Comm- 8-0
final 9-0
12/18/91

RESOLUTION 91-39
TO ADOPT THE RECOMMENDATION OF THE "REPORT ON THE PROPOSED OFFICIAL TRUCK ROUTE FOR THE CITY OF BLOOMINGTON, INDIANA"

WHEREAS, the City of Bloomington Metropolitan Planning Organization (MPO), in cooperation with the Indiana Department of Transportation and the Federal Highway Administration, commissioned Pflum, Klausmeier & Gehrum Consultants to prepare a report including a proposed official truck route system of the City of Bloomington; and

WHEREAS, said document has been prepared by the consultant according to the approved contract; and

WHEREAS, said document has been approved and adopted by the Policy Committee of the Metropolitan Planning Organization on November 15, 1991; and

WHEREAS, said document was approved and adopted by the City of Bloomington Traffic Commission on November 20, 1991; and

WHEREAS, said report contains recommendations and information which cannot be effectively incorporated into a legislative ordinance;

NOW, THEREFORE BE IT HEREBY RESOLVED BY THE COMMON COUNCIL OF THE CITY OF BLOOMINGTON, MONROE COUNTY, INDIANA, THAT:

SECTION I. The document "A Report on the Proposed Official Truck Route for the City of Bloomington, Indiana" is hereby approved and adopted as recommended policy for truck routes in the City of Bloomington.

SECTION II. Said document shall be on file in the office of the City Planning Department for inspection by interested parties.

PASSED and ADOPTED this 18th day of December, 1991, by the Common Council of the City of Bloomington, Monroe County, Indiana.

John Fernandez, President
Bloomington Common Council

ATTEST:

Patricia Williams
PATRICIA WILLIAMS, Clerk
City of Bloomington

PRESENTED by me to the Mayor of the City of Bloomington, Monroe County, Indiana, upon this 19th day of December, 1991.

Patricia Williams
PATRICIA WILLIAMS, Clerk
City of Bloomington

SIGNED and APPROVED by me upon this 19 day of December, 1991.

Tomilea Allison
Tomilea Allison, Mayor
City of Bloomington

SYNOPSIS

This resolution adopts the proposed truck route study prepared by Pflum, Klausmeier & Gehrum, including recommendations for future improvements. The actual truck route system is being considered for adoption in Ord 91-67.

City of
Bloomington
Indiana

Post Office Box 100
Municipal Building
Bloomington, Indiana 47402

Telephone 812 331 6423

Planning
Department

November 26, 1991

Dear Council Members:

The truck route study recommends several changes to the existing truck route system. The proposed routes are shown on the attached map.

The major recommendations in the study include:

1. Through Routes for trucks traveling around the perimeter. (See page 10)

2. Destination Routes to be used by trucks with destinations inside the perimeter.

3. Lane blockage restrictions in the downtown area between 11:00 a.m. and 1:00 p.m. Monday through Friday. (See page 14)

4. Recommendations regarding specific improvements, signage, and education are also part of the document.

If you have any questions, please feel free to call met at 331-6423.

Sincerely,

Toni McClure

Toni McClure, A.I.C.P.
Assistant Director of Planning

Recycled Paper

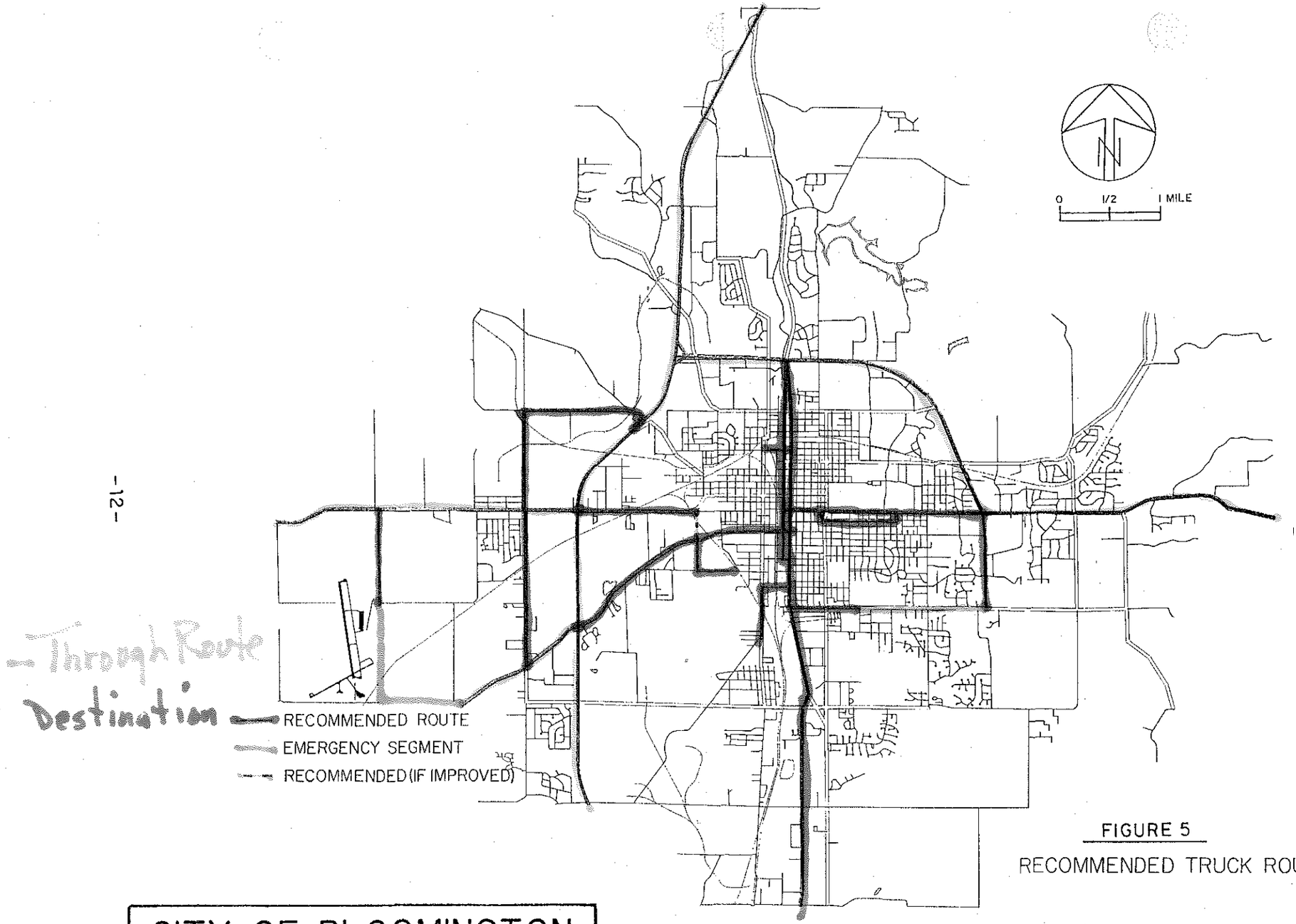


FIGURE 5

RECOMMENDED TRUCK ROUTE

CITY OF BLOOMINGTON

A REPORT ON THE PROPOSED OFFICIAL TRUCK ROUTE FOR THE CITY OF BLOOMINGTON, INDIANA

Prepared For:

PLANNING DEPARTMENT

CITY OF BLOOMINGTON, INDIANA

Prepared By:

PFLUM, KLAUSMEIER & GEHRUM CONSULTANTS

Indianapolis, IN

Cincinnati, OH Fort Wright, KY

October, 1991

BLOOMINGTON TRUCK ROUTE STUDY

BLOOMINGTON, INDIANA

INTRODUCTION

This report was prepared by Pflum, Klausmeier & Gehrum Consultants (PKG) for the Planning Department of the City of Bloomington, Indiana. This report summarizes the activity that was performed to arrive at an updated Official Truck Route System for the City. The proposed Official Truck Route System is presented both graphically and in written form later in this report.

