FILE COPY

ENGINEER'S REPORT

U.S. 33 (Lincolnway East)
Added Travel Lanes (G400)

from 0.32 km south of County Road 40 (RP 82+025)
to 0.16 km north of Monroe Street (RP 86+041)
in Goshen in Elkhart County.

Des. No.'s: 9222425 and 9222426
Proj. No.'s: NH-219-4( ) & NH-219-5( ) PE, RW & CN

March 30, 1998

Preliminary Engineering Studies Section
Division of Pre-Engineering and Environment

TABLE OF CONTENTS

I. Purpose of the Report.....1

II. Project Location.....1

III. Need for Project.....1

IV. Field Investigation.....2

V. Existing Conditions.....2

VI. Existing Project Area Description and Land Use.....4

VII. Other Projects in Area.....4

VIII. Traffic Data.....5

IX. Capacity Analysis.....6

X. Correspondence and Coordination.....7

XI. Public Utilities.....7

XII. FHWA Review.....8

XIII. Crash Data.....8

XIV. Project Recommendations (Preferred).....9

XV. Survey Requirements.....15

XVI. Traffic Maintenance.....16

XVII. Right-of-way Summary.....16

XVIII. Environmental Considerations.....16

XIX. Major Project Features.....16

XX. Public Meeting Held.....18

XXI. Estimated Cost.....19

Appendices.....20

INDIANA DEPARTMENT OF TRANSPORTATION
INDIANAPOLIS, INDIANA 46204-2249
INTER-DEPARTMENT COMMUNICATION

March 30, 1998

MEMORANDUM

TO: Brad L. Steckler, Manager
Preliminary Engineering Studies Section
Division of Pre-Engineering & Environment

THRU: Harshad R. Shah, Supervisor
Preliminary Engineering Studies Section

FROM: Gerard F. Mroczka, Senior Highway Engineer
Preliminary Engineering Studies Section

SUBJECT: Engineer's Report

Des. No.'s:	9222425 & 9222426
Project No.'s:	NH-219-4( ) & NH-219-5( ) PE, RW & CN
Route:	U.S. 33 (Lincolnway East)
Type of Work:	Added Travel Lanes (G400)
Length:	6.21 km (3.86 miles)
County:	Elkhart
Location:	From 0.32 km south of C.R. 40 to 0.16 km north of Monroe Street in Goshen

I. PURPOSE OF THE REPORT:

This Engineer's Report outlines the scope of work to add travel lanes to U.S. 33 from C.R. 40 to Monroe Street in Goshen. Options considered range from the "Do Nothing" alternate to widening to an urban four lane divided with a two way left turn lane (TWLTL) median. It describes the project at a preliminary level. All relevant background data are included. This report's conclusions and recommendations will guide the succeeding environmental and design phases.

II. PROJECT LOCATION:

This proposed added travel project is located within the Goshen urban area boundary in Elkhart County. The project has been broken into two "mother" projects. The first, Des. No.: 9222425 shall begin approximately 0.32 km south of C.R. 40 (RP 82+025) and shall end about 0.16 km north of College Ave. (RP 85+003). The second, Des. No.: 9222426 shall begin approximately 0.16 km north of College Ave. and shall end at 0.16 km north of Monroe Street (RP 86+041). The project is located within Fort Wayne District.

III. NEED FOR PROJECT:

This 6.21 km section of U.S. 33 between C.R. 40 and Monroe Street currently consists primarily of a two lane section with auxiliary lanes at most intersections and major development locations. With current daily traffic as much as 18,200 vpd resulting in capacity of level of service (LOS) F, the existing

two lane facility is not sufficient to handle through traffic and is less capable of accommodating turning movements at various drives and businesses. Along with the increasing delay, conditions contribute to rear-end and right angle type crashes as evidenced in the study of crash reports in the area. U.S. 33 pavement condition is in fair condition with poor roadway drainage. In addition, U.S. 33 is a major truck route that connects such cities as Fort Wayne to the south to Elkhart and South Bend to the north.

With the aim of relieving congestion and crash frequency due to the increase of commercial development, the addition of travel lanes is a versatile improvement and represents the best solution to the current inadequacies.

IV. FIELD INVESTIGATION:

A field investigation was held on December 10,1997 for the above referenced project. Those in attendance were Gary Mroczka, Jim Sturdevant and Jason Bowers of INDOT Preliminary Engineering Studies Section. The purpose of the field inspection was to gather data necessary for the preparation of this added travel lanes Engineer's Report and environmental documents.

V. EXISTING CONDITIONS:

A. U.S. 33 MAINLINE:

This section of U.S. 33 in Elkhart County is a two lane urban principal arterial over level terrain with varying posted speed limits. Between C.R. 40 and C.R. 38, the speed limit is 80 km/h (50 mph). The speed lowers to 64 km/h (40 mph) just south of C.R. 38 and continues to Fairfield Ave. Finally, the last section between Fairfield Ave. and Monroe Street is posted 56 km/h (35 mph). Pavement records show that U.S. 33 was a county road takeover and built in 1915 of 6.1 m wide brick on concrete base. It was then widened and/or overlayed with bituminous six times with the most recent in 1993. The bituminous overlay is in fair to good condition with some reflective cracking.

The typical cross section along U.S. 33 consists of 3.66 m travel lanes, 3.35 m (0.9 m paved) shoulders, 2:1 or flatter side slopes within the existing 20.0 m (10.0 m on each side of centerline) right-of-way. Through the commercial area between Wal-Mart and College Ave., U.S. 33 has been widened to a three lane section with an 5.49 m two way left turn lane (TWLTL) median. Underground and overhead utilities are located along both sides of U.S. 33

B. CROSS STREETS AND INTERSECTIONS:

Within the project termini there are 18 at-grade intersections of which 5 are signalized. The signalized intersections are located at C.R. 38, Wal-Mart Supercenter, Eisenhower Drive, C.R. 36 (College Ave.) and Monroe Street. Exclusive left turn lanes or passing blisters along U.S. 33 are common at all of the signalized intersections. Since, U.S. 33 is a southeast to northwest route north of C.R. 40 to the end of the project, many at-grade intersections intersect U.S. 33 at substandard intersection angles <60°.

1. C.R. 38 Intersection:

The first signalized intersection within the project termini at C.R. 38 consists of three lane legs (passing blister) along U.S. 33 and two lane legs along C.R. 38. The traffic signal is currently a two phase actuated operation. C.R. 38 is a rural local road in an urban setting over level terrain with a posted speed limit of 80 km/h (50 mph) along the west leg and has a 64 km/h (40 mph) posted speed limit along the east leg. C.R. 38 consists of two 3.35 m lanes, 0.6 m or less shoulder, 2:1 or flatter side slopes within the existing 15.2 m (7.6 m on each side of centerline) right-of-way. County Road 38 intersects U.S. 33 at a substandard intersection angle of approximately 45°.

2. Holiday Inn Express / Wal-mart Supercenter Intersection:

The next signalized junction is a four leg intersection with commercial drive minor approaches serving a new Holiday Inn Express to the west and Wal-mart Supercenter to the east. As part of the drive permit, left and right turn lanes were provided along U.S. 33. The minor legs consist of a 90° intersection with three lane commercial drives with a total width of 11.0 m. The existing signal is a three phase actuated operation.

3. Eisenhower Drive / Aldi & Ames Drive Intersection:

The existing four leg 90° intersection at Eisenhower Drive consists of U.S. 33 entering from the south and north, Eisenhower Drive entering from the west and a commercial drive serving Aldi and a vacant Ames store from the east. The west approach consists of a three lane section with 3.66 m travel lanes, 1.83 m shoulders, 2:1 or flatter side slopes within the existing 24.4 m (12.2 m on each side of centerline) right-of-way. The east approach consists of a two lane 9.1 m wide commercial drive approach. The existing signal is a two phase operation.

Eisenhower Drive is classified as an urban local street over level terrain with no posted speed limit. City of Goshen has sent correspondence stating that the posted speed limit is assumed to be 48 km/h (30 mph).

4. C.R. 36 (College Ave.) Intersection:

The next signal along U.S. 33 is a four leg intersection at C.R. 36 (College Ave.). U.S. 33 approaches consist of three lane approaches with a exclusive offset left turn lanes due to passing blisters. College Ave. legs consist of a two lane west approach and a three lane east approach with an exclusive westbound right turn lane. Typical cross section along College Ave. consists of 3.35 m travel lanes, 0.6 m or less shoulders within the existing 13.72 m (6.1 m south, 7.62 m north of centerline) right-of-way.

C.R. 36 (College Ave.) is classified as an urban minor arterial over level terrain with a posted speed limit of 64 km/h (40 mph) along the west approach and 72 km/h (45 mph) along the east approach.

5. Goshen High School Drive / Monroe Street Intersection:

The last signalized intersection at Monroe Street is a 69° four leg intersection with a one way Goshen High School drive entering from the west and Monroe Street entering from the east. Monroe Street consists of generally of two 3.66 m travel lanes, 0.6 m curb and gutter within the existing 18.3 m (9.15 m on each side of centerline) right-of-way. However, there is a short 15 m storage and 15 m taper right turn lane along westbound Monroe Street at the intersection.

Monroe Street is an urban minor arterial over level terrain with a posted speed limit of 48 km/h (30 mph).

6. Other Intersections:

Plymouth Ave. between C.R. 36 and Monroe Street is a two lane urban collector over level terrain with a posted speed limit of 48 km/h (30 mph). It intersects U.S. 33 from the west by a 45° "T" intersection. Plymouth Ave. is the northernmost city street which connects S.R. 15 and U.S. 33 before Downtown Goshen. Plymouth Ave. turns into S.R. 119 at S.R. 15. Typical cross section along Plymouth Ave. consists of 3.0 m travel lanes, 1.2 m shoulders, 2:1 or flatter side slopes within the existing 15.2 m (7.6 m on each side of centerline) right-of-way.

Dierdorff Road, just north of College Ave. is two lane north-south minor arterial which makes up the western leg of a triangle comprised with College Ave. as the south leg and U.S. 33 as the hypotenuse. Dierdorff Road between C.R. 36 and U.S. 33 is currently one way southbound only.

The remainder of the intersections are unsignalized with two lane county roads or city streets. Generally no auxiliary lanes exist along U.S. 33 at these locations.

C. BRIDGES:

There are no bridge structures located within the project termini.

D. DRAINAGE:

Storm water is currently being served by side ditches along both sides of U.S. 33 throughout the project limits. There are no significant cross structures within the project termini.

E. HORIZONTAL ALIGNMENT:

The existing horizontal alignment is tangent except for one standard horizontal curve located just north of Maple City Drive. The curve with a P.I. located at STA. 43+909 has a radius of 436 m, a length of 339 m and a deflection angle of 44° 30' left.

There is no record of existing road plans for this section of U.S. 33. Curve data were approximated, lacking detailed survey, based on aerial photography.

F. VERTICAL ALIGNMENT:

The existing vertical alignment is generally level throughout the project limits. There is no significant grade along the corridor and at this time, lacking detailed survey, appears to be standard.

VI. EXISTING PROJECT AREA DESCRIPTION AND LAND USE:

The project is located within the urban limits of Goshen. Development along the corridor is predominantly industrial between C.R. 40 and C.R. 38, commercial between C.R. 38 and 400 m south of College Ave. and a mixture of commercial and residential for the remainder of the project. U.S. 33 serves many industrial areas featuring manufactured housing plants as well as Goshen Municipal Airport located 1.6 km south of the project limits. Elkhart County Fairgrounds is located along Monroe Street approximately 1.5 km east of U.S. 33. Goshen High School is located along the both sides of U.S. 33 near Monroe Street.

VII. OTHER PROJECTS IN THE AREA:

Including this added travel lanes project, there are three other projects in the area currently in the highway project listings which may have some impact on this project. The projects are:

- Added Travel Lanes
  Des. No.: 9222424
  U.S. 33 from Monroe Street to South Junction of S.R. 15 (Main Street) in Goshen.
  RFL 11/2001
  Project termini and traffic maintenance coordination required.

- Added Travel Lanes
  Des. No.: 9503380
  U.S. 33 from Indiana Ave. to Denver Street in Goshen
  RFL 9/2000
  With the completion of this project as well as Des. No.: 9222424, U.S. 33 shall be a four lane facility between south of Goshen to U.S. 20 Bypass in Elkhart County.

- Small Structure Replacement
  Des. No.: 9407920
  U.S. 33 over Blue Ditch, 0.07 mile N. of West Junction of U.S. 6 in Elkhart County
  RFL 8/2000
  Traffic maintenance coordination required.

City of Goshen as well is developing a reconstruction project along Madison Street, west of Main Street and 3rd Street between Madison and Pike Streets. The proposed facility shall be a mixture of a four lane undivided and four lane divided with left turn lanes. Along Madison Street, the centerline of the facility shall be shifted approximately 16.8 m to the north in order to accommodate modified type "D" public road approaches. Five lane sections shall be provided at Main Street and between Lincoln Ave. and Pike Street. An approximate 75 m horizontal curve shall be provided at Madison and 3rd Streets in order to provide free flow along the corridor. All pavement shall be replaced. New storm sewer shall be provided along the corridor outletting into the hydraulic canal west of 3rd Street.

City of Goshen has developed a thoroughfare plan for the Goshen Area. Recommendations from the plan include constructing truck peripheral routes along all four sides to reduce commercial traffic through downtown Goshen via U.S. 33 and S.R. 15. For map of approximate locations of peripheral roads, see Appendix A-42.

VIII. TRAFFIC DATA:

INDOT Traffic Statistics Unit has provided current and projected traffic data for the major intersections within this added travel lanes project. The existing U.S. 33 mainline average annual daily traffic (AADT) ranges from 9,880 vpd south of C.R. 40 to 18,900 vpd just south of Monroe Street. Design year (2021) projected AADT can be anticipated to increase to 20,620 vpd south of C.R. 40 to 27,450 vpd between Eisenhower Drive and College Ave. Commercial vehicles represent approximately 4-9% of the traffic stream. Design Hourly Volumes (DHV) represents 7-10% along the northbound direction and 5-9% along the southbound direction during the AM peak and 7-11% and 8-12% respectively during the PM peak. All traffic data are shown in Table I or in Appendices A-3 to A-40. The projected AADT volumes have been established assuming that the local truck peripheral roads have been completed by 2011 reducing the commercial vehicles along this section of U.S. 33 to 3-5% of the AADT.

TABLE I
U.S. 33 (Lincolnway East)
Existing & Projected Mainline Traffic Data

Location	Average Annual Daily Traffic (AADT) Vehicles per day (vpd)				Design Hourly Volumes (DHV) % AADT				Commercial Vehicles	
	1997	2001	*2011	*2021	AM Peak		PM Peak		%AADT	%DHV
					NBL	SBL	NBL	SBL		
South of C.R. 40	9,880	11,600	15,990	20,620	10%	5%	7%	11%	10%	5-9%
C.R. 40 to C.R. 38	12,730	14,950	16,490	21,270	9%	5%	7%	12%	5%	3-5%
C.R. 38 to Wal-Mart Supercenter	15,460	18,150	19,900	25,680	8%	7%	9%	10%	5%	3-4%

TABLE I (Cont.)
U.S. 33 (Lincolnway East)
Existing & Projected Mainline Traffic Data

Location	Average Annual Daily Traffic (AADT) Vehicles per day (vpd)				Design Hourly Volumes (DHV) % AADT				Commercial Vehicles	
	1997	2001	*2011	*2021	AM Peak		PM Peak		%AADT	%DHV
					NBL	SBL	NBL	SBL		
Wal-Mart to Eisenhower Drive	16,280	19,110	21,080	27,190	8%	8%	9%	9%	4%	3%
Eisenhower Dr. to College Ave.	17,820	20,530	21,440	27,450	8%	8%	8%	9%	3%	2%
College Ave. to Plymouth Ave.	18,770	21,380	21,800	27,040	7%	8%	9%	8%	3%	2%
College Ave. to Monroe Street	18,900	21,360	21,080	25,500	7%	7%	9%	9%	3%	2%
North of Monroe Street	16,630	18,790	18,460	22,340	7%	9%	11%	10%	3%	2%

*Note: Assumes local truck peripheral roads are complete.

IX. CAPACITY ANALYSIS:

The methodology outlined in the 1994 Highway Capacity Manual, TRB Special Report 209, was used to perform the signalized intersection, two lane highways and urban multilane analysis for this U.S. 33 added travel lanes project. For this project, existing U.S. 33 is operating during the 1997 AM and PM peak hours at a LOS between B and F. The current College Ave. intersection is currently the only element operating over capacity during the 1997 AM peak. With the projected traffic growth, present U.S. 33 can anticipate to decrease to a LOS E or F during the AM and PM peak hours by the year 2021 for the entire corridor. With the proposed improvements, U.S. 33 will operate in 2021 at a LOS C or better during the AM and PM peak hours. For a summary of the capacity analysis performed for this added travel lanes project, see Table II. For more detailed analysis, see Appendices A-44 to A-51.

TABLE II
U.S. 33 (Lincolnway East)
CAPACITY ANALYSIS

U.S. 33	DO NOTHING ALTERNATE				PREFERRED ALTERNATE			
At	2001 AM	2001 PM	2021 AM	2021 PM	2001 AM	2001 PM	2021 AM	2021 PM
South of C.R. 40	NB LOS C SB LOS C	NB LOS C SB LOS C	NB LOS E SB LOS E	NB LOS E SB LOS E	NB LOS C SB LOS C	NB LOS C SB LOS C	NB LOS E SB LOS E	NB LOS E SB LOS E
C.R. 40 to C.R. 38	NB LOS D SB LOS D	NB LOS D SB LOS D	NB LOS E SB LOS E	NB LOS E SB LOS E	NB LOS A SB LOS A	NB LOS A SB LOS A	NB LOS B SB LOS A	NB LOS B SB LOS B
C.R. 38 Intersection	LOS B Delay 9.0	LOS B Delay 6.5	LOS F Delay *	LOS D Delay 29.0	LOS B Delay 7.0	LOS A Delay 4.5	LOS B Delay 10.0	LOS B Delay 10.0
C.R. 38 to Wal-Mart Supercenter	NB LOS D SB LOS D	NB LOS E SB LOS E	NB LOS E SB LOS E	NB LOS F SB LOS F	NB LOS A SB LOS A	NB LOS B SB LOS B	NB LOS B SB LOS B	NB LOS C SB LOS C
Wal-Mart Supercenter Intersection	LOS B Delay 11.0	LOS B Delay 7.0	LOS F Delay *	LOS F Delay *	LOS B Delay 7.0	LOS A Delay 4.5	LOS B Delay 12.0	LOS C Delay 23.0
Wal-Mart Supercenter to Eisenhower Drive	NB LOS D SB LOS D	NB LOS E SB LOS E	NB LOS F SB LOS F	NB LOS F SB LOS F	NB LOS B SB LOS A	NB LOS C SB LOS B	NB LOS C SB LOS C	NB LOS C SB LOS C
Eisenhower Drive Intersection	LOS B Delay 7.0	LOS B Delay 11.0	LOS F Delay *	LOS F Delay *	LOS B Delay 5.0	LOS B Delay 5.5	LOS B Delay 7.0	LOS B Delay 10.0
Eisenhower Drive to C.R. 36 (College Ave.)	NB LOS E SB LOS E	NB LOS E SB LOS E	NB LOS F SB LOS F	NB LOS F SB LOS F	NB LOS B SB LOS B	NB LOS B SB LOS B	NB LOS C SB LOS C	NB LOS C SB LOS C
C.R. 36 (College Ave.) Intersection	LOS F Delay *	LOS E Delay 42.0	LOS F Delay *	LOS F Delay *	LOS B Delay 9.0	LOS B Delay 10.0	LOS B Delay 13.0	LOS B Delay 12.0

Note: LOS = Level of service, Delay units are sec/vehicle, * = delay immeasurable (v/c > 1/PHF = 1.0526)

TABLE II (Cont.)
U.S. 33 (Lincolnway East)
CAPACITY ANALYSIS

U.S. 33	DO NOTHING ALTERNATE				PREFERRED ALTERNATE			
At	2001 AM	2001 PM	2021 AM	2021 PM	2001 AM	2001 PM	2021 AM	2021 PM
C.R. 36 (College Ave.) to Plymouth Ave.	NB LOS E SB LOS E	NB LOS E SB LOS E	NB LOS F SB LOS F	NB LOS F SB LOS F	NB LOS B SB LOS B	NB LOS B SB LOS B	NB LOS C SB LOS C	NB LOS C SB LOS C
Plymouth Ave. to Monroe Street	NB LOS D SB LOS D	NB LOS E SB LOS E	NB LOS E SB LOS E	NB LOS F SB LOS F	NB LOS A SB LOS A	NB LOS B SB LOS B	NB LOS B SB LOS B	NB LOS C SB LOS C
Monroe Street Intersection	LOS B Delay 12.0	LOS C Delay 19.0	LOS F Delay *	LOS F Delay *	LOS B Delay 6.0	LOS B Delay 7.0	LOS B Delay 8.0	LOS B Delay 10.5

Note: LOS = Level of service, Delay units are sec/vehicle, * = delay immeasurable (v/c > 1/PHF = 1.0526)

X. CORRESPONDENCE AND COORDINATION:

During the development of this scope of work, the following have be coordinated with concerning various aspects of the project:

- Cristine Klika – INDOT Executive Office
- Bernard Drerup and Ben Schaffer – INDOT Fort Wayne District
- Jim Poturalski, Ed Tang, Dale Louie and Dan Wampler – INDOT Special Design Group
- Hasmukh Patel – INDOT Design
- Dave Finley – INDOT Hydraulics Unit
- Jim Juricic and Chris Andrews – INDOT Environmental Assessment
- Clemenc Ligocki and Dan Buck – INDOT Division of Planning and Programming
- Allan Kauffman – Mayor of Goshen
- Forrest Miller and Bob McCoige – City of Goshen
- Sandra M. Seanor, Phil Toepp, Troy Moreno and Beth Xie – Michiana Area Council of Governments
- Val Straumins – Federal Highway Administration (FHWA)
- Sam Willits – Goshen Chamber of Commerce

For minutes of meetings held concerning the scope of this project and other correspondence, see Appendices A-52 to A-65.

XI. PUBLIC UTILITIES:

Overhead and underground utilities shall be relocated as part of this project. The high tension transmission tower in the northwest quadrant of U.S. 33 and C.R. 40 intersection shall be relocated. The following is a listing of the utilities that may be affected by the construction of this project:

- Electric: NIPSCO, 300 E. Kercher Road, Goshen IN 46526 (219) 535-0264
- Telephone: General Telephone Co., 129 S. 2nd Street, Elkhart, IN 46516 (219) 294-4549
- Cable: TCI of Michiana, 815 W. Edison Road, Mishawaka, IN 46545 (219) 259-8015
- Gas: NIPSCO, 300 E. Kercher Road, Goshen IN 46526 (219) 535-0264
- Water: Goshen Water Works, 1000 W. Wilden Ave., Goshen IN 46528 (219) 534-5701

- Sewer: Goshen Wastewater Treatment and Utility, 1000 W. Wilden Ave., Goshen IN 46528 (219) 534-5701

XII. FHWA REVIEW:

This project is located on the National Highway System. Based on current guidelines set out by the FHWA and INDOT, the design and construction of the proposed project requires FHWA oversight.

XIII. CRASH DATA:

Traffic crash analysis is performed to identify locations operating undesirably and probable causes. As can be seen from the following crash analysis, there have been a total of 233 recorded crashes within the project limits during the past four (4) year period 1992-1995. Table III summarizes the crash history along U.S. 33. The most frequent crash type were rear end (45%), left turn (15%) and right angle (13%). For a detailed crash analysis, see Appendices A-68 and A-69.

TABLE III
U.S. 33 (Lincolnway East)
CRASH ANALYSIS

Location	Total No. Of Crashes	Property Damage Only	Personal Injury	Fatal	No. of Injuries	Crash Rate (crash / mev)	Most Frequent Types
U.S. 33 @ C.R. 40	9	5	4	0	10	0.73	RA, LT, RE
U.S. 33 @ C.R. 138	2	1	1	0	2	0.16	RE
U.S. 33 @ C.R. 38	31	18	13	0	21	1.52	RE, LT, RA
U.S. 33 @ Eisenhower Drive	0	0	0	0	0	0.00	
U.S. 33 @ College Ave.	26	21	5	0	6	0.98	RE, RT, LT
U.S. 33 @ Fairfield Ave.	8	4	4	0	4	0.37	RE, RT
U.S. 33 @ Plymouth Ave.	12	9	3	0	9	0.55	RE, LT, RA
U.S. 33 @ Reynolds Ave.	4	3	1	0	1	0.18	RE
U.S. 33 @ Sanders Ave.	12	10	2	0	2	0.55	RE, LT
U.S. 33 @ Monroe Street	15	10	5	0	8	0.69	RE, RA
U.S. 33 @ Various Low Volume Streets / Drives	114	83	31	0	54	N/A	RE, LT, RA
Total (Σ)	233	164	69	0	117	N/A	RE, LT, RA

RE = rear end, RA = right angle, LT = left turn, RT = right turn, mev = million entering vehicles

Rear end and right angle type crashes often occur in congested two lane urban arterial roadways due to slow or stop vehicles entering and exiting the facility. With the proposed improvement, additional through lanes and median shall be present to increase the capacity and remove a slowed or stopped vehicle from the through traffic stream.

XIV. PROJECT RECOMMENDATIONS (Preferred):

A. U.S. 33 MAINLINE:

This added travel lanes project shall be developed as a "4R" project in compliance with the Indiana Design Manual, Chapter 46, "At-Grade Intersections", Chapter 49, "Roadside Safety", Chapter 53, "Geometric Design Tables (New Construction/Reconstruction –intermediate)" and any other applicable standards.

This section of U.S. 33 shall be designed as an urban principal arterial over level terrain with three different design speeds. Between C.R. 40 to just south of C.R. 38, a design speed of 80 km/h shall be required. Between C.R. 38 and Fairfield Ave., a 70 km/h design speed shall be obtained and for the remainder of the project, a 60 km/h design speed shall be required.

The purpose of the project is to increase capacity and enhance safety to the existing facility by adding an additional through lane in each direction as well as providing a minimum 4.2 m wide median / left turn lane for left turn vehicles into and out of various drives and side streets. For project support data, see Appendix A-70.

1. Project Limits:

The proposed project shall consist of two separate projects (Des. No.'s : 9222425 and 9222426) let together likely built in two construction seasons. For aerial photographs, see Appendices A-71 to A-80.

The first project (Section #1) shall begin approximately 0.32 km south of C.R. 40 (STA. 42+300) and end at about 0.16 km north of College Ave. (STA. 46+750). The second project (Section #2) shall begin approximately 0.16 km north of College Ave. (STA. 46+750) and will end about 0.16 km north of Monroe Street (STA. 49+000).

2. Typical Cross Section:

Different typical cross sections are recommended for each section of U.S. 33 based on the design speed of the arterial and are shown in Appendices A-81 to A-83. The first typical cross section between C.R. 40 (STA. 42+636) to 0.22 km south of C.R. 38 (STA. 44+150) shall consist of two 3.6 m travel lanes in each direction separated by a 4.8 m median / left-turn lane, typically TWLTL, 3.3 m paved shoulders, 0.81 m combined concrete mountable curb and gutter, 6.0 m clear zone within the minimum right-of-way of 40.0 m (20.0 m on each side of centerline).

Between 0.22 km south of C.R. 38 (STA. 44+150) and Fairfield Ave. (STA. 47+800) the proposed typical cross section along U.S. 33 shall consist of two 3.6 m travel lanes in each direction separated by a 4.8 m median / left-turn lane, typically TWLTL, 0.79 m concrete barrier curb and gutter, 3.0 m clear zone within the minimum 32.0 m (16.0 m on each side of centerline) right-of-way. Between Wal-Mart Supercenter and Fairfield Ave., a 1.5 m buffer strip and 1.5 m sidewalk shall be provided along the west side of U.S. 33.

The final typical cross section for the remainder of the project shall be to provide one 3.6 m and one 3.3 m travel lane in each direction, separated by a 4.2 m median / left-turn lane, typically TWLTL, 0.79 m concrete barrier curb and gutter, 1.5 m buffer strips and 1.5 m sidewalks along both sides within the minimum 26.0 m (13.0 m on each side of centerline) right-of-way. In areas where impact to business is severe due to the additional right-of-way take, the right-of-way shall be minimized by the removal of the buffer strips and `widening the sidewalk to 1.8 m. In these areas, 24.0 m (12.0 m on each side of centerline) total right-of-way width shall be required. A 40 m (25:1) transition shall be required between the two sections.

3. Preliminary Pavement Design:

A preliminary pavement design received from INDOT Materials and Tests is shown in Appendices A-84 and A-85. The proposed mainline pavement treatment shall be to replace the existing pavement due to the condition and the amount of pavement being added. The proposed pavement shall be either 375 ± 25 mm of bituminous material or 275 ± 25 mm cement concrete on subbase for cement concrete pavement on the subgrade. The final pavement design will be given after the geotechnical investigation is completed. The designer shall consult with INDOT's Materials Engineering Section for the final pavement design.

4. Horizontal Alignment:

The existing horizontal alignment shall be maintained in this project.

5. Vertical Alignment:

In general, the existing vertical alignment along U.S. 33 shall be maintained in this project. The proposed profile may need to be adjusted in order to establish drainage in the proposed storm sewer system. With information gathered during survey, verify that the existing grade line satisfies "4R" standards. Adjust the vertical alignment if necessary.

B. CROSS STREETS AND INTERSECTIONS:

1. C. R. 40 Intersection:

- County Road 40 approaches shall be designed as a rural local road over level terrain with a design speed of 90 km/h.
- Provide 30 m storage, 134 deceleration and 30 m taper left turn lanes along the south and north legs. A transition of 120 m (50:1) shall be required between the existing two lane road without median and the proposed 4.8 m median width along the south leg. The southbound outside through lane shall be channelized into an exclusive right turn lane along the north leg in order to reduce the section from two to one through lane.
- Provide standard type "C" and "B" public road approaches along the west and east legs respectively.

2. C.R. 38 (Kercher Road) Intersection:

- Construction limits along C.R. 38 shall extend 190 m west and 135 m east of U.S. 33 with 30 m of incidental construction at each end.
- Channelization along U.S. 33 shall consist of 50 m and 60 m storage left turn lanes with 30 m tapers along the south and north legs respectively. In addition to the left turn lanes, 50 m and 60 m storage, 105 m deceleration with 30 m taper right turn lanes shall be provided along the south and north approaches respectively as well.
- County Road 38 (Kercher Road) shall be designed as a rural local road in an urban setting over level terrain with a design speed of 80 km/h along the west leg and as an urban local street over level terrain with a design speed of 60 km/h along the east leg.

- Channelization along the west leg shall consist of 50 m storage left and right turn lanes with 30 m tapers. A 90 m transition (50:1) shall be required between the existing two lane and the proposed three lane section.

- Channelization along the east leg shall consist of 30 m storage left and right turn lanes with 30 m tapers. A 45 m (25:1) transition shall be required between the existing two lane and the proposed three lane section.

- The proposed cross section along the west leg of C.R. 38 shall consist of 3.6 m travel lanes, 2.4 m shoulders, 6.0 m clear zone within the proposed minimum 24.0 m (12.0 m on each side of centerline) right-of-way.

- The proposed cross section along the east leg of C.R. 38 shall consist of 3.6 m travel lanes, 0.79 m concrete barrier curb and gutter within the proposed 27.0 m (15.0 m north and 12.0 m south of centerline) right-of-way.

- Installation of a modified type "C" public road approaches shall be required along the both legs.

- Modification of the existing traffic signal shall be required due to the new lane configurations.

- The existing substandard intersection angle shall be maintained. A Level Three design exception shall be required.

- For intersection layout, see Appendix A-86.

3. Holiday Inn Express / Wal-Mart Supercenter Intersection:

- Channelization along Lincolnway East shall consist of 75 m northbound and 110 m southbound left turn lanes with 30 m tapers and a 30 m storage, 105 m deceleration with 30 m taper southbound right turn lane. A 105 m deceleration with 30 m taper right turn lane shall be provided at the south entrance into Wal-Mart Supercenter and shall continue to the north entrance.

- Some drive reconstruction shall be required along the both minor approaches to accommodate the new U.S. 33 width and turning radii.

- Modernization of the existing traffic signal shall be required due to the new lane configurations.

- For intersection layout, see Appendix A-87.

4. Eisenhower Drive Intersection:

- Construction limits along the minor legs shall extend 50 m on each side of U.S. 33 centerline with 30 m of incidental construction at each end.

- Channelization along U.S. 33 shall consist of a 60 m storage northbound left turn lane and a 40 m storage left turn lane along southbound U.S. 33 with 30 m tapers. Also a 40 m storage, 105 m deceleration and 30 m taper southbound right turn lane shall be provided along the north leg.

- Installation of a modified type "C" public road approach shall be required along the west leg and a standard commercial drive along the east leg.

- Only minor work shall be required along the minor legs.

- Modernization of the existing traffic signal shall be required due to the new lane configurations.

- For intersection layout, see Appendix A-88.

5. College Ave. (C.R. 36) Intersection:

- Construction limits along College Ave. shall extend 230 m west and 200 m east of U.S. 33 with 30 m of incidental construction at each end.

- Channelization along Lincolnway East shall consist of a 30 m and 60 m storage northbound right and left turn lanes respectively with 30 m tapers along the south leg. The right turn lane shall also include 105 m deceleration. The north leg shall consist of 75 m storage with 30 m taper left turn lane.

- College Ave. shall be designed an urban minor arterial over level terrain with a design speed of 60 km/h along the west approach and 70 km/h along the east approach.

- Due to the close proximity of the Dierdorff Road intersection along the west leg of College Ave. to U.S. 33, construction limits shall extend west of Dierdorff Road in order to provide a three lane section with opposing left turn lanes along College Ave. Channelization along C.R. 36 at U.S. 33 shall include 50 m storage left and right turn lanes along the west leg with 20 m and 30 m tapers respectively. Along the east leg, C.R. 36 channelization shall include 60 m storage left and right turn lanes with 30 m tapers. A 45 m (25:1) and an 81 m (45:1) transition shall be required between the existing two and proposed three lane sections along the west and east approaches respectively.

- The proposed cross section along C.R. 36 shall consist of 3.6 m travel lanes, 0.79 m barrier curb and gutter, 3.0 m clear zone within the proposed minimum 24.0 m (12.0 m on each side of centerline) right-of-way.

- The existing substandard intersection angle shall be maintained. A Level Three design exception shall be required.

- Provide modified type "B" and "C" public road approaches along the west and east legs respectively.

- Modernization of the existing traffic signal shall be required due to the new lane configurations.

- For intersection layout, see Appendix A-89.

6. Dierdorff Road Intersection:

- Channelization along U.S. 33 shall consist of a 105 m deceleration with 30 m taper southbound right turn lane.

- Dierdorff Road shall be maintained as one way southbound. Closer of Dierdorff Road was considered, however a southbound right turn lane would be required at College Ave. resulting in the possible relocation of the bank in the northwest quadrant. Additional storage problems for left turn vehicles may result along C.R. 36 between U.S. 33 and Dierdorff Road.

- The existing substandard intersection angle shall be maintained. A Level Three design exception shall be required.

- For intersection layout, see Appendix A-89.

7. Monroe Street Intersection:

- Construction limit along Monroe Street shall extend 100 m east of U.S. 33 with 30 m of incidental construction.
- Truncate the new 5-lane cross section 150 m north of Monroe Street. The proposed four lane divided section shall be transitioned to the existing three lane section starting 120 m north of Monroe Street. This can be accomplished northbound striping the outside through lane into the exclusive right turn lane north of the intersection for 11th Street. This lane shall be striped temporarily pending completion of the added travel lanes project Des. No.: 9222424.
- Channelization along U.S. 33 shall consist of a 60 m storage with 30 m taper northbound right turn lane and a 60 m storage with 30 m taper southbound left turn lane.
- Monroe Street shall be designed an urban minor arterial over level terrain with a design speed of 50 km/h.
- The existing right turn lane along the east approach shall be extended to provide 50 m storage with a 30 m taper.
- The proposed cross section along Monroe Street shall consist of 3.6 m travel lanes, 0.79 m barrier curb and gutter, 3.0 m clear zone within the proposed minimum 21.1 m (9.1 m south, 12.0 m north of centerline) right-of-way.
- For intersection layout, see Appendix A-90.

8. Other Minor Approaches:

- Standard type "B" public road approaches shall be provided at C.R. 138 and Maple City Drive.
- Standard type "C" public road approach shall be provided at Gorham Drive.
- Standard street approaches with 12.0 m turning radii shall be provided at Fairfield and Plymouth Avenues.
- Standard street approaches with 9.1 m turning radii shall be provided along the west leg of Douglas Street, Reynolds Ave., Egbert Ave. and Sanders Ave.
- Due to close proximity, the east leg of Douglas Street and 15th Street approaches shall be closed and removed.

C. DRAINAGE:

INDOT Hydraulics Unit has provided a preliminary hydraulic review for this section of U.S. 33 and is shown in Appendices A-91 to A-95. Two alternatives have been developed for the proposed storm sewer drainage.

1. Alternate #1 (preferred):

Alternate #1 of the proposed storm sewer drainage plan shown in Appendix A-96 shall be to provide storm sewer drainage throughout the corridor with three potential outlet points. The first outlet shall be into Horn Ditch for storm runoff collected between C.R. 40 to just north of C.R. 38 by either of a 1050 mm round smooth or 0.95 m^2 area horizontal elliptical pipe trunk line with inlet spacing approximately

55.0 m. The second trunk line run between just north of C.R. 38 to just north of College Ave. shall drain into a wetland to the west of U.S. 33 by a 10.0 m perpetual drainage easement. The retention pond shall have a total storage capacity of approximately 5,600 m^3 (≅45% of 12,430 m^3). Finally the remainder of the project shall outlet into either a retention pond on the east side of U.S. 33 between STA. 47+400 and STA. 47+600 or into the gravel pit along the east side of U.S. 33 via a 10.0 m perpetual drainage easement at STA. 47+300. The proposed site of the retention pond could accommodate up to 8,500 m^2 in surface area and should be possible to adequately store a 100 year, 24 hour storm event. The maximum operating depth of the pond would be about 1.29 m.

2. Alternate #2:

Alternate #2 is similar to Alternate #1 except that storm runoff between C.R. 38 and College Ave. shall drain into Horn Ditch along College Ave. The primary drawback with outletting into Horn Ditch twice would require some type of detention In order to mitigate the impact of the road runoff on flow in Horn Ditch. It is estimated that in order to provide sufficient detention within the closed system itself, the pipe diameters would have to increase to 1500 mm throughout the entire trunk line run. The Hydraulics Unit does foresee routine maintenance of the proposed system due to insufficient flow velocities for cleanout. The proposed system shall require special precast junction boxes in lieu of standard manhole structures due to the comparatively flat slopes in order to maintain the invert of the storm sewer system above the flow line of Horn Ditch. This alternate is not recommended unless all options in Alternate #1 have been thoroughly examined and discarded.

The designer shall refine and verify all matters related with the storm sewer and other hydraulic structures with INDOT's Hydraulic Unit.

D. SIGNING AND LIGHTING:

Signing shall be upgraded as part of this project by replacing all ground mount sheet signs and potentially installing overhead strain wire sign structures. The City of Goshen or the local utility company currently owns the existing lighting along U.S. 33. If lighting is to be updated during the construction of this project, the owner shall be responsible for the installation, maintenance and operation costs. An agreement shall be required if lighting is to be replaced. A cost estimate for proposed sign work and construction was received from INDOT Specialty Design Unit and is shown in Appendices A-98 and A-99.

The designer shall refine and verify the location and appropriate treatment for the signing and lighting installation with INDOT's Signing and Lighting Unit.

E. OTHER U.S. 33 MAINLINE ALTERNATES:

1. Do-Nothing Alternate:

The "Do-Nothing" Alternative does not involve the disruption of the existing facility by maintaining the continued use of the existing facilities. Therefore, the construction costs are almost none. However, since a heavy traffic volume along U.S. 33 is already present and is anticipated to increase due to the new commercial and industrial development, improvements to improve safety, capacity or serviceability are warranted. Selection of this alternate would leave residents of Goshen with an inadequate transportation facility that will continue to be substandard, congested and deteriorated. Therefore this alternate is discarded.

