complete
2	Monroe County - Damsite Road to Fairfax S.R. A	Complete
3	Monroe County - Fairfax Road to Moore Creek Ramp	Deleted

PRIORITY "B" PROJECTS		
4	Lawrence County - S.R. 37 to Salt Creek Ramp	Not Started
5	Monroe County - S.R. 446 to Pine Grove State Ramp	Not Started
6	Monroe County - S.R. 446 to Allens Creek	R/W 94 Const. 95
7	Monroe & Lawrence Counties - Hardin Ridge Entrance to Salt Creek Ramp	Not Started
PRIORITY "C" PROJECTS		
8	Monroe County - S.R. 446 to Moor Creek Ramp via Swartz and Stripp Road	Not Started
9	Brown County - S.R. 46 to Crooked Creek Ramp via T.C. Steel	Not Started

FIGURE 5

MONROE COUNTY



LEGEND

(3) Access Road Program for Monroe Reservoir

ACCESS ROAD PROGRAM

BERNARDIN LOCHMUELLER & ASSOC., INC.

City of Bloomington Thoroughfare Plan

In December of 1981 the City of Bloomington adopted a Master Thoroughfare Plan. This plan consists of a map showing existing and future transportation routes. The plan classifies the city routes into the following groups:

- Principal Arterials
  - Limited Access Highway
  - Urban Corridor
  - Rural Arterial
- Secondary Arterials
- Principal Collectors
- Secondary Collectors
- Local

This plan was revised in 1983 and is currently in the process of another revision. It is important that the Monroe County Thoroughfare Plan work together with the City of Bloomington Thoroughfare Plan to create a well-planned system of streets and roads.

Existing Monroe County Transportation Projects

The Thoroughfare Plan must also work together with the existing transportation projects that are in some phase of implementation. The Transportation Improvement Program/Annual Element(TIP/AE) for FY 1994 shows the existing projects for Bloomington and Monroe County. The Transportation Improvement Program/Annual Element is updated yearly. At the present time, the phases of Curry Pike and Vernal Pike are the major parts of the Monroe County portion of the TIP/AE. As those

projects are completed, new projects that are part of the Thoroughfare Plan will be started and added into the TIP/AE.

Transportation projects also come from the Bridge Inspection Report for Monroe County. This report is updated every 2 years and covers every bridge in Monroe County. The most recent report was completed in 1993. This report evaluates every bridge and presents recommendations as to repairs and maintenance. Bridges that need to be replaced or widened are identified. The bridge report provides a schedule for bridge replacement and widening. Bridges that are scheduled to be replaced or widened are included in the TIP/AE.

On the west side of Bloomington in the Curry Pike industrial area, a Tax Increment Finance District (TIF) has been setup by Monroe County. This district allows incremental increases in property tax revenue to be used for area improvements to encourage continued development of the area. While SR 48, Curry Pike, and Vernal Pike that serve this industrial area are being upgraded, a network of collector roadways will be necessary to provide access between the development sities and these main roadways. This network is shown in Appendix C. The complete report is called the Curry Pike Area TIF Transportation Study and is available from Monroe County.

Implementation of the Six Management Systems in Monroe County

The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) mandated that Indiana develop, establish, and implement systems for managing transportation facilities. There are six management systems:

(1) PMS - Pavement Management System
(2) BMS - Bridge Management System
(3) SMS - Safety Management System
(4) CMS - Congestion Management System
(5) PTMS - Public Transportation Facilities & Equipment System
(6) IMS - Intermodal Transportation Facilities & Systems

While these six management systems are the responsibility of the State of Indiana, parts of the systems may be done by local agencies. Monroe County has taken the initiative to begin working on these systems as they affect this county. This report will discuss the progress made by Monroe County on each of this six management systems.

(1) Pavement Management System - The pavement management requirements for local governments in Indiana were adopted on January 31, 1995. The Street and Road Management System for Monroe County meets all the requirements for pavement management for a local government. Therefore, Monroe County has a pavement management system in place.

(2) Bridge Management System - By October 1, 1998, the state and local bridge management systems must be in place. Currently, all counties prepare a bridge inspection report every 2 years that covers every bridge in the county. InDOT is developing a bridge management system that will cover all bridges in Indiana. This system should work with the bridge inspection program.

(3) Congestion Management System - By October 1, 1996, the congestion management system for the state and local governments should be in place. As part of this report, congestion on Monroe County roads has been identified and shown in Table 6 and Figure 2. Congestion is identified as Level of Service (LOS) D or E. All road segments with these LOS values are recommended for improvements as part of the Capital Improvement Program. These improvements should reduce the

LOS to noncongested levels. These efforts would form the basis of the congestion management system for Monroe County.

(4) Safety Management System - By October 1, 1996, the safety management system for the state and local governments should be in place. As part of this report, accident problems for both corridors and intersections were identified and shown in Tables 4 and 5 and in Figure 1. These roadways showing accident problems are recommended for improvements as part of the Capital Improvement Program. These projects should reduce the accident levels and improve the safety of these intersections and corridors. These efforts would form the basis of the safety management system for Monroe County.

(5) Public Transportation Facilities & Equipment System - By October 1, 1996, the management system that focuses on public transportation should be in place. This system should cover all urban and rural area public transportation systems operated by public and private agencies. In Monroe County, all public transportation services are operated out of the City of Bloomington. Therefore, this management system would be the responsibility of the City of Bloomington and InDOT.

(6) Intermodal Management System - The Intermodal Management System focuses on the convenient, rapid, efficient, and safe transfers of people and goods among different transportation modes. Monroe County, outside the City of Bloomington, does not have any bus or rail transfer stations. There is an Airport Master Plan and the proposed Thoroughfare Plan integrates with the airport plan to provide good vehicular access. The Monroe County Parks and Recreation Department has prepared a Bicycle Master Plan. The Thoroughfare Plan is designed to work with this master plan in providing smooth and wide roads for bicyclists.

There are two railroads serving Monroe County, CSX and Indiana RR. If the CSX railroad continues to abandon rail lines, Monroe County will look at using these rail lines as part of the transportation infrastructure.

The City of Bloomington using the Metropolitan Planning Organization (MPO) is also addressing intermodal connections as part of its Intermodal Transportation Plan.

PROJECTS

IN THE

THOROUGHFARE PLAN

PROJECTS IN THE THOROUGHFARE PLAN

Using the accidents, capacities, future land use and existing projects, an initial set of projects for the Thoroughfare Plan was developed. This initial set consists of 17 road improvement projects. Using aerial maps and US Geological Survey maps, each project was drawn on the maps so that the engineering standards with regard to curves and grades could be applied. In this way, it could be determined if the road project would have any severe design problems.

Each project was costed with regard to:

Environmental Analysis
Preliminary Engineering
Right-of-Way
Construction
Construction Engineering

The typical road cross-sections used for the various road projects are in Appendix B. For 2 lane roads, the road would have 2-12' lanes with 8' shoulders (6' aggregate and 2' earth). In areas where residential, commercial, or industrial growth has limited the amount of right-of-way available for the project, the shoulders are replaced by curbs. For 4 lane roads, there would be 4-12' lanes. If a median is needed, the median width would vary from 30' to 60'.

In costing each project, the contours of the land were used to determine the amount of cut and fill that would need to be done to follow the specifications for curves and grade. The American Association of State Highway and Transportation Officials (AASHTO) book entitled A Policy on Geometric Design of Highways and Streets 1990 are the standards followed by INDOT and the Federal Highway Administration (FHWA). These standards were followed in developing an estimate cost for each project.

Standard per mile costs were used in situations where there was not much cut and fill, no bridges and no excavation through rock. The standard costs include:

Widening and overlay only - $325,000 - $435,000 per mile
Reconstruction (2 lane roadway) - $1,350,000 per mile
Reconstruction (4 lane roadway) - $2,700,000 per mile

These costs are for the construction only. The right-of-way, environmental analysis, preliminary engineering, and construction engineering costs were estimated using costs from similar projects.

In cases where there was significant cut and fill areas for earth work specific cost estimates were developed. Likewise for areas requiring rock excavation, the standard costs were not used and specific costs reflecting the extra work were developed. Bridges were costed using costs from other similar bridge projects.

It must be remembered that these costs are estimates. While a certain amount of engineering was done to determine the feasibility of each project, putting together a set of design plans with quantities and a detailed cost was beyond the scope of this Thoroughfare Plan. The costs for each project are estimates and were initially calculated in 1992 dollars and then increased to reflect 1994 dollars.

Besides costs and some engineering analysis each project was looked at from an environmental point of view. Neighborhood disruption, wetlands, floodplains, habitats, and relocations are just some of the environmental concerns investigated. If these concerns were significant, the project alignment was shifted as much as possible or the concerns are discussed with each project. In some cases, projects were discarded based upon the environmental constraints.

One such project that was considered and then discarded was a new connector from S.R. 37 east to the Pointe Road. While such a connection would provide a more direct access to the Lake Monroe recreation area and relieve traffic flow on Smithville Road and Fairfax Road, the steep terrain causes substantial engineering problems and environmental concerns (Little Clear Creek). This project was discarded.

The 17 projects initially considered are presented in Table 7. A description of the project, its purpose, and its cost are presented in the table. These projects are not in any priority order.