PURPOSE OF THE REPORT

The City of Bloomington is aware that the existing Official Truck Route System and Ordinance is in need of review. The increasing industrial and commercial growth and the changes in the highway system in and around Bloomington along with concerns from the residential neighborhoods all pointed to the need to update the Official Truck Route System and publicize it to encourage compliance. The purpose of this report is to identify the various work tasks that were performed in reviewing the adequacy of the previous Official Truck Route System and the proposed modifications required to update it.

NEED TO UPDATE THE OFFICIAL TRUCK ROUTE

Table #1 indicates the national trends comparing vehicle miles traveled and the Gross National Product. Truck traffic is on the rise. Table #2 lists the legal limits for trucks operated in Indiana without requiring a permit. Trucks are becoming longer and heavier. Figure #1, which is a reprint from A Policy on Geometric Design of Highways and Streets, 1990, from the American Association of State Highway and Transportation Officials (AASHTO), shows the minimum turning radius of a typical WB-50 Design Semitrailer Combination. The turning radii requirements of large trucks are becoming wider. The noise impact made by more of these longer and heavier trucks impact residential neighborhoods.

There was, therefore, a need to review the existing Official Truck Route. Upon review, it was determined that there were deficiencies in the existing Official Truck Route. The existing Official Truck Route is shown in Figure #2.

Through an open selection process, the consulting engineering firm of Pflum, Klausmeier & Gehrum Consultants (PKG) was selected by the City to review the current conditions, future needs and recommend a new Official Truck Route Plan.

TABLE #1

NATIONAL TRENDS

	1970	1990	% Increased
Trucks & Buses (millions)	20	45	125
Autos (millions)	90	145	61
Total Vehicles (millions)	110	190	72
Vehicle Miles (billions)	1000	2000	100
Gross Nat'l Product (billions)	$1015	$5500	442%

TABLE #2

INDIANA LIMITS FOR TRUCKS

Length	65' 0"
Width	8' 6'
Height	13' 6"
Weight	80,000 lbs

INFORMATION GATHERING

A variety of sources were used to gather information and data concerning the needs that the new Official Truck Route Plan must address.

Survey

The first information gathering tool was a survey questionnaire which was designed to query the business community. Around 150 of these questionnaires were sent to the various businesses that were believed to make use of trucks on a daily basis. These trucks could either be a delivery fleet or be the primary function of the business. A copy of this questionnaire is included in the Technical Appendix.

Typical information that was requested in the questionnaire was the number, type and size of trucks that entered the business on a daily basis. Questions dealing with cargo being transported, peak hours of truck traffic, expansion plans and most used routes by the trucks entering and leaving the facility were also included in the survey. The final questions dealt with the existing Official Truck Route. The questions were designed to determine whether or not the business was located on an existing truck route and whether or not the existing Official Truck Route was adequate for the needs of the business. If it is not adequate, recommended improvements were requested to be identified.

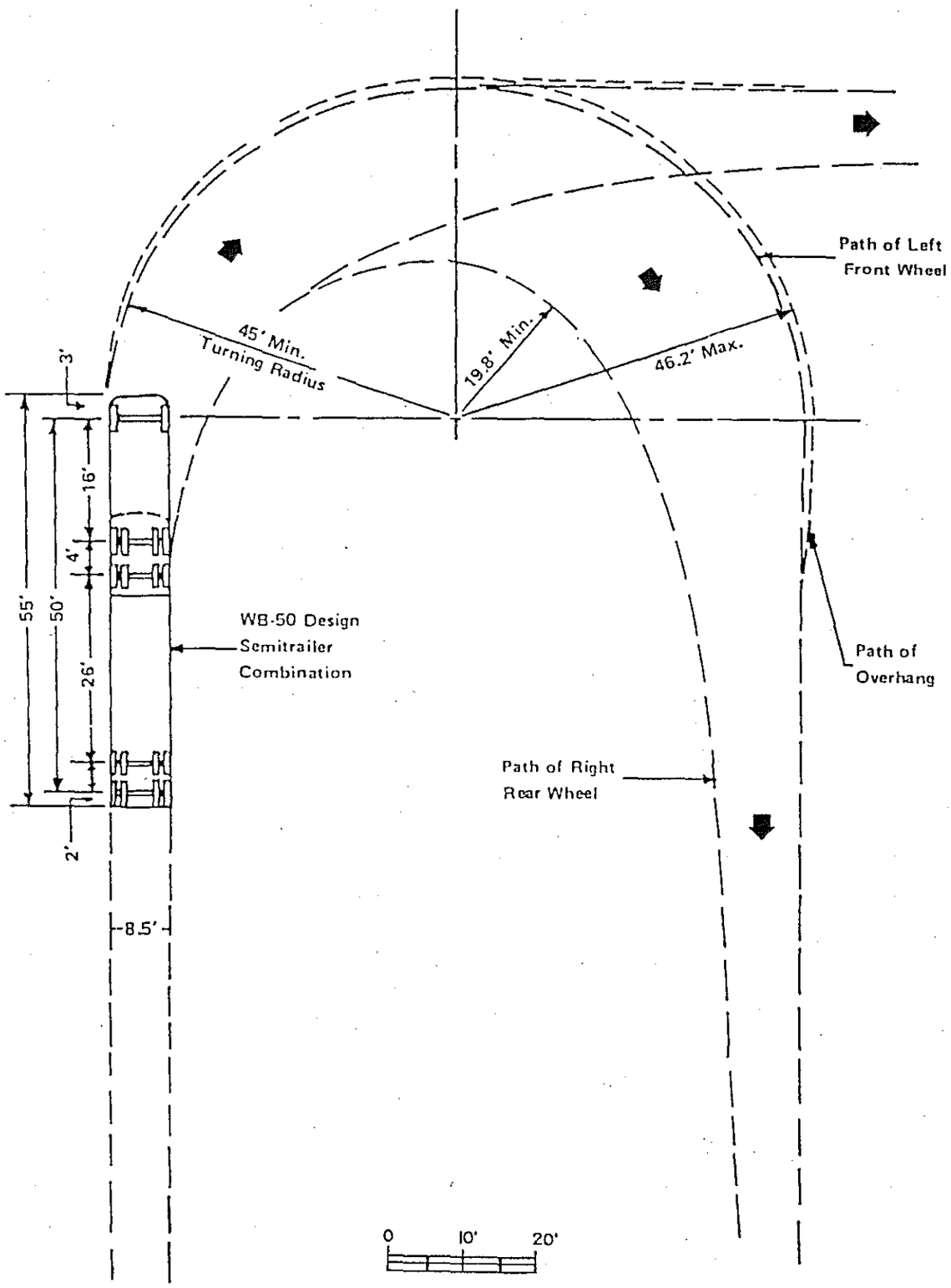


FIGURE 1

Minimum turning path for WB-50 design vehicle.