2. Four Lane Divided Suburban Section:

A four lane divided suburban section was considered between C.R. 38 and College Ave. providing shoulder, clear zone and open drainage. Approximately 5.0 m of additional right-of-way would

be required along both sides of U.S. 33. However, due to the potential increase of commercial development, land use and the requirement for additional right-of-way, this alternate was discarded.

H. MISCELLANEOUS:

The type of channelization treatment at each signalized intersection, either raised concrete curb divider or by lane stripes shall be determined during the design phase. Coordination with Fort Wayne District and the City of Goshen shall be required.

Paving should be done in accordance with current standards. Transition to the existing conditions should be done in a standard manner.

Steve Collins, INDOT Landscape Architect shall be notified during the design phase concerning any landscape item along the south project.

Restore all affected driveways and utilities. Removal of some driveways may be required if found not needed during the design phase. All reasonable attempts to place the existing utilities underground shall be made in order to improve the aesthetics of the corridor. An underground utility survey may be required during the design phase in order to locate all utilities.

For access to all GDS drawings included in this report, they can be found in D$PRO:[PREENG_1.9222426]9222426.fgb.

XV. SURVEY REQUIREMENTS:

Table IV shows the required survey limits for all "S" lines within the project termini. All distances are measured from the centerline of either U.S. 33 or the "S" line and include 30 m of incidental construction. Standard survey shall be required along U.S. 33. All approaches unless otherwise noted below shall have a survey coverage of 80 m from U.S. 33 and 15 m on each side of centerline of the "S" lines.

TABLE IV
U.S. 33 (Lincolnway East)
SURVEY LIMITS

"S" Lines	Min. distance (m) from ℄ of U.S. 33 or "S" Line					
	West Approach			East Approach		
	West	South	North	East	South	North
C.R. 38 (Kercher Road)	230	20	20	600	20	20
C.R. 36 (College Ave.)	260	20	20	230	20	20
Dierdorff Road	90 south	15 west	15 east	N/A	N/A	N/A
East Leg of Douglas Street	N/A	N/A	N/A	100	15	15
Monroe Street	N/A	N/A	N/A	130	15	20

XVI. TRAFFIC MAINTENANCE:

During construction, traffic shall be maintained on the existing facility due to the high traffic volumes and the access required to existing property owners. The proposed traffic maintenance scheme shall be to construct the proposed facility half at a time under traffic. Phase I shall be to construct the

proposed northbound through lanes while maintaining one lane of traffic in each direction on the existing travel lanes. Phase II shall be to construct the southbound through lanes and median while maintaining traffic along the newly completed northbound lanes. If possible, three lane sections along U.S. 33 shall be provided at all signalized intersections. Some temporary closures of local roads and private drives may be necessary during the construction but shall be kept to a minimum.

XVII. RIGHT-OF-WAY SUMMARY:

Right-of-way shall be required for the construction of the proposed roadway and storm drainage retention ponds for each project. Approximately 10.2 ha of industrial, residential, commercial and wetland land involving 130 property owners and six possible relocations shall be required for Section #1 (Des. No.: 9222425). Section #2 shall require an additional 2.11 ha of residential and commercial land, including 0.15 ha for storm water retention. The right-of-way take shall be minimized throughout the corridor after construction limits have been established in the design phase.

Temporary right-of-way shall be required for the reconstruction of private drives. Approximately 0.27 ha and 0.12 ha of commercial land shall be required for Sections #1 and #2 respectively.

XVIII. ENVIRONMENTAL CONSIDERATIONS:

The proposed project was developed and coordinated with INDOT Environmental Assessment Section. The primary environmental considerations of this project involves the right-of-way take to residential, commercial and industrial properties as well as mitigation concerning impacts to the wetland from the outfall of the proposed storm sewer system. The proposed right-of-way purchases represents the minimal amount of land required for the proposals with an attempt to control the number of necessary relocations. There is a historic site located approximately 200 m west of U.S. 33 on the south side of C.R. 38. At this time no additional right-of-way is anticipated. Additional right-of-way shall be required from two service stations along the east side of U.S. 33, the Amoco Gas Station located approximately 440 m north of Eisenhower Drive (STA. 46+000) and from the Clark Gas Station, near Egbert Ave. (STA. 48+625).

The proposed wetland that shall be investigated as a potential outlet for the new storm sewer system shall require some mitigation and coordination with the Indiana Department of Environmental Management (IDEM). Depending on quality, at this time it appears that the wetland is a likely outlet for the storm sewer.

XIX. MAJOR PROJECT FEATURES:

A. Des. No.: 9222425 (Section #1):

Project Length:	4.45 km (2.76 miles)
Functional Classification:	Urban Principal Arterial
Design Standards:	Chapter 53 "Geometric Design Tables" – 4R
Design Speed:	80 km/h – C.R. 40 to C.R. 38
	70 km/h – C.R. 38 to College Ave.
Posted Speed:	64 - 80 km/h (40 - 50 mph)
Terrain:	Level
Access Control:	None (by design, or subsequent permit)
Roadway Width:	2 - 3.6 m travel lanes
Median Width:	4.8 m (TWLTL typically)
Shoulder Width:	3.3 m paved – C.R. 40 to C.R. 38
	0 m (0.79 m combined curb and gutter) - C.R. 38 to C.R. 36
Curb Type:	Mountable – C.R. 40 to C.R. 38
	Barrier – C.R. 38 to C.R. 36

Buffer Strip Width:	1.5 m west side – Wal-Mart Supercenter to College Ave.
Sidewalk Width:	1.5 m west side – Wal-Mart Supercenter to College Ave.
Clear Zone Width:	6.0 m – C.R. 40 to C.R. 38
	3.0 m – C.R. 38 to C.R. 36
Number of Signalized Intersections:	4
Storm Drainage:	New storm sewer
Pavement Treatment:	Replacement
Proposed Right-of-way Width:	Min. 40.0 m (20.0 m on each side of ℄) – C.R. 40 to C.R. 38
	Min. 32.0 m (16.0 m on each side of ℄) – C.R. 38 to C.R. 36
Additional Right-of-way:	10.2 ha
	2.49 ha – industrial
	2.49 ha – residential
	2.23 ha – wetland for retention
	2.21 ha – residential
	0.78 ha – agricultural
Temporary Right-of-way:	0.27 ha - commercial
Number of Affected Property Owners:	130
Number of Relocations:	6

A. Des. No.: 9222426 (Section #2):

Project Length:	2.25 km (1.40 miles)
Functional Classification:	Urban Principal Arterial
Design Standards:	Chapter 53 "Geometric Design Tables" – 4R
Design Speed:	60 km/h
Posted Speed:	56 – 64 km/h (35 - 40 mph)
Terrain:	Level
Access Control:	None (by design, or subsequent permit)
Roadway Width:	2 - 3.6 m travel lanes – College Ave. to Fairfield Ave.
	1 - 3.3 m & 1 - 3.6 m travel lane in each direction – Fairfield Ave. to Monroe Street
Median Width:	4.8 m (TWLTL typically) – College Ave. to Fairfield Ave.
	4.2 m (TWLTL typically) – Fairfield Ave. to Monroe Street
Shoulder Width:	0 m
Curb Type and Width:	Barrier, 0.79 m combined curb and gutter
Buffer Strip Width:	1.5 m
Sidewalk Width:	1.5 m
Clear Zone Width:	3.0 m
Number of Signalized Intersections:	1
Storm Drainage:	New storm sewer
Pavement Treatment:	Replacement
Proposed Right-of-way Width:	Min. 26.0 m (13.0 m on each side of ℄)
Additional Right-of-way:	2.11 ha
	1.30 ha – residential
	0.66 ha - commercial
	0.15 ha – pasture zoned commercial for retention pond
Temporary Right-of-way:	0.12 ha - commercial
Number of Affected Property Owners:	67
Number of Relocations:	3

XX. PUBLIC MEETING HELD:

INDOT conducted one informational meeting concerning these U.S. 33 added travel lanes projects as well as the added travel lanes project to the north between Monroe Street to Main Street. The meeting was held on February 3, 1998, at the Chandler Elementary School for the purpose to collect public input for the project. Approximately 195 people attended the meeting. Sixteen persons made public statements at the meeting. A summary of comments received is shown below:

- Brochures / Petition signatures against the project: 1345
- Comments received: approximately 225
- 72 people support the project,
  including the Mayor of Goshen, City Engineer of Goshen and Chamber of Commerce, Face the City Main Street Committee, 28 businesses
- 142 people support the construction of some type of bypass or peripheral road,
  including State Representative Phillip Warner, 6 businesses and First English Lutheran Church
- 24 responses concerning the safety of students and teachers at Chandler Elementary and Goshen High School including both principals form each school and the Goshen School Superintendent.
- 15 persons were against the bypass due to severe economic impacts to existing businesses.
- 16 persons would like to delay the project, build the bypass and re-evaluate the traffic.
- 10 people support the City of Goshen's thoroughfare plan.
- 7 people were concerned about the proposed project's right-of-way take and impact.
- 18 residences of the new subdivision west of U.S. 33 near Dierdorff Road would like to eliminate the southbound right turn lane and close off Dierdorff Road to minimize right-of-way take to their backyards.
- 8 people do not support the current project. No recommendation was given.
- 2 people were against the raised median.

As a result of the overwhelming public support for a U.S. 33 Goshen Bypass at the public information meeting, the Division of Planning and Programming is reanalyzing the bypass issue with coordination and input from MACOG.

XXI. ESTIMATED COST:

A. Des. No.: 9222425 (Section #1):

	1998	2002
U.S. 33 Pavement	$ 6,680,000	$ 8,110,000
S-Line Pavement	$ 880,000	$ 1,070,000
Storm Sewer Drainage	$ 1,430,000	$ 1,740,000
Signal Modernization	$ 240,000	$ 290,000
Traffic Maintenance	$ 600,000	$ 730,000
Misc. Items (Const. Eng., Mob./Demob., etc.)	$ 680,000	$ 820,000
Signing	$ 250,000	$ 310,000
Engineering	$ 650,000	$ 650,000
Roadway Total	$11,410,000	$13,720,000
Permanent Right-of-way	$ 2,680,000	$ 3,260,000
Temporary Right-of-way	$ 30,000	$ 40,000
Right-of-way Total	$ 2,710,000	$ 3,300,000
PROJECT TOTAL	**$14,120,000**	**$17,020,000**

B. Des. No.: 9222426 (Section #2):

	1998	2002
Pavement	$ 3,380,000	$ 4,100,000
Storm Sewer Drainage	$ 640,000	$ 780,000
Traffic Maintenance	$ 300,000	$ 370,000
Misc. Items (Const. Eng., Mob./Demob., etc.)	$ 340,000	$ 420,000
Signing	$ 130,000	$ 160,000
Engineering	$ 290,000	$ 290,000
Roadway Total	$ 5,080,000	$ 6,120,000
Right-of-way	$ 1,140,000	$ 1,390,000
Temporary Right-of-way	$ 20,000	$ 20,000
Right-of-way Total	$ 1,160,000	$ 1,410,000
PROJECT TOTAL	**$ 6,240,000**	**$ 7,530,000**

Note: The cost for 2002 assumes an inflation rate of 5% compounded annually for the next four years respectively (factor 1.2155).

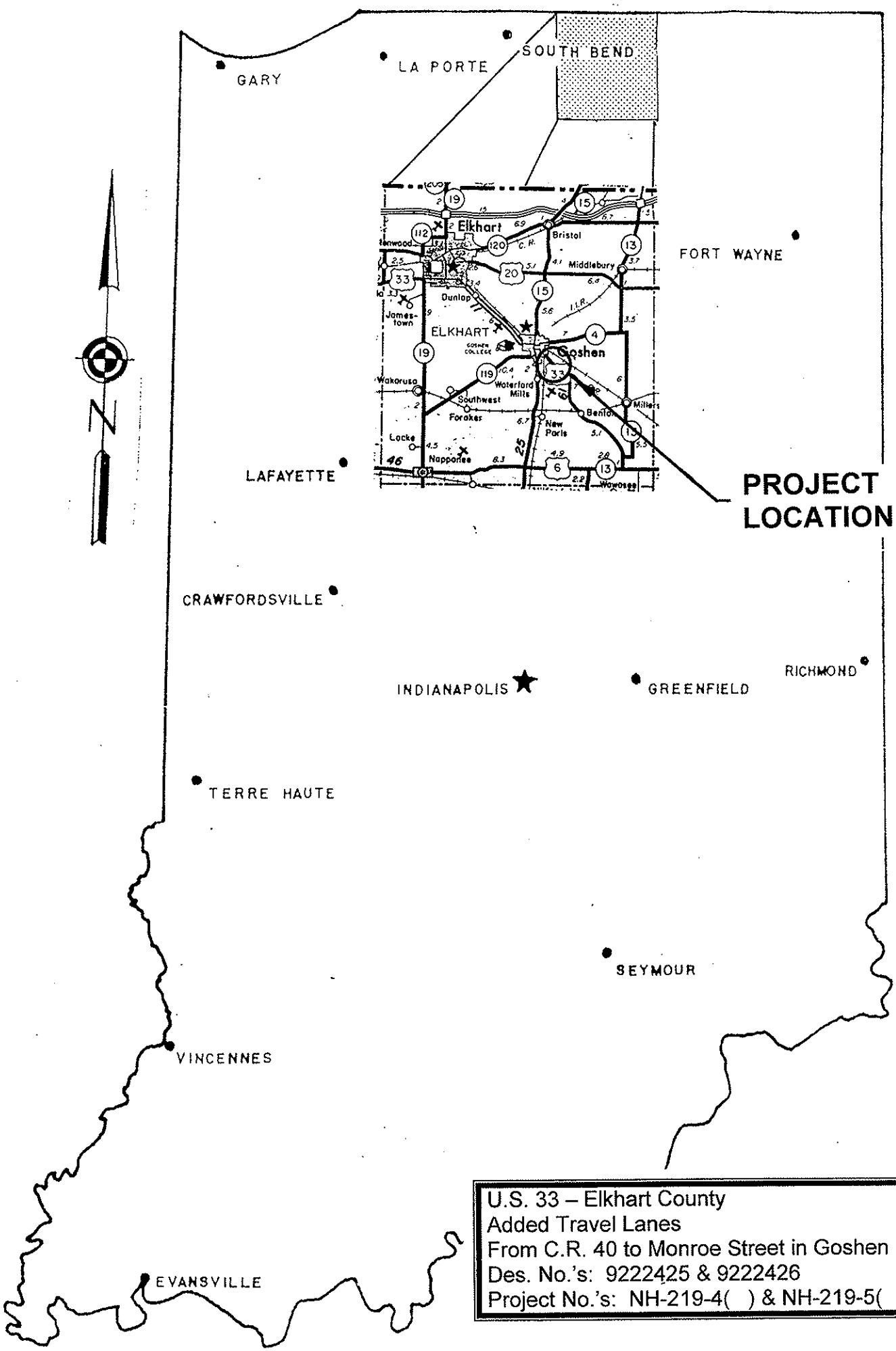
Concur: Brad L. Steckler 3-30-98
Brad L. Steckler, Manager
Preliminary Engineering Studies Section

BLS/GFM/gfm

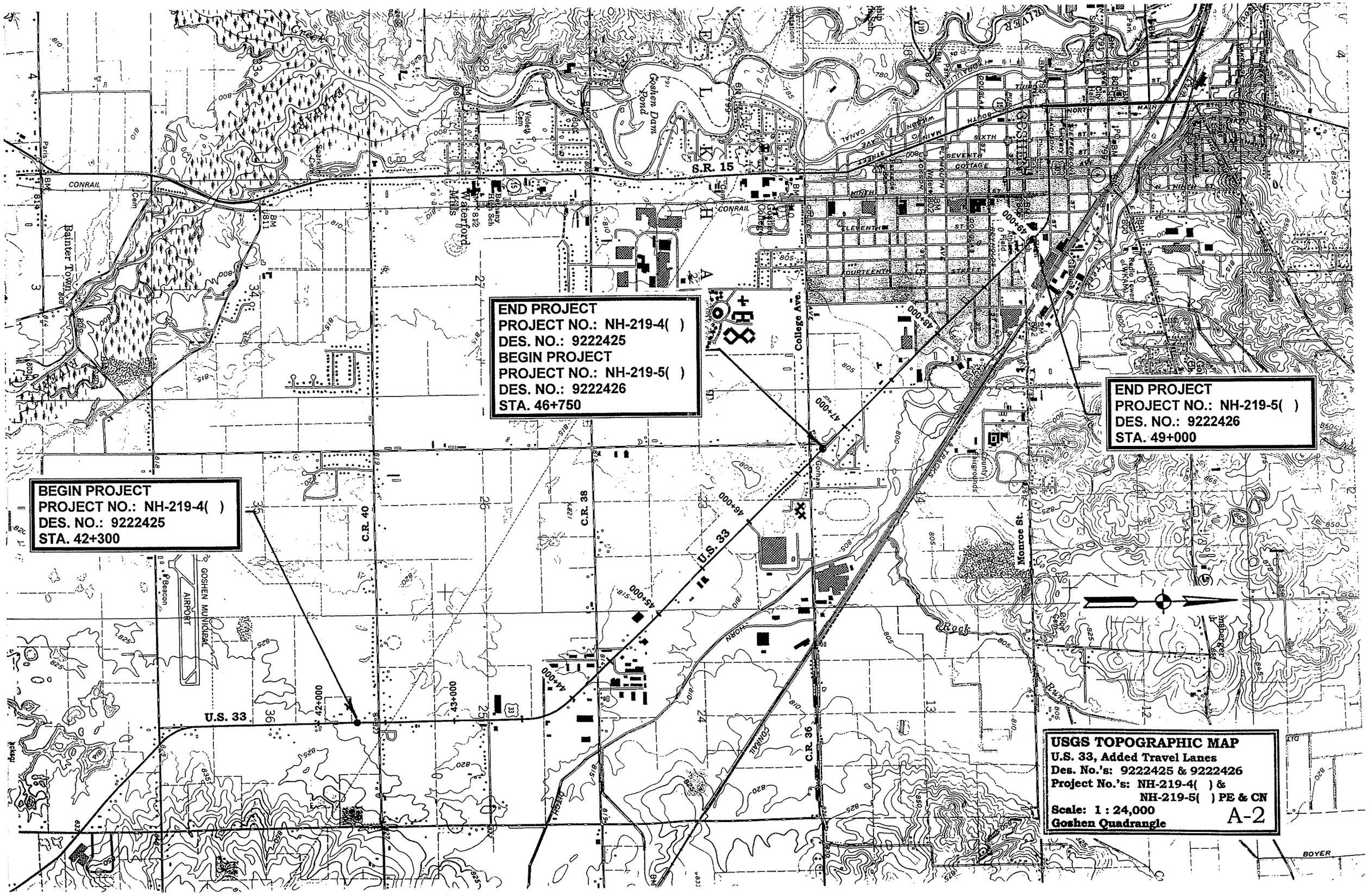
cc: Juricic
Briggs (4)
Poturalski
Patel
Schmidt
Sowers
Heistand
Khan
Kaufmann (Goshen)
Miller / McCoige (Goshen)
Seanor (MACOG)
Drerup / Schaffer (Fort Wayne District)
Steckler / Shah / Mroczka
File

APPENDICES

A-1	Location map
A-2	Topographic map
A-3 to A-21	Traffic data (Alternate A - Existing)
A-22 to A-40	Traffic data (Alternate B – Design Year Volumes)
A-41	MACOG traffic data concurrence
A-42 to A-43	Goshen Thoroughfare Plan traffic
A-44 to A-49	Multilane highways capacity analysis
A-50 to A-51	Signalized intersection capacity analysis
A-52 to A-53	Information for project scoping
A-54 to A-57	Minutes of Scope of work / Planning meeting in Goshen (4/30/97)
A-58 to A-60	Minutes of Inter-Agency scope of work meeting (1/26/98)
A-61	City of Goshen sidewalk coordination
A-62 to A-64	Mayor of Goshen support for project
A-65	Goshen Chamber of Commerce support for project
A-66 to A-67	Minutes of Scope of work meeting with Design (3/26/98)
A-68 to A-69	Crash Analysis
A-70	Project support data
A-71 to A-80	Aerial photographs (1 : 1000 scale)
A-81 to A-83	Proposed U.S. 33 typical cross sections
A-84 to A-85	Preliminary pavement design
A-86	U.S. 33 / C.R. 38 intersection details
A-87	U.S. 33 / Wal-Mart Supercenter intersection details
A-88	U.S. 33 / Eisenhower Drive intersection details
A-89	U.S. 33 / College Ave. (C.R. 36) intersection details
A-90	U.S. 33 / Monroe Street intersection details
A-91 to A-95	INDOT Hydraulic Unit preliminary hydraulic review
A-96	Storm Sewer Drainage Plan – Alternate #1
A-97	Storm Sewer Drainage Plan – Alternate #2
A-98 to A-99	Proposed signing and lighting cost estimate
A-100 to A-108	Photographs



U.S. 33 – Elkhart County
Added Travel Lanes
From C.R. 40 to Monroe Street in Goshen
Des. No.'s: 9222425 & 9222426
Project No.'s: NH-219-4( ) & NH-219-5( )


END PROJECT
PROJECT NO.: NH-219-4( )
DES. NO.: 9222425
BEGIN PROJECT
PROJECT NO.: NH-219-5( )
DES. NO.: 9222426
STA. 46+750
END PROJECT
PROJECT NO.: NH-219-5( )
DES. NO.: 9222426
STA. 49+000
BEGIN PROJECT
PROJECT NO.: NH-219-4( )
DES. NO.: 9222425
STA. 42+300
USGS TOPOGRAPHIC MAP
U.S. 33, Added Travel Lanes
Des. No.'s: 9222425 & 9222426
Project No.'s: NH-219-4( ) &
NH-219-5( ) PE & CN
Scale: 1 : 24,000
Goshen Quadrangle
A-2
S.R. 15
U.S. 33
C.R. 40
C.R. 38
C.R. 36
College Ave.
Monroe St.
CONRAIL
Goshen Dam Pond
Waterford Mills
Painter Town
GOSHEN MUNICIPAL AIRPORT
42+000
43+000
44+000
45+000
46+000
47+000
48+000
49+000

B.B.

Pflum,
Klausmeier & Gehrum
Consultants

47 South
Pennsylvania
Street, 9th Floor
Indianapolis, IN
46204-3622

Tel: 317.636.1552
Fax: 317.636.1345

Engineering
Planning
Landscape Architecture

23 October 1997

Mr. Henry Rhee HR
Traffic Statistics Supervisor
Indiana Department of Transportation
100 N. Senate Avenue, Room N 808
Indianapolis, Indiana 46204-2217

RECEIVED
OCT 24 1997
By

Re: US 33/SR 15 Traffic Forecasts
Goshen, Elkhart County
Des No. 9222424, 25, 26

N: what's Alt. A. Note it.

Dear Mr. Rhee:

Please find enclosed the traffic volume forecast summary sheets and calculations for US 33, SR 15, and 3rd St. in Goshen. The summary sheets represent Alternate A for both the north and south projects as described in the traffic projection requests dated 7/17/97 and 9/11/97. The remaining alternates are currently being developed and will be forwarded to you upon completion, with all alternates to be submitted by 11/17/97.

Several assumptions and variables were used in the development of the forecasts. The assumptions were sent to the MPO (MACOG) and they were in agreement with our rationale. The following list describes the rationale used in developing the forecasts:

South Project (US 33 from Main St. to CR 40 - 11 intersections)

1) The 1996 AADT's compiled by Bernardin-Lochmueller & Associates, Inc. (BLA) were factored up to 1997 based on the growth factors as set forth in our memo dated 9/15/97.

2) The growth rates for 2001, 2011, and 2021 were applied as set forth in the 9/15/97 memo to obtain the 2001, 2011, and 2021 volumes.

3) The volumes on US 33 between Monroe St. and CR 40 were increased to reflect the addition of the Super Wal-Mart intersection (see the attached calculations for the distribution patterns).

4) The DHV and commercial vehicle percentages used in the BLA report were used as "seed" percentages and were adjusted to balance. The classification count taken 9/97 by INDOT verified that the BLA commercial vehicle percentages on US 33 were acceptable.

General Partners:
John E. Pflum, PE
James P. Klausmeier, PE
John E. Gehrum

Offices:
Cincinnati, OH
Indianapolis, IN
Hudson, OH
Glasgow, Scotland

North Project (US 33/SR 15 (Main St.) and 3rd St. from Madison St. to Pike St. - 9 intersections)

1) The existing roadway network was analyzed with 3rd St. functioning as a 2-way operation, as 3rd St. will be 2-way prior to the first horizon year (2001).

2) The base AADT's were generated from the INDOT volume counts conducted 9/97. The volume counts were seasonally and axle-rate adjusted.

3) The AADT's for Main St. and the 2-way operation of 3rd St. were obtained based on the following assumptions:

   a. 25% of the existing NB traffic on 5th St. N. of Madison will divert to 3rd St. via Madison. Also, approximately 10% of the total NB traffic on 6th, 7th & 8th St. will divert to 3rd St. via Madison.

   b. 30% of the existing NB traffic on Main St. will divert to 3rd St.

   c. SB traffic will remain the same on Main St.

   d. On 3rd St., since it will be in 2-way operation, some of the existing SB traffic will divert to Indiana Ave. The diverting volume is 20% of the existing SB volume on 3rd south of Madison. This traffic is most likely heading south to SR 119, which can be accessed by using Indiana.

4) The assumptions in item 3) above produced volume totals on 5th, Main, and 3rd which were approximately equal to the total volumes produced by the MACOG model for 2011 (41,920 vs. 41,400). The volume distributions in the model favored Main St., as the model did not account for 2-way operation on 3rd St.

5) The DHV percentages were obtained from the hourly counts conducted by INDOT 9/97.

6) The turn movement percentages were obtained using old INDOT turn movement counts as a base and then adjusting them according to the diversion patterns.

7) The commercial vehicle percentages were obtained from classification counts conducted on SR 15 and US 33 by INDOT. The Main St. commercial vehicle volumes were obtained via a comparison between the BLA report percentages at the Main/Madison intersection and the old INDOT turn counts.

Pflum,
Klausmeier & Gehrum
Consultants, Inc.

If you have any questions or comments concerning this matter, please contact this office. In the meantime, we will continue to develop the additional alternates. We will keep you advised of our proposed rationale for each alternate prior to commencing work on the summary sheets.

Very truly yours,

PFLUM, KLAUSMEIER & GEHRUM CONSULTANTS, INC.

David A. Henkel

David A. Henkel, P.E.

DAH/jh

Enclosures

#2540.06

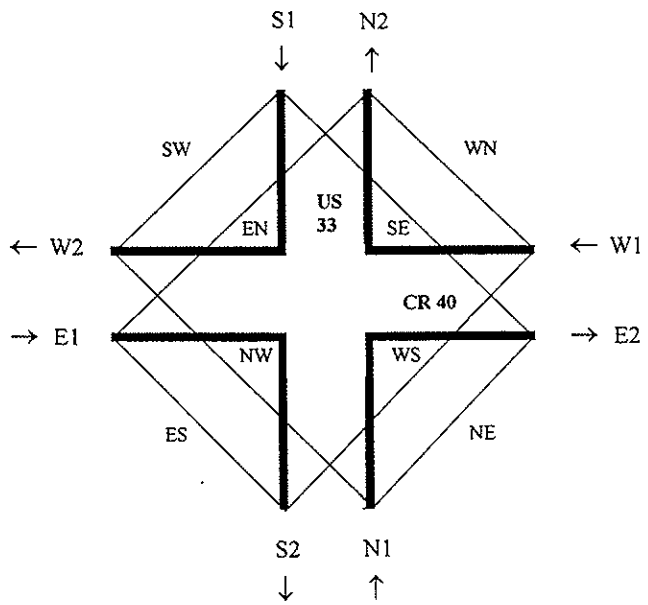
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at CR 40**
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	4,950	5,810	8,010	10,300	10%	10%	6%
S2	4,930	5,790	7,980	10,260	4%	9%	9%
S1	5,260	6,180	8,520	10,950	4%	8%	8%
N2	5,380	6,320	8,710	11,200	9%	9%	6%
E1	640	750	1,040	1,330	6%	2%	2%
W2	530	620	860	1,100	8%	2%	2%
W1	470	550	760	980	6%	2%	2%
E2	480	560	780	1,000	6%	2%	2%
NE	50	60	80	100	10%	2%	1%
NW	70	80	110	150	17%	1%	1%
NT	4,830	5,670	7,820	10,050	10%	10%	6%
SE	260	310	420	540	8%	3%	3%
SW	330	390	530	690	6%	2%	2%
ST	4,670	5,480	7,560	9,720	4%	9%	9%
ES	230	270	370	480	8%	1%	1%
EN	240	280	390	500	7%	3%	2%
ET	170	200	280	350	3%	1%	1%
WN	310	360	500	650	6%	2%	2%
WS	30	40	50	60	7%	3%	3%
WT	130	150	210	270	6%	2%	2%

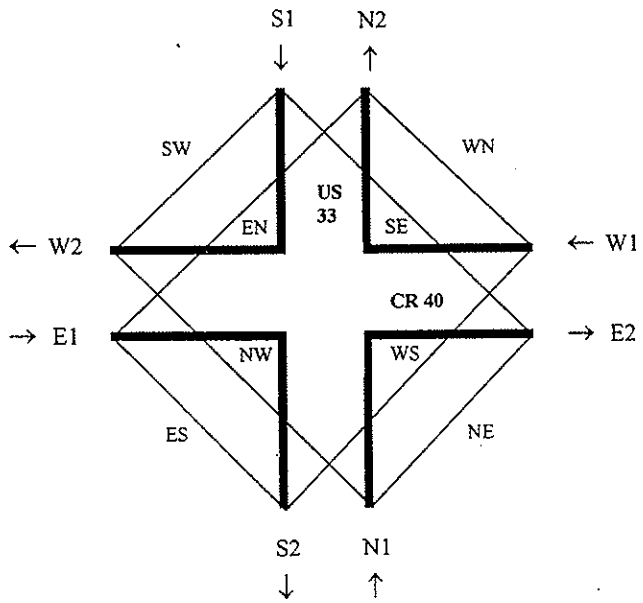
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at CR 40**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	4,950	5,810	8,010	10,300	7%	10%	9%
S2	4,930	5,790	7,980	10,260	11%	9%	5%
S1	5,260	6,180	8,520	10,950	11%	8%	5%
N2	5,380	6,320	8,710	11,200	7%	9%	8%
E1	640	750	1,040	1,330	11%	2%	1%
W2	530	620	860	1,100	6%	2%	2%
W1	470	550	760	980	6%	2%	2%
E2	480	560	780	1,000	13%	2%	1%
NE	50	60	80	100	10%	2%	1%
NW	70	80	110	150	7%	1%	1%
NT	4,830	5,670	7,820	10,050	7%	10%	9%
SE	260	310	420	540	17%	3%	1%
SW	330	390	530	690	5%	2%	2%
ST	4,670	5,480	7,560	9,720	11%	9%	5%
ES	230	270	370	480	12%	1%	1%
EN	240	280	390	500	13%	3%	1%
ET	170	200	280	350	6%	1%	1%
WN	310	360	500	650	6%	2%	2%
WS	30	40	50	60	7%	3%	3%
WT	130	150	210	270	8%	2%	2%

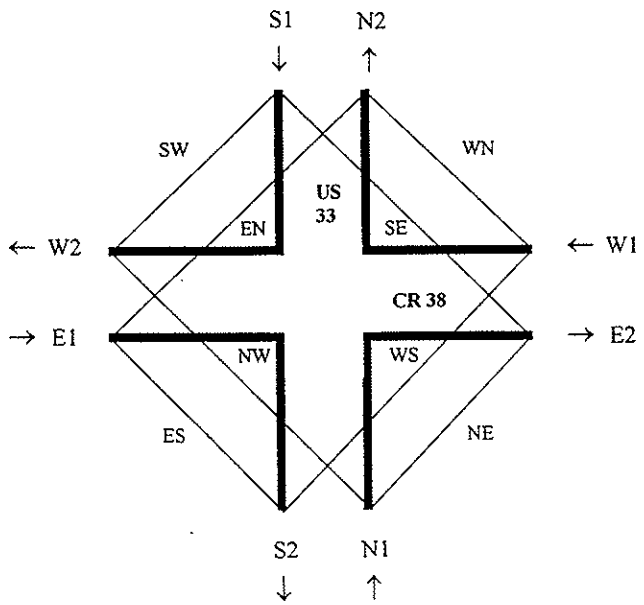
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at CR 38**
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	6,020	7,070	9,750	12,530	10%	9%	6%
S2	6,710	7,880	10,860	13,960	5%	9%	9%
S1	7,580	8,900	12,270	15,770	6%	9%	9%
N2	7,060	8,290	11,430	14,690	8%	9%	7%
E1	2,780	3,260	4,500	5,790	8%	4%	3%
W2	2,550	2,990	4,130	5,310	9%	4%	3%
W1	2,210	2,590	3,580	4,600	7%	4%	4%
E2	2,270	2,660	3,680	4,720	11%	4%	2%
NE	90	110	150	190	11%	11%	6%
NW	670	790	1,080	1,390	15%	4%	2%
NT	5,260	6,180	8,520	10,950	9%	10%	7%
SE	1,040	1,220	1,680	2,160	9%	4%	3%
SW	900	1,060	1,460	1,870	4%	4%	4%
ST	5,640	6,620	9,130	11,740	6%	10%	10%
ES	940	1,100	1,520	1,960	3%	3%	3%
EN	700	820	1,130	1,460	4%	6%	6%
ET	1,140	1,340	1,850	2,370	14%	4%	2%
WN	1,100	1,290	1,780	2,290	5%	5%	5%
WS	130	150	210	270	8%	8%	6%
WT	980	1,150	1,590	2,040	9%	3%	2%

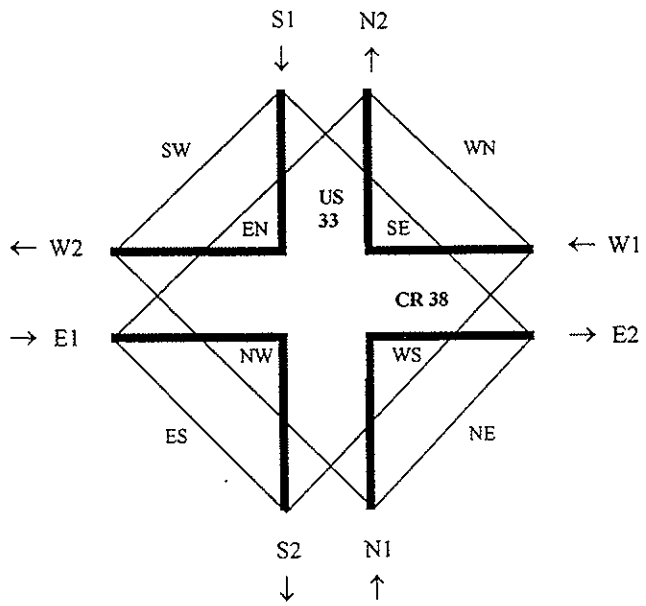
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at CR 38**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	6,020	7,070	9,750	12,530	7%	9%	8%
S2	6,710	7,880	10,860	13,960	12%	9%	5%
S1	7,580	8,900	12,270	15,770	11%	9%	5%
N2	7,060	8,290	11,430	14,690	8%	9%	7%
E1	2,780	3,260	4,500	5,790	9%	4%	3%
W2	2,550	2,990	4,130	5,310	9%	4%	3%
W1	2,210	2,590	3,580	4,600	12%	4%	2%
E2	2,270	2,660	3,680	4,720	8%	4%	3%
NE	90	110	150	190	11%	11%	6%
NW	670	790	1,080	1,390	7%	4%	4%
NT	5,260	6,180	8,520	10,950	7%	10%	9%
SE	1,040	1,220	1,680	2,160	7%	4%	4%
SW	900	1,060	1,460	1,870	7%	4%	4%
ST	5,640	6,620	9,130	11,740	12%	10%	5%
ES	940	1,100	1,520	1,960	9%	3%	2%
EN	700	820	1,130	1,460	10%	6%	4%
ET	1,140	1,340	1,850	2,370	9%	4%	3%
WN	1,100	1,290	1,780	2,290	11%	5%	3%
WS	130	150	210	270	15%	8%	3%
WT	980	1,150	1,590	2,040	12%	3%	2%

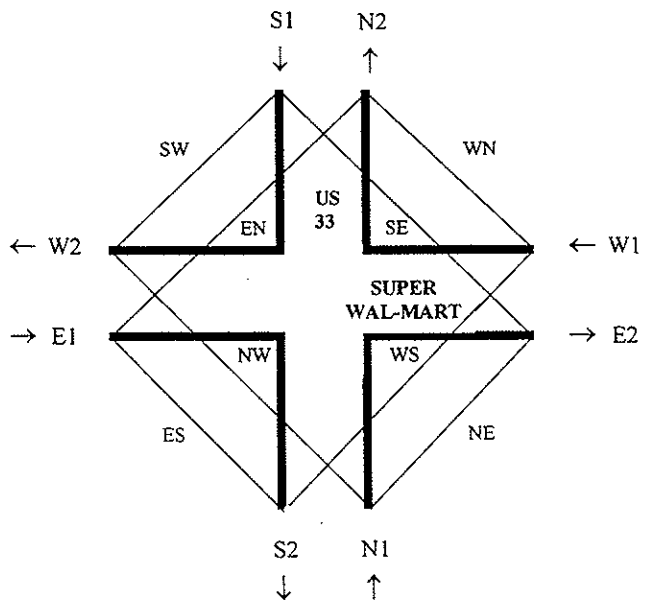
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at Super Wal-Mart**
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	7,540	8,850	12,210	15,690	8%	9%	7%
S2	7,920	9,300	12,820	16,480	7%	9%	8%
S1	8,430	9,900	13,650	17,540	7%	9%	8%
N2	8,810	10,340	14,260	18,330	7%	9%	7%
E1	680	800	1,100	1,420	12%	3%	2%
W2	680	800	1,100	1,420	15%	3%	1%
W1	3,530	4,140	5,720	7,350	6%	3%	3%
E2	2,770	3,250	4,480	5,760	6%	3%	3%
NE	880	1,030	1,420	1,830	6%	1%	1%
NW	310	360	500	650	13%	2%	1%
NT	6,350	7,450	10,280	13,210	8%	10%	9%
SE	1,830	2,150	2,960	3,810	7%	4%	3%
SW	310	360	500	650	16%	3%	1%
ST	6,290	7,380	10,180	13,090	7%	11%	10%
ES	310	360	500	650	10%	2%	1%
EN	310	360	500	650	13%	3%	2%
ET	60	70	100	120	17%	8%	3%
WN	2,150	2,520	3,480	4,470	6%	4%	4%
WS	1,320	1,550	2,140	2,750	6%	2%	2%
WT	60	70	100	120	17%	8%	3%