These projects were presented at a series of public information meetings in May and June of 1992. Comments from the meetings lead to the consideration of several additional projects. These projects were:

1. Extend the improvement of Woodland Road west to SR 46;
2. Realign several of the curves in Fairfax Road to improves its safety;
3. Widen Smithville Road from SR 37 to Fairfax Road to better accommodate recreational traffic;
4. Use the median cut in the relocated SR 46 project to build a new road serving industry in the area west of SR 37;
5. Provide an improved system of roads to serve the limestone producers in southwest Monroe County; and
6. Ellettsville Bypass on the south side.

TABLE 7 - INITIAL PROJECTS FOR THE THOROUGHFARE PLAN

ROAD NAME	DESCRIPTION	PURPOSE	COST (1994 $)
1. IMPROVEMENT OF AIRPORT ROAD/TAPP ROAD (3 PHASES			
A. Upgrading of Airport Road from the RR underpass to SR 45	Widen Airport Road and remove overpass and make it an at-grade RR crossing (2 lanes)	Improve Access to the Industrial park west of the airport; realign the intersection of SR 45 and Airport Road	$1,300,000
B. Extension of Tapp Road from Leonard Springs Road to SR 45	New construction (2 lanes)	Provide a good east-west corridor connecting south Bloomington with the airport and the industrial park	$1,350,000
C. Upgrading of Tapp Road and Country Club Road from SR 37 to Madison Street	Widen Tapp Road and Country Club Road and improve intersections (4 lanes)	Eliminate the existing capacity problems on Country Club Road	$5,400,000
		Total	**$8,050,000**
2. IMPROVEMENT OF BETHEL LANE (2 OPTIONS)			
A. Upgrading of Bethel Lane from Old 37 North to SR 45	Widen Bethel Lane and realign at eastern end by SR 45 (2 lanes)	Eliminate accident problems on Bethel Lane and provide better road to serve the residences	$2,300,000
B. Extension of Bethel Lane to Whisnand Road and Upgrading of Whisnand Road	Extend Bethel Lane as 2 lane road and connect to Whisnand Road	Provide access over to Business 37 North	$4,875,000
3. SOUTHEAST ARTERIAL (2 OPTIONS)			
A. Extend highway from SR 37 to Sare Road	New Construction; (4 lanes with median) limited access	Provide access to east side of Bloomington thereby relieving capacity problems on Business 37 South and Winslow Road.	$22,000,000

TABLE 7 - INITIAL PROJECTS FOR THE THOROUGHFARE PLAN

ROAD NAME	DESCRIPTION	PURPOSE	COST (1994 $)
B. Extend highway from SR 37 to Smith Road and then upgrade Smith Road to SR 46	New construction (4 lanes with median) limited access	(see above discssion)	$37,000,000
4. EXTENSION OF HARTSTRAIT ROAD TO MAPLE GROVE ROAD (2 PHASES)			
A. Relocate and extend Hartstrait to SR 46	New Construction (2 lanes)	Eliminates existing intersection with SR 46 which has some safety problems	$1,630,000
B. Extend Hartstrait from SR 46 to Maple Grove Road	New Construction (2 lanes)	Provides better access for the development on the east side of Ellettsville and complements the future land use plan	$3,800,000
		Total	**$5,430,000**
5. EXTENSION OF KIRBY ROAD TO SR 45 (6 OPTIONS)			
A. Connect Kirby into Bunger Road and upgrade Bunger to SR 45	Reconstruction and Upgrading (2 lanes)	Provide more direct access to the airport and the industrial park as suggested by the Land Use Plan.	$1,520,000
B. Extend Kirby south to SR 45 at Ison Road	New Construction (2 lanes)	(see above discussion)	$1,410,000
C. Extend Kirby south to SR 45	New Construction (2 lanes)	(see above discussion)	$1,850,000
D. Extend Bunger Road North to connect to Kirby	New Construction (2 lanes)	(see above discussion)	$1,850,000

TABLE 7 - INITIAL PROJECTS FOR THE THOROUGHFARE PLAN

ROAD NAME	DESCRIPTION	PURPOSE	COST (1994 $)
E. From SR 45 extend Kirby south to Leonard Springs	New Construction (2 lanes)	Provide better access to Leonard Springs which is part of an east-west roadway	$ 540,000
F. From SR 45 upgrade Ison Road from its intersection with the extended Kirby to Leonard Springs	Reconstruction (2 lanes)	(see above discussion)	$ 540,000
6. MAPLE GROVE ROAD FROM SR 46 TO SR 37 (3 PHASES)			
A. Widen Maple Grove from SR 46 to Maple Grove North	Widening with some reconstruction (2 lanes)	Utilize the existing interchange at SR 37 and Business 37 North to provide direct access to Ellettsville; complements the Land Use Plan	$2,100,000 $ 130,000 (Ellettsville)
B. Upgrade Maple Grove from Maple Grove Road to SR 37 at the interchange with Business 37 North	Option 1 - Widen with new construction using existing bridge (2 lanes) Option 2 - Widen with new construction and build new bridges (2 lanes)	(see above discussion)	$2,700,000 $4,110,000
C. Reconstruction of interchange at SR 37 and Business 37 North	Interchange Reconstruction	(see above discussion)	$10,300,000
		Total (with Option 2)	**$16,640,000**
7. Upgrade Moores Pike from Sare Road to SR 446	Widening project (2 lanes)	Improve the road by widening and adding shoulders	$ 875,000
8. Realignment of the intersection of Hartstrait Road with Ratliff and Woodyard Roads	Eliminate this intersection offset by aligning these two cross roads	Eliminate an accident problem	$ 700,000

TABLE 7 - INITIAL PROJECTS FOR THE THOROUGHFARE PLAN

ROAD NAME	DESCRIPTION	PURPOSE	COST (1994 $)
9. Realignment of the curve with Rogers and Smith Roads	Realign curve and use existing road as a frontage road for residences	Eliminate an accident problem	$ 380,000
10. REALIGNMENT OF STINESVILLE ROAD FROM MT. CARMEL ROAD TO STINESVILLE (2 OPTIONS)			
A. Realign road and widen existing bridge	New Construction (2 lanes)	Eliminate an accident problem	$1,200,000
B. Realign road and replace bridge	New Construction (2 lanes)	(see above discussion)	$1,300,000
11. UPGRADE TUNNEL ROADS (2 OPTIONS)			
A. Realign curve only	New Construction (2 lanes)	Eliminate an accident problem	$ 260,000
B. Upgrade entire road from SR 45 to Lake Lemon	Reconstruction and widening (2 lanes)	Eliminate an accident problem and provide better access to a recreation area as suggested by the Land Use Plan	$1,520,000
12. Widening of Union Valley from SR 46 to Maple Grove Road	Widen Union Valley to 4 lanes to McNeely Street and 2 lanes to Maple Grove Road	Eliminate on accident problem; resolve capacity problems; and follow the proposed Land Use Plan by providing better access to Ellettsville area development	$2,300,000
13. Realignment of Sample Road	Construction of Sample Road from SR 37 to Old 37 North and Anderson Road (2 lanes)	Provide direct access from SR 37 to the landfill located on Anderson Road	$2,600,000
14. Upgrading of Anderson Road	Upgrade to improved 2 lane Road from Old 37 North to Spillway Road	Provide better access to the landfill and better access to the north side of Lake Lemon as suggested by the Land Use Plan	$4,800,000

TABLE 7 - INITIAL PROJECTS FOR THE THOROUGHFARE PLAN			
ROAD NAME	DESCRIPTION	PURPOSE	COST (1994 $)
15. Extension of Woodland Road	Upgrade and extend Woodland Road from Mt. Tabor to Old SR 37 at Anderson Road (2 lanes). This project includes an improved intersection with SR 37	Provide a good east-west roadway serving the northwest portion of the county as suggested by the Land Use Plan	$11,600,000
16 Upgrading and Extension of Delap and Woodall Roads	Upgrade, extend, and realign Delap and Woodall Road from Maple Grove West to Woodland Road (2 lanes)	Connect to the extension of Woodland Road giving better access to Bean Blossom Township and following the Land Use Plan	$5,100,000
17. Upgrading and Extension of Lost Mans Lane	Upgrade and extend Lost Mans Lane from SR 37 to Hartstrait Extension (2 lanes)	Provide more direct access to Bean Blossom Township	$7,700,000

From these lists of projects and the information received at the public information meetings, a Thoroughfare Plan was developed. This plan includes 21 proposed roadway improvements in Monroe County and new functional classification of all county roadways. Figure 6 shows the Monroe County Thoroughfare Plan. Table 8 shows each of the 21 projects that comprise the Thoroughfare Plan.

To the initial 17 projects, four projects are added. Fairfax Road is in the Thoroughfare Plan to be improved in two places:

(1) The curve at Schacht Road and
(2) The curve at Cleve Butcher Road.

These two improvements should reduce the accidents in these two locations.