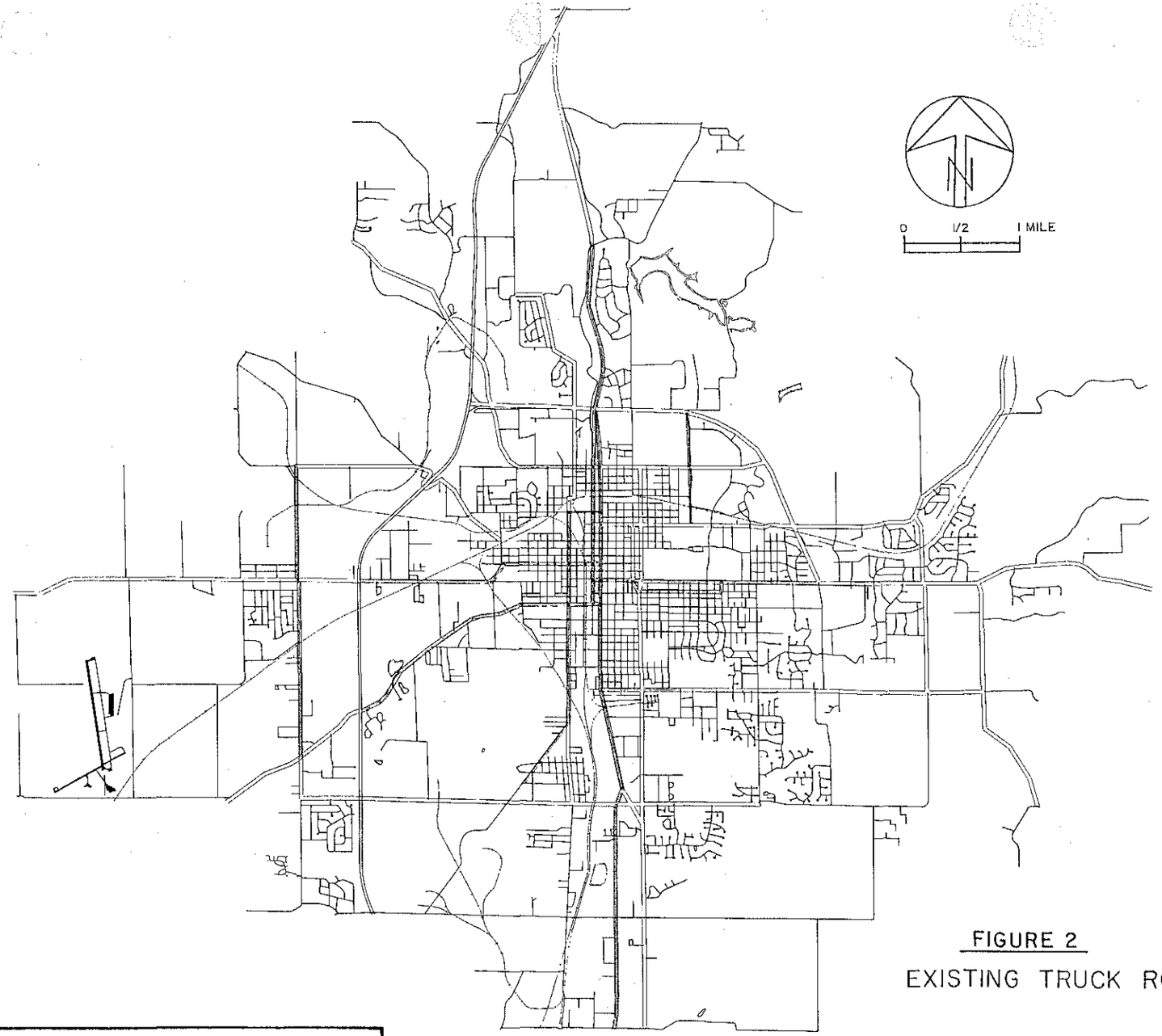


FIGURE 2

EXISTING TRUCK ROUTE

CITY OF BLOOMINGTON

Some of the information gathered in this survey is given below:

1. 56 survey questionnaires were returned. This is a return rate of slightly better than 37% (based on 150 surveys mailed out). This is better than the anticipated 20-25 percent return rate that similar surveys have attained.

2. Truck trips with origins or destinations outside the city limits are oriented as follows:

   North or South of Bloomington, approximately 73%
   East or West of Bloomington, approximately 23%

3. About 58% of the identified truck trips have origins or destinations outside the City limits. This leaves approximately 42% of the truck trips that have origins or destinations within the City limits.

4. Two businesses identified trucks having a total length of 80 feet. One business utilizes a single trailer design while the other uses a tandem trailer.

5. The number of trucks entering and leaving a business range between 1 truck each was to 135 each way on a daily basis.

It is believed that the largest generators of truck traffic have responded to the survey. This opinion has been reached after discussing the results with City officials and representatives of the business community.

Most of the comments received concerning recommended improvements were concentrated on the west side of Bloomington. The intersections of Adams Street at 3rd Street and Adams Street at 5th Street were identified as needing improvements. Curry Pike and Vernal Pike were also identified as needing improvements. The vertical clearance under the railroad bridge on north College Avenue was identified as being too low. Other general comments regarding construction, traffic, and stop signs were presented.

The original survey questionnaires will be provided to the City upon the completion of this project. Any comments not identified in this report will be included in the original survey questionnaires. Figure #3 shows the location of the business who returned the survey questionnaires. (Not all questionnaires were able to be located as they did not include return addresses or business names.) Figure #3 also indicates the volume of truck trips being generated by these businesses and the recommended improvements as provided in the survey questionnaires.