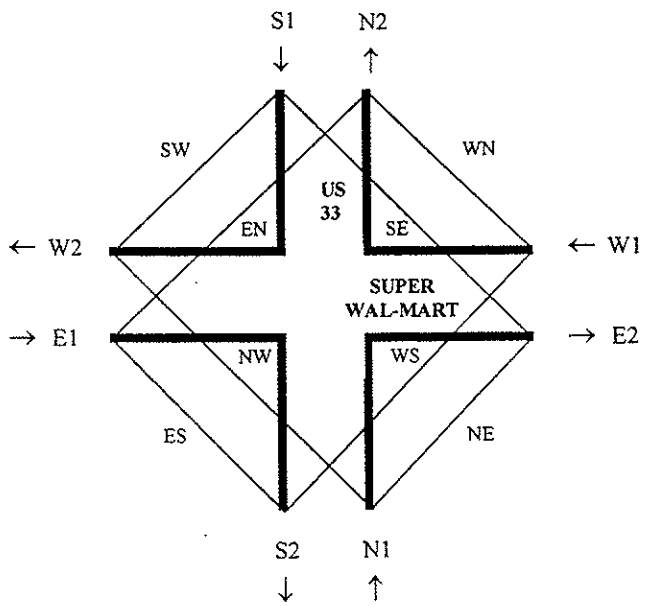
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at Super Wal-Mart**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	7,540	8,850	12,210	15,690	9%	9%	6%
S2	7,920	9,300	12,820	16,480	10%	9%	6%
S1	8,430	9,900	13,650	17,540	9%	9%	7%
N2	8,810	10,340	14,260	18,330	9%	9%	6%
E1	680	800	1,100	1,420	16%	3%	1%
W2	680	800	1,100	1,420	15%	3%	1%
W1	3,530	4,140	5,720	7,350	11%	3%	2%
E2	2,770	3,250	4,480	5,760	10%	3%	2%
NE	880	1,030	1,420	1,830	14%	1%	1%
NW	310	360	500	650	13%	2%	1%
NT	6,350	7,450	10,280	13,210	8%	10%	8%
SE	1,830	2,150	2,960	3,810	9%	4%	3%
SW	310	360	500	650	16%	3%	1%
ST	6,290	7,380	10,180	13,090	8%	11%	8%
ES	310	360	500	650	16%	2%	1%
EN	310	360	500	650	16%	3%	1%
ET	60	70	100	120	17%	8%	3%
WN	2,150	2,520	3,480	4,470	9%	4%	3%
WS	1,320	1,550	2,140	2,750	15%	2%	1%
WT	60	70	100	120	17%	8%	3%

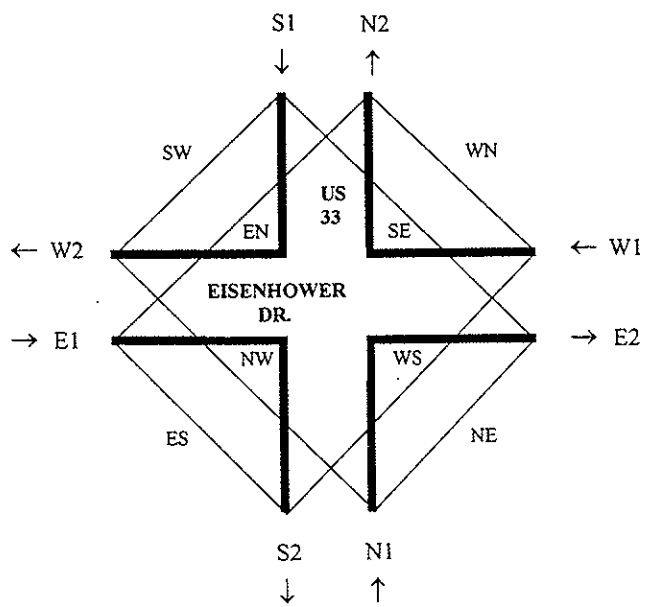
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at Eisenhower Drive**
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	8,340	9,790	13,500	17,360	8%	9%	7%
S2	7,940	9,320	12,850	16,520	8%	9%	7%
S1	7,840	9,200	12,690	16,320	9%	9%	6%
N2	8,230	9,660	13,320	17,130	9%	9%	6%
E1	1,270	1,490	2,060	2,640	9%	4%	3%
W2	1,280	1,500	2,070	2,660	8%	4%	3%
W1	600	700	970	1,250	10%	3%	2%
E2	600	700	970	1,250	10%	3%	2%
NE	330	390	530	690	9%	3%	2%
NW	650	760	1,050	1,350	6%	4%	4%
NT	7,360	8,640	11,920	15,320	8%	10%	7%
SE	200	230	320	420	10%	3%	2%
SW	560	660	910	1,170	9%	4%	3%
ST	7,080	8,310	11,460	14,730	9%	10%	7%
ES	620	730	1,000	1,290	2%	2%	2%
EN	580	680	940	1,210	16%	5%	2%
ET	70	80	110	150	14%	7%	3%
WN	290	340	470	600	14%	2%	1%
WS	240	280	390	500	4%	4%	4%
WT	70	80	110	150	14%	7%	3%

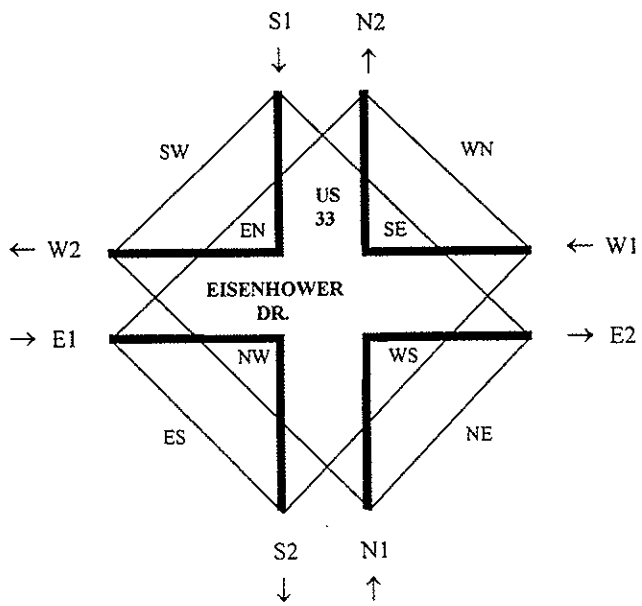
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.174 (4.1%/yr)

2011 Growth Factor:
1.619 (3.5%/yr)

2021 Growth Factor:
2.081 (3.1%/yr)



LOCATION: **Lincolnway (US 33) at Eisenhower Drive**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	8,340	9,790	13,500	17,360	9%	9%	6%
S2	7,940	9,320	12,850	16,520	9%	9%	6%
S1	7,840	9,200	12,690	16,320	9%	9%	6%
N2	8,230	9,660	13,320	17,130	9%	9%	7%
E1	1,270	1,490	2,060	2,640	13%	4%	2%
W2	1,280	1,500	2,070	2,660	16%	4%	2%
W1	600	700	970	1,250	10%	3%	2%
E2	600	700	970	1,250	12%	3%	2%
NE	330	390	530	690	12%	3%	2%
NW	650	760	1,050	1,350	17%	4%	1%
NT	7,360	8,640	11,920	15,320	9%	10%	7%
SE	200	230	320	420	10%	3%	2%
SW	560	660	910	1,170	14%	4%	2%
ST	7,080	8,310	11,460	14,730	9%	10%	7%
ES	620	730	1,000	1,290	15%	2%	1%
EN	580	680	940	1,210	10%	5%	3%
ET	70	80	110	150	14%	7%	3%
WN	290	340	470	600	7%	2%	2%
WS	240	280	390	500	13%	4%	2%
WT	70	80	110	150	14%	7%	3%

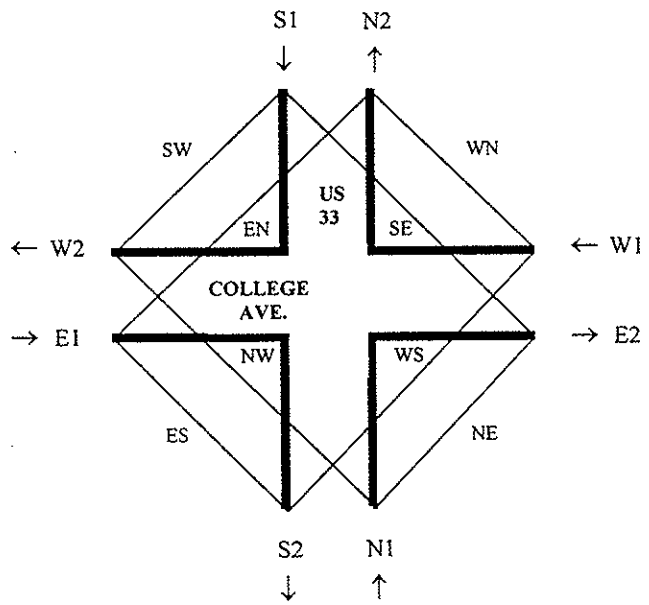
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.152 (3.6%/yr)

2011 Growth Factor:
1.513 (3.0%/yr)

2021 Growth Factor:
1.940 (2.8%/yr)



LOCATION: **Lincolnway (US 33) at College Avenue** CR 36
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	8,950	10,310	13,540	17,360	8%	9%	7%
S2	8,870	10,220	13,420	17,210	8%	9%	7%
S1	7,830	9,020	11,850	15,190	8%	10%	7%
N2	8,800	10,140	13,310	17,070	8%	9%	7%
E1	3,520	4,060	5,330	6,830	11%	3%	1%
W2	2,930	3,380	4,430	5,680	6%	3%	3%
W1	3,860	4,450	5,840	7,490	8%	3%	2%
E2	3,560	4,100	5,390	6,910	14%	3%	1%
NE	1,160	1,340	1,760	2,250	13%	5%	3%
NW	1,320	1,520	2,000	2,560	5%	5%	5%
NT	6,470	7,450	9,790	12,550	8%	11%	8%
SE	1,220	1,410	1,850	2,370	18%	2%	1%
SW	330	380	500	640	3%	3%	3%
ST	6,280	7,230	9,500	12,180	7%	12%	11%
ES	1,620	1,870	2,450	3,140	11%	2%	1%
EN	720	830	1,090	1,400	8%	4%	3%
ET	1,180	1,360	1,790	2,290	12%	2%	1%
WN	1,610	1,850	2,440	3,120	9%	5%	4%
WS	970	1,120	1,470	1,880	6%	2%	2%
WT	1,280	1,470	1,940	2,480	8%	1%	1%

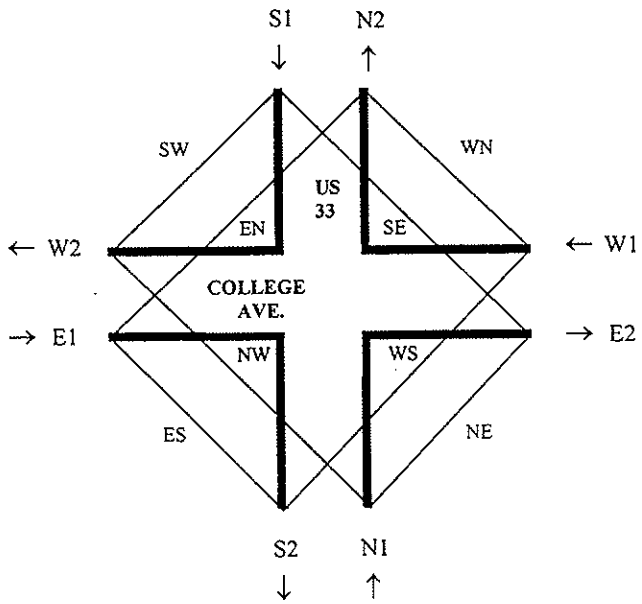
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.152 (3.6%/yr)

2011 Growth Factor:
1.513 (3.0%/yr)

2021 Growth Factor:
1.940 (2.8%/yr)



LOCATION: **Lincolnway (US 33) at College Avenue**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	8,950	10,310	13,540	17,360	8%	9%	7%
S2	8,870	10,220	13,420	17,210	9%	9%	6%
S1	7,830	9,020	11,850	15,190	8%	10%	8%
N2	8,800	10,140	13,310	17,070	9%	9%	6%
E1	3,520	4,060	5,330	6,830	10%	3%	2%
W2	2,930	3,380	4,430	5,680	9%	3%	2%
W1	3,860	4,450	5,840	7,490	11%	3%	2%
E2	3,560	4,100	5,390	6,910	8%	3%	2%
NE	1,160	1,340	1,760	2,250	8%	5%	4%
NW	1,320	1,520	2,000	2,560	8%	5%	4%
NT	6,470	7,450	9,790	12,550	8%	11%	8%
SE	1,220	1,410	1,850	2,370	8%	2%	2%
SW	330	380	500	640	9%	3%	2%
ST	6,280	7,230	9,500	12,180	8%	12%	9%
ES	1,620	1,870	2,450	3,140	10%	2%	1%
EN	720	830	1,090	1,400	13%	4%	2%
ET	1,180	1,360	1,790	2,290	8%	2%	1%
WN	1,610	1,850	2,440	3,120	12%	5%	3%
WS	970	1,120	1,470	1,880	10%	2%	1%
WT	1,280	1,470	1,940	2,480	10%	1%	1%

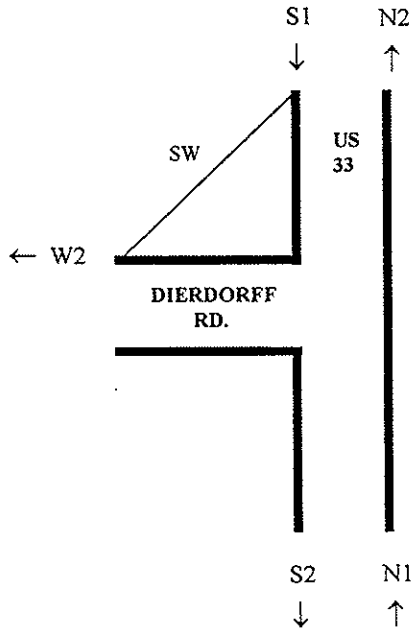
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.152 (3.6%/yr)

2011 Growth Factor:
1.513 (3.0%/yr)

2021 Growth Factor:
1.940 (2.8%/yr)



LOCATION: **Lincolnway (US33) at Dierdorff Road**
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	8,880	10,230	13,440	17,230	8%	9%	7%
S2	7,910	9,110	11,970	15,350	8%	10%	7%
S1	8,900	10,250	13,470	17,270	8%	9%	7%
N2	8,880	10,230	13,440	17,230	8%	9%	7%
W2	990	1,140	1,500	1,920	6%	3%	3%
NT	8,880	10,230	13,440	17,230	8%	9%	7%
SW	990	1,140	1,500	1,920	6%	3%	3%
ST	7,910	9,110	11,970	15,350	8%	10%	7%

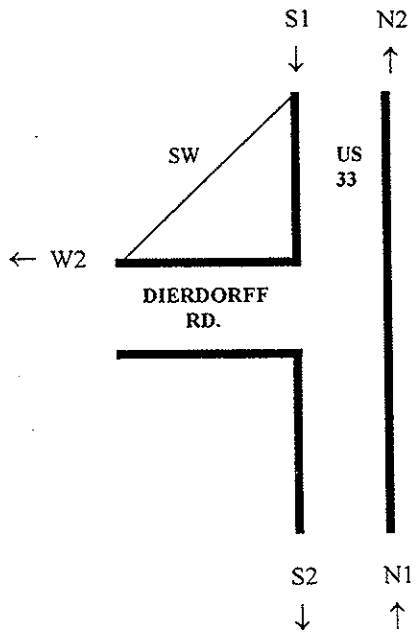
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.152 (3.6%/yr)

2011 Growth Factor:
1.513 (3.0%/yr)

2021 Growth Factor:
1.940 (2.8%/yr)



LOCATION: **Lincolnway (US33) at Dierdorff Road**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	8,880	10,230	13,440	17,230	9%	9%	6%
S2	7,910	9,110	11,970	15,350	8%	10%	8%
S1	8,900	10,250	13,470	17,270	8%	9%	7%
N2	8,880	10,230	13,440	17,230	9%	9%	6%
W2	990	1,140	1,500	1,920	10%	3%	2%
NT	8,880	10,230	13,440	17,230	9%	9%	6%
SW	990	1,140	1,500	1,920	10%	3%	2%
ST	7,910	9,110	11,970	15,350	8%	10%	8%

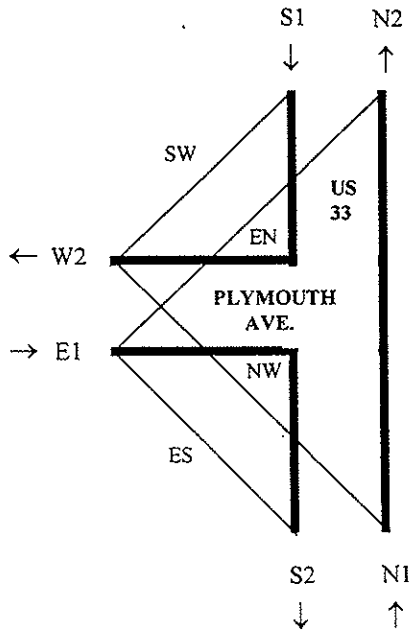
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.139 (3.3%/yr)

2011 Growth Factor:
1.452 (2.7%/yr)

2021 Growth Factor:
1.809 (2.5%/yr)



LOCATION: **Lincolnway (US 33) at Plymouth Avenue**
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	9,350	10,650	13,580	16,910	7%	9%	8%
S2	9,420	10,730	13,680	17,040	8%	9%	7%
S1	9,200	10,480	13,360	16,640	8%	9%	7%
N2	9,310	10,600	13,520	16,840	7%	9%	8%
E1	1,320	1,500	1,920	2,390	7%	4%	3%
W2	1,140	1,300	1,660	2,060	5%	4%	4%
NW	600	680	870	1,090	7%	5%	5%
NT	8,750	9,970	12,710	15,830	8%	9%	8%
SW	540	620	780	980	4%	4%	4%
ST	8,660	9,860	12,570	15,670	8%	9%	7%
ES	760	870	1,100	1,370	9%	4%	3%
EN	560	640	810	1,010	4%	4%	4%

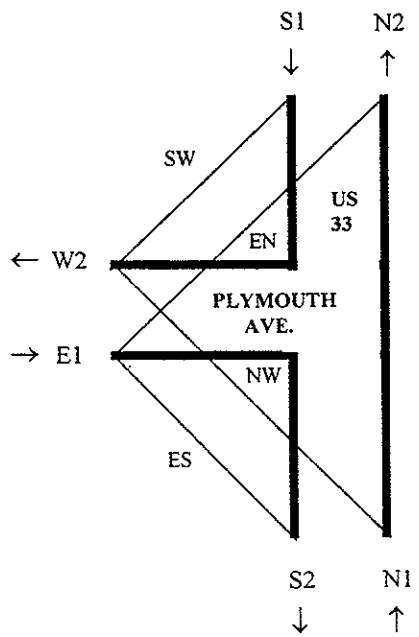
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.139 (3.3%/yr)

2011 Growth Factor:
1.452 (2.7%/yr)

2021 Growth Factor:
1.809 (2.5%/yr)



LOCATION: **Lincolnway (US 33) at Plymouth Avenue**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	9,350	10,650	13,580	16,910	9%	9%	6%
S2	9,420	10,730	13,680	17,040	8%	9%	7%
S1	9,200	10,480	13,360	16,640	8%	9%	7%
N2	9,310	10,600	13,520	16,840	9%	9%	6%
E1	1,320	1,500	1,920	2,390	8%	4%	3%
W2	1,140	1,300	1,660	2,060	10%	4%	3%
NW	600	680	870	1,090	13%	5%	2%
NT	8,750	9,970	12,710	15,830	9%	9%	6%
SW	540	620	780	980	6%	4%	4%
ST	8,660	9,860	12,570	15,670	8%	9%	7%
ES	760	870	1,100	1,370	8%	4%	3%
EN	560	640	810	1,010	7%	4%	3%

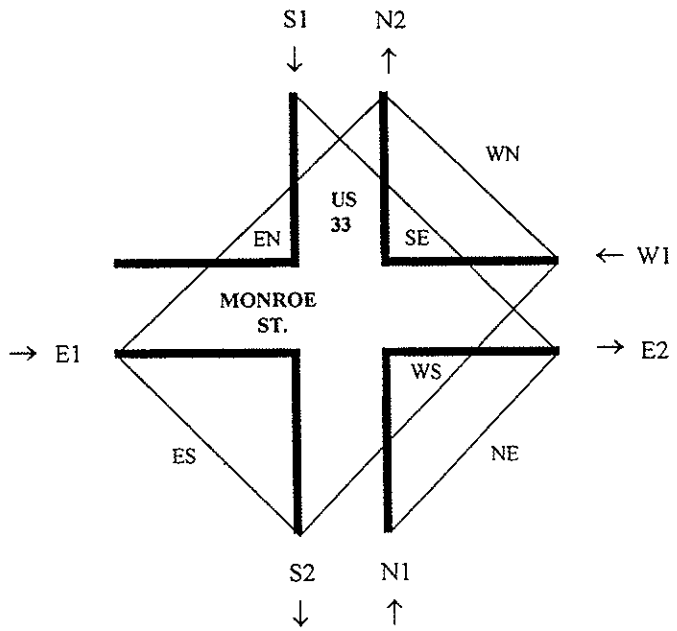
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.130 (3.1%/yr)

2011 Growth Factor:
1.394 (2.4%/yr)

2021 Growth Factor:
1.686 (2.2%/yr)



LOCATION: **Lincolnway (US 33) at Monroe Street**
AM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	9,280	10,490	12,940	15,650	7%	9%	8%
S2	9,620	10,870	13,410	16,220	7%	9%	8%
S1	8,190	9,250	11,420	13,810	9%	10%	7%
N2	8,440	9,540	11,770	14,230	7%	9%	8%
E1	160	180	220	270	6%	3%	3%
W1	4,050	4,580	5,650	6,830	6%	2%	2%
E2	3,620	4,090	5,050	6,100	9%	2%	2%
NE	2,520	2,850	3,510	4,250	7%	3%	3%
NT	6,760	7,640	9,420	11,400	7%	11%	10%
SE	1,090	1,230	1,520	1,840	14%	1%	1%
ST	7,100	8,020	9,900	11,970	8%	11%	9%
ES	10	10	10	20	10%	10%	6%
EN	140	160	200	240	6%	2%	2%
ET	10	10	10	20	10%	10%	6%
WN	1,540	1,740	2,150	2,600	8%	1%	1%
WS	2,510	2,840	3,500	4,230	5%	2%	2%

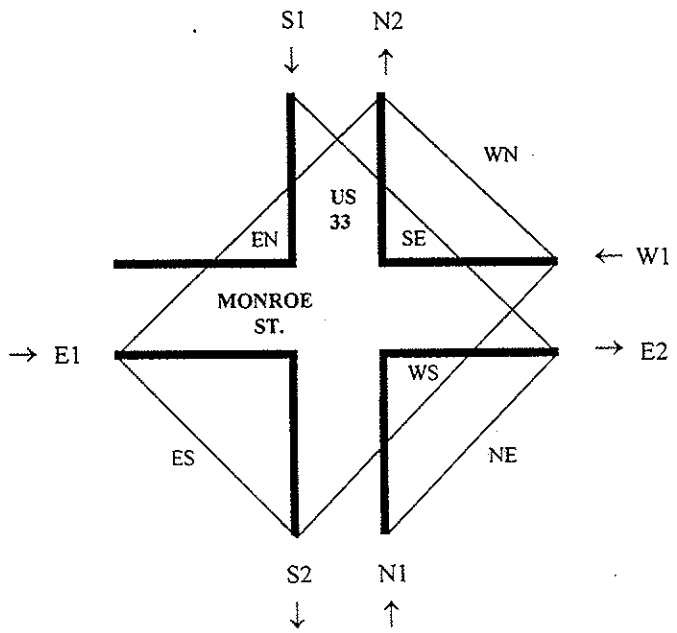
Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 20, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2001 Growth Factor:
1.130 (3.1%/yr)

2011 Growth Factor:
1.394 (2.4%/yr)

2021 Growth Factor:
1.686 (2.2%/yr)



LOCATION: **Lincolnway (US 33) at Monroe Street**
PM PEAK

	1997 AADT	2001 AADT	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLES %DHV
N1	9,280	10,490	12,940	15,650	9%	9%	6%
S2	9,620	10,870	13,410	16,220	9%	9%	6%
S1	8,190	9,250	11,420	13,810	11%	10%	5%
N2	8,440	9,540	11,770	14,230	10%	9%	6%
E1	160	180	220	270	9%	3%	2%
W1	4,050	4,580	5,650	6,830	8%	2%	1%
E2	3,620	4,090	5,050	6,100	11%	2%	1%
NE	2,520	2,850	3,510	4,250	8%	3%	2%
NT	6,760	7,640	9,420	11,400	9%	11%	7%
SE	1,090	1,230	1,520	1,840	19%	1%	1%
ST	7,100	8,020	9,900	11,970	10%	11%	7%
ES	10	10	10	20	10%	10%	6%
EN	140	160	200	240	9%	2%	1%
ET	10	10	10	20	10%	10%	6%
WN	1,540	1,740	2,150	2,600	11%	1%	1%
WS	2,510	2,840	3,500	4,230	6%	2%	2%

B.B.

Pflum,
Klausmeier & Gehrum
Consultants

47 South
Pennsylvania
Street, 9th Floor
Indianapolis, IN
46204-3622

Tel: 317.636.1552
Fax: 317.636.1345

Engineering
Planning
Landscape Architecture

31 October 1997

Mr. Henry Rhee HR
Traffic Statistics Unit Supervisor
Indiana Department of Transportation
100 N. Senate Rm N808
Indianapolis, IN 46204

RECEIVED
NOV 03 1997
By

RE: US 33/SR 15 Traffic Forecasts
Goshen, Elkhart Co.
Des No. 9222424,25,26

Dear Mr. Rhee:

Please find enclosed the traffic volume forecast summary sheets and calculations for US 33, SR 15, and 3rd St. in Goshen. The summary sheets represent the **alternate B** volumes for the years 2011 and 2021 for both the north and south projects as described in the traffic projection requests dated 7/17/97 and 9/11/97. The remaining alternates are currently being developed and will be forwarded to you upon completion, with all alternates to be submitted by 11/17/97.

Several assumptions and variables were used in the development of the forecasts. Detailed calculations were performed to obtain the summary volumes, summarized as follows:

Base Year

MACOG (the MPO for Goshen) developed a model for the year 2011 that produced projected 2-way volumes on various roadway segments in Goshen. The alternate B base year chosen was 2011, because:

a) 2011 is a forecast year for which projections are requested by INDOT, and
b) the peripheral road will probably be constructed by 2011, and
c) using 2011 will allow for a comparison between the PKG and MACOG volumes.

General Partners:
John E. Pflum, PE
James P. Klausmeier, PE
John E. Gehrum

Offices:
Cincinnati, OH
Indianapolis, IN
Hudson, OH
Glasgow, Scotland

Growth Rate

The growth rate factors used for alternate B are the same as for alternate A. The percentage increase in volume from 2011 to 2021 in alternate A was transferred to alternate B, thus creating the same rate of increase in each alternate even though the base year is different (1997 in alternate A, 2011 in alternate B).

Vehicle Diversion Patterns

1) The vehicle diversion patterns were obtained based on the license plate survey conducted as part of the Thoroughfare Plan - City of Goshen conducted by Woolpert Consultants, Inc. in 1996. The percentage of through trips on the various state routes in Goshen was obtained using the percentages in the Woolpert study.
2) For passenger vehicles, the survey reported that 63% of the vehicles recorded in the survey entering on a state route were matched exiting on a state route. Therefore, accounting for observer error (misread plates, etc.), it was assumed that 70% of the state route trips were through trips. Some of the through trips were not direct through trips as indicated in the study. The non-direct through trips will not

divert to the peripheral road, and were not included in the diversion potential volumes shown in the calculations.

3) The actual passenger vehicle diversion percentages from each route to the peripheral road were calculated based on the proposed geometry of the peripheral road and the operational flow of traffic in and around Goshen. The actual diversion percentages as a percent of the potential diversion volume are shown in the calculations and summarized on the map on p. 9 of the calculations.
4) The actual passenger vehicle volumes were then obtained by subtracting the diverted volume percentages from the existing roadway network (alternate A) AADT's and transferring the diverted volumes through the study corridor.
5) The truck diversion patterns were obtained using the Woolpert report mentioned in item 1) above.
6) In the study, several entering trucks were unaccounted for on the exiting approaches. Of all the unaccounted for trucks, 74% were single-unit and 26% were semi-trailer. Since the semi-trailer trucks are generally used for long haul trips, the unaccounted for semi-trailer truck trips were assumed to be through trips omitted from the survey due to observer error (hard to read plates, etc.), while the unaccounted for single-unit truck trips were assumed to terminate in Goshen.
7) The truck volumes diverting to the peripheral road were determined using the exit approach percentages in the Woolpert report. The unaccounted for through trucks were distributed to each exit approach based on the exit percentages, and added to the exit volumes to determine the total diversion volumes. The diverting volumes are shown in the calculations and summarized on the map on p. 10 of the calculations.
8) Although the diversions will actually take place at the intersection of the state routes and the peripheral road, the diversion volumes were transferred to the study corridor entry/exit points for analysis purposes.

Following is a summary of the base AADT and truck percentages per the above assumptions and calculations:

AADT

Location	Alternate B AADT as % of Alternate A AADT
US 33 @ CR 40	100 (peripheral Rd. is north of CR 40)
US 33 from CR 38 to Main St.	80
Main St. from Madison St. to Pike St.	75
3rd St. from Madison St. to Pike St.	75
3rd St. north of Pike St.	72
Pike St. from Main St. to 3rd St.	76
Lincoln Ave.	74
Monroe St., College Ave., CR 38	90
All other streets	100 (minor streets insignificantly impacted by peripheral road)

NOTE: All volumes slightly adjusted to balance

TRUCKS

Location	% of Alternate B AADT
US 33 @ CR 40	same as Alternate A
US 33 from CR 38 to Eisenhower Dr.	5
US 33 from College Ave. to Main St.	3
Main St. north of Madison St.	6
3rd St.	4
Lincoln Ave.	4
Pike St.	6
All other streets	same as Alternate A

Pflum,
Klausmeier & Gehrum
Consultants

It should be noted that the DHV percentages of AADT will remain the same for Alternate B as for Alternate A. The percentage of AADT volume traversing the corridor will stay constant, with the actual DHV volumes decreasing in direct proportion to the reduction in AADT volume.

The following table shows a comparison between the MACOG model volumes and the PKG volumes for alternate B for the year 2011 (the MACOG model was formulated with 3rd St. as 1-way southbound) :

Location	Avg. 2-Way Link Volume	
	MACOG	PKG
Madison St. from Main St. to Monroe St.	16,100	15,730
Avg. 3rd St., Main St. and 5th St. Link volumes north of Madison St.	11,900	11,100
Pike St. from 3rd St. to Main St.	21,900	22,050

A link volume comparison map is shown on p. 15 of the calculations.

Please note that this information has been informally discussed with the City of Goshen, but not with MACOG. Please forward this information to both Goshen and MACOG for their review and comment.

If you have any questions or comments concerning this manner, please contact this office. In the meantime, we will continue to develop the additional alternates. We will keep you advised of our proposed rationale for each additional alternate prior to commencing work on the summary sheets.

Very truly yours,

PFLUM, KLAUSMEIER & GEHRUM CONSULTANTS, INC.

David A. Henkel

David A. Henkel, P.E.

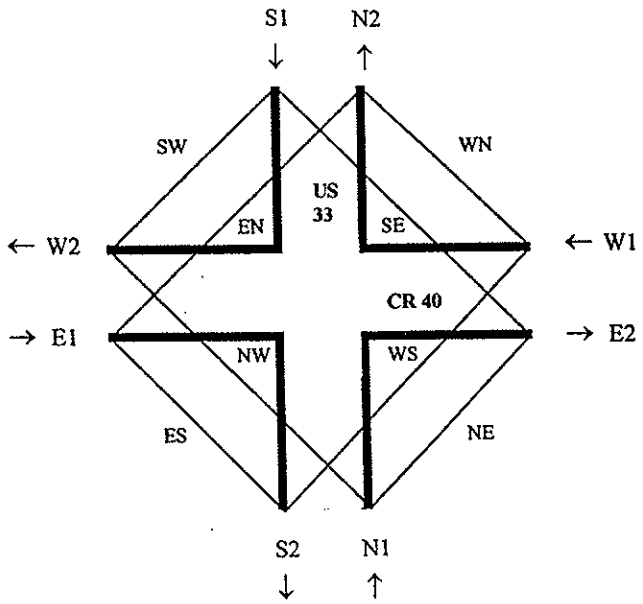
Enclosures

#2540.06

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



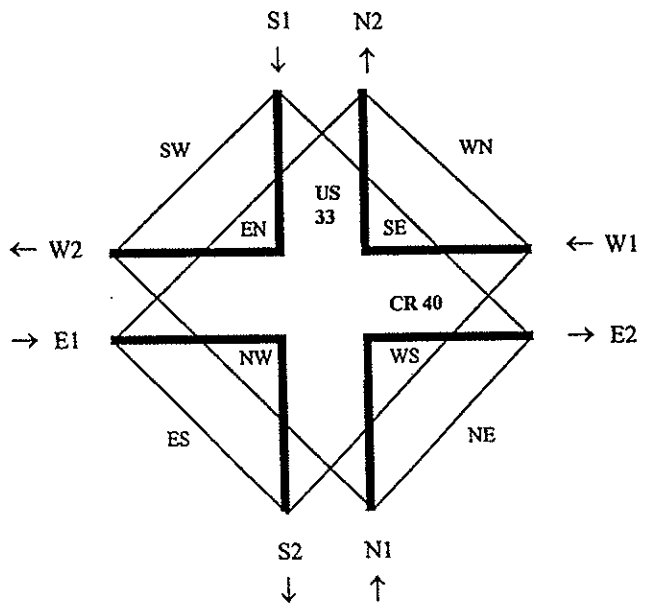
LOCATION: Lincolnway (US 33) at CR 40
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	8,010	10,330	10%	10%	6%
S2	7,980	10,290	5%	9%	9%
S1	8,520	10,990	5%	8%	8%
N2	8,710	11,240	9%	9%	6%
E1	1,040	1,340	7%	3%	3%
W2	860	1,110	8%	2%	2%
W1	760	980	7%	3%	3%
E2	780	1,010	8%	2%	2%
NE	80	100	13%	6%	3%
NW	110	140	9%	9%	6%
NT	7,820	10,090	10%	10%	6%
SE	420	540	7%	1%	1%
SW	540	700	6%	1%	1%
ST	7,560	9,750	5%	9%	9%
ES	370	480	11%	7%	4%
EN	390	500	3%	1%	1%
ET	280	360	7%	2%	2%
WN	500	650	4%	2%	2%
WS	50	60	10%	10%	6%
WT	210	270	12%	2%	1%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



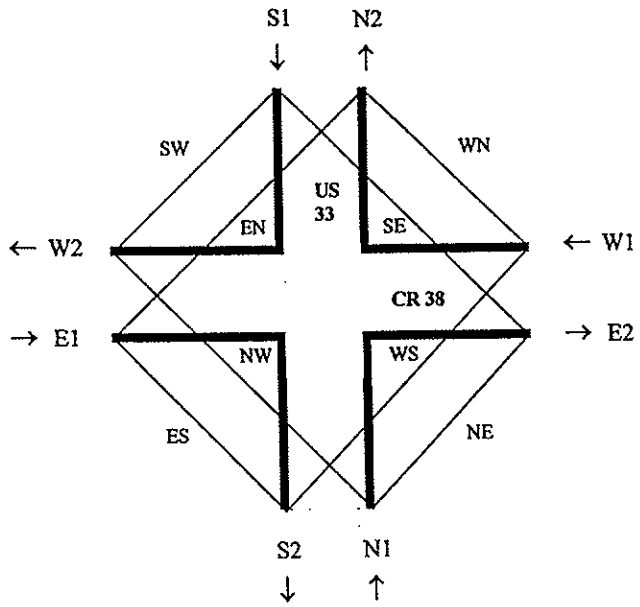
LOCATION: Lincolnway (US 33) at CR 40
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	8,010	10,330	7%	10%	9%
S2	7,980	10,290	11%	9%	5%
S1	8,520	10,990	11%	8%	5%
N2	8,710	11,240	7%	9%	8%
E1	1,040	1,340	11%	3%	2%
W2	860	1,110	6%	2%	2%
W1	760	980	7%	3%	3%
E2	780	1,010	13%	2%	1%
NE	80	100	13%	6%	3%
NW	110	140	9%	9%	6%
NT	7,820	10,090	7%	10%	9%
SE	420	540	14%	1%	1%
SW	540	700	6%	1%	1%
ST	7,560	9,750	11%	9%	5%
ES	370	480	8%	7%	5%
EN	390	500	13%	1%	1%
ET	280	360	11%	2%	1%
WN	500	650	8%	2%	2%
WS	50	60	10%	10%	6%
WT	210	270	2%	2%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



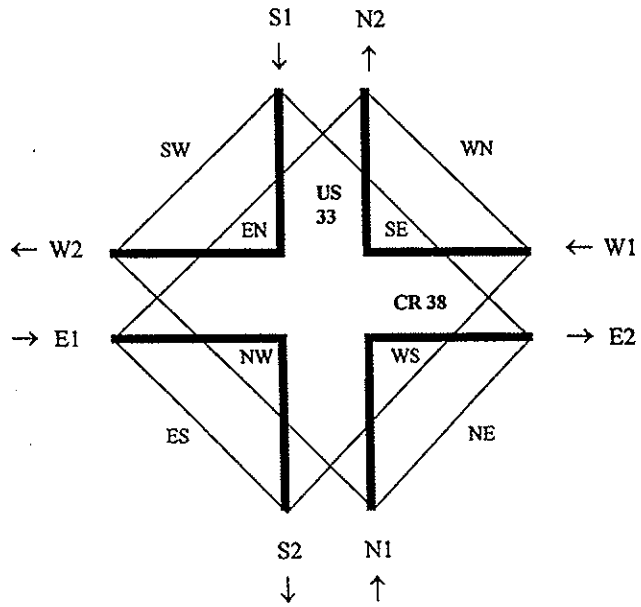
LOCATION: Lincolnway (US 33) at CR 38
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	7,800	10,060	9%	5%	3%
S2	8,690	11,210	5%	5%	5%
S1	9,820	12,670	6%	5%	5%
N2	9,170	11,830	8%	5%	4%
E1	4,050	5,220	8%	4%	3%
W2	3,720	4,800	9%	4%	3%
W1	3,220	4,150	7%	4%	4%
E2	3,310	4,270	11%	4%	2%
NE	170	220	6%	6%	6%
NW	960	1,240	15%	4%	2%
NT	6,670	8,600	9%	5%	4%
SE	1,400	1,810	9%	4%	3%
SW	1,260	1,630	5%	5%	5%
ST	7,160	9,240	6%	5%	5%
ES	1,340	1,730	3%	3%	3%
EN	970	1,250	5%	5%	5%
ET	1,740	2,240	13%	4%	2%
WN	1,530	1,970	6%	5%	5%
WS	190	250	5%	5%	5%
WT	1,500	1,940	9%	3%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



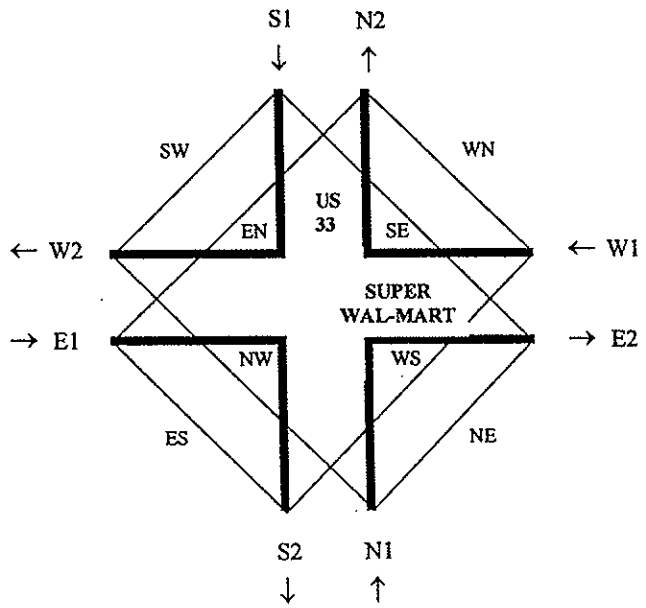
LOCATION: Lincolnway (US 33) at CR 38
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	7,800	10,060	7%	5%	4%
S2	8,690	11,210	12%	5%	3%
S1	9,820	12,670	11%	5%	3%
N2	9,170	11,830	8%	5%	4%
E1	4,050	5,220	9%	4%	3%
W2	3,720	4,800	9%	4%	3%
W1	3,220	4,150	12%	4%	2%
E2	3,310	4,270	8%	4%	3%
NE	170	220	12%	6%	3%
NW	960	1,240	7%	4%	4%
NT	6,670	8,600	7%	5%	5%
SE	1,400	1,810	8%	4%	3%
SW	1,260	1,630	6%	5%	5%
ST	7,160	9,240	13%	5%	3%
ES	1,340	1,730	9%	3%	2%
EN	970	1,250	9%	5%	3%
ET	1,740	2,240	9%	4%	3%
WN	1,530	1,970	12%	5%	2%
WS	190	250	11%	5%	3%
WT	1,500	1,940	13%	3%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