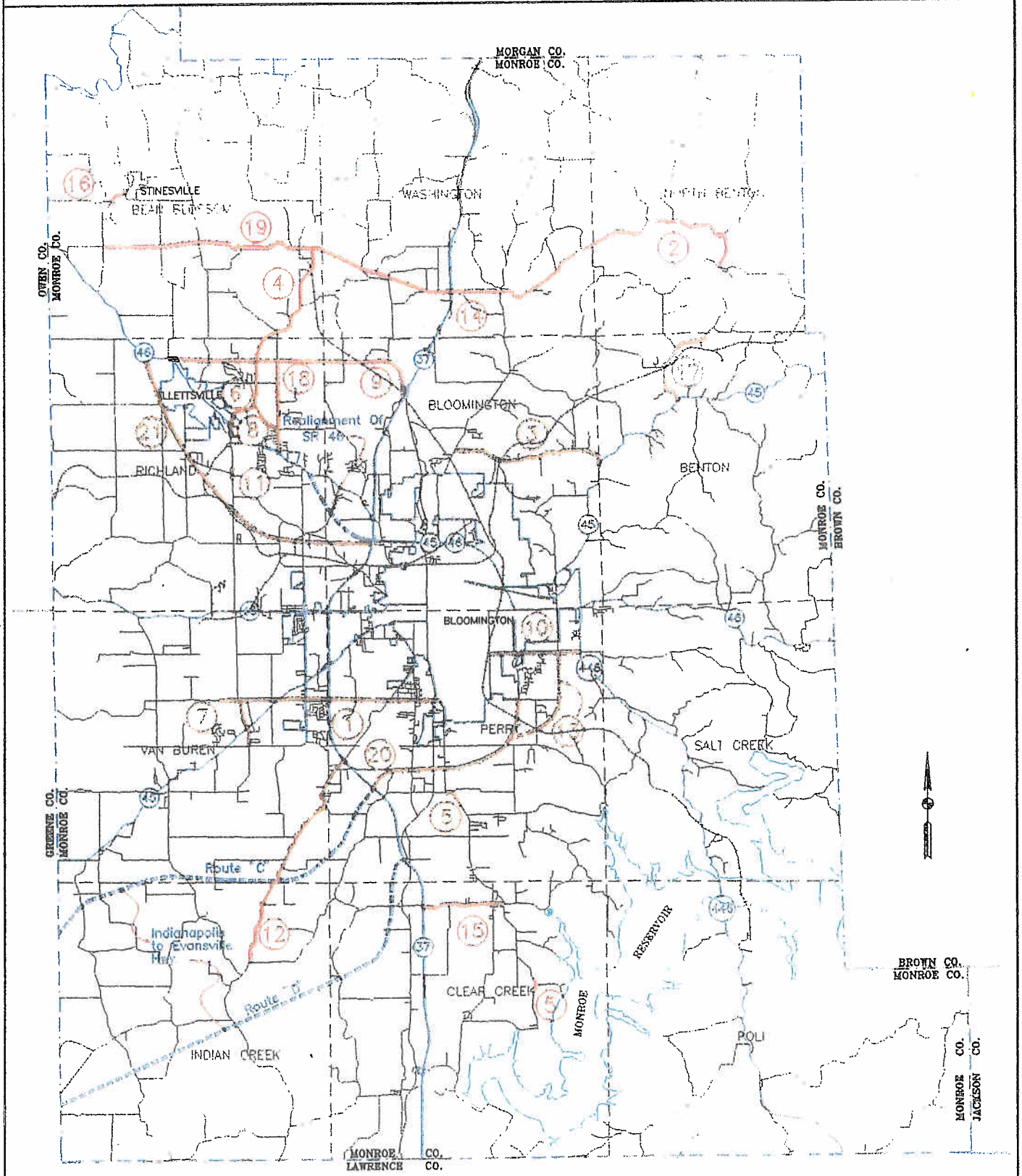
The concerns of the limestone industry are addressed by the upgrading of Rockport Roadfrom S.R. 37 to Victor Pike. The Smithville Road project involves widening that road to better accommodate the recreational traffic for the Monroe Reservoir. In both of these project the road will remain two lanes, but with increased lane and shoulder width.

The final project is the Ellettsville Bypass. A proposed two lane road passing on the south and west sides of Ellettsville. This road would connect into the realignment of S.R. 46 west of S.R. 37. The bypass would then swing to the northwest and end at S.R. 46 west of S.R. 37.

Figure 6 also shows the realignment of S.R. 46 and the proposed routes for the Southwest Indiana Highway (Indianapolis to Evansville). In conjunction with the S.R. 46 realignment, Smith Pike is shown connecting into the new S.R. 46 and then extending eastward to Maple Grove Road. This extension of Smith Pike is part of Phase VI of the Curry Pike/Smith Pike project.

FIGURE 6

MONROE COUNTY



LEGEND

Monroe County Projects

Indiana Dept. of Transportation Projects

THOROUGHFARE PLAN

BERNARDIN LOCHMUELLER & ASSOC., INC.
Suite 608 Human Building, Evansville, IN 47708 (812)426-1737

The Thoroughfare Plan links right-of-way requirements to the functional classification of the roadways. Each of the classifications has minimum right-of-way requirements. With these minimum requirements, Monroe County can begin to obtain right-of-way for the projects in the plan. As land is developed, the right-of-way needs for these projects can be obtained. There can be a big savings in cost and time if land can be set aside for right-of-way before houses and buildings are constructed upon the land. The typical cross-sections associated with the functional classificatios are in Appendix B.

Table 9 summarizes the impacts of the various projects proposed in the thoroughfare plan in terms of solving capacity problems; decreasing accidents and complementing the land use plan.

TABLE 8

PROJECTS IN THE THOROUGHFARE PLAN

INDEX	PROJECT DESCRIPTION	COST
1	Airport Road/Tapp Road - Upgrade and Extension from RR overpass to Madison Street	$ 8,050,000
2	Anderson Road - Upgrade from Old 37 North to Spillway Road	$ 4,800,000
3	Bethel Lane - Upgrade from S.R. 45 to Old 37 North	$ 2,300,000
4	Delap Road/Woodall Road - Upgrade and extension from Maple Grove West to Woodland Road	$ 5,100,000
5	Fairfax Road - Improve roadway in 2 curves: (1) the curve at Schacht Road & (2) the curve at Cleve Butcher Road	$ 1,200,000
6	Hartstrait Road - Extension from S.R. 46 to Maple Grove West	$ 5,430,000
7	Kirby Road - Extension from Airport Road to Leonard Springs Road	$ 2,390,000
8	Lost Man Lane - Extension from Union Valley to Hartstrait Road Extension	$ 2,200,000
9	Maple Grove Road - Upgrade and extension from S.R. 46 to S.R. 37	$16,640,000
10	Moore's Pike - Upgrade from Sare Road to S.R. 446	$ 875,000
11	Ratliff Road, Woodyard Road and Hartstrait Road intersection - Realign intersection	$ 700,000
12	Rockport Road - Upgrade from Victor Pike to S.R. 37	$ 7,050,000
INDEX	PROJECT DESCRIPTION	COST

13	Rogers Road and Smith Road Curve - Realign the curve	$ 380,000
14	Sample Road - Realign between SR 37 and Old 37 North	$ 2,600,000
15	Smithville Road - Upgrade from S.R. 37 to Fairfax Road	$ 1,575,000
16	Stinesville Road - Realign between Mt. Carmel Road and the town of Stinesville and replace the bridge	$ 1,300,000
17	Tunnel Road - Upgrade from S.R. 45 to Lake Lemon	$ 1,520,000
18	Union Valley Road - Upgrade from S.R. 46 to Maple Grove Road	$ 2,300,000
19	Woodland Road - Upgrade and extend from SR 46 to SR 37.	$16,600,000
20	Southeast Arterial around southern Bloomington to Sare Rd or SR 46	$37,000,000
21	Ellettsville Bypass - from Curry Pike to S.R. 46 west of Ellettsville	$32,300,000

TABLE 9
IMPACTS OF THOROUGHFARE PLAN PROJECTS

	PROJECT	COST	SAFETY PROJECT	RESOLVE CAPACITY PROBLEMS	COMPLEMENT LAND USE PLAN
1	Improvements of Airport/Tapp Rd	$8,050,000	Yes	Yes	Yes
2	Anderson Road - Upgrade from Old 37 N to Spillway Road	$4,800,000	---	---	Yes
3	Bethel Lane - Upgrade from SR 45 to Old 37 N	$2,300,000	Yes	---	---
4	Upgrading and extension of Delap & Woodall Roads	$5,100,000	---	---	Yes
5	Fairfax Road - Improve two curves	$1,200,000	Yes	---	Yes
6	Extension of Hartstrait Road from SR 46 to Maple Grove West	$5,430,000	Yes	Yes	Yes
7	Extension of Kirby Road from Airport Road to Leonard Springs Road	$2,390,000	---	---	Yes
8	Lost Man's Lane - Extension from Union Valley to Hartstrait Road	$2,200,000	---	---	---

TABLE 9
SUMMARY OF THOROUGHFARE PLAN PROJECTS

	PROJECT	COST	SAFETY PROJECT	RESOLVE CAPACITY PROBLEMS	COMPLEMENT LAND USE PLAN
9	Maple Grove Road from SR 46 to SR 37	$16,640,000	---	---	Yes
10	Upgrade Moores Pike from Sare Rd to SR 446	$875,000	---	---	---
11	Intersection of Hartstrait, Ratliff & Woodyard Rd	$700,000	Yes	---	---
12	Rockport Road - Upgrade from Victor Pike to SR 37	$7,050,000	Yes	---	Yes
13	Realignment of the curve with Rogers Road & Smith Road	$380,000	Yes	---	---
14	Sample Road - Realign from SR 37 to Old 37 N	$2,600,000	---	---	---
15	Smithville Road - Upgrade from SR 37 to Fairfax Road	$1,575,000	Yes	---	---
16	Stinesville Rd realign from Mt. Carmel Rd to Stinesville	$1,300,000	Yes	---	---

TABLE 9
IMPACTS OF THOROUGHFARE PLAN PROJECTS

	PROJECT	COST	SAFETY PROJECT	RESOLVE CAPACITY PROBLEMS	COMPLEMENT LAND USE PLAN
17	Tunnel Road - Upgrade from SR 45 to Lake Lemon	$1,520,000	Yes	---	Yes
18	Union Valley - Upgrade from SR 46 to Maple Grove Road	$2,300,000	Yes	Yes	Yes
19	Extension of Woodland Road	$16,600,000	---	---	Yes
20	Southeast Arterial connection to either Sare Rd or SR 46	$37,000,000	Yes	Yes	---
21	Ellettsville Bypass	$32,300,000	---	---	Yes

PRINCIPAL ARTERIAL

Principal arterials of the Monroe County transportation system are the roads that carry the heaviest traffic volumes. These roads can be four lanes with a median or two lanes. Rights-of-way from the four-lane sections vary from 200 feet to over 400 feet. Rights-of-way for the two lane sections vary from 100 feet to 200 feet. These facilities are usually the responsibility of INDOT.