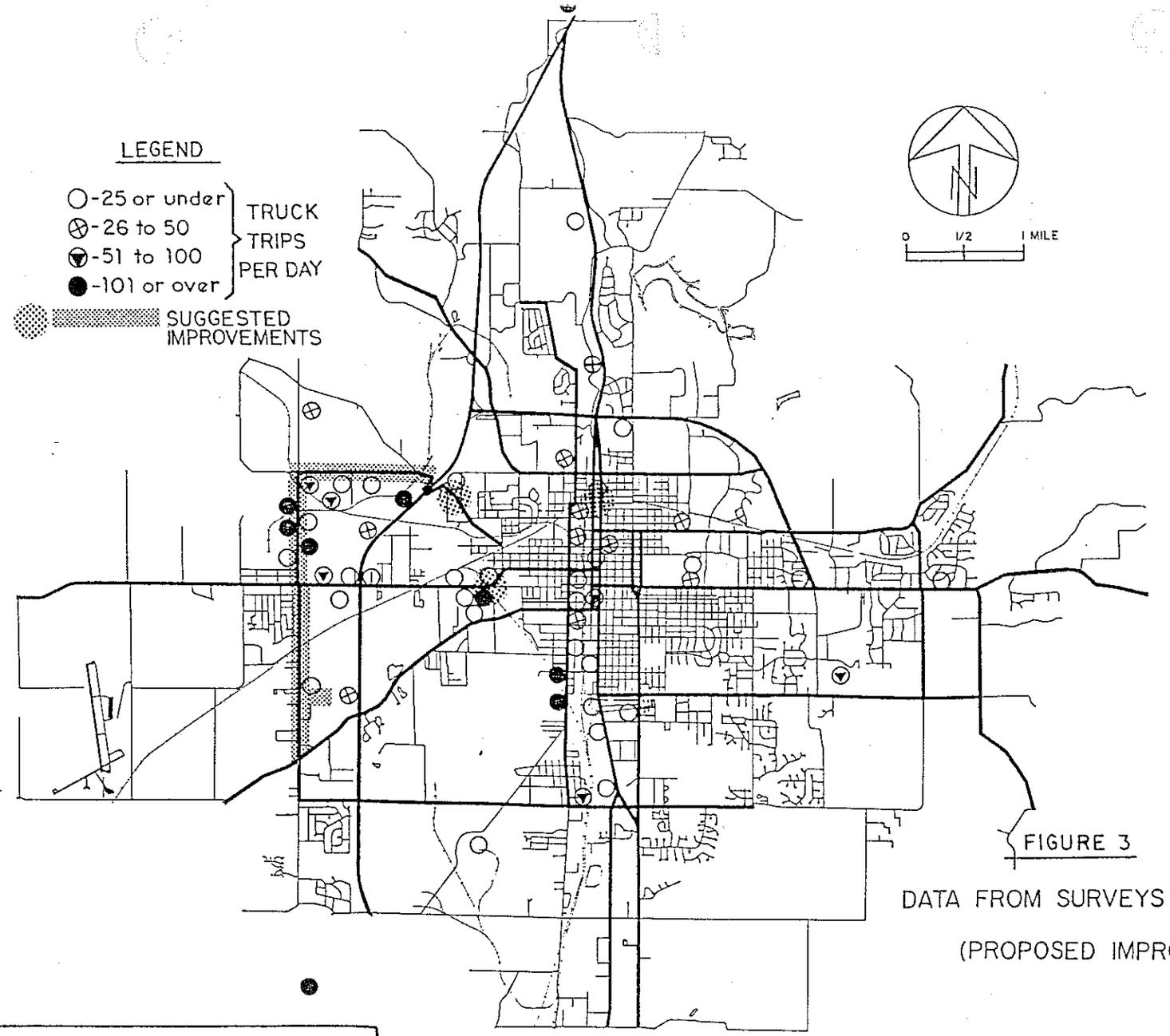


FIGURE 3

DATA FROM SURVEYS RETURNED

(PROPOSED IMPROVEMENTS)

CITY OF BLOOMINGTON

Review of Support Documents

The time between getting the survey questionnaires mailed out and receiving them back was spent reviewing the draft Bloomington Growth Policies Plan, the existing Thoroughfare Plan and the existing Official Truck Route Map and Ordinance.

Thoroughfare Plan

The existing Thoroughfare Plan serves the City of Bloomington very well with designated routes of major importance in all areas except one, the southeast quadrant. The arterial system including Principal and Secondary Arterials provide good access around the City with the exception of the southeast quadrant where there are no major routes that would currently be adequate as a part of an Official Truck Route System. It would be beneficial to have a circumferential route around the City as part of the Official Truck Route System. When a suitable connector on the southeast side of Bloomington is constructed, serious consideration should be given to include it.

Official Truck Route Map and Ordinance

It became obvious that the existing Official Truck Route had been identified before improvements were made to SR 37 and SR 45/46 around Bloomington, as they were not included. This fact alone would have made the existing Route System obsolete and in need of an update. When the other improvements in the street system are reviewed, it adds more validity to the need to closely scrutinize the needs and potential routes that could address these needs throughout the City.

It also has been noted that a better definition of trucks will be needed for any ordinances that will be compatible with the updated Official Truck Route System for purposes of enforcement.

Bloomington Growth Policies Plan

The City of Bloomington was in the process of completing the Bloomington Growth Policies Plan during the course of this study, therefore, a review of the proposed document seemed prudent. The proposed Official Truck Route should be compatible with the intent and consistent with the goals of the Bloomington Growth Policies Plan (BGPP).

Three major points became apparent in reviewing the BGPP. The first was the concept of maintaining Old SR 37 from SR 45/46 to SR 37 as a "scenic entryway corridor." The inclusion of the north segment in the Official Truck Route System does not seem appropriate. There are a limited number of businesses that are located in this area and those do not generate high levels of truck trips. The south segment would be difficult to replace as there are many businesses located along the corridor.

The second point addresses the proposed increasing role that the Monroe County Airport will play in the regional growth. Attempts will be made to increase ridership through commuter service to three major airline hubs. Along with this increased ridership, it is likely that freight service could easily increase as well. Therefore a Truck Route should serve the airport area.

The third point deals with a proposed Indianapolis to Evansville connection as proposed by the Indiana Department of Transportation. Possible routes are identified as travelling along SR 37 and leaving this alignment somewhere south of SR 45. The inclusion of SR 37 on the west side of Bloomington in the Official Truck Route System would adequately address this concern as additional truck traffic could likely be concentrated on the new route.

Another goal of the BGPP is to, "establish, publish, promote, sign and enforce a community-wide system of truck routes," which is the goal of this study.

A public meeting was conducted on June 12, 1991 in the Bloomington Municipal Building where preliminary findings from the questionnaire survey were presented along with additional concerns including truck sizes, turning radii, national and state information on the increase of truck traffic within the past two decades. Direct feedback from various neighborhood associations was received and included in the review of the proposed new Official Truck Route System. The result of this meeting and direct input caused additional discussions with various businesses throughout Bloomington to reach an agreement about what routes could be included to serve the businesses and have as little impact on neighborhoods as possible.

Throughout this process, the City Planning Department has been a valuable conduit of information and guidance. There has been interest within the City to pursue an alternate route for trucks which would replace the Adams Street/Allen Street combination to provide service to the businesses in that area. The City Planning Department also provided core sample data on Adams Street and Allen Street as well as traffic count data throughout the City as presented in Figure #4.