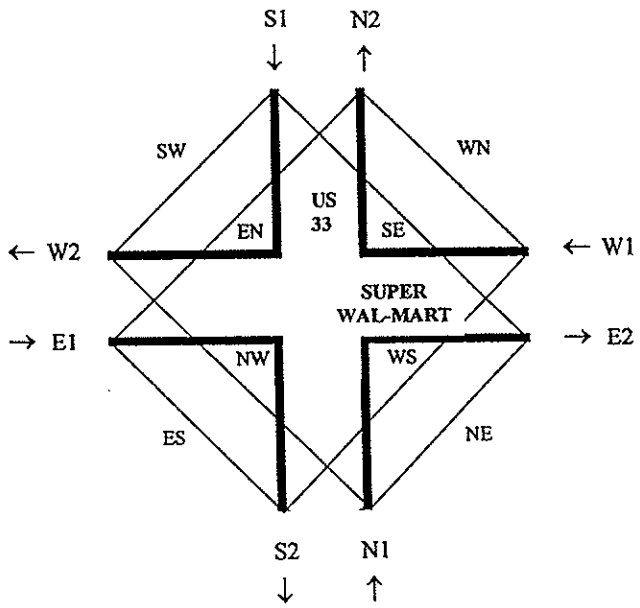
LOCATION: Lincolnway (US 33) at Super Wal-Mart
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	9,640	12,440	8%	5%	4%
S2	10,260	13,240	7%	5%	4%
S1	10,790	13,920	7%	5%	4%
N2	11,410	14,720	7%	5%	4%
E1	1,100	1,420	12%	4%	2%
W2	1,100	1,420	15%	3%	1%
W1	5,720	7,380	6%	3%	3%
E2	4,480	5,780	6%	3%	3%
NE	1,550	2,000	6%	3%	3%
NW	490	630	14%	2%	1%
NT	7,600	9,800	8%	6%	4%
SE	2,750	3,550	6%	3%	3%
SW	470	610	17%	2%	1%
ST	7,570	9,770	7%	6%	6%
ES	480	620	13%	2%	1%
EN	440	570	9%	3%	2%
ET	180	230	17%	8%	3%
WN	3,370	4,350	4%	4%	4%
WS	2,210	2,850	7%	2%	2%
WT	140	180	14%	7%	3%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



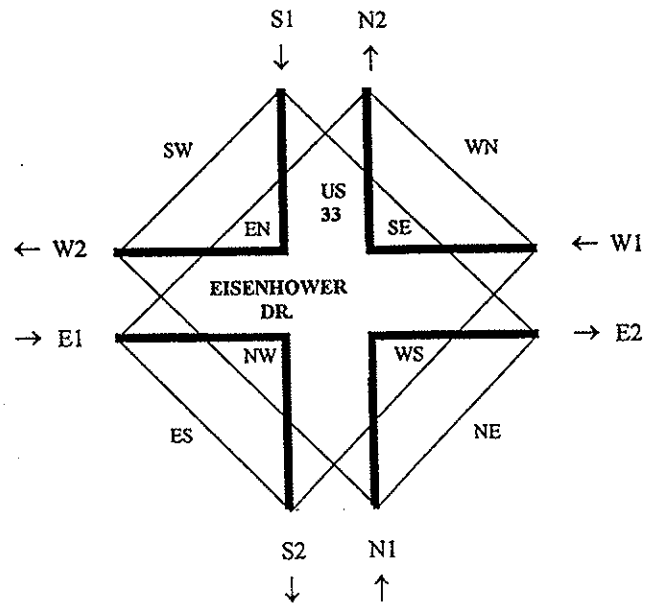
LOCATION: Lincolnway (US 33) at Super Wal-Mart
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	9,640	12,440	9%	5%	3%
S2	10,260	13,240	10%	5%	3%
S1	10,790	13,920	9%	5%	3%
N2	11,410	14,720	9%	5%	3%
E1	1,100	1,420	16%	4%	1%
W2	1,100	1,420	15%	3%	1%
W1	5,720	7,380	11%	3%	2%
E2	4,480	5,780	10%	3%	2%
NE	1,550	2,000	10%	3%	2%
NW	490	630	14%	2%	1%
NT	7,600	9,800	9%	6%	4%
SE	2,750	3,550	9%	3%	2%
SW	470	610	17%	2%	1%
ST	7,570	9,770	8%	6%	5%
ES	480	620	17%	2%	1%
EN	440	570	16%	3%	1%
ET	180	230	17%	8%	3%
WN	3,370	4,350	9%	4%	3%
WS	2,210	2,850	14%	2%	1%
WT	140	180	14%	7%	3%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



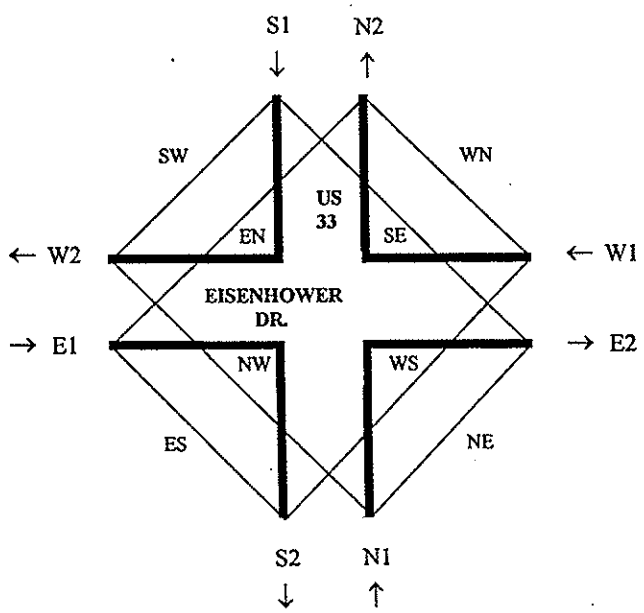
LOCATION: Lincolnway (US 33) at Eisenhower
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,800	13,930	8%	4%	3%
S2	10,280	13,260	8%	4%	3%
S1	10,150	13,090	9%	4%	3%
N2	10,660	13,750	9%	4%	3%
E1	2,060	2,660	9%	4%	3%
W2	2,070	2,670	8%	4%	3%
W1	970	1,250	10%	3%	2%
E2	970	1,250	10%	4%	3%
NE	450	580	9%	4%	3%
NW	1,060	1,370	6%	4%	4%
NT	9,290	11,980	8%	4%	3%
SE	340	440	12%	3%	2%
SW	880	1,140	11%	3%	2%
ST	8,930	11,520	9%	4%	3%
ES	970	1,250	4%	4%	4%
EN	910	1,170	14%	3%	1%
ET	180	230	11%	6%	3%
WN	460	590	15%	1%	1%
WS	380	490	5%	5%	5%
WT	130	170	8%	4%	3%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.290



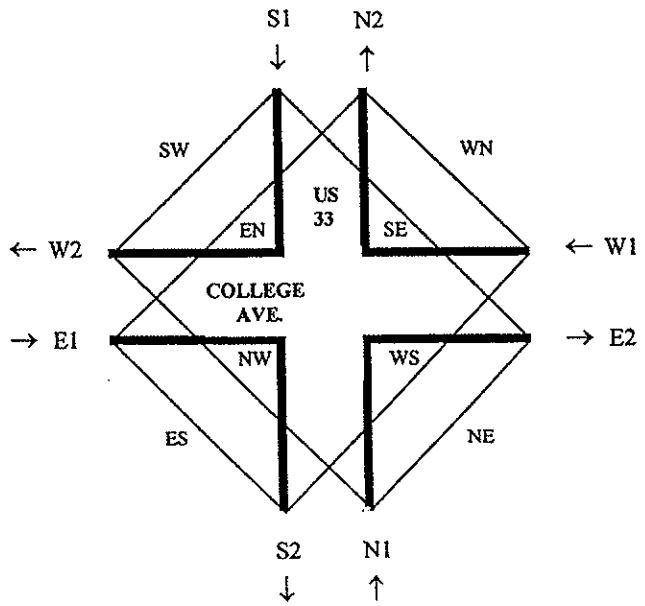
LOCATION: Lincolnway (US 33) at Eisenhower
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,800	13,930	9%	4%	3%
S2	10,280	13,260	9%	4%	3%
S1	10,150	13,090	9%	4%	3%
N2	10,660	13,750	9%	4%	3%
E1	2,060	2,660	14%	4%	2%
W2	2,070	2,670	15%	4%	2%
W1	970	1,250	11%	3%	2%
E2	970	1,250	11%	4%	2%
NE	450	580	11%	4%	3%
NW	1,060	1,370	15%	4%	2%
NT	9,290	11,980	8%	4%	3%
SE	340	440	12%	3%	2%
SW	880	1,140	16%	3%	1%
ST	8,930	11,520	8%	4%	3%
ES	970	1,250	12%	4%	2%
EN	910	1,170	15%	3%	1%
ET	180	230	11%	6%	3%
WN	460	590	9%	1%	1%
WS	380	490	13%	5%	3%
WT	130	170	15%	4%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.280



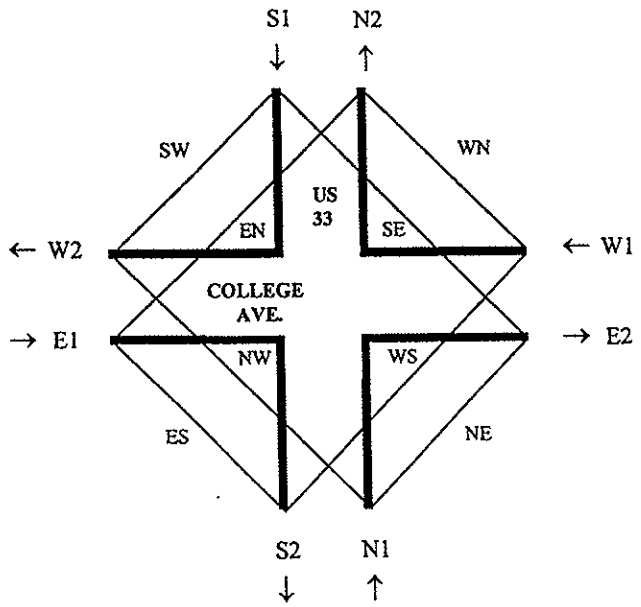
LOCATION: Lincolnway (US 33) at College Avenue
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,700	13,700	8%	3%	2%
S2	10,740	13,750	8%	3%	2%
S1	9,480	12,130	8%	3%	2%
N2	10,650	13,630	8%	3%	2%
E1	4,790	6,130	11%	3%	2%
W2	3,990	5,110	6%	3%	3%
W1	5,260	6,730	9%	3%	2%
E2	4,850	6,210	13%	3%	1%
NE	1,500	1,920	13%	3%	1%
NW	1,610	2,060	5%	4%	4%
NT	7,590	9,720	8%	3%	2%
SE	1,600	2,050	16%	3%	1%
SW	540	690	4%	2%	2%
ST	7,340	9,400	7%	3%	3%
ES	2,150	2,750	13%	3%	1%
EN	890	1,140	7%	3%	3%
ET	1,750	2,240	11%	2%	1%
WN	2,170	2,780	9%	4%	3%
WS	1,250	1,600	9%	3%	2%
WT	1,840	2,360	8%	1%	1%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.280



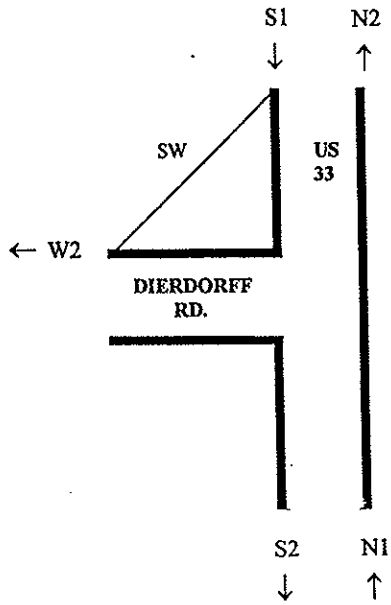
LOCATION: Lincolnway (US 33) at College Avenue
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,700	13,700	8%	3%	2%
S2	10,740	13,750	9%	3%	2%
S1	9,480	12,130	8%	3%	2%
N2	10,650	13,630	9%	3%	2%
E1	4,790	6,130	10%	3%	2%
W2	3,990	5,110	9%	3%	2%
W1	5,260	6,730	11%	3%	2%
E2	4,850	6,210	8%	3%	2%
NE	1,500	1,920	8%	3%	2%
NW	1,610	2,060	8%	4%	3%
NT	7,590	9,720	8%	3%	2%
SE	1,600	2,050	8%	3%	2%
SW	540	690	9%	2%	1%
ST	7,340	9,400	8%	3%	2%
ES	2,150	2,750	11%	3%	2%
EN	890	1,140	11%	3%	2%
ET	1,750	2,240	8%	2%	2%
WN	2,170	2,780	12%	4%	2%
WS	1,250	1,600	12%	3%	2%
WT	1,840	2,360	10%	1%	1%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.280



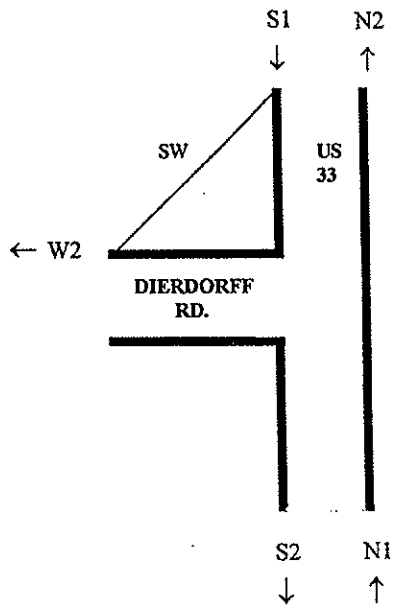
LOCATION: Lincolnway (US 33) at Dierdorff Road
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,750	13,760	8%	3%	2%
S2	9,490	12,150	8%	3%	2%
S1	10,930	13,990	8%	3%	2%
N2	10,750	13,760	8%	3%	2%
W2	1,440	1,840	6%	3%	3%
NT	10,750	13,760	8%	3%	2%
SW	1,440	1,840	6%	3%	3%
ST	9,490	12,150	8%	3%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.280



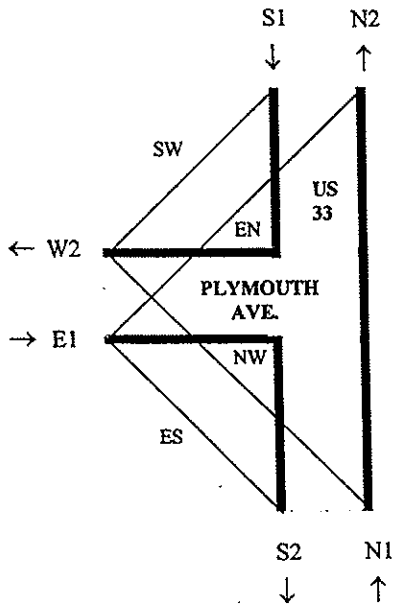
LOCATION: Lincolnway (US 33) at Dierdorff Road
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,750	13,760	9%	3%	2%
S2	9,490	12,150	8%	3%	2%
S1	10,930	13,990	8%	3%	2%
N2	10,750	13,760	9%	3%	2%
W2	1,440	1,840	10%	3%	2%
NT	10,750	13,760	9%	3%	2%
SW	1,440	1,840	10%	3%	2%
ST	9,490	12,150	8%	3%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.240



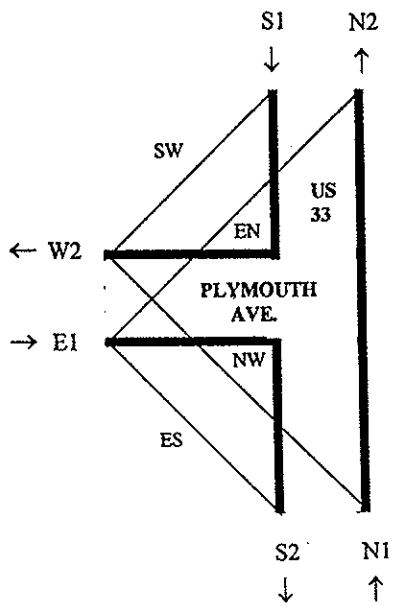
LOCATION: Lincolnway (US 33) at Plymouth Avenue
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,860	13,470	7%	3%	3%
S2	10,940	13,570	8%	3%	2%
S1	10,640	13,190	8%	3%	2%
N2	10,820	13,420	7%	3%	3%
E1	1,920	2,380	7%	4%	4%
W2	1,660	2,060	5%	4%	4%
NW	850	1,050	4%	5%	5%
NT	10,010	12,410	7%	3%	2%
SW	810	1,000	6%	4%	4%
ST	9,830	12,190	8%	3%	2%
ES	1,110	1,380	7%	5%	4%
EN	810	1,000	6%	4%	4%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.240



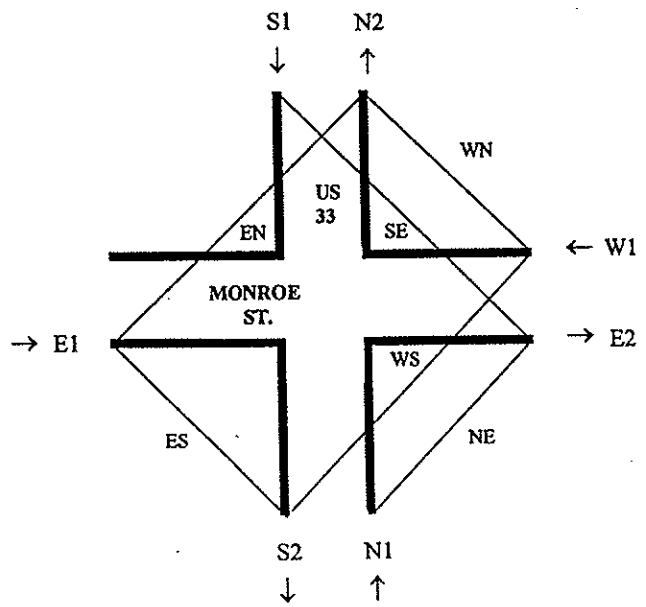
LOCATION: Lincolnway (US 33) at Plymouth Avenue
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,860	13,470	9%	3%	2%
S2	10,940	13,570	8%	3%	2%
S1	10,640	13,190	8%	3%	2%
N2	10,820	13,420	9%	3%	2%
E1	1,920	2,380	8%	4%	3%
W2	1,660	2,060	10%	4%	3%
NW	850	1,050	13%	5%	2%
NT	10,010	12,410	9%	3%	2%
SW	810	1,000	7%	4%	3%
ST	9,830	12,190	8%	3%	2%
ES	1,110	1,380	6%	5%	4%
EN	810	1,000	10%	4%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.210



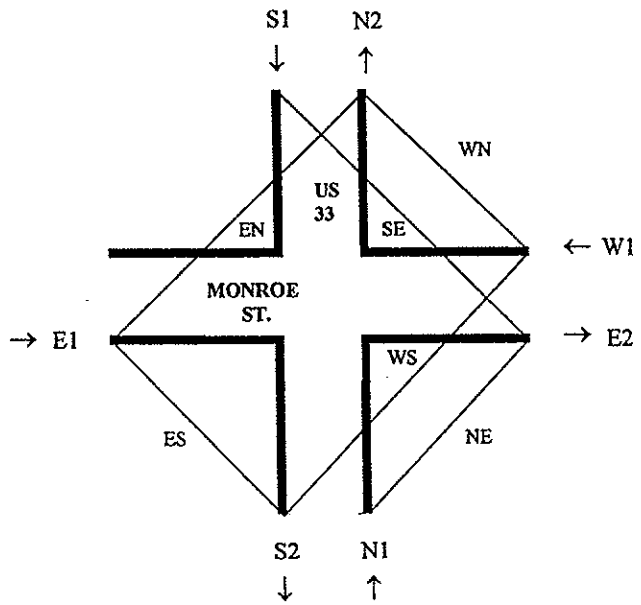
LOCATION: Lincolnway (US 33) at Monroe Street
AM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,350	12,520	7%	3%	3%
S2	10,730	12,980	7%	3%	3%
S1	9,040	10,940	9%	3%	2%
N2	9,420	11,400	7%	3%	2%
E1	220	270	5%	2%	2%
W1	5,090	6,160	6%	2%	2%
E2	4,550	5,510	9%	2%	1%
NE	3,020	3,650	7%	2%	2%
NT	7,330	8,870	7%	3%	3%
SE	1,520	1,840	14%	1%	1%
ST	7,520	9,100	8%	3%	3%
ES	10	10	10%	10%	6%
EN	200	240	4%	2%	2%
ET	10	10	10%	10%	6%
WN	1,890	2,290	9%	1%	1%
WS	3,200	3,870	5%	2%	2%

Division of Roadway Management
Traffic Statistics Unit
Traffic Estimate Worksheet

Date: October 30, 1997
Des. No. 9222424, 25, 26
Route: US 33
County: Elkhart

2021 Growth Factor:
1.210



LOCATION: Lincolnway (US 33) at Monroe Street
PM PEAK

	2011 AADT	2021 AADT	% DHV	COMMERCIAL %AADT	VEHICLE %DHV
N1	10,350	12,520	9%	3%	2%
S2	10,730	12,980	9%	3%	2%
S1	9,040	10,940	11%	3%	2%
N2	9,420	11,400	10%	3%	2%
E1	220	270	9%	2%	2%
W1	5,090	6,160	8%	2%	1%
E2	4,550	5,510	11%	2%	1%
NE	3,020	3,650	8%	2%	2%
NT	7,330	8,870	9%	3%	2%
SE	1,520	1,840	15%	1%	1%
ST	7,520	9,100	10%	3%	2%
ES	10	10	10%	10%	6%
EN	200	240	9%	2%	1%
ET	10	10	10%	10%	6%
WN	1,890	2,290	12%	1%	1%
WS	3,200	3,870	6%	2%	2%

MACOG

November 26, 1997

Ms. Rebecca L. Black
Indiana Department of Transportation
100 N. Senate Ave., Room N755
Indianapolis, IN 46204-2249

Dear Ms. Black:

After our telephone conversation regarding Alternative C, I concur with the PKG projections. My projections indicated a higher number of vehicles would continue to pass through town even with the periferal road than did the PKG projections. However, this difference (32,000 vs 26,000 total for 3rd and Main Streets) is not terribly significant.

I have reviewed the PKG data for Alternative B in Goshen. This is the one where I modeled 3rd Street as one-way and PKG modeled it as two-way. This does make it difficult to compare the data. However, since we both arrived at very similar total volume figures for 3rd and Main Streets (26,000 vs 28,000), I believe that their numbers are fine.

Sincerely;

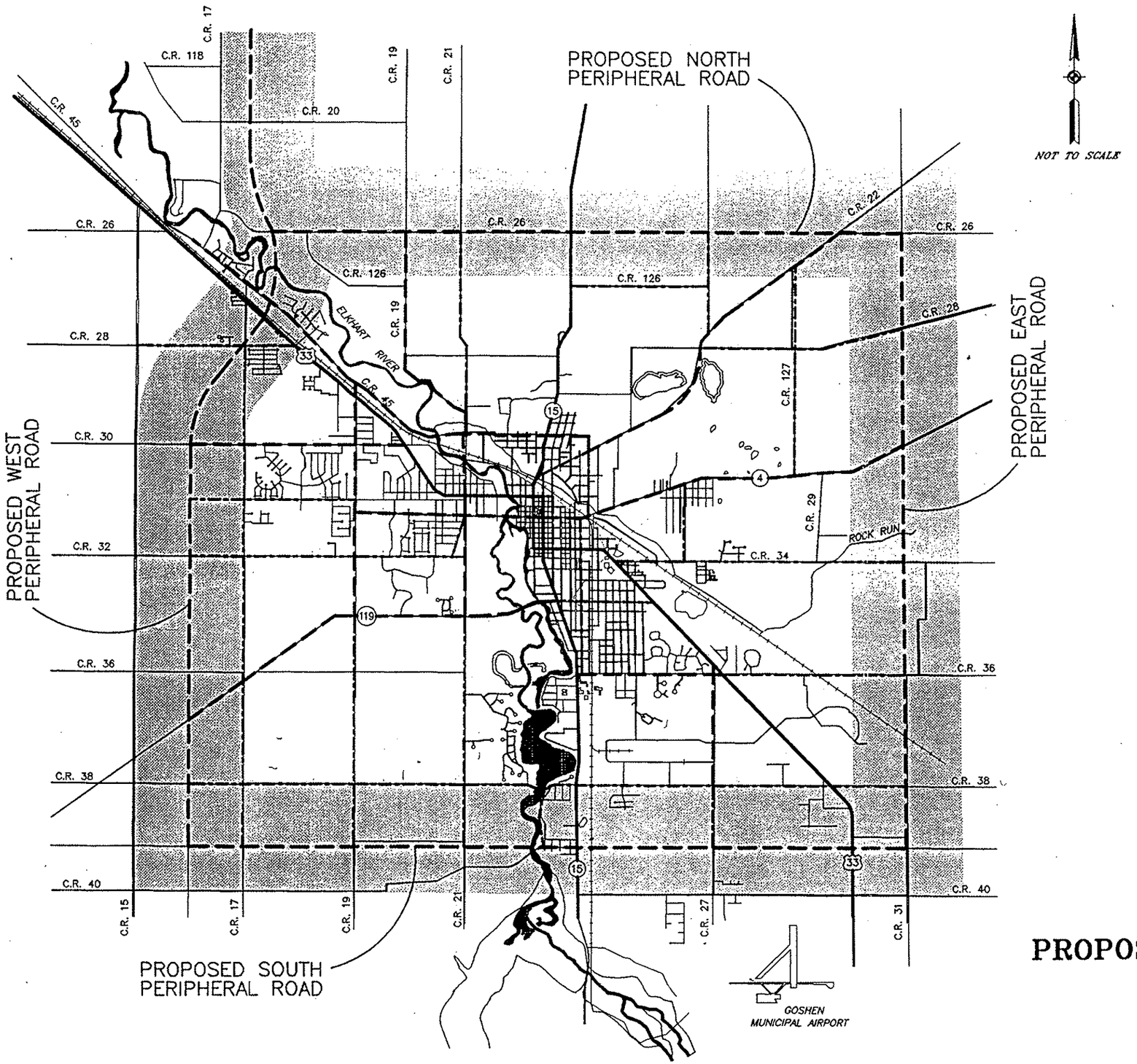
Phil Toepp
Phil Toepp
Sr. GIS/Modeling Tech.

RECEIVED
DEC 03 1997
By

F:\ABC\MPO\CORSPOND\1997\INDOTHWY\L11RB2PT.WPD

A-41

Michiana Area Council of Governments • 1120 County-City Building • South Bend, IN 46601-1830
219/287-1829 219/674-8894 FAX 219/287-1840

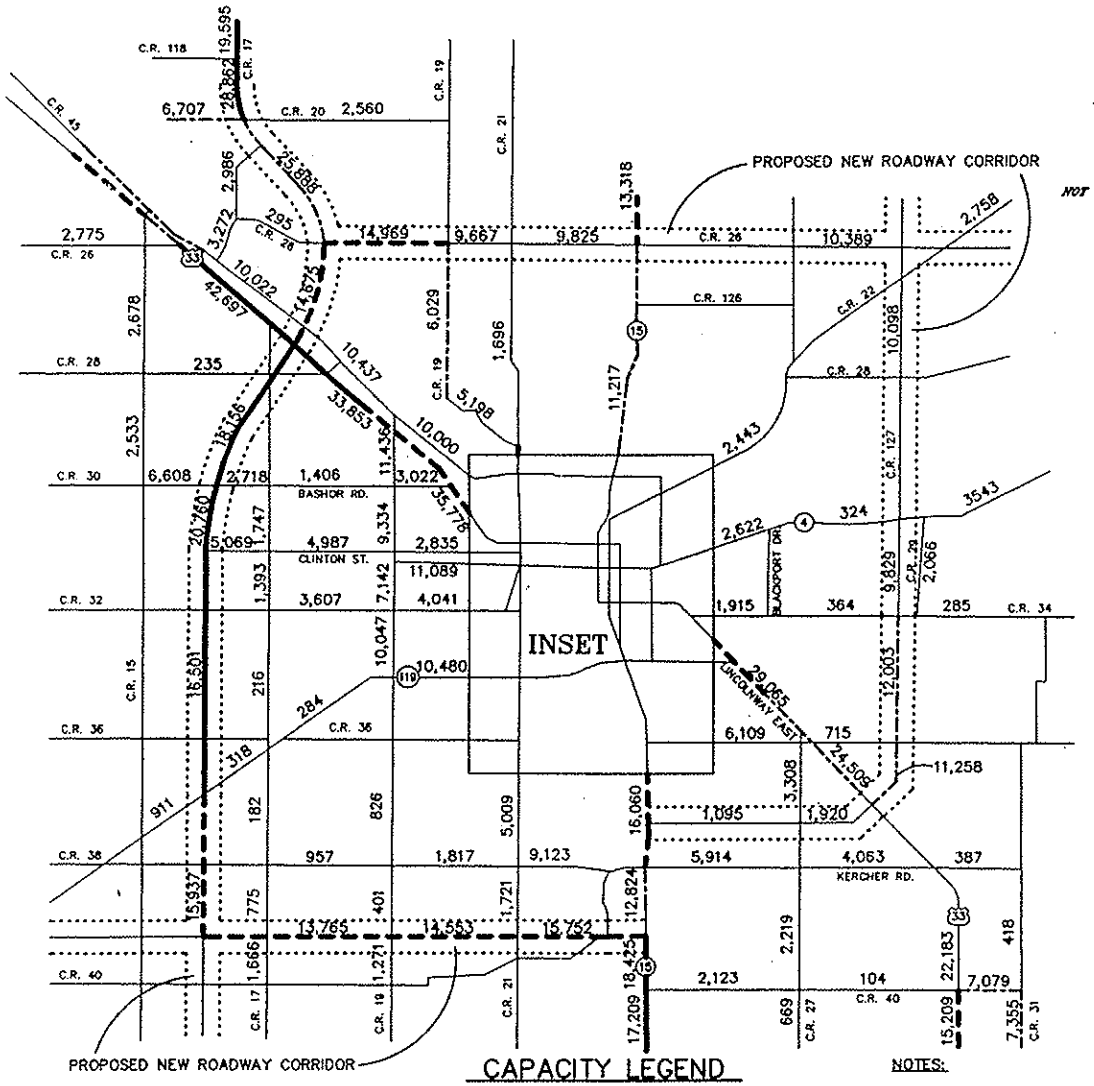


LEGEND

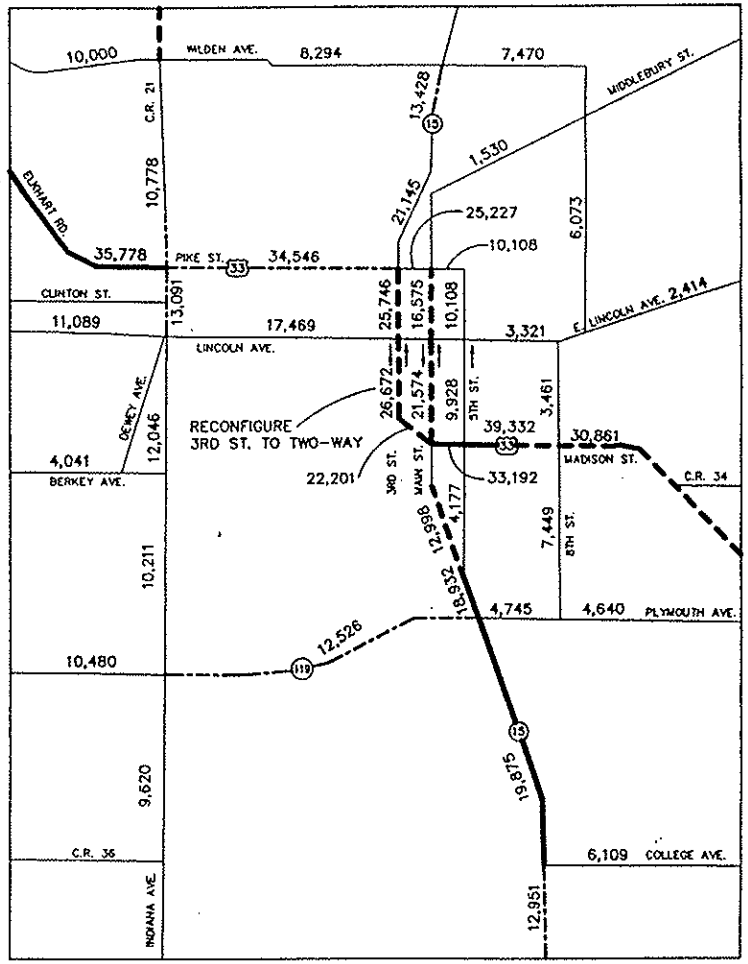
- MAJOR ARTERIAL
- MINOR ARTERIAL
- COLLECTOR
- PERIPHERAL ROAD ALIGNMENT CORRIDORS

NOTE: PROPOSED PERIPHERAL ROADS TO BE DESIGNATED TRUCK ROUTES

FIGURE 31
PROPOSED THOROUGHFARE NETWORK



NOT TO SCALE



INSET

CAPACITY LEGEND

- BELOW 80%
- 80%–99%
- 100%–119%
- ABOVE 119%

NOTES:

DISPLAYED VOLUMES ARE AVERAGE DAILY TRAFFIC (ADT).

CAPACITIES BASED ON PEAK HOUR TRAFFIC DEMAND.

THE ALIGNMENT OF NEW ROADWAYS ARE CONCEPTUAL.