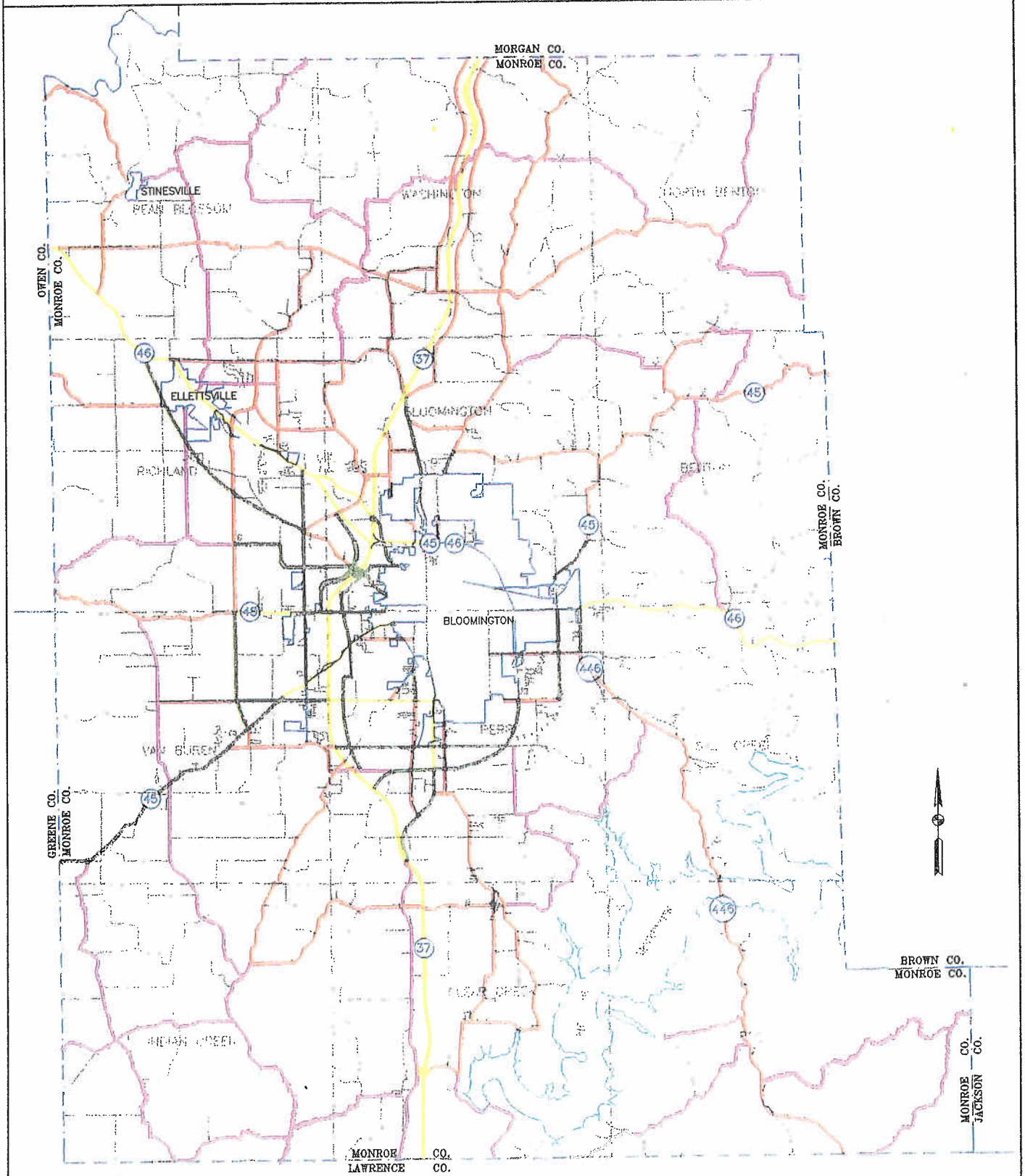
MINOR ARTERIAL

Minor arterials also carry very heavy traffic volumes. These types of roads have two lanes with rights-of-way varying from a minimum of 100 feet to 150 feet. These facilities can be state highways or county roadways.

MAJOR COLLECTOR

The major collectors are the facilities designed to get vehicles quickly and safely to the arterial road system. These facilities can be state highways or county roadways. As such the road widths, shoulder requirements, and right-of-way needs vary a great deal. The minimum right-of-way is ~~100~~ 70 feet.

MONROE COUNTY



LEGEND

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

FUNCTIONAL CLASSIFICATION

BERNARDIN LOCHMUELLER & ASSOC., INC.
Suite 606 Hulman Building, Evansville, IN 47708 (812)426-1737

MINOR COLLECTOR

Minor collectors provide the main roads in many portions of Monroe County. These collectors are county roadways that are designed to get vehicles onto the major collectors or the arterials. The right-of-way is a minimum of ~~100~~ 60 feet.

LOCAL ROADS - THROUGH STREET

There are two types of local roads. Local roads that are through streets serve the property owners. These roads provide access to the adjacent land. These roads are under the jurisdiction of Monroe County. The right-of-way is 50 feet.

LOCAL ROADS - CUL-DE-SACS

The second type of local road is a cul-de-sac. These dead end roads serve only the adjacent property owners. While these roads are under the jurisdiction of Monroe County, cul-de-sacs are not used by through vehicular traffic. The right-of-way is 50 feet.

Figure 7 shows the functional classification of all roads in Monroe County and outside the city limits of Bloomington and Ellettsville. Table 10 lists the roads by classification for all roads Minor Collector and above.

TABLE 10

ROADS BY CLASSIFICATION FOR
ALL MINOR COLLECTOR AND OVER

Road Name	Functional Classification	Length (miles)
Bus. 37 South-Southeast Art. to City Limits	Principal Arterial	.61
Country Club Rd - Rockport Rd to City Limits	Principal Arterial	.93
Ellettsville Bypass - Smith Pike to SR 37	Principal Arterial	1.50
Tapp Rd - SR 37 to Rockport Rd	Principal Arterial	1.34
TOTAL - PRINCIPAL ARTERIAL		4.38
Airport Rd - Kirby Rd to SR 45	Minor Arterial	.88
Arlington Rd - Crescent Rd to SR 46	Minor Arterial	1.64
Bunger Rd - SR 45 to Airport Rd	Minor Arterial	.54
Business 37 North - City Limits to SR 37	Minor Arterial	1.72
Business 37 South-SR37 to Southeast Arterial	Minor Arterial	2.29
Crescent Rd - Vernal Pike to Arlington Rd	Minor Arterial	.79
Curry Pike - SR 45 to Woodyard Rd	Minor Arterial	3.50
Ellettsville Bypass - Smith Pike to SR 46	Minor Arterial	6.00
Frontage Rd East SR 37-That Rd to Vernal Pk	Minor Arterial	5.00
Frontage Rd West SR 37- SR 48 to SR 46	Minor Arterial	2.75

Road Name	Functional Classification	Length (miles)
Fullerton Pike - SR 37 to Gordon Pike	Minor Arterial	1.40
Gordon Pike - Fullerton Pike to Bus. 37 South	Minor Arterial	.73
Kirby Rd - Airport Rd to SR 48	Minor Arterial	1.93
Old 37 North - City Limits to Bethel Lane	Minor Arterial	.53
Rhorer Rd - Bus. 37 South to Southeast Art.	Minor Arterial	1.75
Rogers St - Tapp Rd to City Limits	Minor Arterial	.69
Smith Pike - Woodyard Rd to SR 46	Minor Arterial	1.34
Smith Rd - Rogers Rd to City Limits	Minor Arterial	1.28
Southeast Arterial-SR 37 to Rogers Rd	Minor Arterial	4.30
Tapp Rd - SR 45 to SR 37	Minor Arterial	1.50
Vernal Pike - Hartstraight Rd to City Limits	Minor Arterial	4.24
TOTAL - MINOR ARTERIAL		44.8
Acuff Rd - Maple Grove Rd to SR 37	Major Collector	.34
Airport Rd - Garrison Chapel to Kirby Rd	Major Collector	1.79
Allen St - Bloomfield Rd to City Limits	Major Collector	.69
Anderson Rd - Old 37 North to Gap Rd	Major Collector	5.65
Bales Rd - Kinser Pike to Business 37	Major Collector	.56
Bethel Lane - Old 37 North to SR 45	Major Collector	3.54
Bottom Rd - SR 37 to Simpson Chapel Rd	Major Collector	5.08
Delap Rd - Harstraight Rd to Woodall Rd	Major Collector	.80
Dunn St - SR 46 to Clover Lane	Major Collector	.58
Eller Rd - Garrison Chapel Rd to SR 45	Major Collector	1.55