RESULTS AND CONCLUSIONS

Much of the information as described above is included in the Technical Appendix for reference however the results and conclusions are as follows:

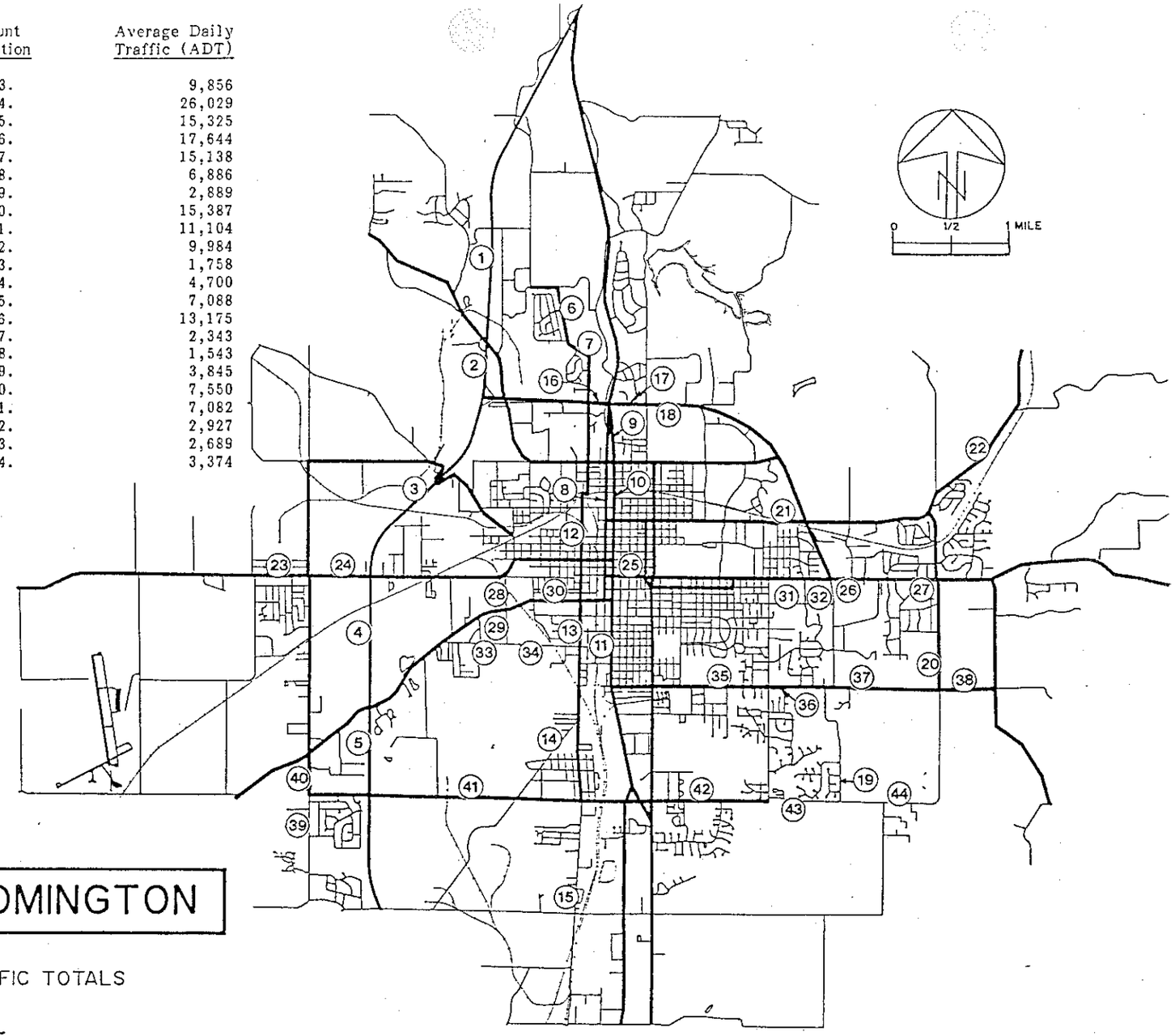
1. The City of Bloomington can identify an Official Truck Route System that will serve the needs of the business community and yet have minimal effects on the residential neighborhoods.

2. Certain roadway improvements should be made along the Official Truck Route System to facilitate turning movements and travel by trucks throughout the City. These are detailed later in the RECOMMENDED IMPROVEMENTS section.

3. A connector on the southeast quadrant between SR 46 and SR 37 should be pursued to complete a circumferential route to encourage "through trucks" to bypass Bloomington. Additional contemplated routes, not yet in existence, could replace certain segments of the proposed Official Truck Route System when completed.

Count Location	Average Daily Traffic (ADT)	Count Location	Average Daily Traffic (ADT)
1.	12,232	23.	9,856
2.	16,535	24.	26,029
3.	20,098	25.	15,325
4.	19,765	26.	17,644
5.	14,393	27.	15,138
6.	1,297	28.	6,886
7.	1,696	29.	2,889
8.	16,139	30.	15,387
9.	10,542	31.	11,104
10.	16,267	32.	9,984
11.	22,124	33.	1,758
12.	9,666	34.	4,700
13.	9,588	35.	7,088
14.	7,359	36.	13,175
15.	4,952	37.	2,343
16.	14,638	38.	1,543
17.	19,100	39.	3,845
18.	18,900	40.	7,550
19.	6,058	41.	7,082
20.	2,324	42.	2,927
21.	9,410	43.	2,689
22.	5,465	44.	3,374

Source: City of Bloomington
City Engineer



CITY OF BLOOMINGTON

AVERAGE DAILY TRAFFIC TOTALS

FIGURE 4

4. Hazardous cargo carriers will be directed around Bloomington on SR 37 and SR 45/46. In the event of an accident where hazardous materials are spilled, if possible, the truck operator shall notify 911 and relay the location of the spill and the material that was spilled. The proper authorities will then be notified.

5. Adequate signage should be installed to identify the Official Truck Route System. The recommended signage is described later.

6. The Official Truck Route System should include the following:

Through Routes

Facility	Description
SR 45/46 (Bypass)	Between SR 37 (Bypass) and 10th Street
SR 46 (Bypass)	Between 10th Street and 3rd Street
SR 46	Between College Mall Road and East Urban Planning Limits
SR 48 (Whitehall Pike)	Between West Urban Planning limits and SR 37 (Bypass)
SR 45 (Bloomfield Pike)	Between West Urban Planning Limits and SR 37 (Bypass)
SR 37 (Bypass)	Between North Urban Planning Limits and South Urban Planning Limits

Destination Routes

Facility	Description
Whitehall Pike	Between SR 37 (Bypass) and Adams Street
Bloomfield Pike	Between SR 37 (Bypass) and Walnut Street
3rd Street	Between College Avenue and College Mall Road
Atwater Street	Between Dunn Street and Mitchell Street
Hillside Drive	Between Walnut Street and Huntington Drive
Vernal Pike	Between Curry Pike and SR 37 (Bypass)
Dodds Street	Between College Avenue and Walnut Street
11th Street	Between Rogers Street and Walnut Street
Allen Street	Between Adams Street and Illinois Central Railroad
Grimes Lane	Between Rogers Street and Walnut Street
College Mall Road	Between 3rd Street and Moores Pike
Mitchell Street	Between 3rd Street and Atwater Street
Dunn Street	Between 3rd Street and Atwater Street
Walnut Street	Between SR 45/46 (Bypass) and South Urban Planning Limits
College Avenue	Between SR 45/46 (Bypass) and Dodds Street
Rogers Street	Between Grimes Lane and Rockport Road
Adams Street	Between Bloomfield Pike and Allen Street
Curry Pike	Between Venal Pike and SR 45 (Bloomfield Pike)
Kirby Road	Between SR 48 (Whitehall Pike) and Gifford Road.