FIGURE 27
CAPACITY SUMMARY FOR ALTERNATIVE SCENARIO 4 FOR 2015

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33A01A.HC7
Facility Section..... U.S. 33
From/To..... C.R. 40 to C.R. 38
Analyst..... Gary Mroczka
Time of Analysis..... 2021 AM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1253	698
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	6	9
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.96	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	679	384
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	11.9	6.7
Level of Service (LOS)	B	A

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33A021A.HC7
Facility Section..... U.S. 33
From/To..... C.R. 40 to C.R. 38
Analyst..... Gary Mroczka
Time of Analysis..... 2021 PM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1128	1256
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	8	5
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.96	0.00	0.00	0.00	12.90
Dir 2		1.50		0.98	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	617	678
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	10.8	11.9
Level of Service (LOS)	B	B

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33B01A.HC7
Facility Section..... U.S. 33
From/To..... C.R. 38 to Wal-Mart
Analyst..... Gary Mroczka
Time of Analysis..... 2021 AM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1255	1154
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	7	8
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.96	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	684	632
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	12.0	11.1
Level of Service (LOS)	B	B

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33B21A.HC7
Facility Section..... U.S. 33
From/To..... C.R. 38 to Wal-Mart
Analyst..... Gary Mroczka
Time of Analysis..... 2021 PM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1412	1483
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	7	8
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.96	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	769	812
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	13.5	14.2
Level of Service (LOS)	C	C

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33C01A.HC7
Facility Section..... U.S. 33
From/To..... Wal-Mart/Eisenhower
Analyst..... Gary Mroczka
Time of Analysis..... 2021 AM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1389	1322
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	7	7
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.97	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	757	720
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	13.3	12.6
Level of Service (LOS)	C	C

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33C21A.HC7
Facility Section..... U.S. 33
From/To..... Wal-Mart/Eisenhower
Analyst..... Gary Mroczka
Time of Analysis..... 2021 PM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1562	1487
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	7	7
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.97	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	851	810
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	14.9	14.2
Level of Service (LOS)	C	C

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33D01A.HC7
Facility Section..... U.S. 33
From/To..... Eisenhower - College
Analyst..... Gary Mroczka
Time of Analysis..... 2021 AM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1389	1377
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	7	7
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.97	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	757	750
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	13.3	13.1
Level of Service (LOS)	C	C

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33D21A.HC7
Facility Section..... U.S. 33
From/To..... Eisenhower - College
Analyst..... Gary Mroczka
Time of Analysis..... 2021 PM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1389	1549
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	7	6
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.97	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	757	840
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	13.3	14.7
Level of Service (LOS)	C	C

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33E01A.HC7
Facility Section..... U.S. 33
From/To..... College - Plymouth
Analyst..... Gary Mroczka
Time of Analysis..... 2021 AM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1353	1363
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	8	7
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.96	0.00	0.00	0.00	12.90
Dir 2		1.50		0.97	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	741	742
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	13.0	13.0
Level of Service (LOS)	C	C

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33E21A.HC7
Facility Section..... U.S. 33
From/To..... College - Plymouth
Analyst..... Gary Mroczka
Time of Analysis..... 2021 PM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1522	1534
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	6	7
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.97	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	825	836
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	14.4	14.6
Level of Service (LOS)	C	C

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33F01A.HC7
Facility Section..... U.S. 33
From/To..... Plymouth - Monroe St
Analyst..... Gary Mroczka
Time of Analysis..... 2021 AM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1096	1135
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	8	8
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.96	0.00	0.00	0.00	12.90
Dir 2		1.50		0.96	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	600	621
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	10.5	10.9
Level of Service (LOS)	B	B

HCS: Multilane Highways Release 2.3d Page 1

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

File Name US33F21A.HC7
Facility Section..... U.S. 33
From/To..... Plymouth - Monroe St
Analyst..... Gary Mroczka
Time of Analysis..... 2021 PM
Date of Analysis..... 10/31/97
Other Information.... Proposed (5) lane section

A. Geometrics and Traffic Input	Direction 1	Direction 2
Volume	1409	1460
Peak-Hour Factor or Peak 15 Minutes	0.95	0.95
Number of Lanes	2	2
Percentage of Trucks and Buses	6	6
Percentage of Recreational Vehicles	0	0
Ideal Free-Flow Speed (kph)	70.0	70.0
Type of Median	D	D
Lane Width (m)	3.66	3.66
Distance from Roadway Edge (m)	2.40	2.40
Access Points per Km	20.0	20.0

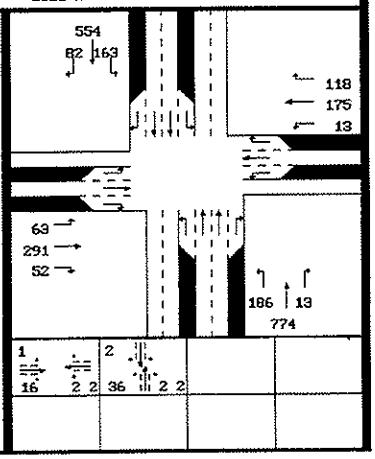
B. Adjustment Factors

	Terrain Type	E T	E R	F HV	F M	F LW	F LC	F A
Dir 1	LEVEL	1.50		0.97	0.00	0.00	0.00	12.90
Dir 2		1.50		0.97	0.00	0.00	0.00	12.90

C. Level of Service Results	Direction 1	Direction 2
Service Flow Rate (Vp)	764	791
Free flow speed (kph)	57.1	57.1
Average passenger car speed (kph)	57.1	57.1
Density (pcpkpl)	13.4	13.9
Level of Service (LOS)	C	C

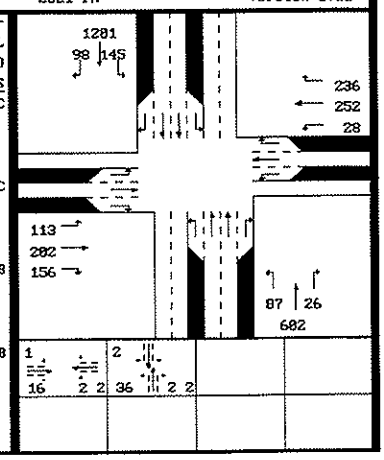
HCM Summary Results for Case: US33A21A C.R. 38 /U.S. 33
Proposed Recommendations 2021 AM Version 1.11

	Lane Grp	v/s	v/c	X	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	App L O S
EB	L	0.06	0.26		14.5	B	18.6	C
	T	*0.17	0.72		20.1	C		
	R	0.03	0.11		13.9	B		
WB	L	0.02	0.10		13.8	B	15.1	C
	T	0.10	0.43		15.5	C		
	R	0.06	0.26		14.5	B		
NB	L	0.32	0.55		7.3	B	5.9	B
	T	0.24	0.41		5.6	B		
	R	0.01	0.01		4.2	A		
SB	L	*0.44	0.77		15.5	C	7.2	B
	T	0.17	0.30		5.1	B		
	R	0.04	0.07		4.4	A		
Int.		0.61	0.76		9.3	B		



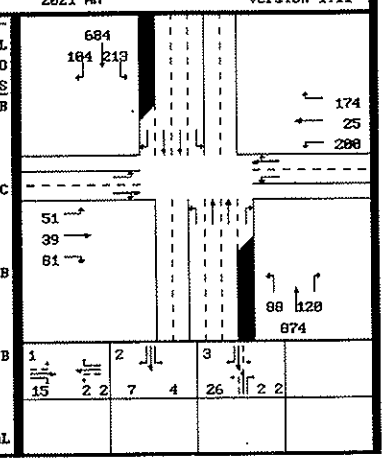
HCM Summary Results for Case: US33A21P C.R. 38 /U.S. 33
Proposed Recommendations 2021 PM Version 1.11

	Lane Grp	v/s	v/c	X	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	App L O S
EB	L	*0.15	0.63		20.0	C	16.5	C
	T	0.12	0.49		15.7	C		
	R	0.08	0.33		14.5	B		
WB	L	0.03	0.12		13.6	B	16.4	C
	T	0.14	0.60		17.1	C		
	R	0.12	0.50		15.9	C		
NB	L	*0.43	0.76		20.1	C	7.1	B
	T	0.19	0.33		5.4	B		
	R	0.02	0.03		4.5	A		
SB	L	0.28	0.49		6.8	B	7.1	B
	T	0.36	0.64		7.2	B		
	R	0.05	0.09		4.6	A		
Int.		0.58	0.72		9.8	B		



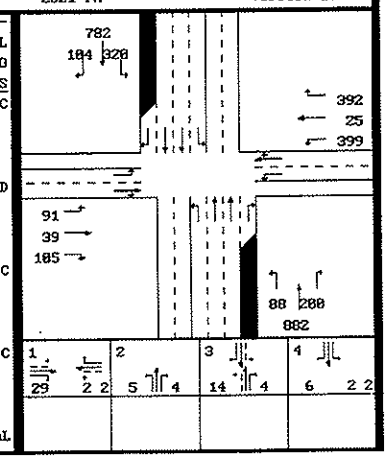
HCM Summary Results for Case: US33B21A Wal-Mart /U.S. 33
Proposed Recommendations 2021 AM Version 1.11

	Lane Grp	v/s	v/c	X	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	App L O S
EB	L	0.06	0.25		14.7	B	15.0	B
	TR	0.08	0.34		15.1	C		
WB	L	*0.17	0.78		25.5	D	21.7	C
	TR	0.13	0.59		17.8	C		
NB	L	*0.27	0.70		19.5	C	12.0	B
	T	0.27	0.69		12.5	B		
	R	0.06	0.16		9.2	B		
SB	Lper	0.24					6.9	B
	Lpro	*0.09	0.78#		13.4	B		
	T	0.21	0.37		5.2	B		
	R	0.05	0.09		4.3	A		
Int.		0.53	0.76		12.0	B	#L TOTAL	



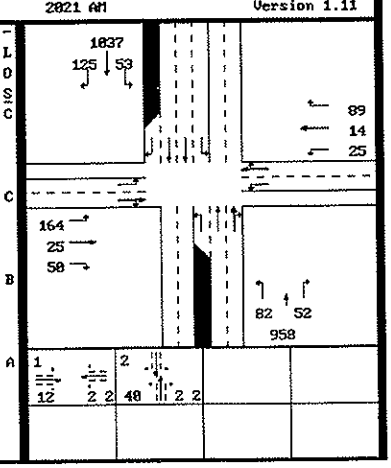
HCM Summary Results for Case: US33B21P Wal-Mart /U.S. 33
Proposed Recommendations 2021 PM Version 1.11

	Lane Grp	v/s	v/c	X	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	App L O S
EB	L	0.31	0.79		33.8	D	19.9	C
	TR	0.09	0.24		11.1	B		
WB	L	*0.36	0.94		36.4	D	26.4	D
	TR	0.28	0.72		16.8	C		
NB	Lper	0.04					22.1	C
	Lpro	0.04	0.44#		15.7	C		
	T	*0.27	0.98		23.9	C		
	R	0.10	0.34		14.7	B		
SB	Lper	0.17					22.9	C
	Lpro	*0.13	0.93#		37.3	D		
	T	0.24	0.77		18.2	C		
	R	0.05	0.17		13.2	B		
Int.		0.76	0.92		23.3	C	#L TOTAL	



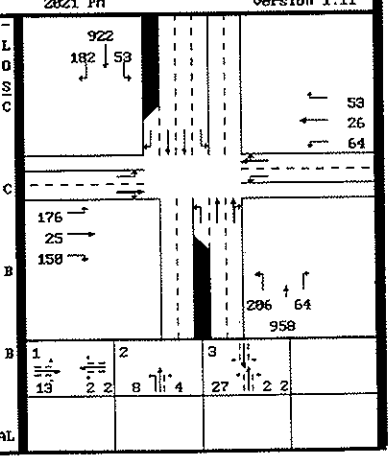
HCM Summary Results for Case: US33C21A Eisenhower /U.S. 33
Proposed Recommendations 2021 AM Version 1.11

	Lane Grp	v/s	v/c	X	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	App L O S
EB	L	*0.13	0.77		28.3	D	24.6	C
	TR	0.05	0.27		16.6	C		
WB	L	0.02	0.11		16.0	C	17.1	C
	TR	0.07	0.40		17.3	C		
NB	L	*0.44	0.70		13.9	B	5.3	B
	TR	0.30	0.48		4.6	A		
SB	L	0.26	0.41		5.2	B	4.6	A
	T	0.31	0.50		4.7	A		
	R	0.06	0.10		3.4	A		
Int.		0.57	0.72		7.2	B		



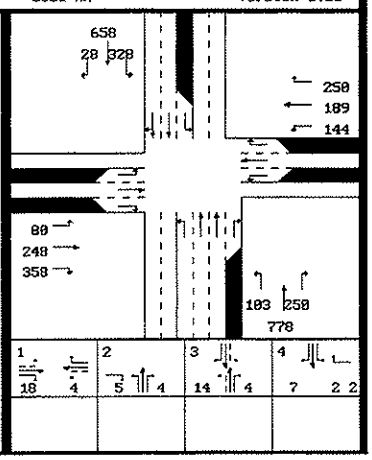
HCM Summary Results for Case: US33C21P Eisenhower /U.S. 33
Proposed Recommendations 2021 PM Version 1.11

	Lane Grp	v/s	v/c	X	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	App L O S
EB	L	*0.13	0.73		24.3	C	22.1	C
	TR	0.11	0.62		19.8	C		
WB	L	0.06	0.34		16.6	C	16.3	C
	TR	0.05	0.27		16.1	C		
NB	Lper	0.22					6.0	B
	Lpro	*0.09	0.75#		11.6	B		
	TR	0.31	0.50		5.0	A		
SB	L	0.19	0.45		10.8	B	10.8	B
	T	*0.28	0.66		11.1	B		
	R	0.09	0.22		8.4	B		
Int.		0.51	0.72		10.4	B	#L TOTAL	



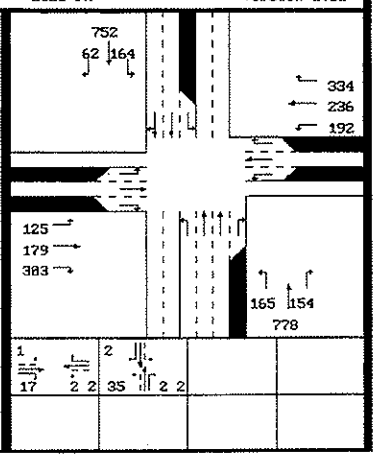
HCM Summary Results for Case: US33D21A College Ave./U.S. 33
Proposed Recommendations 2021 AM Version 1.11

Lane Grp	v/s	X v/c	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	L O S
EB L	0.08	0.30	13.4	B	12.2	B
T	0.14	0.51	14.8	B		
R	0.18	0.42	9.5	B		
WB L	*0.20	0.75	24.4	C	14.6	B
T	0.11	0.39	13.8	B		
R	0.13	0.28	7.8	B		
NB Lper	0.05				13.0	B
Lpro	*0.05	0.45#	11.7	B		
T	0.23	0.68	13.6	B		
R	0.12	0.36	11.4	B		
SB Lper	*0.19				13.7	B
Lpro	*0.12	0.76#	18.7	C		
TR	0.21	0.55	11.4	B		
Int.	0.57	0.82	13.3	B	#L TOTAL	



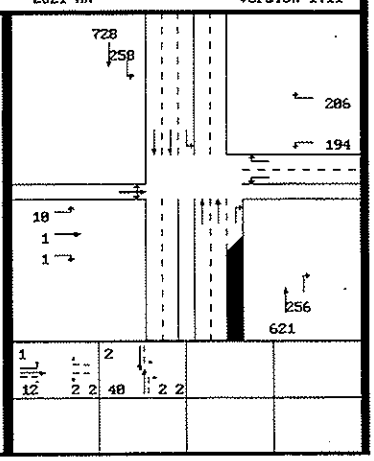
HCM Summary Results for Case: US33D21P College Ave./U.S. 33
Proposed Recommendations 2021 PM Version 1.11

Lane Grp	v/s	X v/c	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	L O S
EB L	0.15	0.60	18.2	C	16.6	C
T	0.10	0.41	14.6	B		
R	0.15	0.61	17.1	C		
WB L	*0.18	0.73	22.1	C	18.6	C
T	0.13	0.53	15.8	C		
R	0.17	0.67	18.6	C		
NB L	*0.49	0.89	29.0	D	9.4	B
T	0.23	0.42	6.1	B		
R	0.08	0.14	5.0	A		
SB L	0.44	0.79	17.7	C	8.0	B
TR	0.25	0.45	6.2	B		
Int.	0.67	0.84	12.0	B		



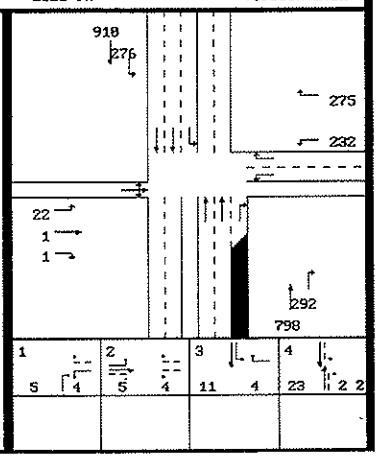
HCM Summary Results for Case: US33E21A Monroe St. /U.S. 33
Proposed Recommendations 2021 AM Version 1.11

Lane Grp	v/s	X v/c	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	L O S
EB LTR	0.01	0.05	15.8	C	15.8	C
WB L	*0.12	0.71	23.0	C	21.7	C
R	0.10	0.60	20.0	C		
NB T	0.19	0.30	3.9	A	3.8	A
R	0.13	0.20	3.6	A		
SB L	*0.50	0.79	12.5	B	6.2	B
T	0.22	0.35	4.0	A		
Int.	0.62	0.77	7.8	B		



HCM Summary Results for Case: US33E21P Monroe St. /U.S. 33
Proposed Recommendations 2021 PM Version 1.11

Lane Grp	v/s	X v/c	Lane Grp Delay (sec/veh)	L O S	App Delay (sec/veh)	L O S
EB LTR	*0.02	0.31	21.6	C	21.6	C
WB Lper	0.00				15.6	C
Lpro	*0.14	0.64#	19.4	C		
R	0.14	0.39	11.4	B		
NB T	*0.24	0.68	13.5	B	12.7	B
R	0.14	0.36	9.7	B		
SB Lper	0.09				6.4	B
Lpro	*0.15	0.74#	10.9	B		
T	0.27	0.45	5.1	B		
Int.	0.54	0.91	10.4	B	#L TOTAL	



4105

CITY OF GOSHEN

"THE MAPLE CITY"

Engineering Department
302 South Fifth Street
Goshen, Indiana 46526

February 10, 1997

Ms. Christine Klika, Section Manager
Pre-Engineering and Environment Division
INDOT
100 N. Senate Ave., IGCN, Room N848
Indianapolis, IN 46502-2218

Re: Information for Project Scoping
US 33 Widening, Monroe St. to CR 40 and
US 33 (Madison St.), Monroe St. to SR 15

Dear Ms. Klika:

Mr. William Flora, Senior Engineer formerly with your division, requested information regarding the above project. Comments in response are the following:

1. Should Dierdorff Rd. (CR 27) be closed between US 33 and College Ave.? The NBD bank is located in the triangle formed by the three roads and has access to both College Ave. and Dierdorff Rd. Ms. Karen Schnoebelen, manager of NBD bank, was contacted for her input. She has no problem if the road is closed to traffic from US 33 to their access (road is one-way southbound to the bank access, north of College Ave.), but they need to maintain access on Dierdorff Rd. between their drive and College Ave.

   It is noted that through traffic presently traveling south on Dierdorff Rd. from US 33 will need to turn right from US 33 at College Ave. and then left from College Ave. to continue south on Dierdorff Rd. if the suggested closure is implemented. This will require a westbound left turn on College Ave. and possibly create a storage problem.

2. Possible lane usage and drainage plans the City may have for Monroe St.:
   A City-County-Fairboard committee is in the process of studying the traffic needs to accomodate the annual Elkhart County fair traffic. A major portion of the traffic uses US 33 to access Monroe St. to reach the fairgrounds further east (on Monroe St.). Street improvements have not been determined yet, but it would appear that a likely possibility would be three lanes on Monroe St. with the center lane reversible for peak flows.

(219) 534-2201 Hearing Impaired (219) 534-3185 FAX (219) 533-8626

Existing and projected traffic volume data is available. As for storm drainage, there is a 24 inch pipe extending from 15th St., two blocks east of US 33, eastward to Rock Run Creek. We have no plans at this time for any storm improvements on Monroe St.

3. When INDOT schedules a meeting with the City of Goshen in spring, 1997 regarding the improvement of Madison St. (US 33) between Monroe St. and SR 15, it it requested that Elkhart County be included and possibly Ted Andrews of Woolpert. Mr. Andrews conducted the Thoroughfare Plan study for the City of Goshen.

In regard to the comments on the possible closure of Dierdorff Rd. (Item #1) and Monroe St. lane configuration (Item #2), they are subject to final approval by the City of Goshens' Board of Public Works and Safety and/or the Common Council.

If you have any questions, please call me.

Sincerely,

Forrest D. Miller

Forrest D. Miller
City Engineer

FDM:es

cc: Mayor Mike Puro

US 33 MEETING
GOSHEN, INDIANA
APRIL 30, 1997

Present: See attached

Christine Klika, of INDOT Preliminary Engineering section, opened the meeting. She stated the purpose of the meeting is to improve capacity on US 33 and preliminary engineering is just in the beginning stages. Several other INDOT personnel were introduced - Dan Buck, Barney Drerup, Ben Shaffer, Harshad Shah, and Gary Mroczka.

Copies of agenda and project listing information were handed out. The goals are to see the project, listen to issues regarding US 33, make the best assessment and arrive at conclusions and recommendations.

Dennis Cobb of First Group Engineering spoke about the Thoroughfare Plan, how it was developed, what the possibilities are to reduce traffic in the main area of Madison, from the high school to SR 15; and provide an alternate truck route.

Mayor Allan Kauffman spoke of his involvement with the study of traffic needs in Goshen through the past years of being a council member as well as a business person. The MACOG study plan to year 2015 resulted in the Thoroughfare plan to improve downtown, adding lanes on Main St. and 3rd St. Now we are doing a study and survey on 3rd St. In addition to adding lanes we may need to reroute trucks. There is some interest in an alternate route, controlling development on CR 17 corridor - not wanting community growth there. Is an easterly route feasible? We are working with the County to improve CR 17.

Bob McCoige also pointed out that we need to keep in mind the fairgrounds generated traffic when planning traffic routes. Also 9th St. to the canal is an historic area.

Forrest Miller spoke of the Thoroughfare study suggesting 5 lanes for Madison and 4 lanes on SR 15 but there are limitations.

Sandi Seanor of MACOG stated that three public participation meetings were held and there were 105 people at the meetings. History shows community interest in plans for this area. There were no INDOT people involved in these meetings but planning people from MACOG had some information that the plan was being developed. Bob M. mentioned that we may have been lax in not contacting them for these meetings, but we don't have a process in place and hope to do that today.

Sandi stated that updating long range plans - 20 year scope - its good for the City and INDOT to work together on this and conceptualize plans. Information identified - a need for periphal route; need a fix on US 33 and hope to see INDOT jump in on this.

Dennis Cobb spoke about a possible discrepancy in figures with Thoroughfare Plan/ traffic projections, Scenario 4. There was discussion about the traffic projection figures which will need to be verified with INDOT, Woolpert and MACOG. Christine will reconcile these numbers.

Scenario 4 of Thoroughfare Plan is a combination of both periphal and through traffic. Most trucks come from northwest and go southeast - most industry is to the southeast. SR 4 comes to the middle of town and dumps - that needs to be changed. There is no question we have a current problem on Madison St. It is proposed to have 4 lanes, 2 way Pike to Madison. Study shows 50% of traffic comes in on SR 15 - present traffic turns from overpass on SR 15 but 3rd would allow through traffic only one light and one turn. This does not speak to traffic on Madison St.

Any major project is not easy but all need to work together to find best solution for all and try to keep as many people happy as possible.

Gary Mroczka of INDOT passed out a handout showing rough plans for six alternative comparison routes showing advantages and disadvantages of each. Cost estimates given did not include acquiring right of way. (See attached)

Alternative 1 - Existing alignment
Alternative 2 - One Way Pair
Alternative 3 - North Connector
Alternative 4 - Divert traffic along Plymouth Ave.
Alternative 5 - Bypass
Alternative 6 - Do nothing

Truck traffic is a major problem to address (about 2000 trucks/day) - can a truck route be designated? A local road can be designated as truck route, not a State road. The short range plan now is to route trucks on 3rd St.

David Hess of Elkhart County, spoke to the suggestion of a possible route around the east side of town. There are areas with bad soil which would need to be addressed. Would Indiana Ave. be a possible truck route to SR 119, then to College Ave.? The answer is no. It would be best to go the CR 17 corridor. History says we need to solve the States problems but we need to find our own solutions. Goshen has a unique set of problems with the canal and railroad to work around. Rick Pharis stated the county is currently doing a study on part of CR 17 - from CR 18 north to State line.

The next study will be from CR 28 to SR 119. Would this route provide relief from SR 15 traffic to downtown? INDOT could put a bypass around the city but the city would need to accept any current state roads within the city.

Christine stated that she will resolve the discrepancies in traffic projection figures. They do want to provide a plan but we need to give direction also - should they consider a route around the city? It would be better to look at local solutions - US 33 E has problems that would not be solved by a truck route. She will try to digest discussion and make further plans - we need to pick our project and work with that.

NOTE: Please let me know if you find any corrections that need to be made on these minutes.

Submitted by Enid Slabaugh

SIGN UP SHEET

Bob McCorge	City of Goshen	534-2600
Doug Perry	" " "	534-5701
Mark Morgan	" "	534-2201
Forrest Miller	" "	534-2201
Jim Malcolm	306 S 7th Goshen	534-1025
Rick L Pharis	Elk. Co. Engrg.	875-3365
David Hess	Elk Co Adm.	535-6743
Allan Kauffman	Goshen Mayor	533-9322
Barney Dreup	INDOT - Ft. Wayne Dist.	484-9541
Dennis Cobb	INDOT - First Group Eng.	317-290-9549
Cristine Klika	INDOT - Pre-Engineering	317-232-5137
Ben Shiffler	INDOT - Fort Wayne District	219-484-9541
Gary Mirocelca	INDOT - Pre Engineering	317-232-5196
Phil Toepp	MACOG	219-287-1829
Fred Marek	MACOG	287-1829
Tom Byers	Elk. Co Public Services	875-3535
Jere Byler	Goshen Police	533-8661 287-1829
Tony Milea	MACOG	" "
Sandi Slaner	MACOG	"
Sam Willits	Goshen Chamber	533-2102
Wm C. Pellman	City of Goshen	534-2512
Marshall Shah	Pre-Engrg, INDOT	(317) 232-5322
Dan Buck	INDOT, Planning	" 232-3499

INDIANA DEPARTMENT OF TRANSPORTATION
100 North Senate Avenue
Room N755
Indianapolis, Indiana 46204-2249
(317) 232-5533 *FAX: (317) 232-0238*

FRANK O'BANNON, Governor
CURTIS A. WILEY, Commissioner

Writer's Direct Line

January 26, 1998

MEMORANDUM

To: Mr. Brad L. Steckler, Manager
Preliminary Engineering Studies Section
Division of Pre-Engineering & Environment

Thru: Mr. Harshad R. Shah, Supervisor
Preliminary Engineering Studies Section

From: Mr. Gerard F. Mroczka, Senior Highway Engineer
Preliminary Engineering Studies Section

Subject: Minutes of Meeting

Des. No.'s:	9222424, 9222425 & 9222426
Project No.:	NH-219-4( ) & NH-2195( )
Route:	U.S. 33
Type of work:	Added Travel Lanes
County:	Elkhart
FHWA Oversight:	Yes
Location:	From C.R. 40 to south junction of S.R. 15 (Main St.) in Goshen

This memorandum presents the minutes of the Inter-Agency Scope of Work Meeting for the above referenced projects held on January 21, 1998. Those in attendance were:

Harshad Shah -	INDOT Preliminary Engineering Studies Section
Gary Mroczka -	INDOT Preliminary Engineering Studies Section
Edward Tang -	INDOT Design
Dan Buck -	INDOT Division of Planning
Benjamin Schaffer -	INDOT Fort Wayne District
Bernard Drerup -	INDOT Fort Wayne District
Val Straumins -	Federal Highway Administration (FHWA)
Allan Kauffman -	Mayor of City of Goshen
Forrest Miller -	City of Goshen
Bob McCoige -	City of Goshen
Larry Barnes -	City of Goshen
Sandra M. Seanor -	Michiana Area Council of Governments (MACOG)
Troy Morano -	MACOG
Beth J. Xie -	MACOG
Mary Pfahler -	Wightman Petrie Inc.
Ken Jones -	Wightman Petrie Inc.
Mark E. Wilson -	Wightman Petrie Inc.

Harshad R. Shah opened the meeting by giving the purpose of the meeting, project history and schedule. The results of the meeting shall be presented to the general public at an information meeting to be held on February 3, 1998 at 6:00 pm. The project has been split into three segments, Segments #1

Printed on Recycled Paper • *An Equal Opportunity Employer* • *http://www.indot.state.in.us/aum/dot.index.html*

and #2, Des. No.'s: 9222425 and 9222426 shall be let together in 2002 and Des. No.: 9222424 shall be let in 2003. The breakpoints between the different segments shall be just north of College Ave. and Monroe Street.

Gary Mroczka then described INDOT's projects along U.S. 33:

A. Des. No.: 9222425 & 9222426 (C.R. 40 to Monroe Street) – South Project:

This project shall be developed as a four lane divided arterial on the National Highway System. Three different mainline cross sections shall be provided. The first section (Section #1A) shall be to provide a four lane divided suburban facility (Design Speed = 80 km/h) with 3.6 m travel lanes, 4.8 m median, 3.3 m outside shoulders, 0.81 m mountable curb and 6.0 m clear zone within the proposed 40.0 m (20.0 m on each side of centerline). Two residential relocations shall be required in this section. A high tension utility tower shall be relocated just north of C.R. 40.

The next two sections (Sections #1B and #2A) between C.R. 40 to Fairfield Ave. shall be to provide a four lane divided facility (Design Speed = 70 km/h) through an intermediate developed area with 3.6 m travel lanes, 4.8 m median, 0.79 m barrier curb and gutter, 3.0 m clear zone within the proposed 32.0 m (16.0 m on each side of centerline) right-of-way. Channelized left and right turn lanes shall be provided at all signalized intersections.

The next section (Section #2B) shall be to narrow the typical cross section as much as possible to avoid right-of-way impacts through a built-up residential and commercial area between Fairfield Ave. and Monroe Street. The typical cross section shall be to construct one 3.3 m and one 3.6 m in each direction separated by a 4.2 m two way left turn lane median, 0.79 barrier curb and gutter, 1.5 m utility strips and 1.5 m sidewalks on each side with in the proposed 26.0 m (13.0 m on each side of centerline) right-of-way.

Throughout the south project, new pavement and storm sewers shall be installed. The new storm sewers shall outlet into Horn ditch, approximately 0.25 mile east of U.S. 33.

Mr. Schaffer would like to provide a northbound channelized right turn lane at C.R. 38 due to the amount of industry to the east as well as corridor consistency.

Mr. Schaffer stated that the Fort Wayne District recently lowered the speed limit from 45 mph to 40 mph within Sections #1B and #2A.

City of Goshen highly promotes bicycle and pedestrian traffic. Therefore, the installation of sidewalks along the west side of U.S. 33 is critical for residence to the north be able to walk to the commercial area (Wal-Mart Supercenter) to the south. A new residential subdivision is proposed for the southwest corner of College Ave. and Dierdorff Road. The City of Goshen shall provide INDOT with its bicycle and pedestrian plan. A letter from the City of Goshen shall be sent to Mr. Brad L. Steckler, Manager of the Preliminary Engineering Studies Section concerning the location of sidewalks for this project.

Traffic shall be maintained during construction on the existing facility by constructing the new facility a half at a time.

B. Des. No.: 9222424 (Monroe Street to S.R. 15, Main Street) – North Project:

The last section, Section #3 shall be to construct a four lane undivided facility with one 3.3 m and one 3.6 m travel lane in each direction. 0.79 m curb and gutter and 1.8 m sidewalks on each side within the existing 20.0 (10.0 m on each side of centerline) right-of-way. Four signalized intersections currently exists in this section and are at Monroe Street, 8th Street, 5th Street and S.R. 15 (Main Street). A level of

A-59

service B can be provided with a four lane undivided section at the 5th and 8th Street intersections. Five lane sections with left turn lanes shall be provided at the intersection of Madison and Main Streets. Some relocations shall be required near this intersection. Some parking shall be removed along Main Street.

The City of Goshen would like five lane sections at 5th and 8th Streets in order to provide channelized left turn lanes without impacting the church along the south side of Madison Street. City personal believe purchasing right-of-way along Madison Street shall not be a big problem.

C. Third Street Project – City of Goshen:

The City of Goshen is currently developing a project to reconstruct Third Street between Madison and Pike Streets and small portion of Madison Street between Third and Main Streets. The proposed plan shall be to widen the facility to a four lane undivided section between Main Street and Lincoln Ave. and to five lane section from Lincoln Ave. to Pike Street. A horizontal curve (60 km/h) shall be constructed to connect the two roads impacting seven properties. The posted speed limit on Third Street shall be 30 mph. Madison Street shall be widened all on the north side (centerline shifted 24') to avoid impact to the bank in the southwest corner of Main Street. The estimated cost of the project is $3,000,000.

New storm sewers and pavement shall be constructed throughout the project limits. City of Goshen would like INDOT to relinquish Main Street to the city and takeover Third Street as part of the State System. U.S. 33 and S.R. 15 will be relocated along Third Street. Goshen made an offer to design the Madison Street project and to purchase any necessary right-of-way for the project, if INDOT would pay for the construction of Third Street. INDOT suggested to Goshen to send a proposal with Mayor signature to Fort Wayne District and Division of Planning with their offer in order to begin the negotiating process. Any agreement shall require the approval of the INDOT Executive Office. At this time, INDOT and Goshen shall continue to develop their projects separately until the agreement has been negotiated.

These minutes are our understanding of comments received during the meeting. If any are incorrect or need further clarification, please call Mr. Mroczka at (317) 232-5196.

BLS/GFM/gfm

cc: file
Attendees

A-60

CITY OF GOSHEN

"THE MAPLE CITY"

Allan Kauffman, Mayor
City of Goshen
111 East Jefferson Street, Suite 1
Goshen, Indiana 46528-3739

January 28, 1998

Mr. Harshad R. Shah, P.E.
Indiana Department of Transportation
100 N. Senate Avenue
Indiana Government Building, Room N848
Indianapolis, IN 46204-2218

Dear Harshad:

I enjoyed my visit to your offices last week. I regret having to leave the discussion early, but heard good reports about progress made during the meeting.

Per Gary Mroczka's suggestion, I am forwarding this letter as Goshen's request that INDOT include sidewalks (pedestrian ways) in the plans for reconstruction of US 33 within Goshen's city limits (as far as C.R. 38).

The City of Goshen has, in the past five years, spent over $1,500,000 for sidewalks/bicycle paths. Additionally, $850,000 is approved for construction in 1998 and a large grant application has been filed with anticipated approval for later this year. We have a subdivision ordinance requiring sidewalks in all new neighborhoods. Our City Council annually appropriates money to assist homeowners in the construction of new sidewalks where none existed for the maintenance of older sidewalks along public rights of way. And, in all major road reconstruction in the past several years, sidewalks have been added where they did not exist prior to reconstruction.

As you can begin to see, pedestrians have a high priority in our community. I have enclosed a map of the Maple City Greenways pedestrian/bicycle paths.

Your consideration of this request will be appreciated.

Sincerely,

Allan Kauffman

Allan Kauffman, Mayor

AK:es

Enclosure, map of bike paths

Cc: Gary Mroczka
Dan Buck

A-61

(219) 533-9322 Hearing Impaired (219) 534-3185 FAX (219) 533-9740

CITY OF GOSHEN

"THE MAPLE CITY"

Allan Kauffman, Mayor
City of Goshen
111 East Jefferson Street, Suite 1
Goshen, Indiana 46528-3739

February 6, 1998

Cristine Klika, P.E.
Deputy Commissioner
Office of Planning and Intermodal Transportation
100 N. Senate Avenue
IGCN, Room N755
Indianapolis, IN 46204

Dear Cristine:

I apologize for having to leave early from your meeting last Tuesday at Chandler Elementary School. From what I read in local newspapers and what I heard from some of our employees and from Chamber of Commerce representatives who were in attendance, it went reasonably well.

While the meeting was heavily attended, that fact alone should not be cause for alarm, especially when one examines the reason for the attendance. The "Third Street Coalition" is a small group of people who live and/or do business on Third Street in Goshen and whose mission it is to thwart our initiatives to rebuild and widen that road per our Thoroughfare Plan. It was this group that ran display ads in local newspapers and spread some fears that drove up attendance. But in addition to that, I personally made announcements at local service clubs and Chamber of Commerce meetings to encourage people to attend. After all, whether people are for or against the project, it will have a significant impact on Goshen, and we want their input.

We have done reasonably good job locally to contain the opposition to our Thoroughfare Plan, and as a consequence our Third Street project, to a small number of people. And, with each step we take that demonstrates our efforts to make the project as palatable as possible, more members of the "Coalition" drop off. Having thus far failed in building momentum to sway me or our City Council from the belief that the Third Street project is necessary, their next step is to try to dissuade INDOT from doing the Madison Street project. If they are successful at that, the Third Street reconstruction makes less sense.

From what I read and heard of the meeting, it is worth noting that there were relatively few of the 150 or so people who actually spoke. And of those who did, Jim Malcolm, Jon Brookmyer, and Linda Clark (and perhaps others) are all members of the "Third Street Coalition". When Mr. Brookmyer asked for a show of hands from people opposed or "seriously concerned" about the project, less than half of the people in attendance did so. Even I could have raised my hand, as I myself have concerns. But that does not put me in opposition to the project.

(219) 533-9322 Hearing Impaired (219) 534-3185 FAX (219) 533-9740

I know the point was made by Jim Malcolm at your Chandler School meeting that the only "real" solution is a full-fledged bypass around Goshen. While there would no doubt be a significant reduction in traffic through town, the potential for commercial blight is too great to assume the risk. People frequently talk only about threats to "Main Street". But a bypass would negatively impact the entire commercial corridor from CR 38 on the southeast to CR 26 on the northwest. Commercial developers may lick their lips in anticipation of new areas for them to make money. But our local business community and Chamber of Commerce oppose the idea of a bypass. Improved peripheral roads have seemed to be an acceptable compromise to them.

Our Assistant City Engineer, Bob McCoige, relayed your concern that people send letters in support of your project in Goshen. The President of our Chamber of Commerce, the chair of the Chamber's traffic committee, the Executive Director of our Main Street Program (Face of the City), the President of our downtown retail division and businesspeopie along the US 33 corridor are among those who will be sending letters (if they have not already done so). And, you may consider this a letter of support. As Mayor of Goshen, I am a firm believer in the necessity of it.

While a supporter, even I have concerns. My primary one is how to incorporate design elements to "soften" the feel of the project in the older urbanized section of Madison Street. It is my hope that INDOT will consider features such as our antique replica street lamps and perhaps a five-foot tree lawn on each side separating the sidewalks and curbs. I know this means the project cannot fit inside the present 65 foot right-of-way. But trying to squeeze it in without taking property will have a very harsh effect.

A second concern is how the project engineers can work with Goshen High School to perhaps include a pedestrian underpass or some other solution to safety of people crossing US 33 to get to and from parking lots and athletic facilities. There is a light at Monroe Street, but many people are either too obstinate or in too big a hurry to walk down to it.

Your people commented at the meeting that traffic projections for the year 2021 are taking into consideration that Goshen and Elkhart County will build peripheral roads. While the "Third Street Coalition" might want you to believe that is not a current focus, the city and county have already contracted for a corridor study to determine the optimal connection from the new CR 17 to SR 15 and US 33 on the south edge of Goshen.

My administration is committed to implement as much of the Thoroughfare Plan as can be afforded. That is a large part of the reason John Passey will be bringing INDOT officials in Indianapolis a request from Goshen that the State assume our Third Street project as a natural extension of your Madison/US 33 project. We understand that the only way that could happen is that the streets that currently carry US 33 and SR 15 would be relinquished in their present condition to local control. If INDOT is agreeable to this, it allows the federal/local resources currently reserved for Third Street to be applied to the peripheral roads. This benefits INDOT by decreasing traffic on through-town routes. I have already discussed the proposal with Mr. Passey, Barney Drerup, and Ben Shaffer of the Fort Wayne District Office.

I am very much aware of the local political risk in pushing for traffic solutions. My wife even cautioned me a couple days ago, after reading a couple letters to the editor, that forging ahead could cause me to be defeated in next year's election. However, we are working locally to maximize support from the business community. And my job is to face the issues and deal with them, not to hide from them. Mike Puro was the first mayor in Goshen willing to seriously consider significant traffic improvements. He got a ball started rolling, and I am committed to keeping it rolling. Goshen has been hiding from traffic solutions far too long.

I appreciate the sensitivity you have demonstrated about how your project in Goshen is perceived locally. Your concerns for our welfare are admirable. Please remember that the opposition you hear is a small portion of the approximately 26,000 people in Goshen. The "silent majority", when they look past the ends of their noses to the year 2021, understands that your project has to happen. Many are concerned about the esthetics of it, but they do not oppose it.

If you need more information from me, have questions, or wish to give me guidance, I am always available to you.

Respectfully,

Allan Kauffman

Allan Kauffman
Mayor

GOSHEN
Chamber of Commerce

February 16, 1998

Chris Baynes
Public Hearings Office
Indiana Department of Transportation
100 North Senate Avenue Room N755
Indianapolis, Indiana 46204

Dear Ms. Baynes:

This letter is written in support of the U.S. 33/Goshen Project, Des # 9222424, 9222425 and 9222425.

The Goshen Chamber of Commerce, representing nearly 500 members, has long been involved in traffic issues in and around our community. The Chamber and the City of Goshen have been partners in trying to develop long term solutions to current and future traffic problems.

We are active supporters of the Goshen Thoroughfare Plan and have tried to be catalytic in dealing with City and County Governments at all levels. All of our plans have been predicated on the widening and improvements of U.S. 33 from Madison to C.R. 40. Businesses and residences located in Goshen based on their proximity to U.S. 33. Some wanted to be close to it, others wanted to be away from it. Either way residences and businesses will be effected in a negative way.

We believe that our community needs an improved U.S. 33 as INDOT has planned and a peripheral road system. We do not believe moving U.S. 33 to a section of the peripheral road or bypass of Goshen solves future traffic problems. Moving this major artery will not prevent or eliminate the traffic caused by current and future commerce on this vital business corridor. Our future traffic solutions lie in increasing the capacity in and around the city.

INDOT has planned for this project for several years and did so based on technical knowledge that warrants this increase in capacity. The Chamber agrees that the State of Indiana made a proper decision and should implement it.

A community must have a road infrastructure which allows for the safe, convenient and efficient movement of people and products. Having an improved U.S. 33 located where it is will be the first step in securing a future roadway system which meets the need of citizens in and out of the Goshen Community. Thank you very much for your time.

Sincerely yours,

Sam Willits
President

A-65

232 S. Main Street • Goshen, IN 46526-3723 • Phone: (219) 533-2102 • FAX: (219) 533-2103 • Toll Free: (800) 307-4204 • email:goshencc@tln.net

INDIANA DEPARTMENT OF TRANSPORTATION
INDIANAPOLIS, INDIANA 46204-2249
INTER-DEPARTMENT COMMUNICATION

March 26, 1998

MEMORANDUM

To: Brad L. Steckler, Manager
Preliminary Engineering Studies Section
Division of Pre-Engineering & Environment

Thru: Harshad R. Shah, Supervisor
Preliminary Engineering Studies Section

From: Gerard F. Mroczka, Senior Highway Engineer
Preliminary Engineering Studies Section

Subject: Minutes of Meeting
Des. No.'s: 9222424, 9222425 and 9222426
Project No.'s: NH-219-4( ) & NH-219-5( ) PE, RW & CN
Route: U.S. 33
Type of Work: Added Travel Lanes
County: Elkhart
Location: From 0.2 mile south of C.R. 40 (RP 82+025) to south junction of S.R. 15 / Main Street (RP 87+001) in Goshen

This memorandum presents the minutes of meeting held with INDOT Design concerning the proposed scope of work for the above referenced projects. Those in attendance were:

Harshad Shah – INDOT Preliminary Engineering Studies Section
Gary Mroczka – INDOT Preliminary Engineering Studies Section
Hasmukh Patel – INDOT Design

The proposed added travel lanes project has been broken into three separate projects. The first project shall begin just south of C.R. 40 and shall end just north of College Ave. (Des. No.: 9222425). The second shall begin just north of College Ave. and shall end just north of Monroe Street (Des. No.: 9222426). Finally, the last project shall begin just north of north of Monroe Street and shall end at Main Street (Des. No.: 9222424). The proposed projects shall be to widen the existing two lane facility to a four lane divided facility between C.R. 40 and Monroe Street (Des. No.'s: 9222425 and 9222426) and to a four lane undivided for the third project. Throughout the corridor, new closed drainage shall be constructed outletting into Horn Ditch, detention ponds and into the existing storm sewers. Eight signalized intersections are already present throughout the corridor at C.R. 38, Wal-Mart Supercenter, Eisenhower Drive, College Ave., Monroe Street, 8th Street, 5th Street and Main Street.