Road Name	Functional Classification	Length (miles)
Fairfax Rd - Pointe Rd to Business 37	Major Collector	6.25
Fluckmill Rd - Victor Pike to Ketcham Rd	Major Collector	.63
Frontage Rd East SR37-Bus. 37 to County Ln	Major Collector	8.70
Frontage Rd West SR37-Sample to County Ln	Major Collector	5.50
Fullerton Pike - SR 37 to Leonard Springs	Major Collector	.71
Harstraight Rd - SR 48 to Delap Rd	Major Collector	7.04
Ison Rd - Leonard Springs to SR 45	Major Collector	.38
Ketcham Rd - Fluckmill Rd to SR 37	Major Collector	1.33
Kinser Pike - Skyline Dr to Briarcliff Dr	Major Collector	.36
Kinser Pike - City Limits to SR 37	Major Collector	1.46
Leonard Springs Rd - SR 45 to Fullerton Pike	Major Collector	1.77
Lost Man's Ln-Harstraight to Union Valley	Major Collector	.95
Maple Grove Rd - SR 46 to Maple Grove West	Major Collector	3.86
Maple Grove West - Ellettsville to Bottom Rd	Major Collector	4.75
Maple Grove Extension-SR 46 to Smith Pike	Major Collector	1.50
Monroe Dam Rd - Old SR 37 to Strain Ridge	Major Collector	1.27
Moore's Pike - City Limits to SR 446	Major Collector	1.29
Old 37 North - Bethel Lane to County Line	Major Collector	10.13
Park School Rd - SR 37 to Kinser Pike	Major Collector	.34
Pointe Rd - Strain Ridge Rd to Fairfax Rd	Major Collector	1.59
Reeves Rd - County Line to Ellettsville	Major Collector	2.78
Rockport Rd - Victor Pike to SR 37	Major Collector	5.29
Rockport Rd - Tapp Rd to City Limits	Major Collector	.33

Road Name	Functional Classification	Length (miles)
Carmichael Rd-County Line to Rock East	Minor Collector	.86
Chambers Pike - SR 37 to Old SR 37North	Minor Collector	2.12
Chapel Hill Rd-Guthrie Rd to SR 446	Minor Collector	3.98
Dittemore Rd - Bottom Rd to SR37	Minor Collector	2.88
Farr Rd - Old SR 37North to Jack Weddle Rd	Minor Collector	1.66
Gap Rd - North Shore Dr to County Line	Minor Collector	5.17
Garrison Chapel - SR 45 to SR 48	Minor Collector	3.91
Getty Creek Rd - Sr 46 to Mt. Gilead Rd	Minor Collector	2.83
Guthrie Rd-County Line to Chapel Hill Rd	Minor Collector	1.57
Handy Rd-Stipp Rd to Shields Ridge	Minor Collector	1.31
Harmony Rd-Rockport Rd to SR45	Minor Collector	5.02
Harrell Rd-Stipp Rd to Rhorer Rd	Minor Collector	1.52
Howard Rd -County Line to Vernal Pike	Minor Collector	3.08
Hunter Creek Rd-County Line to Tower Ridge	Minor Collector	4.11
Jack Weddle Rd-Farr Rd to Anderson Rd	Minor Collector	1.47
Lost Man's Ln -Union Valley to Maple Grove	Minor Collector	1.25
Maple Grove Rd-Maple Grove West to Bottom	Minor Collector	2.49
McNeely St -Mt Tabor Rd to Union Valley Rd	Minor Collector	1.14
Monroe Dam Rd-Strain Ridge to County Line	Minor Collector	3.07
Mt. Gilead Rd - Getty Creek to SR 45	Minor Collector	3.07
Mt. Tabor Rd -Ellettsville to Bottom Rd	Minor Collector	5.11
North Shore Dr - Gap Rd to County Line	Minor Collector	2.23
Old SR 37-County Line to New SR 37	Minor Collector	6.67

Road Name	Functional Classification	Length (miles)
Rogers Rd - City Limits to Smith Rd	Major Collector	1.20
Rogers St - Business 37 South to Tapp Rd	Major Collector	2.57
Sample Rd - SR 37 to Old 37 North	Major Collector	1.20
Simpson Chapel-Bottom Rd to Frontage Rd	Major Collector	1.25
Smithville Rd - Sr 37 to Fairfax Rd	Major Collector	1.84
Stinesville Rd - SR 46 to Stinesville	Major Collector	2.55
Strain Ridge Rd-Monroe Dam to Fairfax Rd	Major Collector	4.32
Texas Ridge Rd - Stinesville to County Line	Major Collector	3.74
That Rd - Fullerton Pike to Rockport Rd	Major Collector	.71
Tunnel Rd - SR 45 to South Shore Rd	Major Collector	2.36
Union Valley Rd - SR 46 to Maple Grove Rd	Major Collector	1.99
Victor Pike - Rockport Rd to Fluckmill Rd	Major Collector	2.76
Walnut St - Fairfax Rd to City Limits	Major Collector	1.51
Whisnand Rd - Business 37 to Old 37North	Major Collector	1.29
Woodall Rd -Delap Rd to Woodland Extension	Major Collector	1.45
Woodland Rd - SR 46 to SR 37	Major Collector	8.50
Woodyard Rd - Smith Pike to SR 37	Major Collector	1.66
TOTAL - MAJOR COLLECTOR		129.69
Allens Creek Rd-Roberts Rd to SR 446	Minor Collector	1.68
Bottom Rd - Mt. Tabor Rd to Maple Grove Rd	Minor Collector	7.29
Bowman Rd - Bottom Rd to County Line	Minor Collector	2.47
Breeden Rd-Rock East Rd to SR 45	Minor Collector	4.15

Road Name	Functional Classification	Length (miles)
Popcorn Rd-Snow Rd to Rockport Rd	Minor Collector	2.87
Popcorn Rd-Rockport Rd to Old 37 South	Minor Collector	2.72
Ramp Creek Rd-Fairfax Rd to Shields Ridge	Minor Collector	2.31
Robinson Rd - Old SR 37North to Tunnel Rd	Minor Collector	4.08
Rock East Rd-Carmichael Rd to Rockport Rd	Minor Collector	3.51
Rockport Rd-Popcorn Rd to Victor Pike	Minor Collector	4.78
Shields Ridge Rd-Ramp Creek to Handy Rd	Minor Collector	.85
Shuffle Creek Rd - SR 45 to South Shore Dr	Minor Collector	1.82
Snow Rd-County Line to Rock East Rd	Minor Collector	3.52
South Shore Dr - Tunnel Rd to Shuffle Creek	Minor Collector	.90
Springville Rd-County Line to Popcorn Rd	Minor Collector	.63
Stipp Rd-Harrell Rd to Swartz Rd	Minor Collector	2.51
Swartz Rd-Stipp Rd to SR 446	Minor Collector	2.09
Tabor Hill Rd -Stinesville to Mt. Tabor Rd	Minor Collector	.94
That Rd-Rockport Rd to Southeast Arterial	Minor Collector	1.28
Thomas Rd - Vernal Pike to Ellettsville	Minor Collector	2.85
Tower Ridge Rd-SR 446 to County Line	Minor Collector	5.75
Vernal Pike-Howard Rd to Harstraight Rd	Minor Collector	1.40
TOTAL - MINOR COLLECTOR		125.24

As development continues to occur on Monroe County roads, the county needs to require developers to meet the minimum right-of-way requirements for the class of road the development is located on. For local roads, 25 feet on each side of the centerline (20 feet if a cul-de-sac) is the minimum. For minor arterials and collectors, 50 feet on each side of the centerline is the minimum. This 50 feet of right-of-way should be adequate to meet the engineering standards for most types of roadway improvements. If the roadway is located in a very hilly area, then a proposed improvement may require a great deal of cut and fill which could need right-of-way beyond the 50 feet on either side of the road centerline.

The new design standards consider the design speed of the roadway as one of the keys in typical cross-sections. The standards attempt to provide drivers with recovery areas in case of loss of control. As the design speed increases, these recovery areas can increase the roadway side slopes from 3:1 to 4:1 or higher. For example, the engineer has 50 feet of right-of-way on each side of the centerline. The 12 foot travel lane and the six foot shoulder will leave 32 feet for side slopes, ditches, back slopes, and clear zone.

This 32 feet is also used for this vehicle recovery area. If the design speed requires the engineer to use 4:1 slopes, then a level terrain with a ditch three feet below the road surface would require 12 feet of side slope, three feet of ditch and 12 feet of back slope. A total of 27 feet would be used, leaving only five feet of available right-of-way.

If the terrain becomes rolling or hilly and the design speed increases, this five feet could be used up and extra right-of-way required. Since it is difficult to anticipate future design standards, 50 feet on each side of the centerline should be a good compromise.

CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program shows timetables and priorities for constructing the projects in the Thoroughfare Plan. The maintenance portion of the Thoroughfare Plan is being addressed by the Monroe County garage staff and superintendent. Of the road budget for Monroe County, approximately $500,000 per year is available for major capital projects. The Capital Improvement Program shows how that $500,000 will be used.

Table 11 shows the Capital Improvement Program. The first three columns show the project, the phase, and the cost of that phase. Projects go through three phases:

Phase 1 - PE - Preliminary Engineering, Environmental Analysis and Surveying;
Phase 2 - ROW - Right-of-way Acquisition and Engineering; and
Phase 3 - CN - Construction and Construction Engineering

The total cost is in 1994 dollars. The remainder of the table shows which projects are being worked on for each fiscal year (FY) .