A Destination Route should be used by truck traffic only when the truck has a point of origin or destination point which is accessable only from that Route.

The following route should be added to the Official Truck Route System when needed improvements are completed:

Facility	Description
Adams Street	Between Whitehall Pike and Bloomfield Pike

In cases of emergencies when the Official Truck Route System is incapable of functioning the following routes should be utilized:

Facility	Description
Airport Road	Between Kirby Road and SR 45 (Bloomfield Pike)
Kirby Road	Between Gifford Road and Airport Road
Hillside Drive	Between Huntington Drive and College Mall Road.

Further studies are needed to determine if a new facility can be constructed on or near the Illinois Central Railroad right-of-way between Allen Street and Adams Street. This route, if economically feasible to construct, would then replace the Allen Street/Adams Street route.

This proposed Official Truck Route System is graphically shown in Figure #5.

It is further recommended that the definition of a Truck be ammended. The current description of a Truck in Section 15.28.010 of the City Ordinances states "For purposes of this chapter, "truck" shall mean any vehicle designed or operated for the transportation of property whose body weight or combined body and load weight exceeds five tons. The phrase "and/or has more than 6 wheels" should be added to the description given above.

RECOMMENDED IMPROVEMENTS

The recommended improvements can be separated into two (2) categories; general improvements and specific improvements.

General Improvements

An inside turning radius of at least 40 feet should be provided for any intersection where two truck routes intersect and a right turn maneuver is permissible and there is only one lane receiving the turning truck. Where there are multiple lanes available for the truck to turn into this minimum effective radius can be reduced to 30 feet. Examples of these turning radii are given in the Technical Appendix.

Efforts should be made to provide 12' lanes for truck routes.

Due to the longer start-up time for a truck from a stop condition maximum sight distance should be provided at intersections. Efforts should be made to maintain intersections that are relatively free from signs, billboards and other sight restricting "clutter" that is not essential to the operation of the street system.

All improvements should conform to design standards prescribed in A Policy on Geometric Design of Highways and Streets, 1990 from AASHTO.

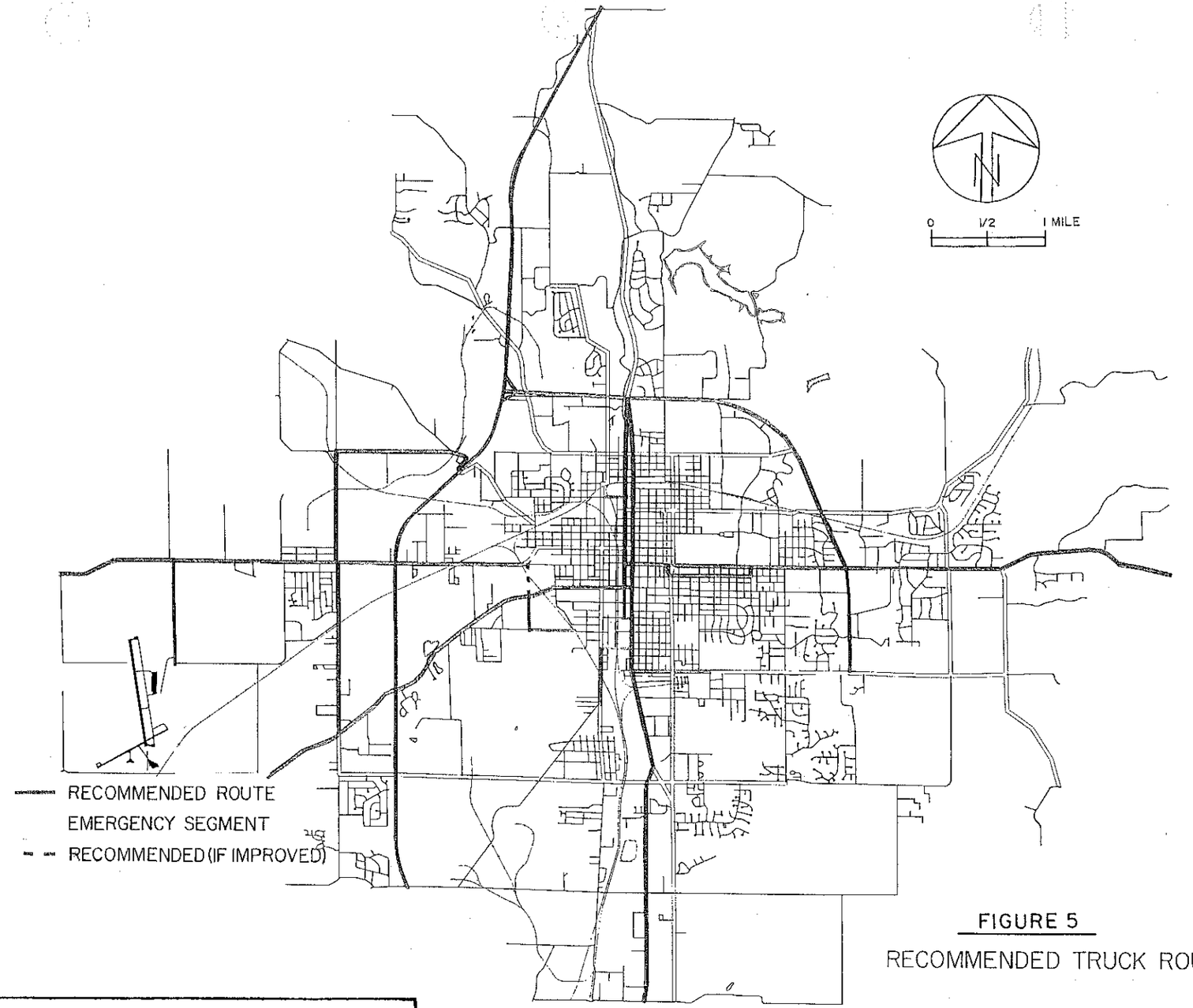


FIGURE 5

RECOMMENDED TRUCK ROUTE

CITY OF BLOOMINGTON

Specific Improvements

A recent improvement project at the Illinois Central Railroad bridge, on North College Avenue, has lowered the roadway to allow the larger trucks to pass under it with the existing maximum dimensions. This improvement does not however, provide for any increases to the maximum limits of legal trucks. This location should be reviewed again for vertical clearance if there are any changes to the maximum dimensions of legal trucks allowed on Indiana highways.

Adams Street between Bloomfield Pike and Whitehall Pike needs to be reconstructed. An improved pavement section should be provided. A quality, full-depth pavement should be provided (either asphalt or concrete) with full 12' lanes and adequate shoulders. This work should be completed and coordinated with work to rebuild the railroad crossing at the Illinois Central Railroad. Intersection geometrics at Whitehall Pike should be improved to provide adequate turning radii and better sight distance. This would be a major project as it will involve the realignment and intersecting point of 3rd Street to the east and the connection along Adams Street with Kirkwood Avenue.

The intersection of Adams Street at Allen Street should be modified. Currently the turning radii are too short and the intersection is located at the top of a hill. The improvement project should include improving the turning radii and an effort should be made to reduce the grade leading to Allen Street on Adams Street.