Comments made during the meeting:

A warrant study for a signalized intersection shall be performed by Fort Wayne District during the design phase at C.R. 40.

The south leg of the U.S. 33 / C.R. 40 intersection shall be channelized as one southbound through lane, one northbound left turn lane, one through lane and one shared through / right turn lane.

Preliminary Engineering Studies shall investigate the likelihood of partial access control right-of-way from C.R. 40 to Fairfield Ave. Coordination with Fort Wayne district shall be required.

Geometrics of the C.R. 38 intersection appear to be satisfactory at this time.

Channelization by concrete curb divider shall be installed at signalized intersections with a lot of private drives near the intersection.

Geometrics of the Wal-Mart Supercenter and Eisenhower Drive intersections appear to be satisfactory at this time.

Environmental Assessment Section shall study the quality of the wetland for the outlet of the proposed storm sewer. If high quality, mitigation would probably be required. If a replacement ratio is significant, a new site for a retention pond would probably be more economical. This shall be determined after the environmental phase.

Geometrics of the College Ave. intersection appear to be satisfactory at this time.

Closing of additional side streets between Fairfield Ave. and Monroe Street shall be investigated. If more streets are closed, maybe a signal would be warranted at Plymouth Ave. The recommended five lane section will be required due to the number of private drives already present in this section.

If possible, eliminate one of the horizontal curves between 5th and Main Streets by slightly skewing the Main Street and Madison Street intersection.

This is our understanding of the comments received during the meeting. If anything is incorrect or needs further explanation, please call Gary Mroczka at 232-5196.

BLS/GFM/gfm

cc: Patel
File

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: all

Year: 1992 - 1995

Total Incidents: 233

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	164	69	0
Number Involved	448	117	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	157	66	170
Percent of all types	67%	28%	73%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	105	31	34	12	8	4	11	19		
Percent of all types	45%	13%	16%	5%	3%	2%	5%	8%	95%	4%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 147300 > C.R. 40

Year: 1992 - 1995

Total Incidents: 9

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	11,320	0.73

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	5	4	0
Number Involved	17	10	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	6	3	6
Percent of all types	67%	33%	67%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	2	4	3	0	0	0	0	0		
Percent of all types	22%	44%	33%	0%	0%	0%	0%	0%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 150900 > C.R. 139

Year: 1992 - 1995

Total Incidents: 2

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	11,320	0.16

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	1	1	0
Number Involved	4	2	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	2	0	2
Percent of all types	100%	0%	100%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	2	0	0	0	0	0	0	0		
Percent of all types	100%	0%	0%	0%	0%	0%	0%	0%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 147100 > C.R. 38

Year: 1992 - 1995

Total Incidents: 31

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	18,590	1.52

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	18	13	0
Number Involved	62	21	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	25	5	24
Percent of all types	81%	16%	77%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	10	5	10	3	2	0	1	0		
Percent of all types	32%	16%	32%	10%	6%	0%	3%	0%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 42800 > Eisenhower Drive

Year: 1992 - 1995

Total Incidents: 0

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	18,050	0.00

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	0	0	0
Number Involved	0	0	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	0	0	0
Percent of all types	#DIV/0!	#DIV/0!	#DIV/0!

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	0	0	0	0	0	0	0	0		
Percent of all types	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 21600 > College Ave.

Year: 1992 - 1995

Total Incidents: 26

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	24,160	0.98

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	21	5	0
Number Involved	54	6	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	17	9	15
Percent of all types	65%	35%	58%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	17	1	3	4	1	0	0	0		
Percent of all types	65%	4%	12%	15%	4%	0%	0%	0%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 45300 > Fairfield Ave.

Year: 1992 - 1995

Total Incidents: 8

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	19,770	0.37

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	4	4	0
Number Involved	16	4	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	4	4	7
Percent of all types	50%	50%	88%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	4	0	1	2	0	0	1	0		
Percent of all types	50%	0%	13%	25%	0%	0%	13%	0%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 100800 > Plymouth Ave.

Year: 1992 - 1995

Total Incidents: 12

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	19,870	0.55

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	9	3	0
Number Involved	26	9	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	9	3	7
Percent of all types	75%	25%	58%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	5	2	3	1	0	1	0	0		
Percent of all types	42%	17%	25%	8%	0%	8%	0%	0%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 105200 > Reynolds Ave.

Year: 1992 - 1995

Total Incidents: 4

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	19,900	0.18

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	3	1	0
Number Involved	7	1	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	3	1	4
Percent of all types	75%	25%	100%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	3	0	0	0	0	0	1	0		
Percent of all types	75%	0%	0%	0%	0%	0%	25%	0%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 110600 > Sanders Ave.

Year: 1992 - 1995

Total Incidents: 12

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	19,900	0.55

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	10	2	0
Number Involved	23	2	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	8	4	12
Percent of all types	67%	33%	100%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	6	1	3	0	0	0	1	1		
Percent of all types	50%	8%	25%	0%	0%	0%	8%	8%	100%	0%

Des# 9222425 / 9222426 — U.S. 33, Added Travel Lanes

Within ? ft. from Ref Rd: 328 ft. = 100.0 meters

Ref Rd#: "all" for all: 88300 > Monroe Street

Year: 1992 - 1995

Total Incidents: 15

Crash Rate / MEV		
Years Reported	Entering Vehicles	Accidents per Million Entering
3	19,900	0.69

Severity	Prop.Damage	Personal Injury	Fatalities
Number of Incidents	10	5	0
Number Involved	27	8	0

Operating Conditions	Dry	Wet / Snow / Ice	Day-light
Number of Incidents	10	5	10
Percent of all types	67%	33%	67%

Type of Accident	Rear End	Right Angle	Left Turn	Right Turns	SD SS	OP SS	Head On	Off Road	Sum of Percents	Unreported / Unknown
Number of Incidents	8	0	3	1	0	0	1	2		
Percent of all types	53%	0%	20%	7%	0%	0%	7%	13%	100%	0%

Act.01 3-1-93
Act.03 3-1-94
RFL 11-1-97

223

#12 of 12 = PES. 2242

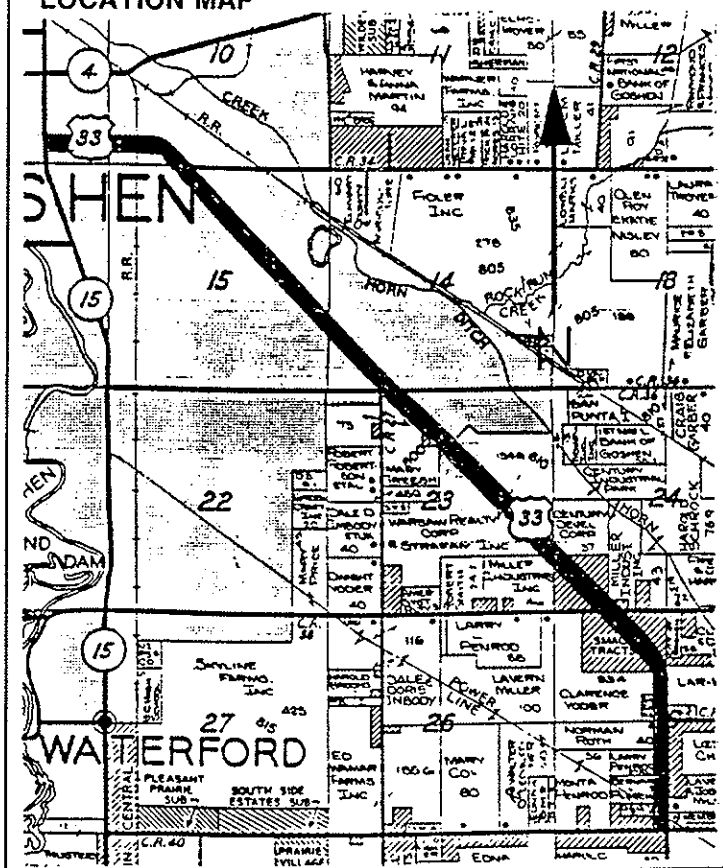
Date September 20, 1991

Division of Program Development
Highway Improvement Programming Section

INDIANA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT SUPPORT DATA

LOCATION MAP



Fiscal Year(s) 1993
Program Category Added Travel Lanes
Route Number U.S. 33
Highway District Fort Wayne
County(s) Elkhart
Urban Area(s) partially in Goshen
Federal Aid System Primary
Fed. Aid Route Number P-2194, P-2195
Functional Class
Location From C.R. 40 to South Junction of S.R. 15 in Goshen

Miles 4.5
Bridge Number(s)

IMPROVEMENT

Addition of 2 and/or 3 lanes of travel to the existing 2 lanes.

STATEMENT

Improvement to resurface existing surface with widening. From County Road 40 to Fairfield Street the roadway should be widened to 4 or 5 lanes with shoulders. From Fairfield Street to S.R. 15 the roadway should be widened to 4 or 5 lanes with curb and gutter. This section of roadway is a rapidly developing commercial and residential area with deceleration/right turn lanes constantly being added thus creating a continuous lane.

Additional right-of-way may be needed.

ESTIMATED COST ($1,000's) — Base Year 1991 Dollars

	Preliminary Engineering	Land Acquisition	Structures	Roadway	Utilities	Traffic Control	TOTAL
FY				6500			6500
FY							
FY							
FY							
Total				6500			6500

A-70

State Form 2613 (R2/9-89)

OPERATIONAL DATA	Existing	Proposed
HIGHWAYS		
AADT (Year)/Percent Trucks	8000-15000(87)	
Speed (MPH)	30 - 50 mph	
Accidents/Fatalities		
Surface Condition		
Surface Type	Bituminous	
Pavement Width	24 feet	
Shoulder Type/Width		
ROW/Roadway Width	60 feet	
Number of Lanes	2	
Median Width	N/A	
Horizontal Alignment		
Vertical Alignment		
Roughness No./Friction No.		
BRIDGES		
Structure Number		
Sufficiency Rating (Year)		
Structure Type		
Deck Rating		
Superstructure Rating		
Substructure Rating		
Remaining Life		
Operating Rating		
Inventory Rating		
Vertical/Horizontal Clearance		
Width/Length		
Posting Recommendation		

RAILROADS

RR Name _____

AAR Number _____

Crossing _____ of _____

Number of Tracks: Main _____ Other _____

Maximum Speed (MPH) _____

Number of Trains _____

Existing Protection _____

Proposed Protection _____

COMMENTS/REVISIONS

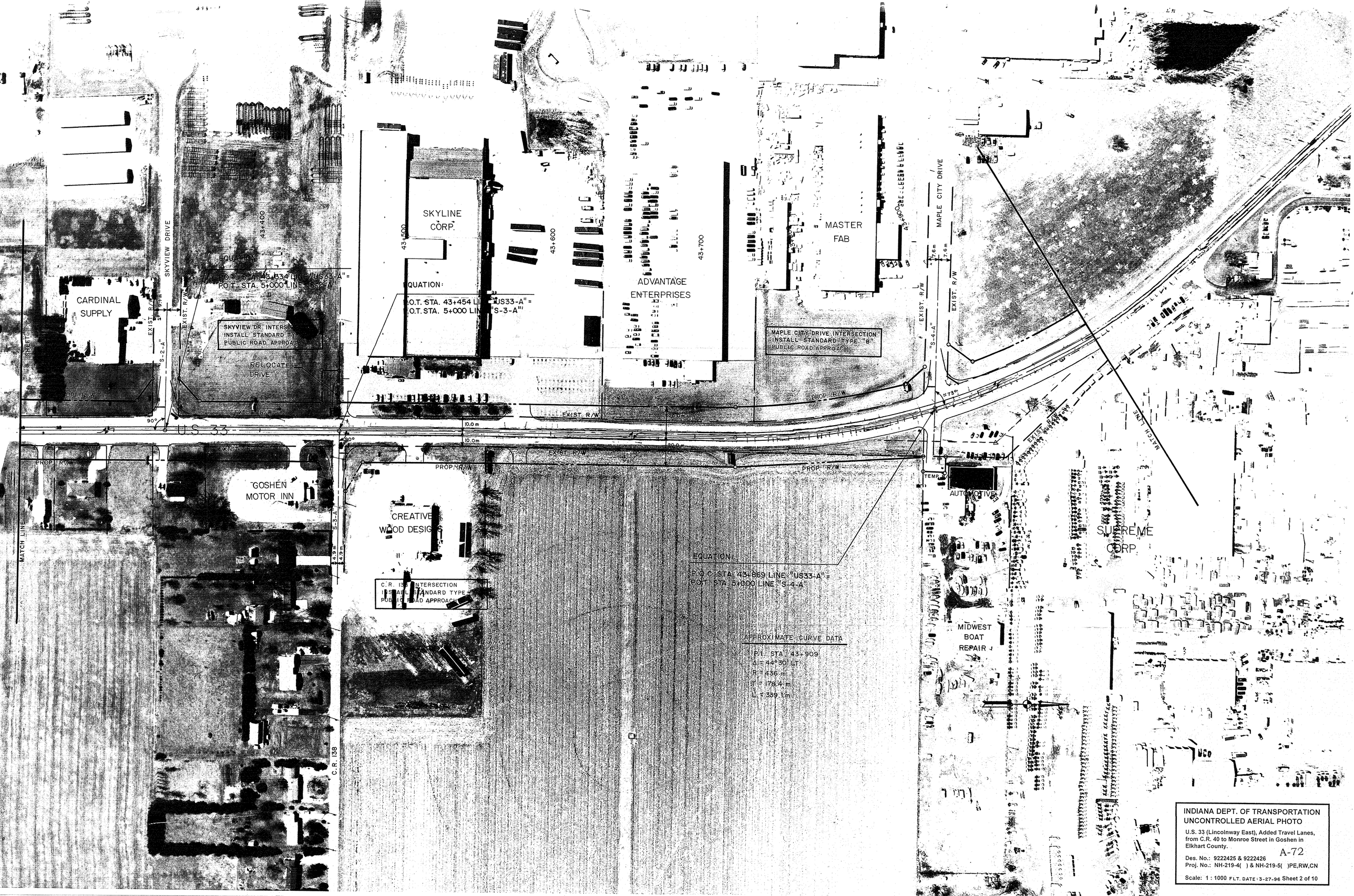
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-71

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE: 3-27-96 Sheet 1 of 10



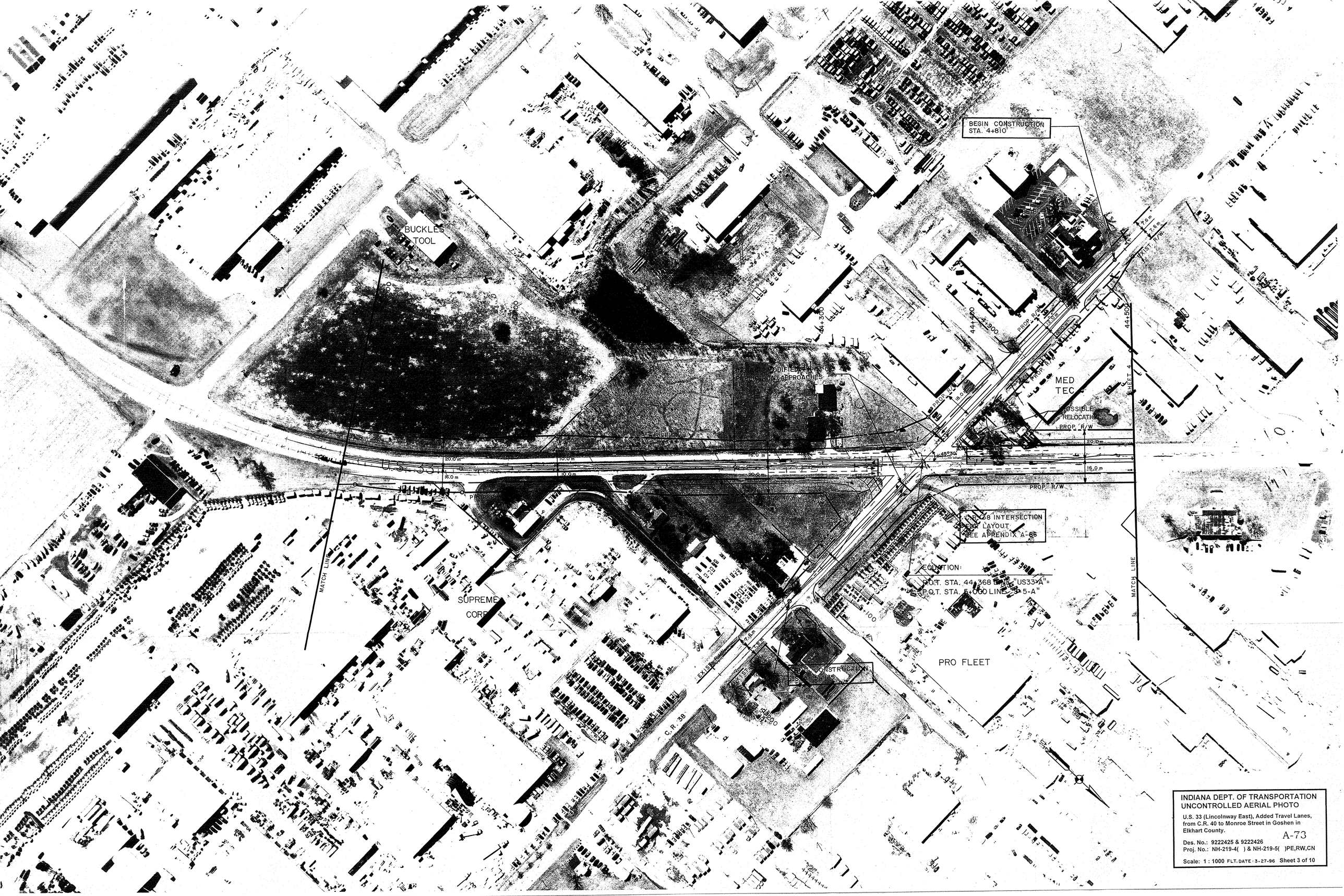
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-72

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE: 3-27-96 Sheet 2 of 10



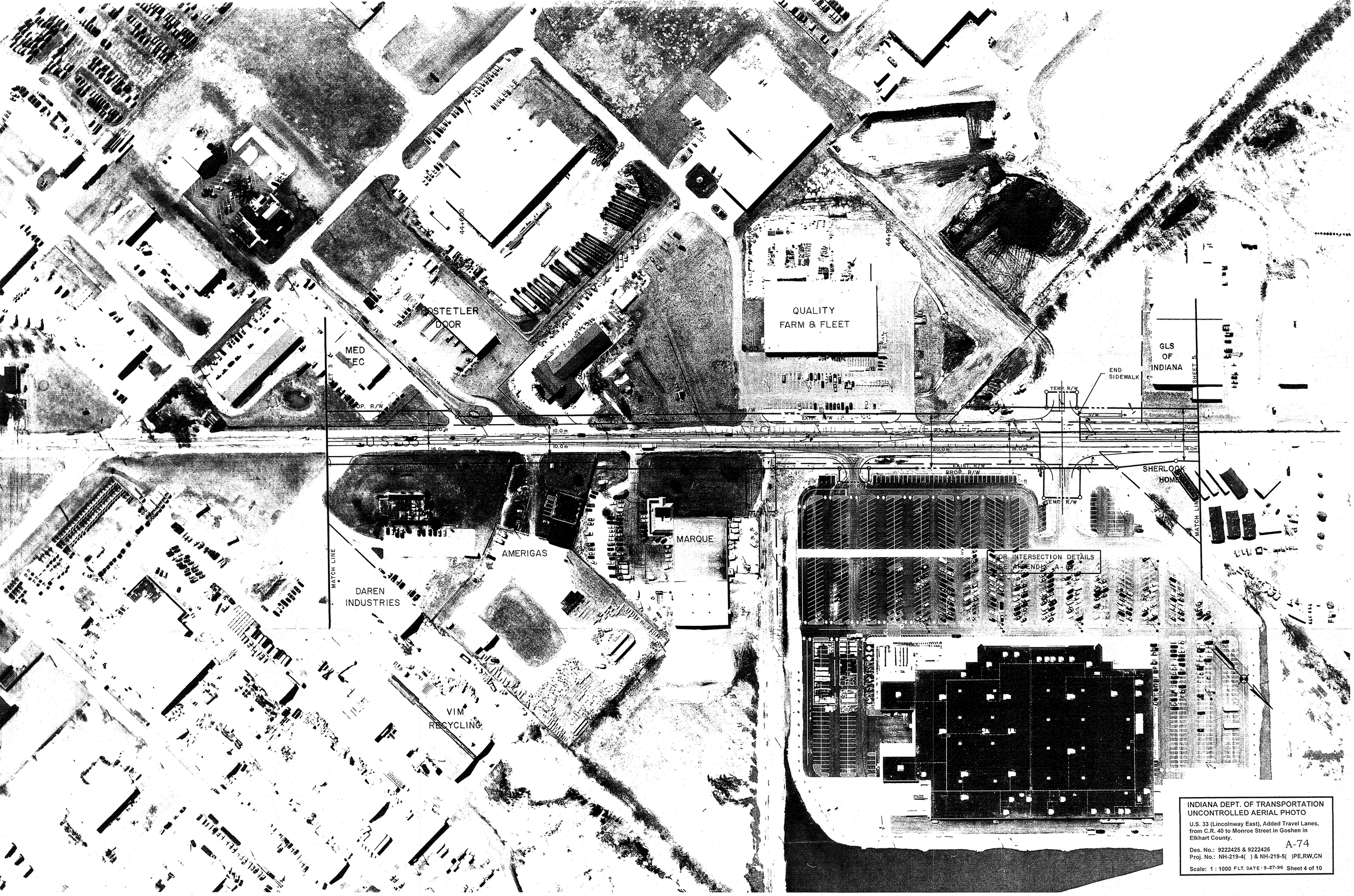
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-73

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE : 3-27-96 Sheet 3 of 10



INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-74

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE: 3-27-96 Sheet 4 of 10

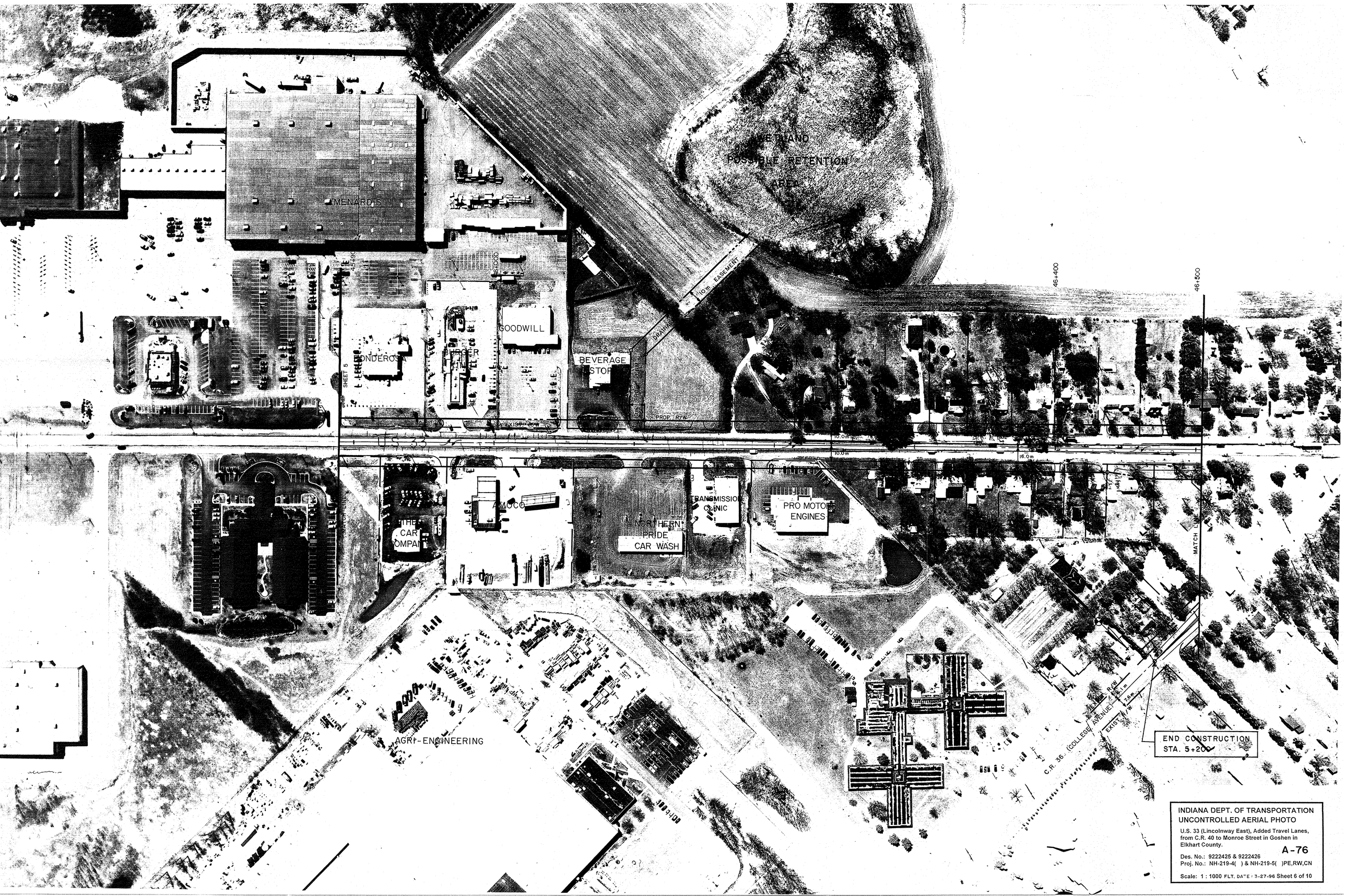
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-75

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE: 3-27-96 Sheet 5 of 10



INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-76

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE : 3-27-96 Sheet 6 of 10

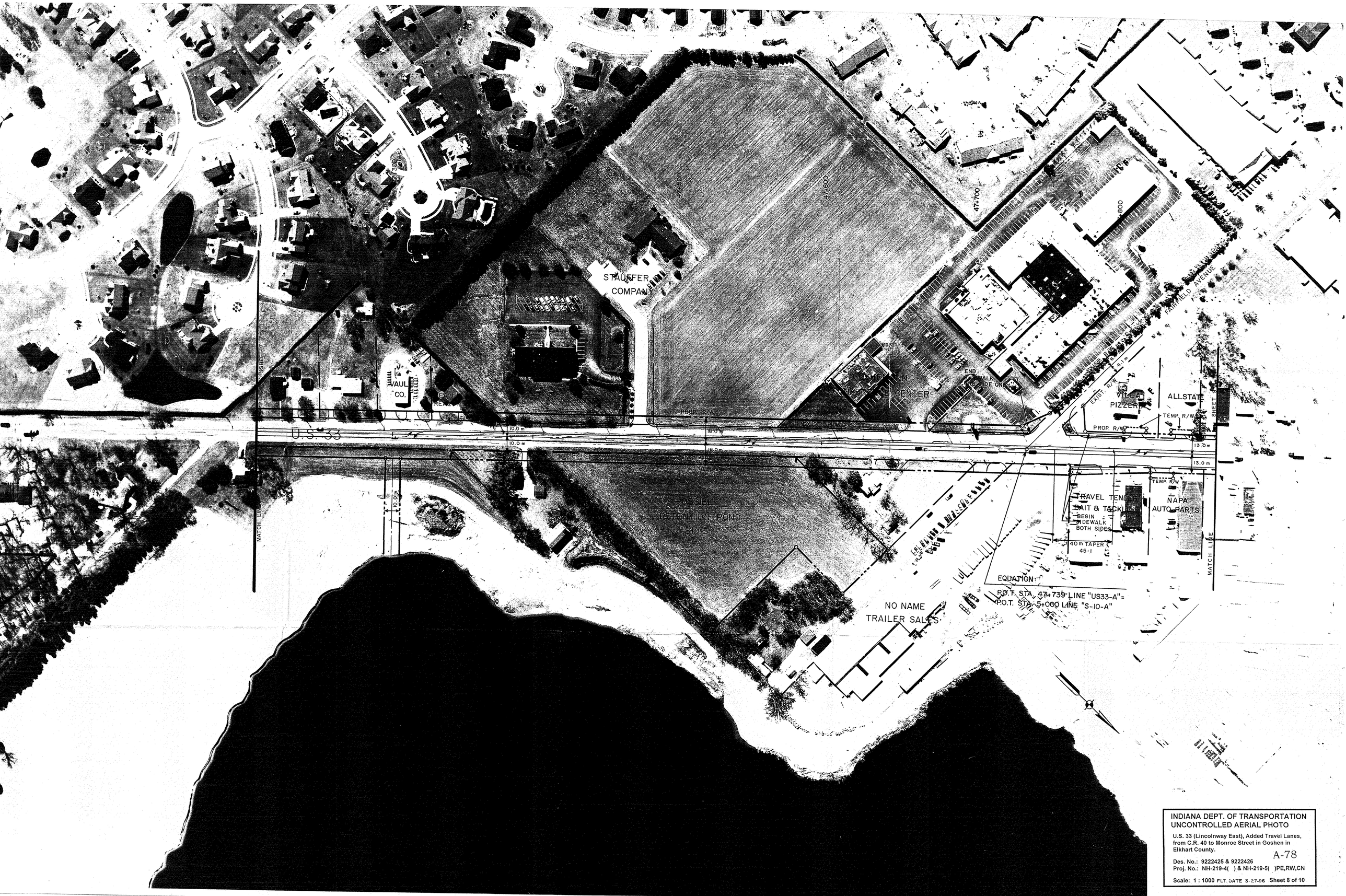
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-77

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE: 3-27-96 Sheet 7 of 10



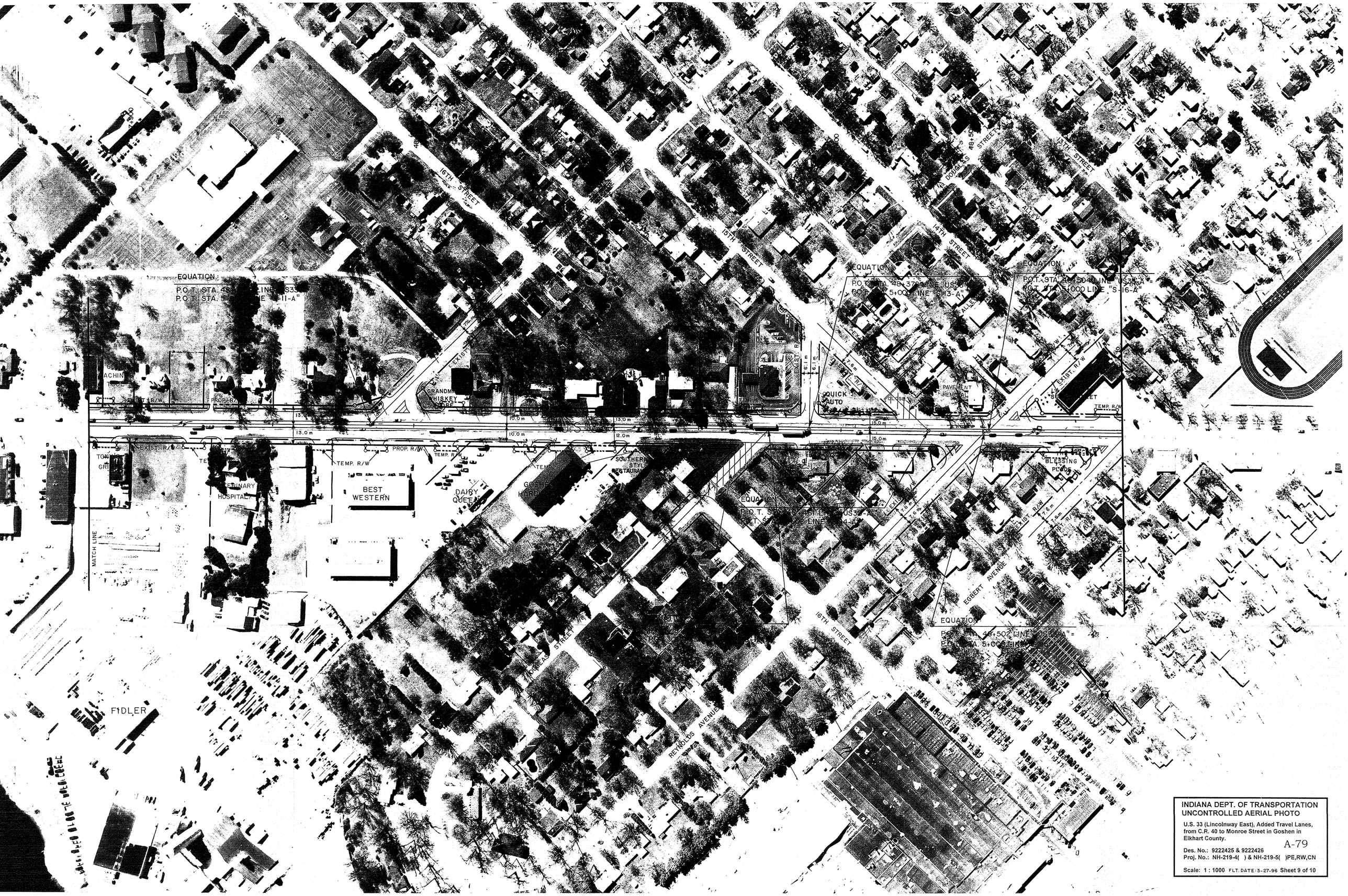
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-78

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE 3-27-96 Sheet 8 of 10



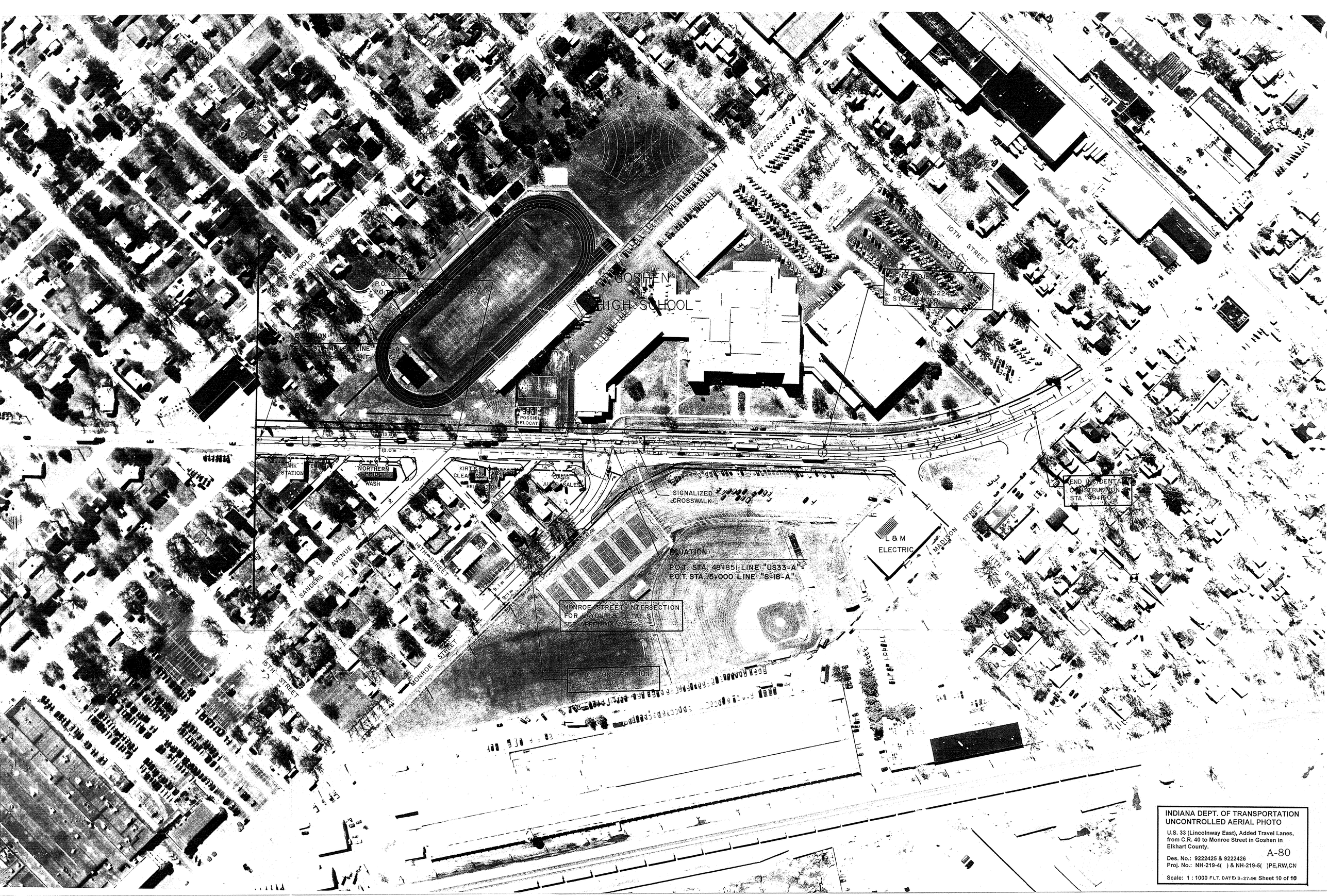
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

A-79

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE: 3-27-96 Sheet 9 of 10



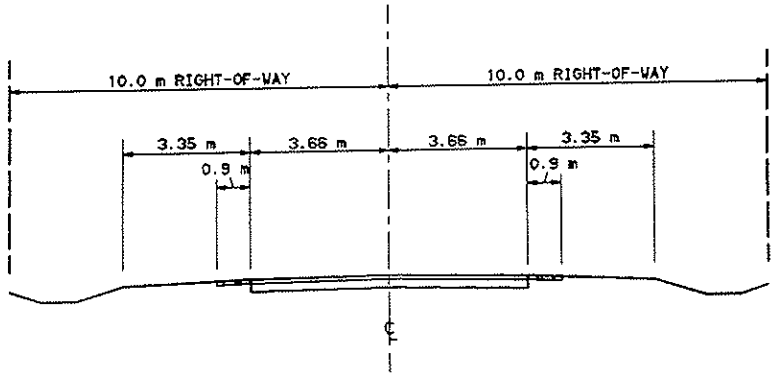
INDIANA DEPT. OF TRANSPORTATION
UNCONTROLLED AERIAL PHOTO

U.S. 33 (Lincolnway East), Added Travel Lanes, from C.R. 40 to Monroe Street in Goshen in Elkhart County.