For fiscal years 1995 to 1999, the monies will be spent on the various phases of the Curry Pike and Vernal Pike project. Beginning in 1999 four projects that are part of the Thoroughfare Plan will begin with PE. These projects are (1) Rogers Road and Smith Road curve realignment; (2) the Ratliff Road and Woodyard Road intersection realignment; (3) the Union Valley widening; and (4) the improvement of Airport Road and Tapp Road. By 1999 the Curry Pike and Vernal Pike projects should be completed.

The Capital Improvement Program has scheduled projects through the year 2014. These projects are shown to use all local funds for PE and ROW. The CN phase would use 20% local funds to match

80% federal funds assuming current funding from the FHWA remains the same. Since these projects are being built with federal funds, the federal guidelines must be followed. The guidelines specify design criteria that must be followed in order to use the federal matching monies. Following these standards requires that the county have sufficient right-of-way to accommodate travel lanes, shoulders, side slopes, ditches and clear zone. Therefore, following the minimum right-of-way requirements for the various functional classification is very important.

As funding amounts and sources change, Monroe County may need to update the Capital Improvement Program to reflect these changes. This program is not set in stone, but needs to be flexible to accommodate changes.

CAPITAL

IMPROVEMENT

PROGRAM

IMPROVEMENT
PROGRAM

PROJECT DESCRIPTION	PHASE	TOTAL COST	FY 95 FUND TYPE	FY 95 FUND COST	FY 96 FUND TYPE	FY 96 FUND COST	FY 97 FUND TYPE	FY 97 FUND COST	FY 98 FUND TYPE	FY 98 FUND COST	FY 99 FUND TYPE	FY 99 FUND COST
Curry Pike - Phase II	CN	$ 1,400,000	Local	$ 280,000								
Construction - SR 48			M/MA	$ 1,120,000								
Curry Pike - Phase III	ROW	$ 184,000	Local	$ 184,000								
SR 48 to Vernal Pike			M/MA	$ 1,440,000								
	CN	$ 1,800,000	Local	$ 360,000								
			M/MA	$ 1,440,000								
Vernal Pike - Phase IV	ROW	$ 200,000	Local	$ 100,000	Local	$ 100,000						
SR 37 to Curry Pike	CN	$ 600,000			M/MA	$ 480,000						
					Local	$ 120,000						
Curry Pike - Phase V	PE	$ 350,000			Local	$ 280,000	Local	$ 70,000				
SR 45 Construction	ROW	$ 100,000					Local	$ 100,000				
	CN	$ 1,000,000					M/MA	$ 800,000				
							Local	$ 200,000				
Curry Pike - Phase VI	ROW	$ 160,000					Local	$ 130,000	Local	$ 30,000		
Vernal Pike to SR 46	CN	$ 1,600,000							M/MA	$ 1,280,000		
									Local	$ 320,000		
Vernal Pike - Phase VII	ROW	$ 100,000							Local	$ 100,000		
Curry Pike to Hartstrait	CN	$ 1,000,000							M/MA	$ 200,000	M/MA	$ 600,000
									Local	$ 50,000	Local	$ 150,000
Allen's Creek	ROW	$ 100,000	Local	$ 100,000								
	CN	$ 1,200,000			State	$ 1,200,000						
Realignment of Smith &	PE	$ 45,000									Local	$ 45,000
Rogers Curve												
Realignment of Ratliff &	PE	$ 60,000									Local	$ 60,000
Woodland												
Union Valley Road	PE	$ 180,000									Local	$ 90,000
Widening												
Improvement of Airport Rd	PE	$ 575,000									Local	$ 165,000
and Tapp Road												
TOTAL LOCAL COSTS						$ 500,000		$ 500,000		$ 500,000		$ 500,000
TOTAL YEARLY COSTS				$ 5,024,000		$ 2,180,000		$ 1,300,000		$ 1,980,000		$ 1,110,000
TOTAL COSTS												$ 11,594,000

IMPROVEMENT
PROGRAM

PROJECT DESCRIPTION	PHASE	TOTAL COST	FY 00 FUND TYPE	FY 00 FUND COST	FY 01 FUND TYPE	FY 01 FUND COST	FY 02 FUND TYPE	FY 02 FUND COST	FY 03 FUND TYPE	FY 03 FUND COST	FY 04 FUND TYPE	FY 04 FUND COST
Realignment of Smith &	ROW	$ 25,000	Local	$ 25,000								
Rogers Curve	CN	$ 310,000	FED	$ 248,000								
			Local	$ 62,000								
Realignment of Ratliff &	ROW	$ 30,000	Local	$ 30,000								
Woodland	CN	$ 610,000	FED	$ 488,000								
			Local	$ 122,000								
Union Valley Road	PE	$ 180,000	Local	$ 90,000								
Widening	ROW	$ 220,000			Local	$ 110,000	Local	$ 110,000				
	CN	$ 1,900,000							FED	$ 760,000	FED	$ 760,000
									Local	$ 190,000	Local	$ 190,000
Improvement of Airport Rd	PE	$ 575,000	Local	$ 171,000	Local	$ 239,000						
and Tapp Road	ROW	$ 575,000			Local	$ 106,000	Local	$ 345,000	Local	$ 124,000		
	CN	$ 6,900,000							FED	$ 400,000	FED	$ 1,000,000
									Local	$ 100,000	Local	$ 250,000
Fairfax Road Curve	PE	$ 90,000			Local	$ 45,000	Local	$ 45,000				
Improvements (2 curves)	ROW	$ 135,000							Local	$ 67,500	Local	$ 67,500
	CN	$ 975,000										
TOTAL LOCAL COSTS				$ 500,000		$ 500,000		$ 500,000		$ 481,500		$ 507,500
TOTAL YEARLY COSTS				$ 1,236,000		$ 500,000		$ 500,000		$ 1,641,500		$ 2,267,500
TOTAL COSTS												$ 6,145,000

APPENDICES

APPENDIX A

STANDARD ROADWAY CAPACITIES

Summary of Standard Roadway Capacities

Using the Highway Capacity Manual and the Highway Capacity Software a series of midblock capacities were calculated for different county road widths. The assumptions included 2% heavy duty trucks, 2 foot average shoulder width, 100% no passing zone, and a 50/50 directional split of traffic. Peak hour capacities for the PM peak were developed for pavement widths of 16', 18', 20',22', and 24'. The following table shows the resulting capacities for each pavement width for A, B, C, D, and E level of service (LOS). Level of service can vary from A (free flow, highest level of comfort and convenience to the motorist) to E (total breakdown resulting in long delays and long traffic backups). The supporting data for these capacities can be found in the following printouts. The Highway Capacity Software does not provide for 16' roads so these capacities were generated as a percentage of the capacities for an 18' road.

Level of Service*	16' Width Capacity	18' Width Capacity	20' Width Capacity	22' Width Capacity	24' Width Capacity
A	31	45	54	59	64
B	133	192	229	253	273
C	286	414	494	544	588
D	438	635	758	836	903
E	1222	1633	1890	2053	2170

* all values are in vph or vehicles per hour

IMPROVEMENT
PROGRAM

PROJECT DESCRIPTION	PHASE	TOTAL COST	FY 05 FUND TYPE	FY 05 FUND COST	FY 06 FUND TYPE	FY 06 FUND COST	FY 07 FUND TYPE	FY 07 FUND COST	FY 08 FUND TYPE	FY 08 FUND COST	FY 09 FUND TYPE	FY 09 FUND COST
Improvement of Airport Rd	CN	$ 6,900,000	FED	$ 1,600,000	FED	$ 1,400,000	FED	$ 1,120,000				
and Tapp Road			Local	$ 400,000	Local	$ 350,000	Local	$ 280,000				
Fairfax Road Curve	CN	$ 975,000	FED	$ 200,000	FED	$ 200,000						
Improvements (2 curves)			Local	$ 50,000	Local	$ 50,000						
Extension of Hartstrait Rd	PE	$ 380,000	Local	$ 50,000	Local	$ 100,000	Local	$ 230,000				
	ROW	$ 1,250,000							Local	$ 400,000	Local	$ 400,000
Bethel Lane Widening	PE	$ 225,000							Local	$ 100,000	Local	$ 100,000
TOTAL LOCAL COSTS				$ 500,000		$ 500,000		$ 510,000		$ 500,000		$ 500,000
TOTAL YEARLY COSTS				$ 2,300,000		$ 2,100,000		$ 1,630,000		$ 500,000		$ 500,000
TOTAL COSTS												$ 7,030,000