The intersection of Walnut Street at Hillside Drive needs improvement. An active project being pursued by the City at this intersection should adequately address the geometric deficiencies at this location.

The following intersections would benefit from improvement projects to increase turning radii, improve sight distance, increase lane widths or add capacity:

1. SR 48 at Kirby Road
2. SR 37 at Vernal Pike
3. Rogers Street at Grimes Lane

Two intersections on Airport Road (at Kirby Road and at SR 45) should be improved as they are included in the recommended system in an Emergency capacity. These are low priority however, and for purposes of the Truck Route these improvements should be made after the first three intersections listed above have been improved.

Also, the intersections on Curry Pike at SR 48 and SR 45 should be improved. There is however an active project being pursued by the City to improve Curry Pike which should address these two intersections.

RECOMMENDED SIGNAGE

Any **Official Truck Route Plan** must be clearly identified to promote adherence and allow for enforcement by police agencies. The signs recommended for use in this effort are the R14-1 or R14-4 (Truck Route) as described in the Manual on Uniform Traffic Control Devices (MUTCD), 1988 edition. It is recommended that they be installed on all roadway segments entering the urban limits to confirm that the facility is a truck route. It is further recommended that one sign be installed for all directions

of any truck route leaving the intersection with another truck route. These should be placed on the route marker assembly for State routes or within 300 feet of the intersection if the two truck routes do not involve a State route. Selective confirmation signs could be used on truck routes following major intersections with roadways that are not included in the **Official Truck Route Plan.**

It is recommended to install a few R14-5 signs (NO TRUCKS) at selected locations along those roadway segments that were on the existing truck route but are not included in the recommended Official Truck Route. Three examples of these roadways are Old SR 37 between new SR 37 (bypass) and SR 45/46 (bypass); Rogers Street; and Kirkwood Avenue.

A reprint of the MUTCD page 2B-37 is shown in the Technical Appendix. This shows the signs referenced above.

LANE BLOCKAGE RESTRICTIONS DUE TO DELIVERY VEHICLES

Efforts should be made at all times by truck operators to utilize loading docks and areas, alleys and minor streets when loading or unloading their vehicles. This will increase safety on the major roads and reduce the number of delays for the entire motoring public.

These actions should be voluntary at all times, however it is recommended that a restriction on delivery vehicles be imposed such that they do not block a lane of traffic for delivery purposes in the Central Business District. This restriction should be enforced between the hours of 11:00 AM to 1:00 PM during any weekday. These restrictions should be enforced on College Avenue and Walnut Street between 3rd Street and 7th Street. It should be enforced on 3rd Street, 4th Street, 6th Street and 7th Street between College Avenue and Washington Street as well as 5th Street between College Avenue and Indiana Avenue. It should also be enforced on Indiana Avenue and Dunn Street between Kirkwood Avenue and 3rd Street.

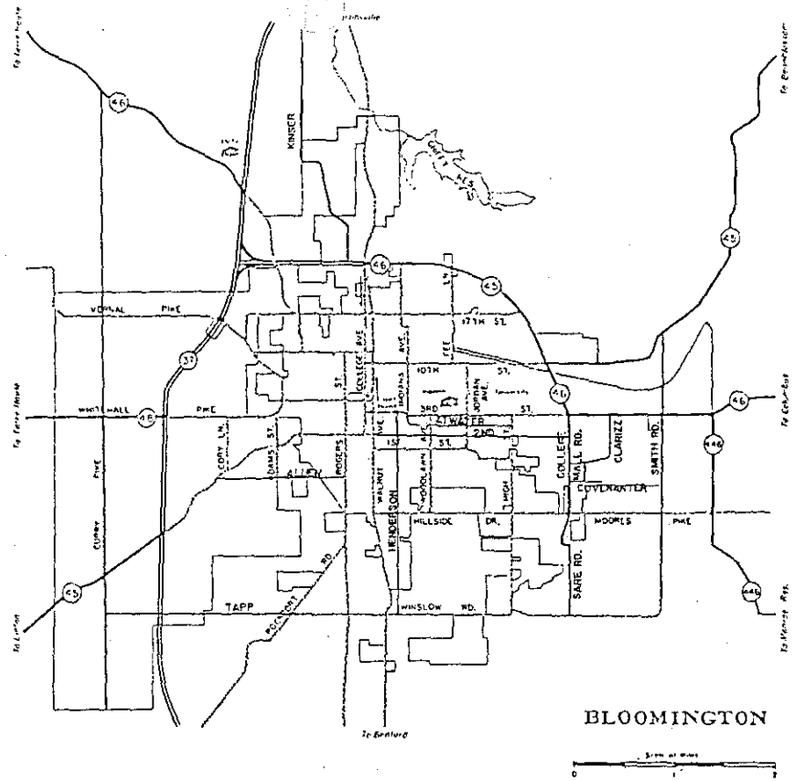
EDUCATIONAL RECOMMENDATIONS

The Official Truck Route System should be shown on a small, one page, flyer along with a written description as given in this report and distributed to those truck operators and businesses that were sent the original survey questionnaire. This would provide a means for these people to educate their truck operators about the Official Truck Route System.

A large scale map showing the Official Truck Route System should be on display in City Hall for easy access and use by the public and City staff.

The police departments who would be involved in enforcing this System should be given copies of the System. It is further recommended that a grace period be identified and publicized by the police departments with warnings being issued in lieu of violations during this grace period. The length of the grace period should be determined by the law enforcement agencies, however two (2) months would seem appropriate.

TECHNICAL APPENDIX



What type(s) of cargo is transported by your trucks?

_____

Is any cargo considered to be hazardous? Yes ____ No ____

If yes, what? _____

Does your facility have any active plans for expansion that will affect the number of truck trips entering or leaving your facility?

Yes ____ No ____ If yes how soon? Within: 5 years _____ or 10 years _____

How many more truck trips will be generated by this expansion? Daily ____ AM peak hr. ____ PM peak hr. ____

Is your facility on an existing official truck route? Yes ____ No ____
If yes, is the truck route adequate for your needs? Yes ____ No ____
If no, what would you like to see improved? _____

_____

STAPLE HERE

FROM

_____
_____
_____
_____

Send to:

Mayor Tomilea Allison
City of Bloomington
P.O. Box 100
Bloomington, In.
47402

Attn: Planning Dept.