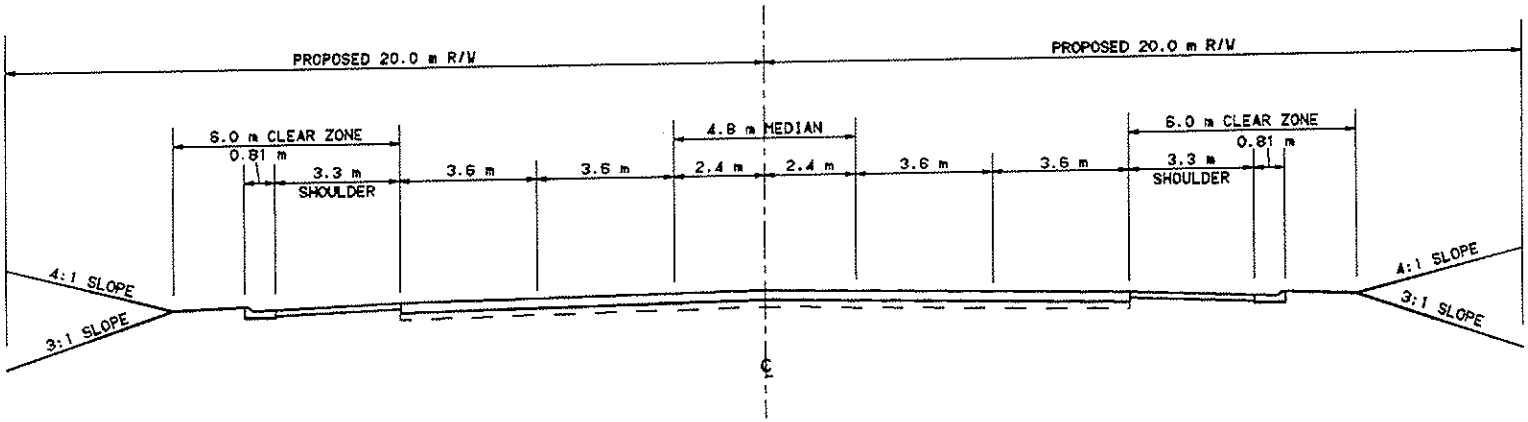
A-80

Des. No.: 9222425 & 9222426
Proj. No.: NH-219-4( ) & NH-219-5( )PE,RW,CN

Scale: 1 : 1000 FLT. DATE: 3-27-96 Sheet 10 of 10



EXISTING U.S. 33
TYPICAL CROSS SECTION



PROPOSED U.S. 33
TYPICAL CROSS SECTION
STA. 42+636 TO STA. 44+150

PRELIMINARY
SUBJECT TO CHANGE

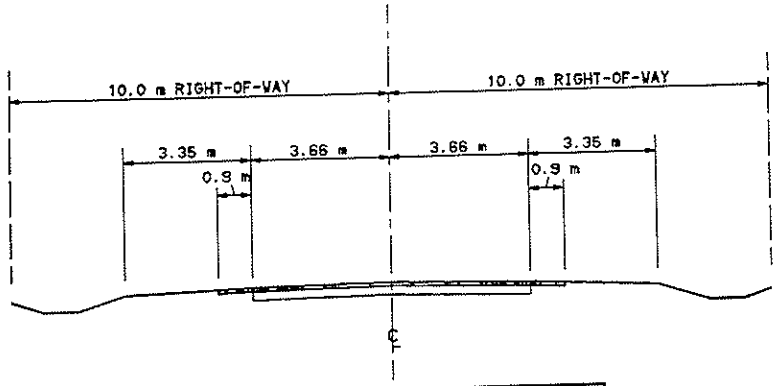
LOOKING NORTHBOUND
ALONG U.S. 33

INDIANA DEPARTMENT OF TRANSPORTATION

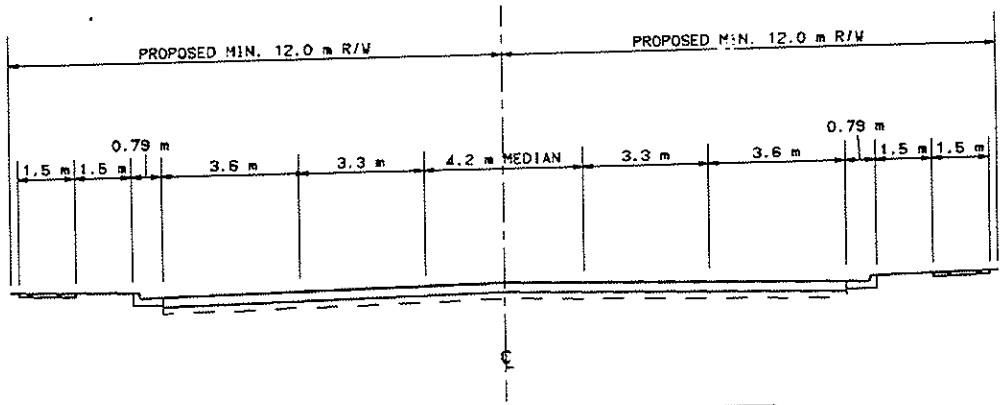
INDIANA
DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTIONS
U.S. 33, ADDED TRAVEL LANES

SCALE	BRIDGE FILE
1 : 200	
PROJECT	DESIGNATION
NH-219-4( )	9222425 & 9222426
	SHEETS
	of



EXISTING U.S. 33
TYPICAL CROSS SECTION



PROPOSED U.S. 33
TYPICAL CROSS SECTION
STA. 47+800 TO STA. 49+000

NOTE:
WHERE PROPOSED RIGHT-OF-WAY WIDTH
IS 12.0 m DUE TO RIGHT-OF-WAY IMPACTS
REPLACE 1.5 m BUFFER STRIP AND SIDEWALK
WITH 0 m BUFFER STRIP AND 1.8 m SIDEWALK

PRELIMINARY
SUBJECT TO CHANGE

LOOKING NORTHBOUND
ALONG U.S. 33

INDIANA
DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTIONS
U.S. 33, ADDED TRAVEL LANES

SCALE	BRIDGE FILE
1 : 200	
PROJECT	DESIGNATION
NH-219-4( )	9222425 & 9222426
	SHEETS
	of

Bill

A. D. 114

INDIANA DEPARTMENT OF TRANSPORTATION

INDIANAPOLIS, INDIANA 46204-2249

INTER-DEPARTMENT COMMUNICATION

August 9, 1996

MEMORANDUM

TO : Mr. Harshad Shah
Division of Pre-Engineering and Environment

THRU: Mr. David H. Andrewski DHA
Materials Engineer

FROM: Mr. Kumar P. Dave KPD
Pavement Design Engineer

RE : Preliminary Pavement Design

Des No	:	9222425
District	:	Fort Wayne
Route	:	US 33
County	:	Elkhart
Location	:	From CR 40 to Goshen Corp Line

Information received from your office indicates that the proposed project is an added travel lane project. As we discussed through the telephone on 8-8-96, two to three travelling lanes will be added to the existing two lanes. The INDOT history indicates that the existing pavement is bituminous material over 100 mm (4 inch) brick over 150 mm (6 inch) concrete base. The existing pavement has some transverse reflective cracks and longitudinal cracks. The overall pavement is in fair to good condition.

The scope of this project is an added travel lane project. The existing pavement should be reconstructed and widened because of the condition and the amount of pavement being added. For the new pavement use 375+/-25 mm (15+/-1 inch) of bituminous material or 275+/-25 mm (11+/-1 inch) cement concrete on subbase for cement concrete pavement on the subgrade. The final pavement design will be given after the geotechnical investigation is completed and traffic information is submitted.

KPD
cc: Mr. Klika
file

→ Bin

A. D. 114

INDIANA DEPARTMENT OF TRANSPORTATION

INDIANAPOLIS, INDIANA 46204-2249

INTER-DEPARTMENT COMMUNICATION

August 9, 1996

MEMORANDUM

TO : Mr. Harshad Shah
Division of Pre-Engineering and Environment

THRU: Mr. David H. Andrewski DHA
Materials Engineer

FROM: Mr. Kumar P. Dave KPD
Pavement Design Engineer

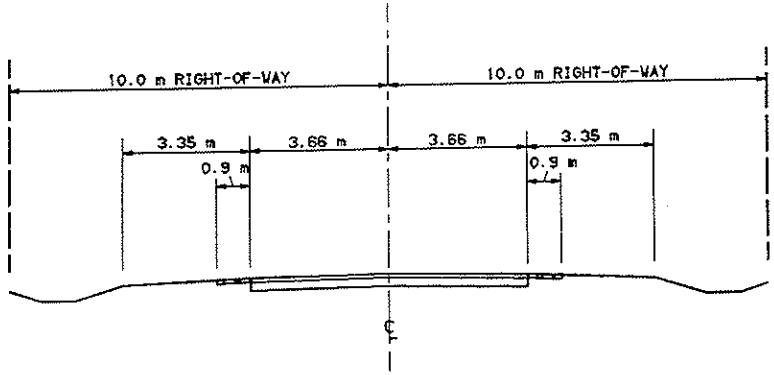
RE : Preliminary Pavement Design

Des No	:	9222426
District	:	Fort Wayne
Route	:	US 33
County	:	Elkhart
Location	:	From Goshen Corp Line to S JCT of SR 15 in Goshen

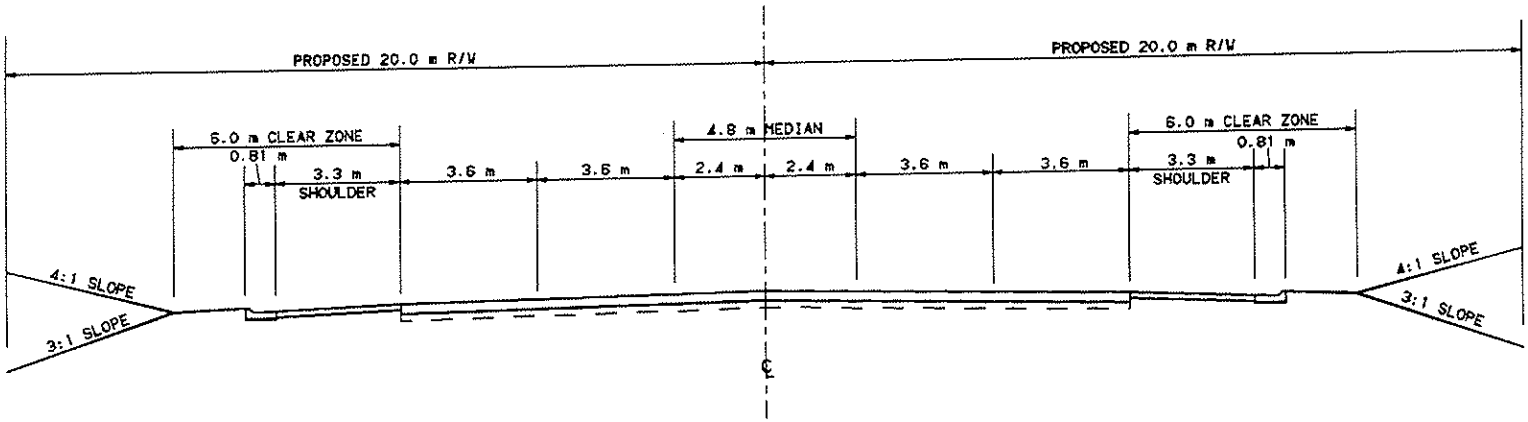
Information received from your office indicates that the proposed project is an added travel lane project. As we discussed through the telephone on 8-8-96, two to three travelling lanes will be added to the existing two lanes. The INDOT history indicates that the existing pavement is bituminous material over 100 mm (4 inch) brick over 150 mm (6 inch) concrete base. The existing pavement has some transverse reflective cracks and longitudinal cracks. The overall pavement is in fair to good condition.

The scope of this project is an added travel lane project. The existing pavement should be reconstructed and widened because of the condition and the amount pavement being added. For the new pavement use 375+/-25 mm (15+/-1 inch) of bituminous material or 275+/-25 mm (11+/-1 inch) cement concrete on subbase for cement concrete pavement on the subgrade. The final pavement design will be given after the geotechnical investigation is completed and traffic information is submitted.

KPD
cc: Mr. Klika
file



EXISTING U.S. 33
TYPICAL CROSS SECTION



PROPOSED U.S. 33
TYPICAL CROSS SECTION
STA. 42+636 TO STA. 44+150

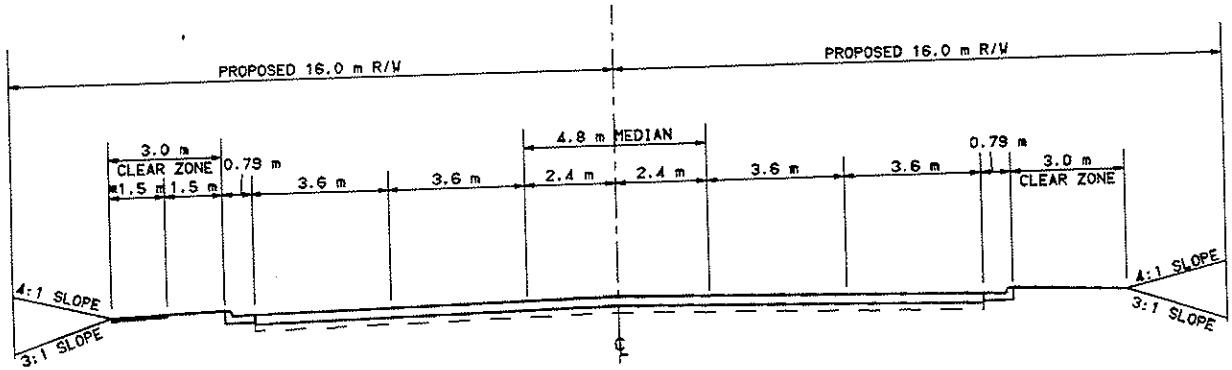
PRELIMINARY
SUBJECT TO CHANGE

LOOKING NORTHBOUND
ALONG U.S. 33

INDIANA
DEPARTMENT OF TRANSPORTATION

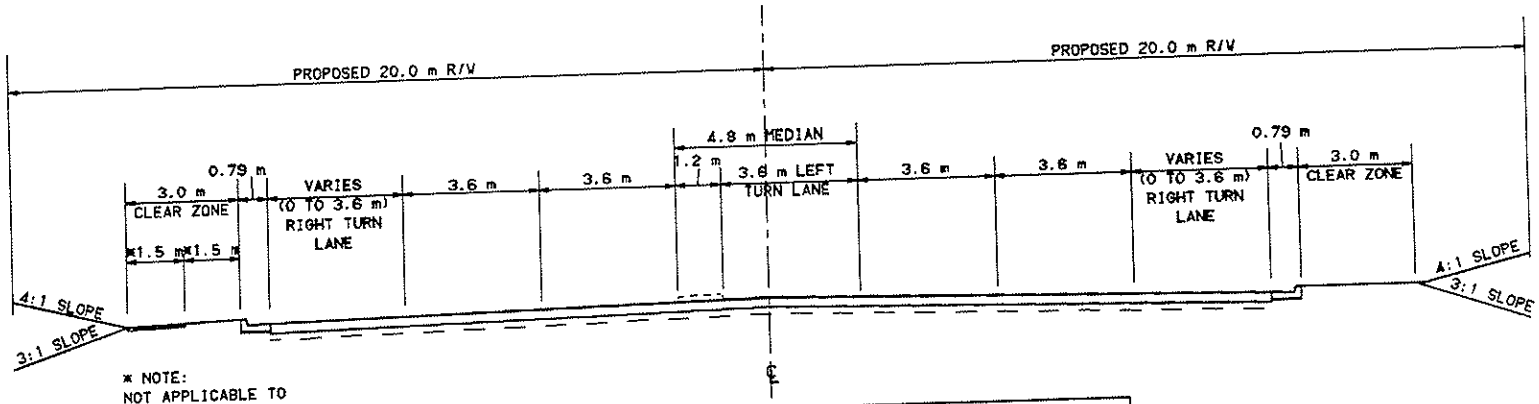
TYPICAL CROSS SECTIONS
U.S. 33, ADDED TRAVEL LANES

SCALE	BRIDGE FILE
1 : 200	
PROJECT	DESIGNATION
NH-219-4( )	9222425 & 9222426
	SHEETS
	of



PROPOSED U.S. 33
TYPICAL CROSS SECTION
STA. 44+150 TO STA. 47+800

* NOTE:
SIDEWALK PROVIDED BETWEEN
WAL-MART & FAIRFIELD AVE.
STA. 45+030 TO STA. 47+800



* NOTE:
NOT APPLICABLE TO
C.R. 38 INTERSECTION

PROPOSED U.S. 33
TYPICAL CROSS SECTION
AT VARIOUS SIGNALIZED INTERSECTIONS

PRELIMINARY
SUBJECT TO CHANGE

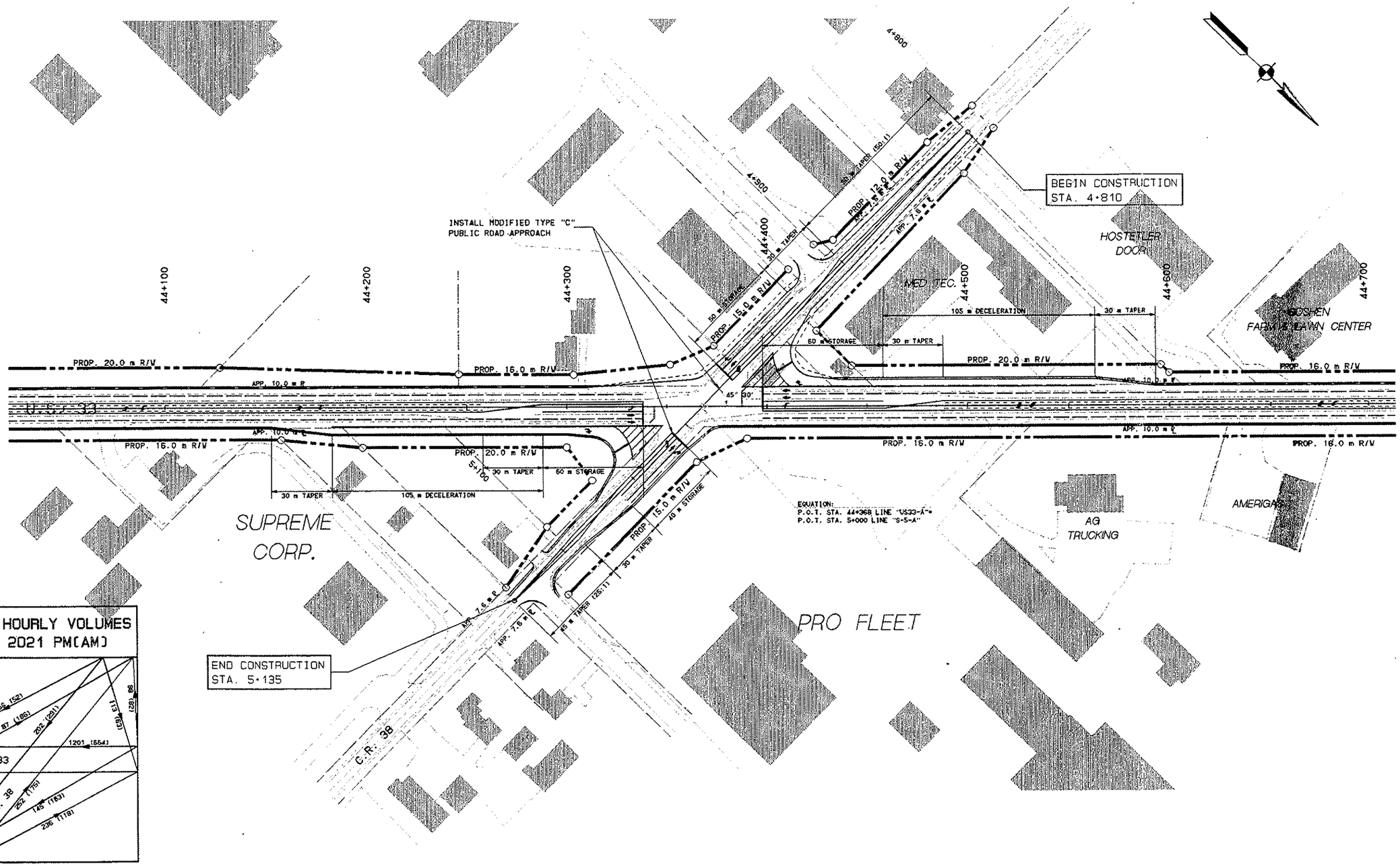
LOOKING NORTHBOUND
ALONG U.S. 33

INDIANA
DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTIONS
U.S. 33, ADDED TRAVEL LANES

SCALE	BRIDGE FILE
1 : 200	
PROJECT	DESIGNATION
NH-219-4( )	9222425 & 9222426
	SHEETS
	of

A-82



A-86

PRELIMINARY
SUBJECT TO CHANGE

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE

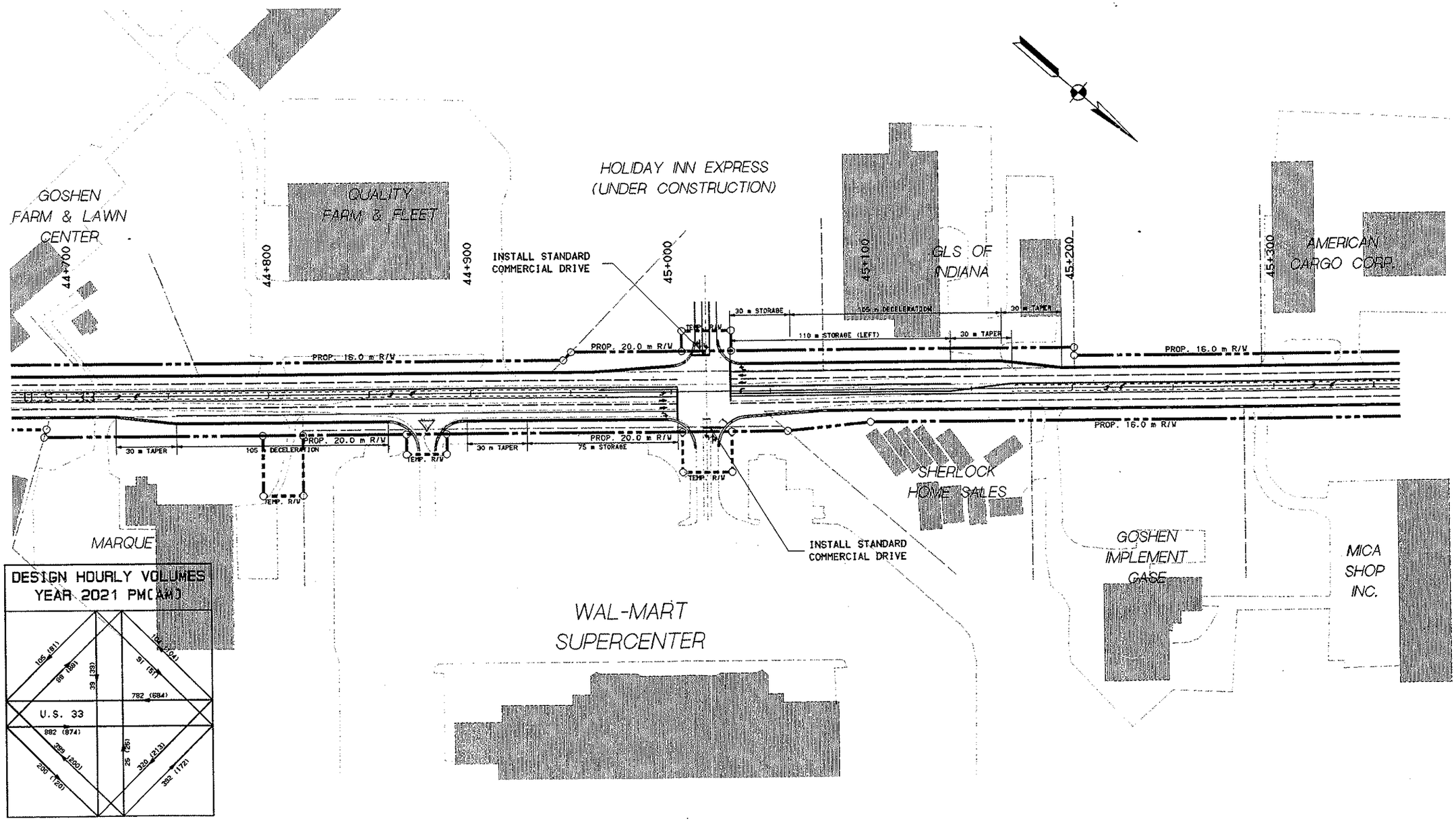
DESIGNED: _____ DRAWN: _____

CHECKED: _____ CHECKED: _____

INDIANA DEPARTMENT OF TRANSPORTATION

U.S. 33, ADDED TRAVEL LANES
C.R. 38 INTERSECTION DETAILS

SCALE	BRIDGE FILE
1 : 2000	-
PROJECT	DESIGNATION
NH-219-4( )	9222425 / 9222426
	SHEETS
	1 of 1



A-87

PRELIMINARY
SUBJECT TO CHANGE

INDIANA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE

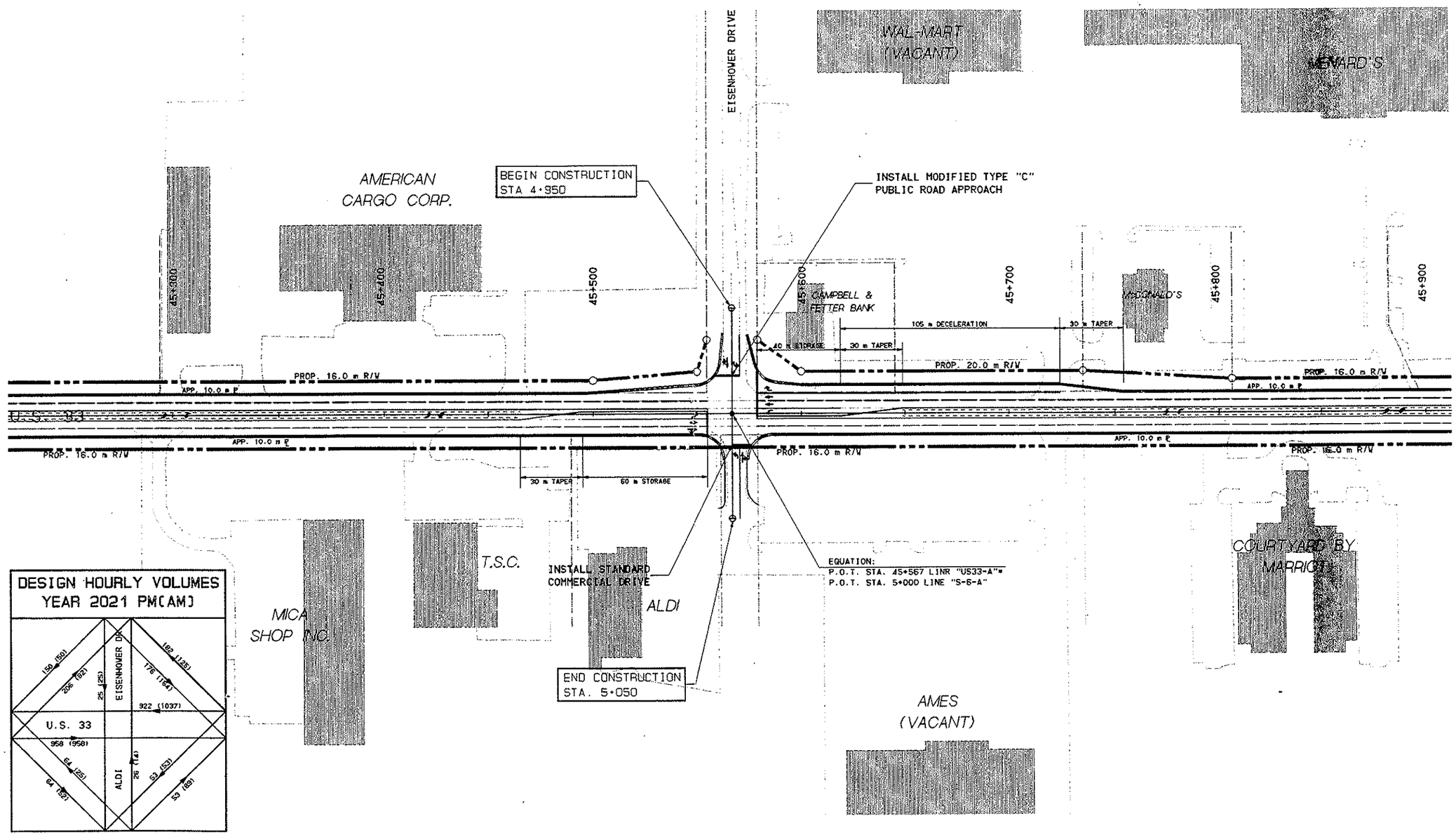
DESIGNED: _____ DRAWN: _____

CHECKED: _____ CHECKED: _____

INDIANA DEPARTMENT OF TRANSPORTATION

U.S. 33, ADDED TRAVEL LANES
WAL-MART SUPERCENTER INTERSECTION DETAILS

SCALE	BRIDGE FILE
1 : 2000	
PROJECT	DESIGNATION
NH-219-4( )	9222425 / 9222426
	SHEETS
	1 of 1



A-88

PRELIMINARY
SUBJECT TO CHANGE

INDIANA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE

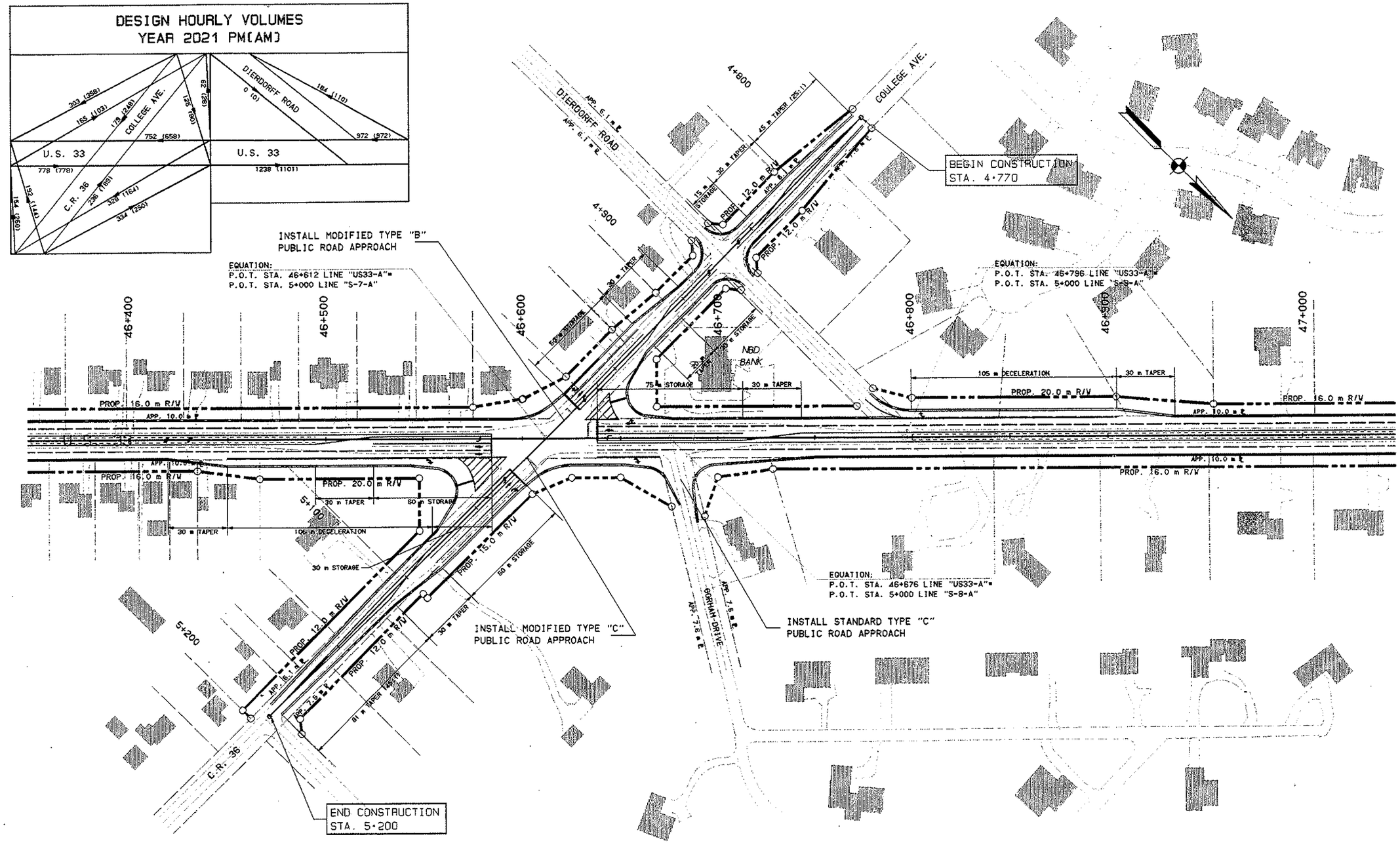
DESIGNED: _____ DRAWN: _____

CHECKED: _____ CHECKED: _____

INDIANA DEPARTMENT OF TRANSPORTATION

U.S. 33, ADDED TRAVEL LANES
EISENHOWER DRIVE INTERSECTION DETAILS

SCALE	BRIDGE FILE
1 : 2000	
PROJECT	DESIGNATION
NH-249-A( )	9222425 / 9222426
	SHEETS
	1 of 1



A-89

PRELIMINARY
SUBJECT TO CHANGE

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE

DESIGNED: _____ DRAWN: _____

CHECKED: _____ CHECKED: _____

INDIANA
DEPARTMENT OF TRANSPORTATION

U.S. 33, ADDED TRAVEL LANES
COLLEGE AVE. (C.R. 36) INTERSECTION DETAILS
DIERDORFF ROAD INTERSECTION DETAILS

SCALE	BRIDGE FILE
1 : 2000	
PROJECT	DESIGNATION
NH-219-4( )	9222425 / 9222426
	SHEETS
	1 of 1

END PROJECT
PROJECT NO.: NH-219-5( )
DES. NO.: 9222426
STA. 49+000

END INCIDENTAL CONSTRUCTION
STA. 49+150

END CONSTRUCTION
STA. 5+100

13th STREET
REYNOLDS AVE.
14th STREET
10th STREET
11th STREET
EGBERT AVE.
15th STREET
SANDERS AVE.
MONROE STREET
MADISON AVE.

GOSHEN HIGH SCHOOL
GOSHEN SCHOOL ADMINISTRATION BUILDING
LA CHOLITA SUPERMARKET
THE BLESSING PLACE
CLARK GAS STATION
NORTHERN PRIDE CAR WASH
KRIS CLEANERS
KUT
CLASS AUTO SALES
L & M ELECTRIC

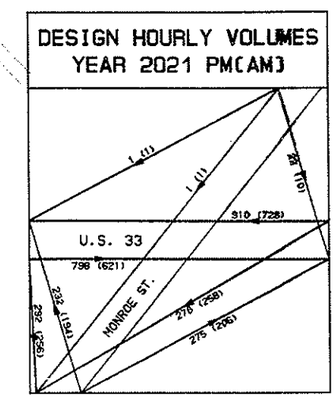
EQUATION:
P.O.T. STA. 48+851 LINE "US33-A"=
P.O.T. STA. 5+000 LINE "S-18-A"

EQUATION:
P.O.T. STA. 48+601 LINE "US33-A"=
P.O.T. STA. 5+000 LINE "S-16-A"

EQUATION:
P.O.T. STA. 48+728 LINE "US33-A"=
P.O.T. STA. 5+000 LINE "S-17-A"

48+500
48+700
48+800
48+900
49+000
49+100

PROP. 13.0 m R/W
PROP. 12.0 m R/W
60 m STORAGE
30 m TAPER
50 m STORAGE



A-90

PRELIMINARY
SUBJECT TO CHANGE

INDIANA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE

DESIGNED: _____ DRAWN: _____
CHECKED: _____ CHECKED: _____

INDIANA
DEPARTMENT OF TRANSPORTATION

U.S. 33, ADDED TRAVEL LANES
MONROE STREET INTERSECTION DETAILS

SCALE	BRIDGE FILE
1 : 2000	
PROJECT	DESIGNATION
NH-219-5( )	9222425 / 9222426
	SHEETS
	1 of 1

→ Gary

INDIANA DEPARTMENT OF TRANSPORTATION
INDIANAPOLIS, INDIANA 46204-2249
INTER-DEPARTMENT COMMUNICATION

November 18, 1997

TO: Mr. Harshad Shah
Supervisor, Preliminary Engineering

FROM: Mr. David D. Finley DDF
Hydraulics Engineer

SUBJECT: Preliminary Hydraulic Review
Structure: US 33 HIP
Project: NH-2195( )/NH-219-4( )/NH-219-5( )
County: Elkhart
Des. No.: 9222424/9222425/9222426

The primary hydraulic involvement in the above road widening projects will be the construction of storm sewers. All of the preliminary pipe sizes shown below are based on assuming `smooth' pipe.

Project NH-2195( ): Main Street to Monroe Street in Goshen.

There are three possible configurations for the storm sewers in this project. One configuration would be to have the sewers split somewhere between Sixth and Seventh Streets, with one run going west to Main Street and the other running east to connect to the sewers in the next project. The other configuration would be to have one run that begins at Monroe Street and runs to the west, and the third would reverse this and consist of one run flowing toward the east.

There are two possible outlet points for portions of the sewers that run towards the west. First, it may be possible to connect these storm sewers to existing sewers on Main Street, if any. If there are no existing storm sewers on Main Street (or if they have inadequate capacity), it may be possible to extend a line west from Main Street to an outfall in the Elkhart River hydraulic canal.

If the entire project it to run to the west, the following preliminary hydraulic parameters are recommended for the storm sewer:

Drainage Area Carried	=	2.81	Hectares
(This includes pavement only, no off-site drainage)			
Q10	=	0.57	cms
Pipe Size Required at Outfall	=	900	mm

Project NH-219-5( ): Monroe Street to College Avenue.

This project should encompass three runs of storm sewers. The first run would begin at Monroe Street and run southeasterly to a retention pond, described below. The second set would begin at a point approximately 580 meters northwest

of College Avenue and would also flow to the retention pond. The third run would begin 580 meters northwest of College Avenue and would be connected to the storm sewers (drain tiles?) that run along College Avenue. This third run will likely require some form of underground detention in order to not exceed the capacity of the existing sewers along College Avenue.

The proposed retention pond would be located on a triangular parcel located about 915 meters northwest of College Avenue. The eastern property line of this site would apparently run along the east section line of Section 15, T. 36 N., R. 6 E. A large gravel pit is located immediately northeast of the proposed retention pond site. It appears that the retention pond site could accommodate a pond up to 0.85 hectares in surface area. Because the floor of the retention pond could be as low as 0.3 meters above the normal pool of the gravel pit, it should be possible to provide adequate storage volume for a 100-year, 24-hour runoff from the road. This would require a maximum operating depth of 1.29 meters. It is proposed that the pond not be provided with an outlet, except for an emergency spillway. Water stored in the pond should infiltrate rather rapidly into the soil, which is primarily sand. Flows over the spillway could be conducted by means of a rip-rap ditch on an easement to the gravel pit. In this way, the cement company that owns the pit could expand it in the area of the overflow without having to concern themselves with disturbing any sort of outfall structure. For safety reasons, the pond should be entirely surrounded with adequate fencing.

The following table indicates preliminary hydraulic recommendations for the storm sewers in this project:

Run begins at	Run ends at	Drainage Area* (Ha)	Q10 (cms)	Pipe Size at Outfall (mm)
Monroe Street	Retention Pond	7.35	1.27	1200
580 m. NW College Ave.	Retention Pond	1.88	0.62	1060
580 m. NW College Ave.	College Avenue	3.25	0.57	900

* Includes an average of 15 meters of off-site drainage area on both sides of the road.

<u>Project NH-219-4( ):</u> College Avenue to CR 40.

It is anticipated that storm sewers will not be constructed for the portion of the road covered under this project. However, it does not appear that the road is currently drained by any sort of surface water outlet. In order to at least maintain the current conditions, some type of detention will be required to accommodate the added pavement in the proposed condition. Although it is currently not certain that field tiles exist in the area, it should be possible to locate one to two tiles in this area. Thus, it is proposed that the ditches be graded as needed to direct flow to tile inlets and that detention be provided by the construction of rip-rap ditch checks at a spacing of about 150 meters. Assuming a 1-meter ditch bottom and 3:1 side slopes, the ditch checks would need to be about 0.58 meters high and the minimum depth of the ditch would be at least 0.7 meters. This should provide sufficient storage to accommodate a 100-year, 24-hour storm.

The surveys for these projects should include the following items:

- Determination of whether storm sewers are present at the intersection of Main Street and US 33 in Goshen. If they are present, the survey should include information on the size and flow direction of these sewers.

- Topographic information on the parcel, described above, on which the proposed retention pond could be built. This would also include areas leading to the gravel pit and a determination of the water level in the pit.

- Determine the size and location of all of the storm sewers/tiles running along College Avenue.

- Locate and determine the size of any field tiles that intersect or run along side US 33 between College Avenue and County Road 40.

If you have any questions or comments, please contact me at (317)232-5332.