IMPROVEMENT
PROGRAM

PROJECT DESCRIPTION	PHASE	TOTAL COST	FY 10 FUND TYPE	FY 10 FUND COST	FY 11 FUND TYPE	FY11 FUND COST	FY 12 FUND TYPE	FY 12 FUND COST	FY 13 FUND TYPE	FY 13 FUND COST	FY 14 FUND TYPE	FY 14 FUND COST
Extension of Hartstrait Rd	ROW	$ 1,250,000	Local	$ 450,000								
	CN	$ 3,800,000			FED	$ 1,500,000	FED	$ 1,200,000	FED	$ 340,000		
					Local	$ 375,000	Local	$ 300,000	Local	$ 85,000		
Bethel Lane Widening	PE	$ 300,000	Local	$ 50,000	Local	$ 50,000						
	ROW	$ 150,000			Local	$ 75,000	Local	$ 75,000				
	CN	$ 1,900,000							FED	$ 860,000	FED	$ 660,000
									Local	$ 215,000	Local	$ 165,000
Smithville Road Widening	PE	$ 175,000					Local	$ 50,000	Local	$ 125,000		
	ROW	$ 150,000									Local	$ 100,000
Kirby Extension	PE	$ 275,000					Local	$ 75,000	Local	$ 75,000	Local	$ 125,000
to Leonard Springs												
TOTAL LOCAL COSTS				$ 500,000		$ 500,000		$ 500,000		$ 500,000		$ 390,000
TOTAL YEARLY COSTS				$ 500,000		$ 2,000,000		$ 1,700,000		$ 1,700,000		$ 1,050,000
TOTAL COSTS												$ 6,950,000
Total Costs for Program												$ 31,719,000

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Monroe County Roads
ANALYST..... BLA
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 06-24-1991
OTHER INFORMATION.... 18 foot county road

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS	2
PERCENTAGE OF BUSES	0
PERCENTAGE OF RECREATIONAL VEHICLES	0
DESIGN SPEED (MPH)	50
PEAK HOUR FACTOR	1
DIRECTIONAL DISTRIBUTION (UP/DOWN)	50 / 50
LANE WIDTH (FT)	9
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)	2
PERCENT NO PASSING ZONES	100

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.57	1	.94
B	5	3.4	3.9	.57	1	.93
C	5	3.4	3.9	.57	1	.93
D	5	2.9	3.3	.57	1	.93
E	5	2.9	3.3	.7	1	.93

C) SERVICE FLOW RATE RESULTS

LOS	SERVICE FLOW RATE	V/C
A	45	.03
B	192	.13
C	414	.28
D	635	.43
E	1633	.9

1985 HCM:TWO-LANE HIGHWAYS

****

FACILITY LOCATION.... Monroe County Roads
ANALYST..... BLA
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 06-24-1991
OTHER INFORMATION.... 20 foot county road

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	10
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	2
PERCENT NO PASSING ZONES.....	100

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.68	1	.94
B	5	3.4	3.9	.68	1	.93
C	5	3.4	3.9	.68	1	.93
D	5	2.9	3.3	.68	1	.93
E	5	2.9	3.3	.81	1	.93

C) SERVICE FLOW RATE RESULTS

LOS	SERVICE FLOW RATE	V/C
A	54	.03
B	229	.13
C	494	.28
D	758	.43
E	1890	.9

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Monroe County Roads
ANALYST..... BLA
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 06-24-1991
OTHER INFORMATION.... 22 foot county road

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	11
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	2
PERCENT NO PASSING ZONES.....	100

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.75	1	.94
B	5	3.4	3.9	.75	1	.93
C	5	3.4	3.9	.75	1	.93
D	5	2.9	3.3	.75	1	.93
E	5	2.9	3.3	.88	1	.93

C) SERVICE FLOW RATE RESULTS

LOS	SERVICE FLOW RATE	V/C
A	59	.03
B	253	.13
C	544	.28
D	836	.43
E	2053	.9

1985 HCM:TWO-LANE HIGHWAYS

****

FACILITY LOCATION.... Monroe County Roads
ANALYST..... BLA
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 06-24-1991
OTHER INFORMATION.... 24 foot county road

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS	2
PERCENTAGE OF BUSES	0
PERCENTAGE OF RECREATIONAL VEHICLES	0
DESIGN SPEED (MPH)	50
PEAK HOUR FACTOR	1
DIRECTIONAL DISTRIBUTION (UP/DOWN)	50 / 50
LANE WIDTH (FT)	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)	2
PERCENT NO PASSING ZONES	100

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.81	1	.94
B	5	3.4	3.9	.81	1	.93
C	5	3.4	3.9	.81	1	.93
D	5	2.9	3.3	.81	1	.93
E	5	2.9	3.3	.93	1	.93

C) SERVICE FLOW RATE RESULTS

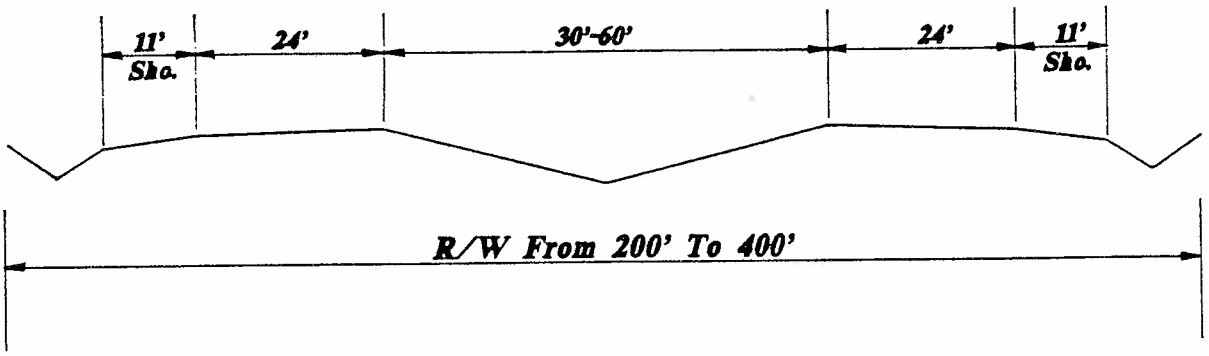
LOS	SERVICE FLOW RATE	V/C
A	64	.03
B	273	.13
C	588	.28
D	903	.43
E	2170	.9