SURVEY OF TRUCKS ENTERING YOUR FACILITY

Number of Trucks Entering Your Facility Each Work Day from Origins	Type of Truck: Single Unit 6 wheels or more Max Length ____	10 Wheel Semi Max Length ____	18 Wheel Semi Max Length ____	OTHER (please sketch) Max Length ____	TOTAL
Within Bloomington Urban Area (See Map)					
Beyond Bloomington Urban Area:					
a. from the North - from or beyond Indianapolis, IN					
b. from the South - from or beyond Bedford, IN					
c. from the East - from or beyond Columbus, IN					
d. from the West - from or beyond Washington, IN					
Total Trucks Per Weekday Entering Facility					

During your busiest times, what percentage of the total number of trucks:

a. enter the facility during AM peak hour? ____ % Peak hour is between _____ AM & _____ AM
b. enter the facility during PM peak hour? ____ % Peak hour is between _____ PM & _____ PM

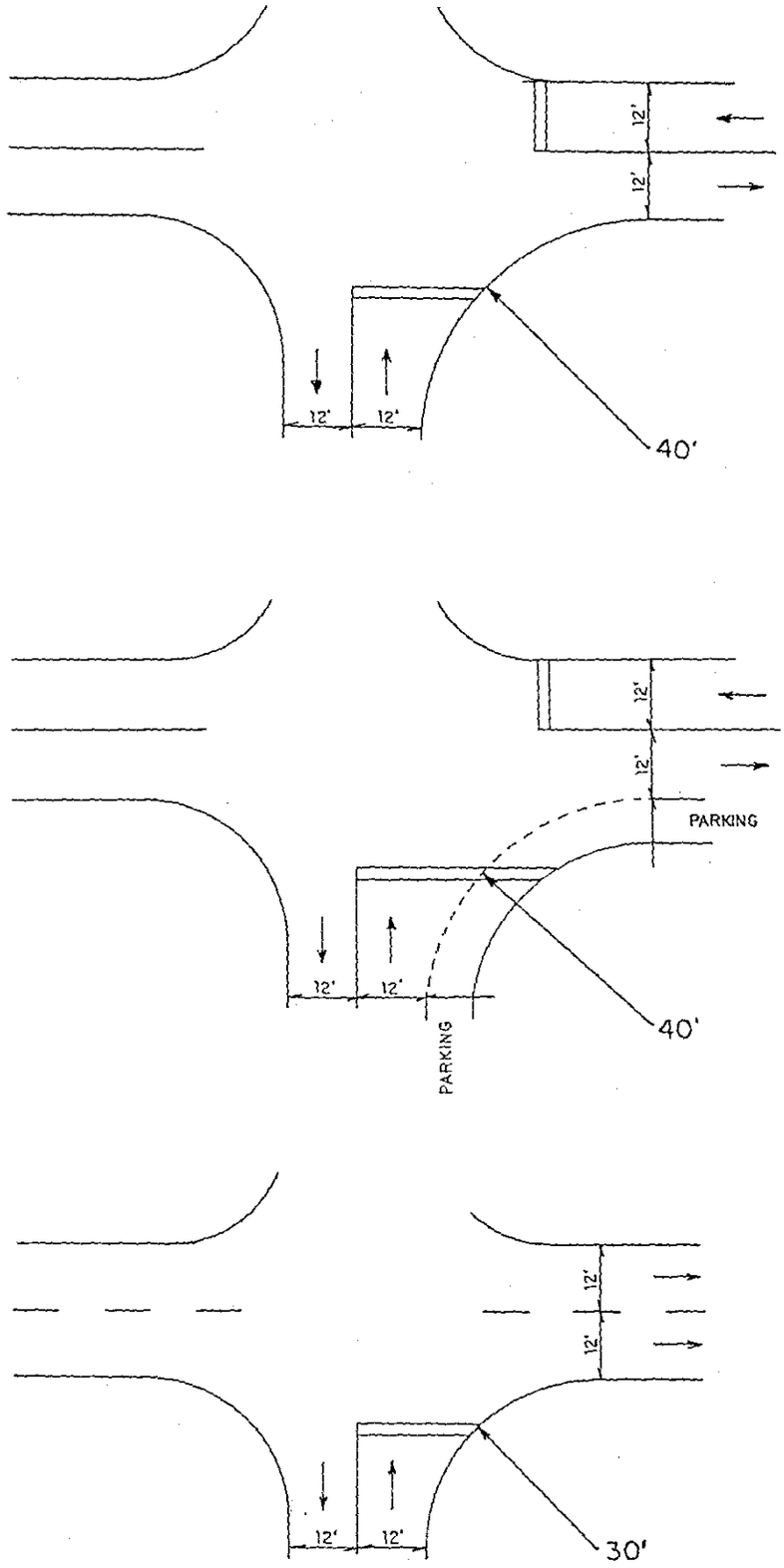
SURVEY OF TRUCKS LEAVING YOUR FACILITY

Number of Trucks Leaving Your Facility Each Work Day to Destinations	Type of Truck: Single Unit 6 wheels or more Max Length ____	10 Wheel Semi Max Length ____	18 Wheel Semi Max Length ____	OTHER (please sketch) Max Length ____	TOTAL
Within Bloomington Urban Area (See Map)					
Beyond Bloomington Urban Area:					
a. to the North - toward or beyond Indianapolis, IN					
b. to the South - toward or beyond Bedford, IN					
c. to the East - toward or beyond Columbus, IN					
d. to the West - toward or beyond Washington, IN					
Total Trucks Per Weekday Leaving Facility					

During your busiest times, what percentage of the total number of trucks:

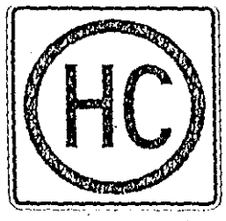
a. leave the facility during AM peak hour? ____ % Peak hour is between _____ AM & _____ AM
b. leave the facility during PM peak hour? ____ % Peak hour is between _____ PM & _____ PM

PLEASE ANSWER THE GENERAL QUESTIONS ON THE BACK AND SHOW THE ROUTE MOST OF YOUR TRUCKS USE ON THE MAP.

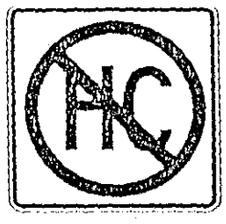


INTERSECTION RADIUS
RECOMMENDATIONS FOR
VARIOUS CONDITIONS

R14-1
24" x 18"

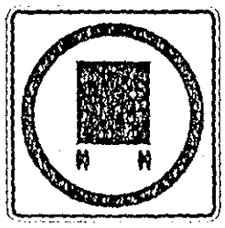


R14-2
24" x 24"

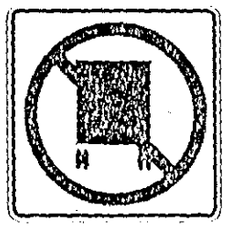


R14-3
24" x 24"

II-33 (c)
II-86 (c)
Rev. 5



R14-4
24" x 24"



R14-5
24" x 24"

R16-1
15" x 20"

2B-44 Other Regulatory Signs

Regulatory signs other than those classified and specified in this Manual may be required to aid the enforcement of other laws or regulations.

Except for symbols on regulatory signs, minor modifications in the design of a device may be permitted provided that the essential appearance characteristics are met. I-7 (Ed.) Rev. 5

Typical miscellaneous regulatory signs are KEEP OFF WET PAINT, NO DUMPING ALLOWED, DO NOT THROW LITTER, NO FISHING FROM BRIDGE, and EMERGENCY AND AUTHORIZED VEHICLES ONLY, the uses of which are sufficiently obvious to require no detailed specifications. Care should be taken to avoid the use of special signs whenever a standard sign will serve the purpose.

When a jurisdiction elects to use a seat belt symbol, the R16-1 symbol shall be used. This seat belt sysmbol is not intended to be used alone but in connection with mandatory seat belt regulatory messages. II-119 (c) Rev. 5