APPENDIX B

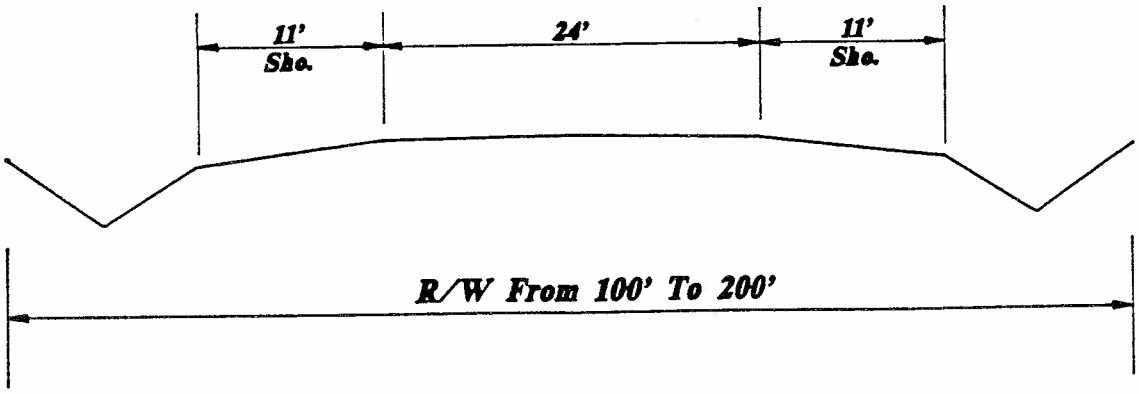
TYPICAL CROSS SECTIONS

Cross-Sections for Principal Arterials

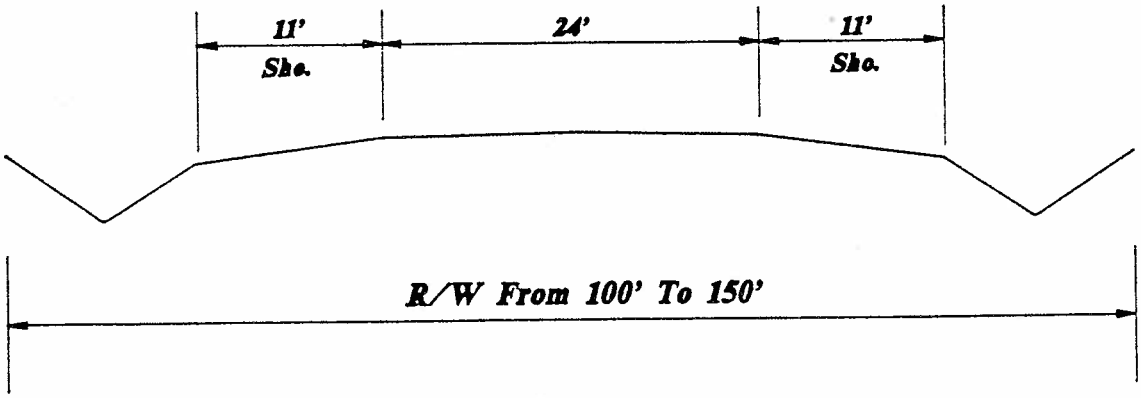
1. 4 - Lane Section



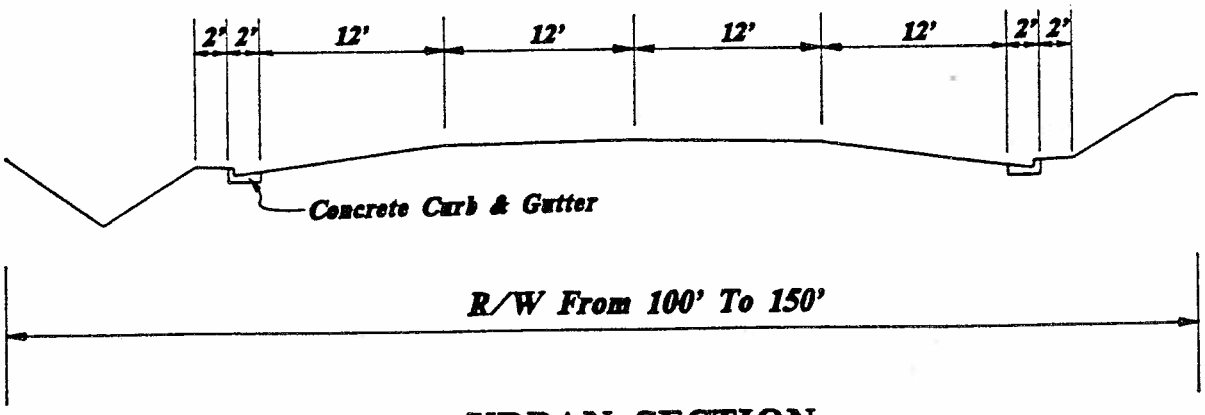
2. 2 - Lane Section



Cross-Sections for Minor Arterial



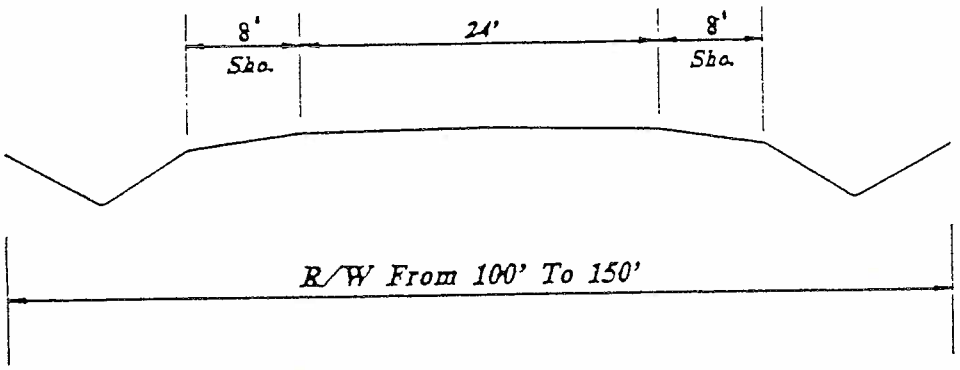
RURAL SECTION



URBAN SECTION

CROSS-SECTIONS FOR MAJOR/MINOR COLLECTORS

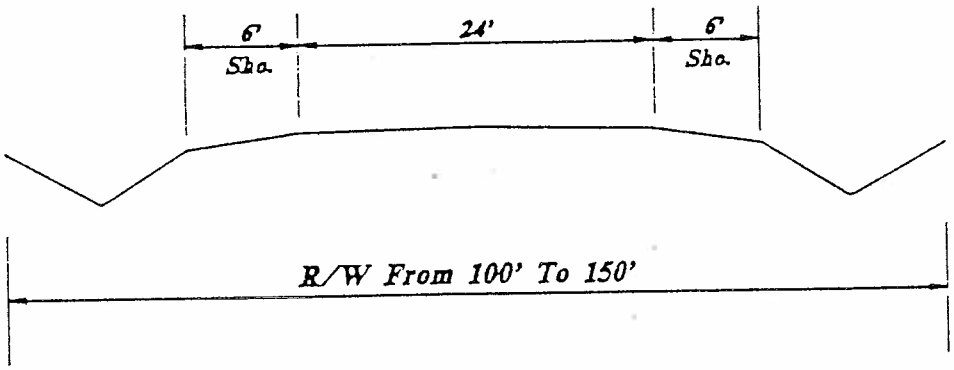
CONSTRUCTION ON NEW ALIGNMENT
50-55 MPH DESIGN SPEED



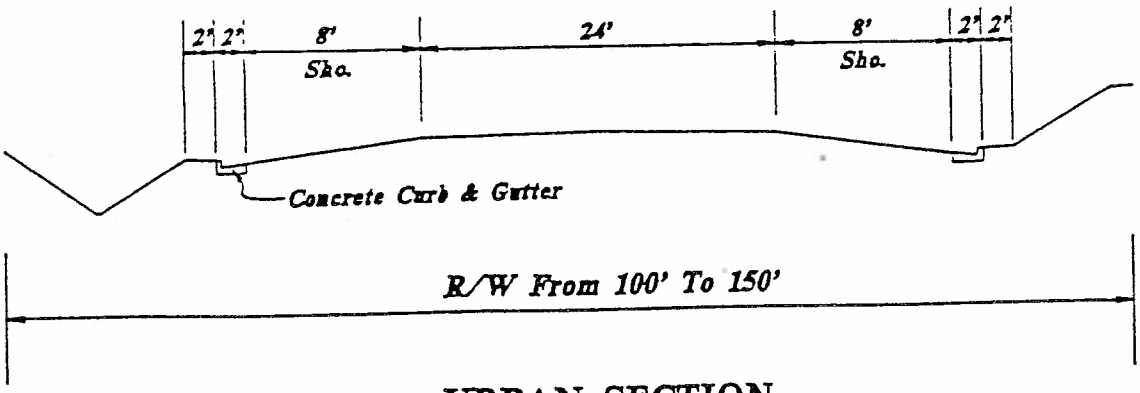
RURAL SECTION

CROSS-SECTIONS FOR MAJOR/MINOR COLLECTORS

3R PROJECTS
(REHABILITATION, RESURFACING, RESTORATION)
40-50 MPH DESIGN SPEED



RURAL SECTION



URBAN SECTION

APPENDIX C

SUMMARY OF THE CURRY PIKE AREA TIF

TRANSPORTATION STUDY

FIGURE 5

INDUSTRIAL PARCELS & ACCESS

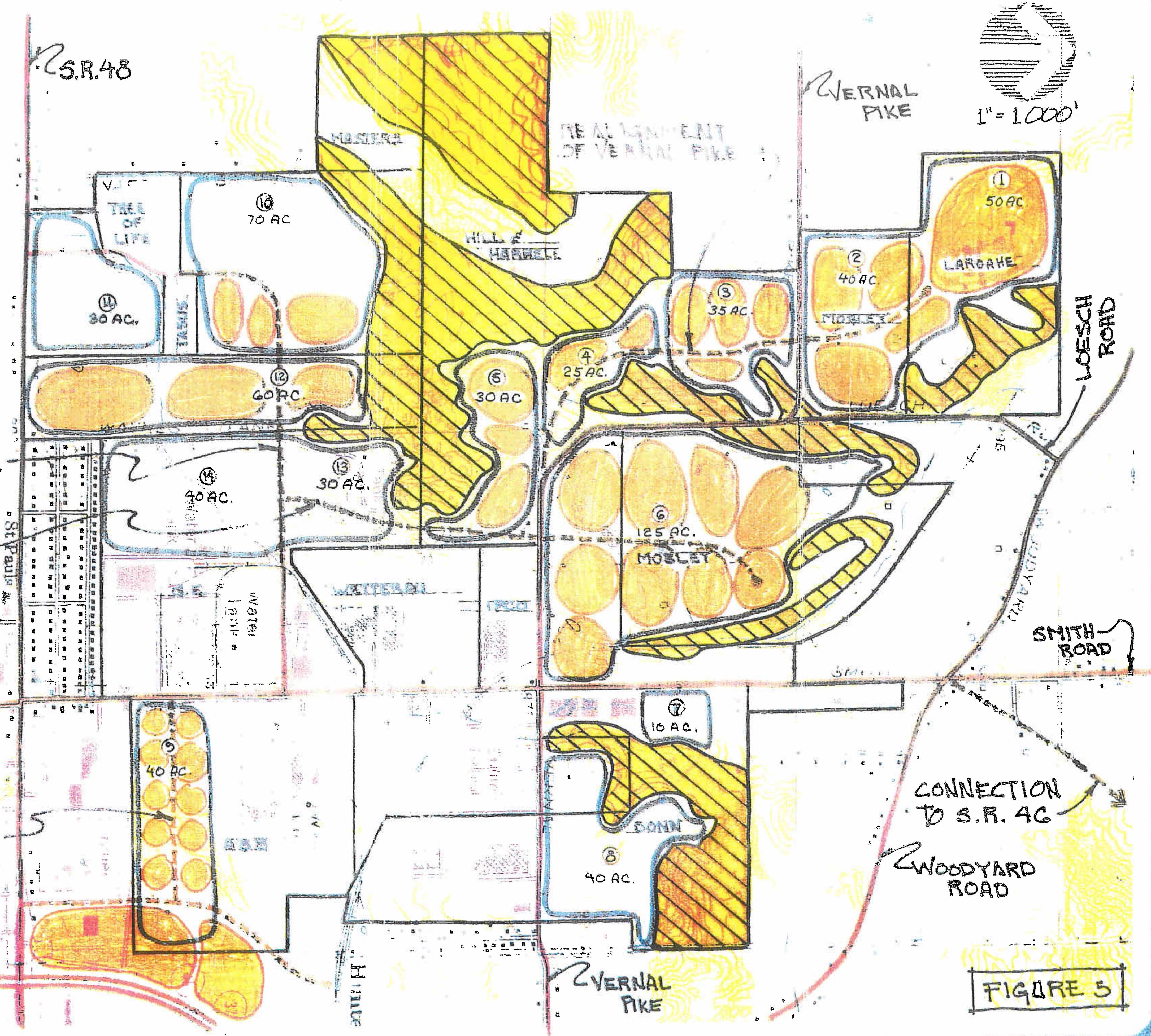


FIGURE 5