DDF

cc: Hydraulic file (2)

INDIANA DEPARTMENT OF TRANSPORTATION
INDIANAPOLIS, INDIANA 46204-2249
INTER-DEPARTMENT COMMUNICATION

March 17, 1998

TO: Mr. Gary Mroczka
Preliminary Engineering

FROM: Mr. David D. Finley DDF
Hydraulics Engineer

SUBJECT: Preliminary Hydraulic Review -- **Addendum**
Road: US 33 HIP (College Ave. to CR 40)
Project: NH-219-4( )
County: Elkhart
Des. No.: 9222425

Following the initial hydraulic recommendation for the above project, the county has apparently requested that drainage along this segment of US 33 be enclosed in some type of storm sewer system. With this in mind, the following comments are offered:

The total length of the project is approximately 4.17 kilometers, with the entire length apparently draining towards the northwest. It was assumed that the average width of the areas draining toward the road would be about 15 meters on either site. In order to prevent the trunk line from becoming excessively large, it is recommended that the storm sewers be broken into two runs.

The first of these storm sewer runs would begin at CR 40 and run to CR 38. It would then run along CR 38 to outlet into Horn Ditch, about 557 meters towards the east. Just prior to turning onto CR 38, it is estimated that the trunk line should consist of either 1050 mm round smooth pipe, or horizontal elliptical pipe with an area of 0.95 square meters. The required curb inlet spacing would be about 55 meters.

The second run would begin at CR 38 and extend to College Avenue, where it would intersect a storm sewer system proposed as a part of the adjacent road project. The two systems could be combined into a single new trunk line that extend 780 meters along College Avenue in order to outlet into Horn Ditch. The required trunk line size, just before College Avenue would be either 1200 mm round or horizontal elliptical with an end area of 1.20 square meters. The required curb inlet spacing for this segment of the project would be between 61 to 76 meters, depending upon the capability of the District maintenance equipment.

The primary drawback to the use of a closed system in this area is that some form of detention will be required in order to mitigate the impact of the road widening project on flows in Horn Ditch. It is estimated that in order to provide sufficient detention within the closed system itself, the pipe diameters recommended above would have to be increased such that an end area of 1.56 square meters would be available through out the entire run of both systems. This could be accomplished by using 1500 mm pipe. It should be noted, however, that flow

velocities in such a system would be insufficient for cleanout, and that the systems could require frequent maintenance.

Finally, due to the comparatively flat slopes, and the need to maintain the invert of the storm system above the flow line of Horn Ditch, it is recommended that special precast junction boxes (see ASTM C507) be used in lieu of standard manhole structures.

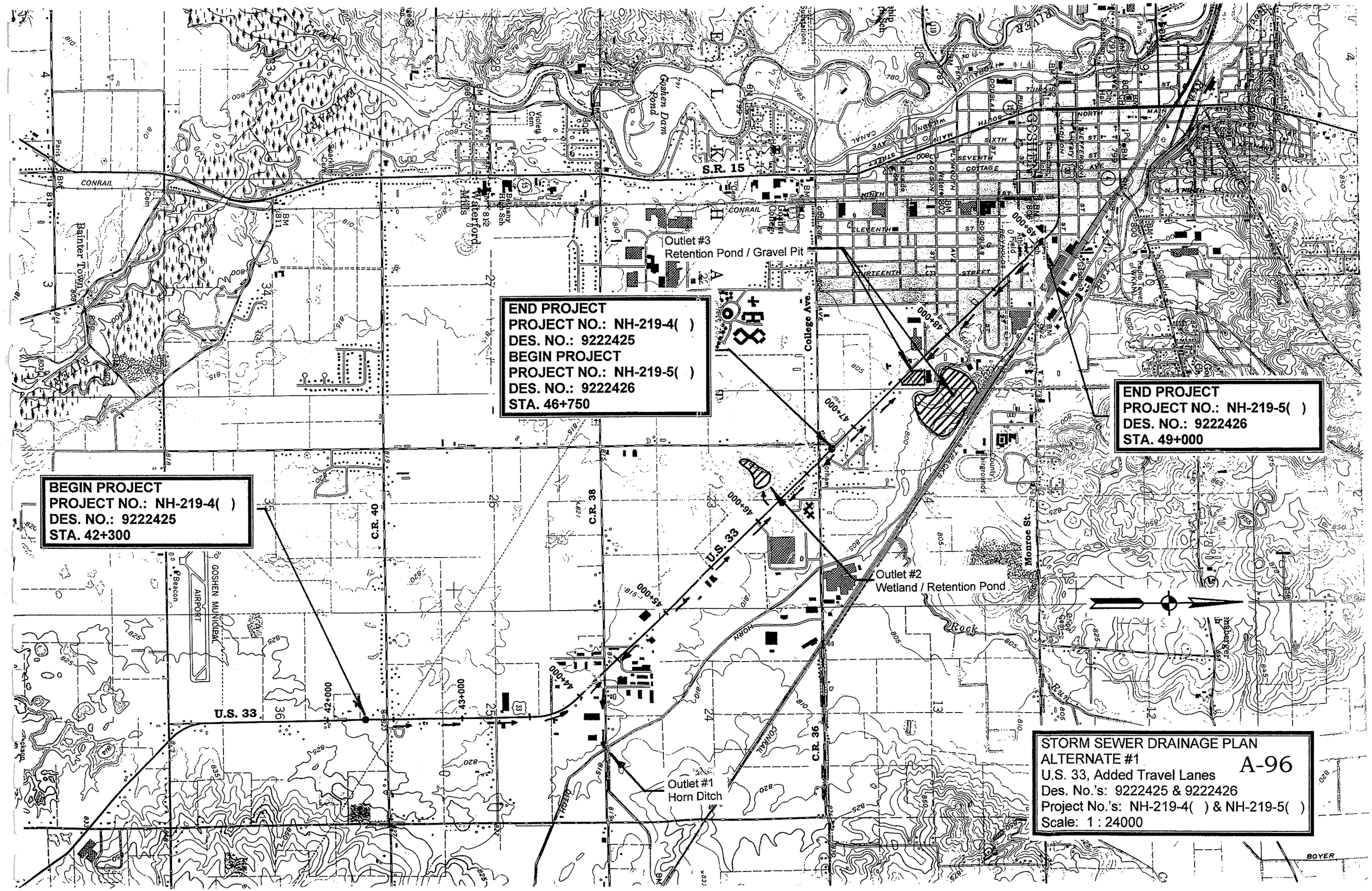
It appears that designing feasible storm sewer systems for this project will be difficult at best. Given the cost of constructing such a system, an alternate drainage scheme could be more cost-effective for this site. The main issue here is whether tile drains are available as outlets for roadway drainage. Based on revised computations (the information in the previous letter is hereby superceded), the entire 100-year runoff from three added travel lanes could be contained in standard one-meter side ditches at a depth of 0.35 meters, provided these ditches ran the entire course of the project. If appropriate tiles are available, the side ditches could be provided with rip-rap check dams such that water would be held at an average depth of 0.35 meters. These check dams should insure that water will not enter the tiles at a rate higher than presently exists while allowing the water held behind the dams to slowly drain from the system. Based on the current road design manual, roadside ponding must exceed a depth of 0.6 meters on a permanent basis in order to be considered a hazard. Thus, this drainage scheme would not compromise the safety of the travelling public.

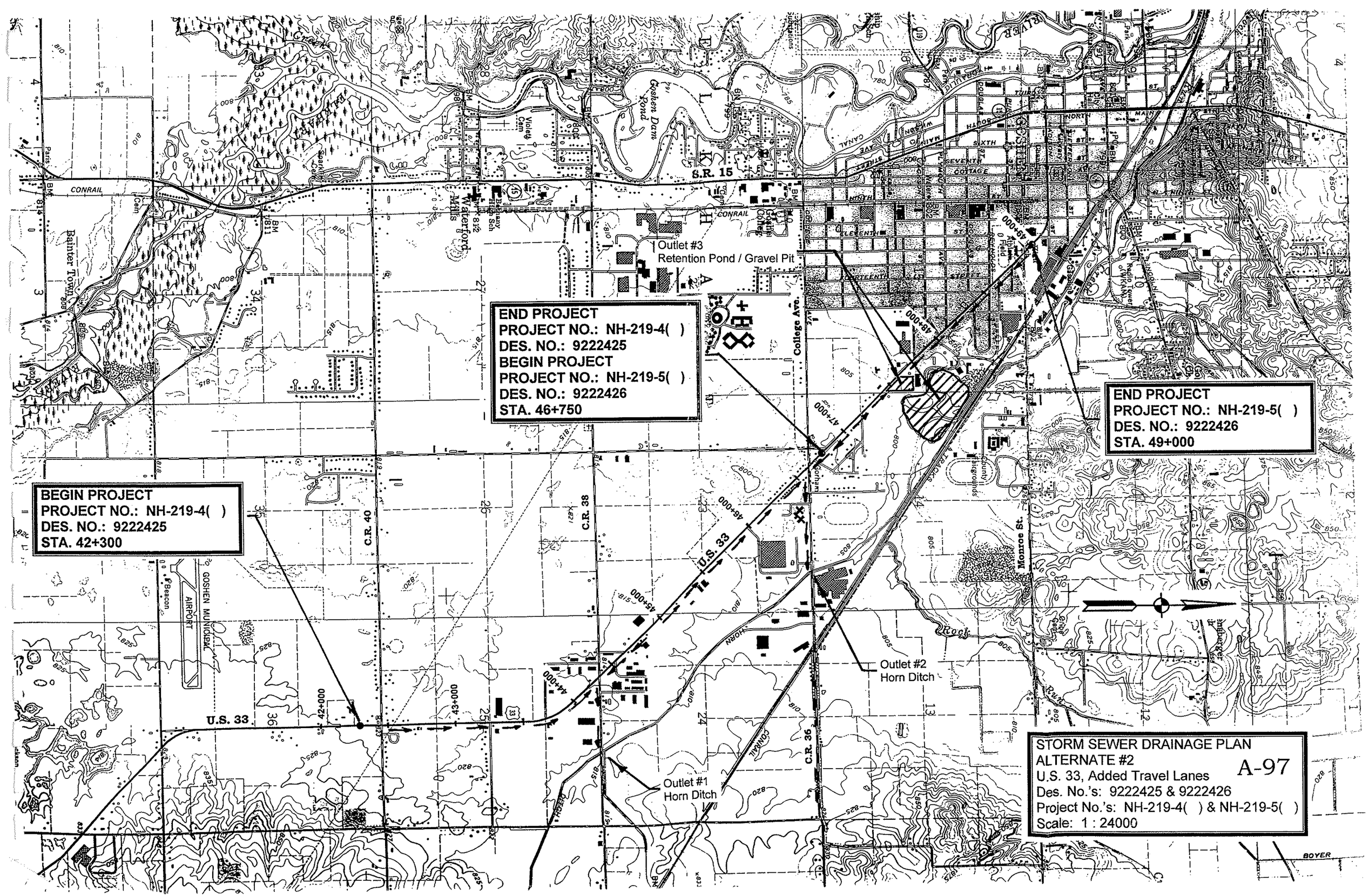
As an alternative to constructing rip-rap check dams, drainage from the road could be directed into retention ponds that would have no outlets. This is particularly suitable in this area because of the sandy nature of the soils. While it is not presently possible to recommend sites for such ponds, it is recommended that at least two be provided and that, together, these ponds provide a total storage capacity of 12,340 cubic meters. Within reason, these ponds should be provided with as much surface area as possible in order to maximize the rate at which water infiltrates from the ponds.

If you have any questions or comments, please contact me at (317)232-5332.

DDF

cc: Hydraulic file (2)


END PROJECT
PROJECT NO.: NH-219-4( )
DES. NO.: 9222425
BEGIN PROJECT
PROJECT NO.: NH-219-5( )
DES. NO.: 9222426
STA. 46+750
END PROJECT
PROJECT NO.: NH-219-5( )
DES. NO.: 9222426
STA. 49+000
BEGIN PROJECT
PROJECT NO.: NH-219-4( )
DES. NO.: 9222425
STA. 42+300
Outlet #3
Retention Pond / Gravel Pit
Outlet #2
Wetland / Retention Pond
Outlet #1
Horn Ditch
S.R. 15
U.S. 33
C.R. 40
C.R. 38
C.R. 36
CONRAIL
College Ave.
Monroe St.
Waterford Mills
Painter Town
GOSHEN MUNICIPAL AIRPORT
Goshen Dam Pond
Rock Run
STORM SEWER DRAINAGE PLAN
ALTERNATE #1
U.S. 33, Added Travel Lanes
Des. No.'s: 9222425 & 9222426
Project No.'s: NH-219-4( ) & NH-219-5( )
Scale: 1 : 24000
A-96


END PROJECT
PROJECT NO.: NH-219-4( )
DES. NO.: 9222425
BEGIN PROJECT
PROJECT NO.: NH-219-5( )
DES. NO.: 9222426
STA. 46+750
END PROJECT
PROJECT NO.: NH-219-5( )
DES. NO.: 9222426
STA. 49+000
BEGIN PROJECT
PROJECT NO.: NH-219-4( )
DES. NO.: 9222425
STA. 42+300
Outlet #3
Retention Pond / Gravel Pit
Outlet #2
Horn Ditch
Outlet #1
Horn Ditch
STORM SEWER DRAINAGE PLAN
ALTERNATE #2
U.S. 33, Added Travel Lanes
Des. No.'s: 9222425 & 9222426
Project No.'s: NH-219-4( ) & NH-219-5( )
Scale: 1 : 24000
A-97
U.S. 33
S.R. 15
CONRAIL
C.R. 40
C.R. 38
C.R. 36
College Ave.
Monroe St.
Goshen Dam Pond
Waterford Mills
Bainter Town
GOSHEN MUNICIPAL AIRPORT
42+000
43+000
44+000
45+000
46+000
47+000
48+000
49+000

INDIANA DEPARTMENT OF TRANSPORTATION
100 North Senate Avenue
Room N755
Indianapolis, Indiana 46204-2249
(317) 232-5533 *FAX: (317) 232-0238*

FRANK O'BANNON, Governor
CURTIS A. WILEY, Commissioner

September 16, 1997

Writer's Direct Line

MEMORANDUM

TO: Mr. Gerard F. Mroczka, Senior Engineer
Preliminary Engineering Studies Section

THRU: Mr. Jim Poturalski
Specialty Projects Group Manager

FROM: Dale Louie
Engineer of Sign and Lighting Design

SUBJECT: Preliminary Traffic Signing and Lighting Cost Estimates for Proposed Locations
Des. Nos. 9502830 and 9502840, US 40 in Indianapolis
Des. No. 9502980, US 27 in Richmond
Des. No. 9502970, US 27 in Richmond
Des Nos. 9222425 and 9222426, US 33 (Lincolnway East) in Goshen
Des. No. 9222424, US 33 (Madison Street) in Goshen

In response to your request concerning the construction cost on the above subject, We offer the cost estimate as follows:

1. Des. Nos. 9502830 and 9502840
Sign: The construction cost is 80,000.
Lighting: The existing lighting is owned by IPL, therefore there is no construction cost.

2. Des. No. 9502980
Sign: The construction cost is 15,000.
Lighting: The existing lights are owned either by the city or utility co. If the city wants to update the system, the city will have to pay for the construction , maintenance and operation costs.

3. Des. NO. 9502970
Sign: The construction cost is 10,000.
Lighting: No lighting.

4. Des. Nos. 9222425 and 9222426
Sign: The construction cost is 60,000.
Lighting: The existing lights are owned either by the city or utility co. If the city wants to update the system, the city will have to pay for the construction, maintenance and operation costs.

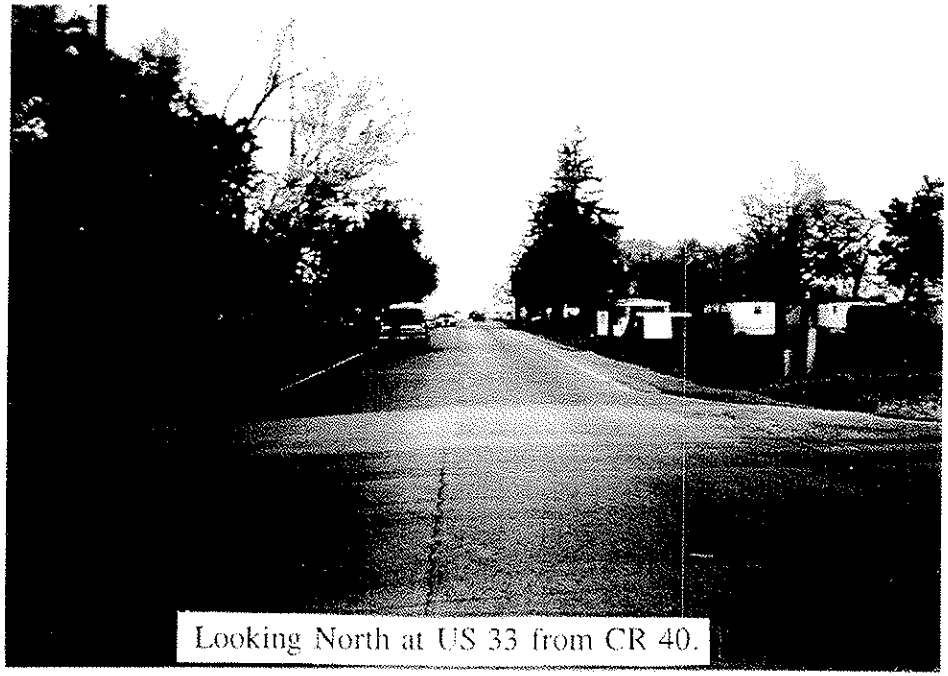
5. Des. No. 9222424
Sign: The construction cost is 20,000.
Lighting: The existing lights are owned either by the city or utility co. If the city wants to update the system, the city will have to pay for the construction, maintenance and operation costs.

Printed on Recycled Paper • An Equal Opportunity Employer • http://www.indot.state.in.us/aum/dot.index.html

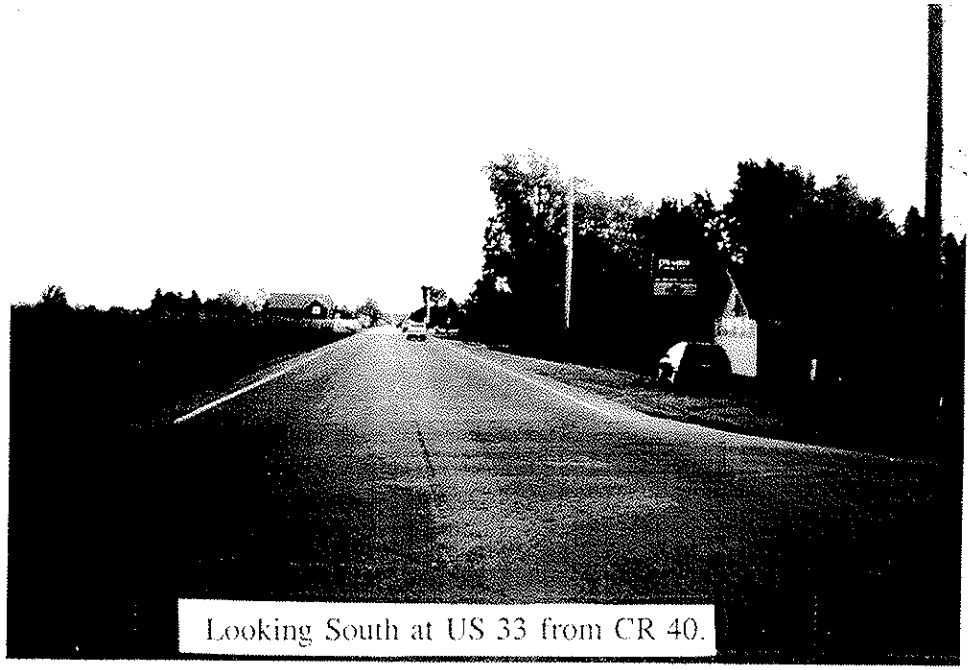
If you have any question pertaining to the above subject, please contact me.

dl

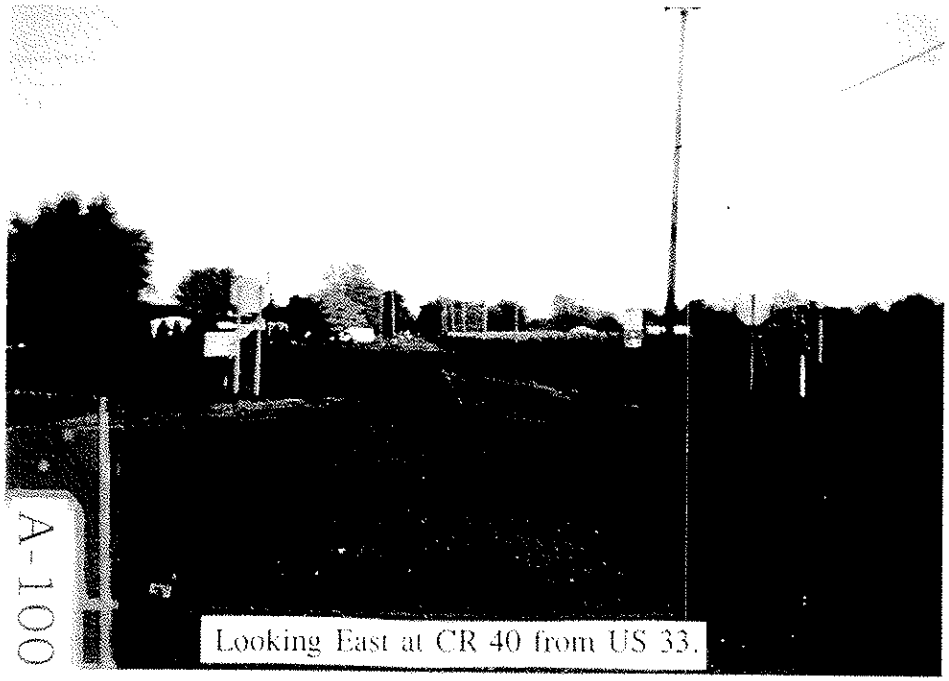
cc: File



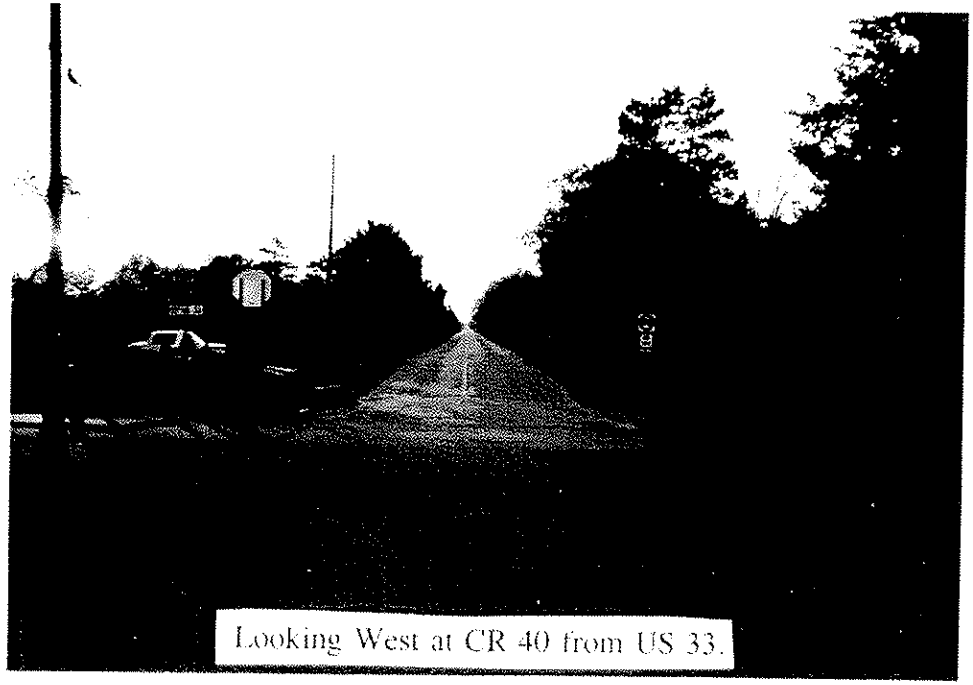
Looking North at US 33 from CR 40.



Looking South at US 33 from CR 40.



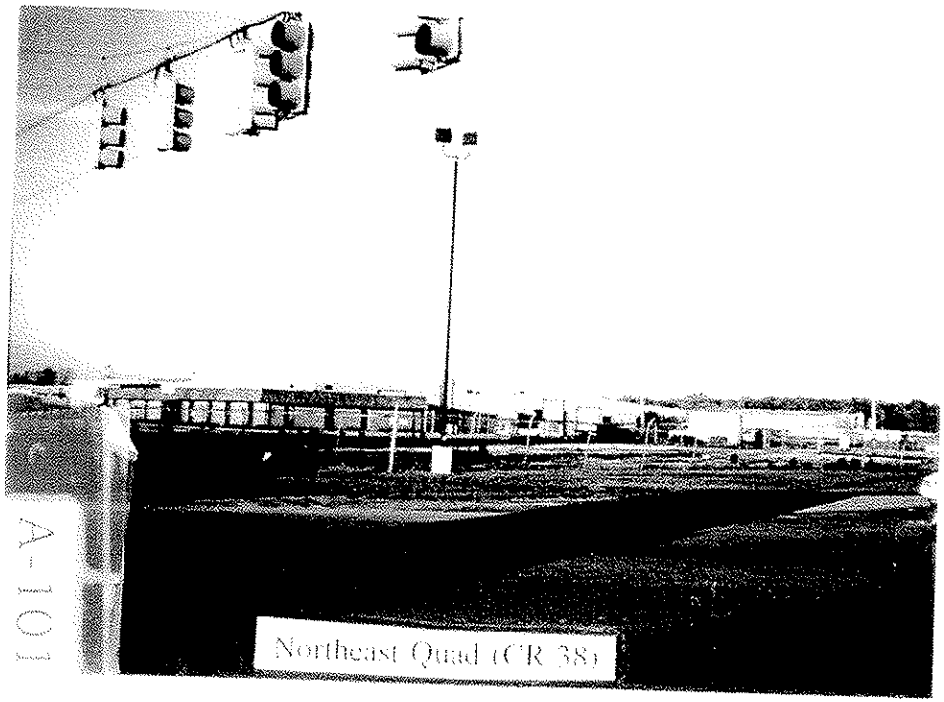
Looking East at CR 40 from US 33.



Looking West at CR 40 from US 33.

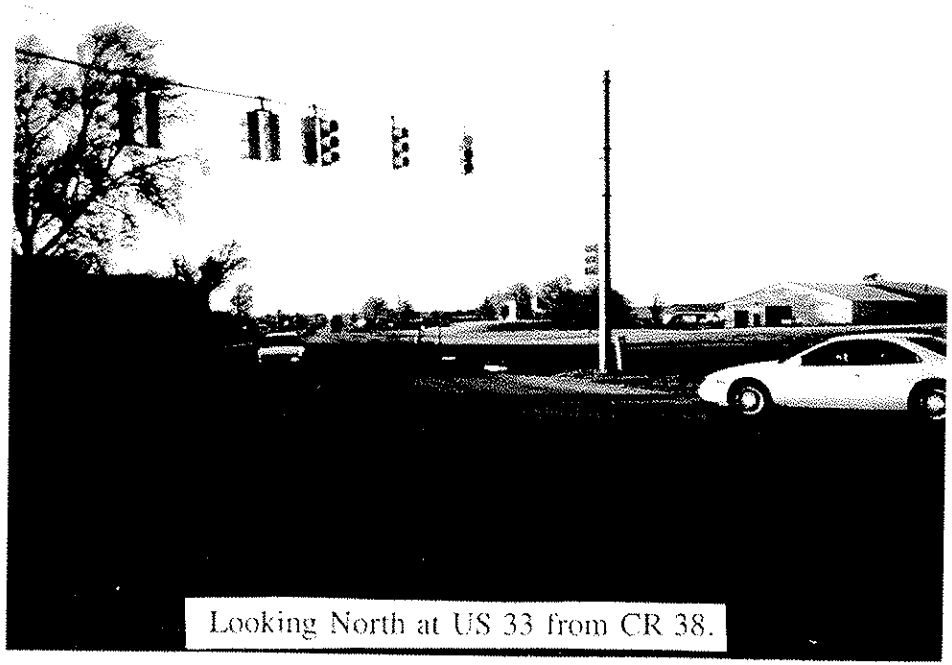
Northwest Quad (CR 38)

Southwest Quad (CR 38)

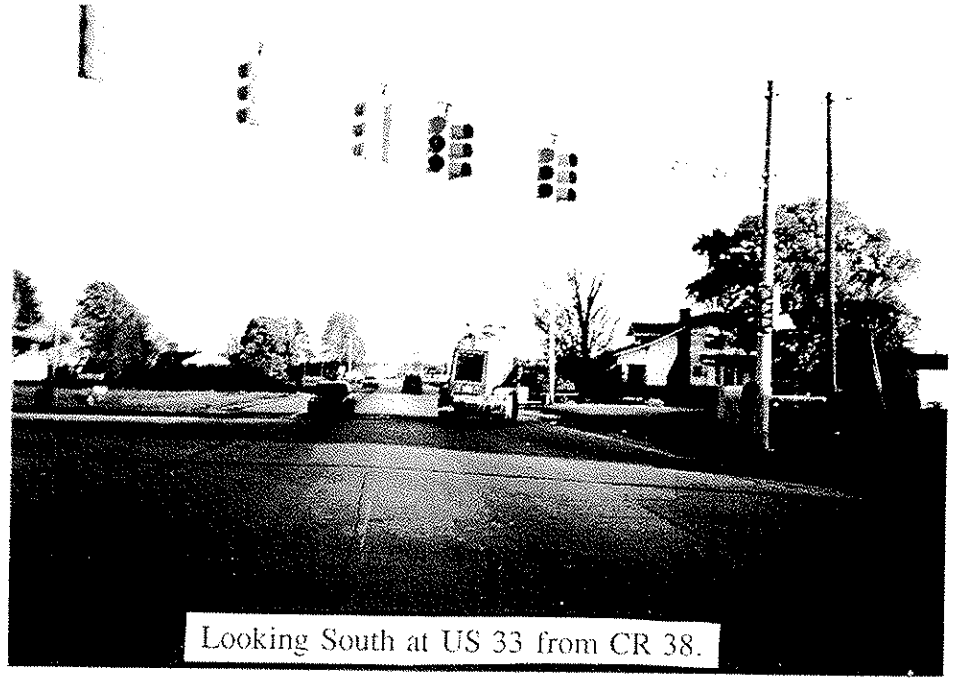


Northeast Quad (CR 38)

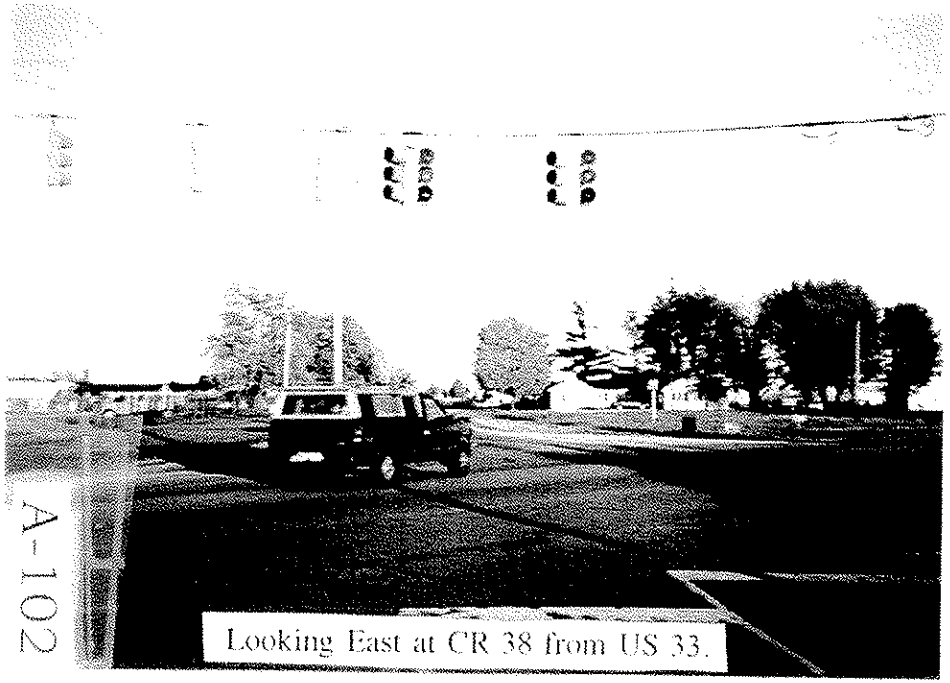
Southeast Quad (CR 38)



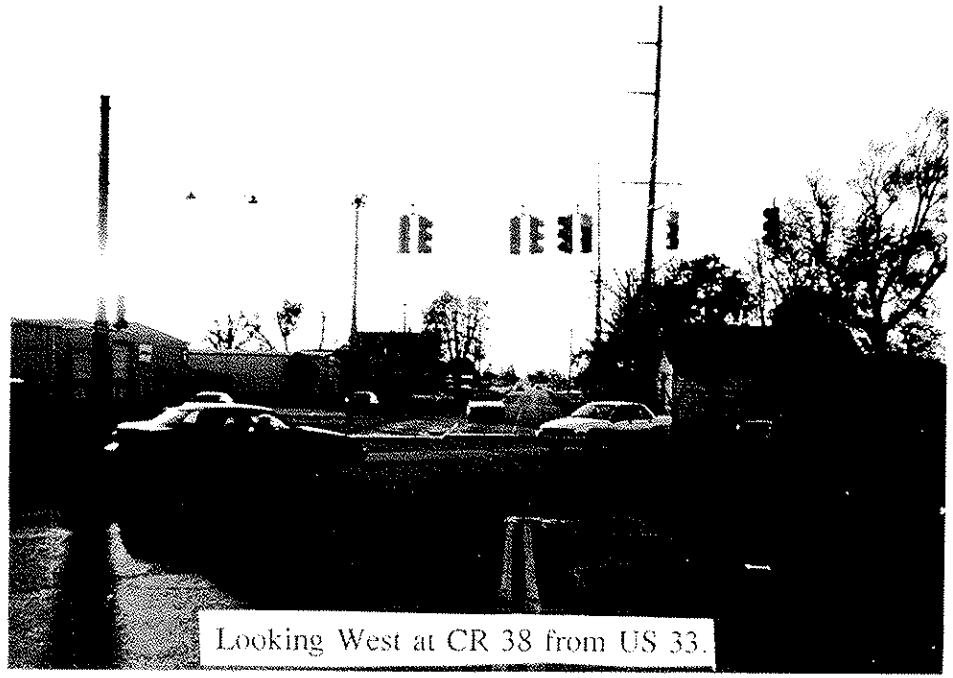
Looking North at US 33 from CR 38.



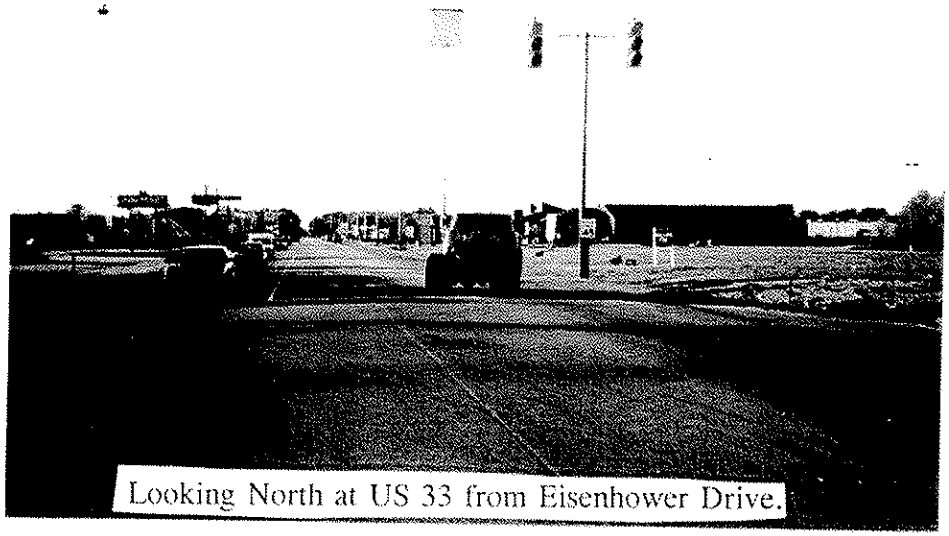
Looking South at US 33 from CR 38.



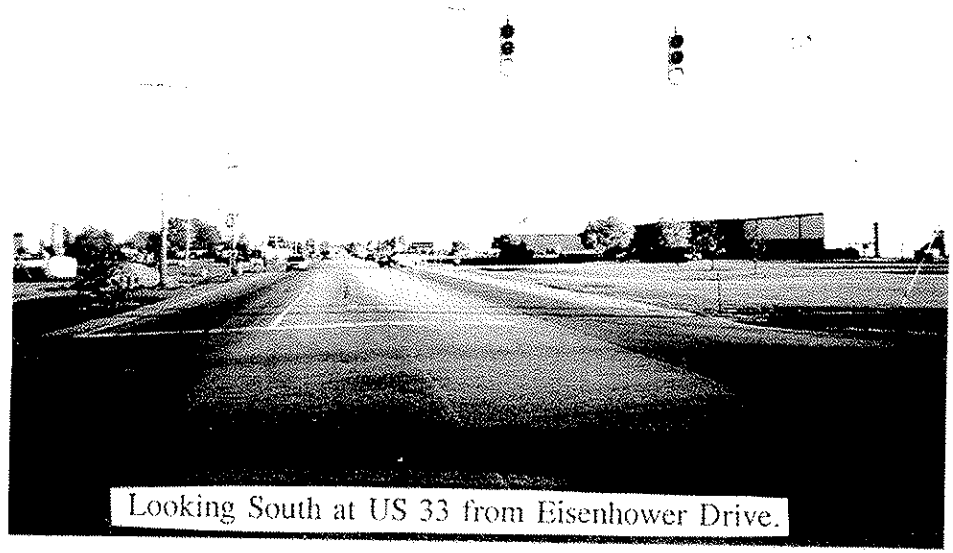
Looking East at CR 38 from US 33.



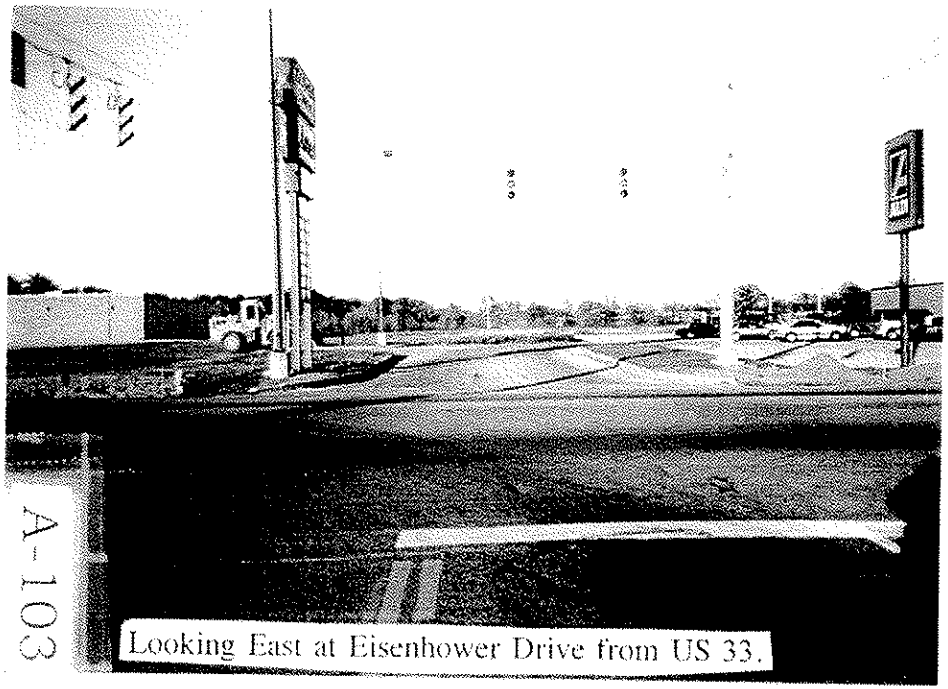
Looking West at CR 38 from US 33.



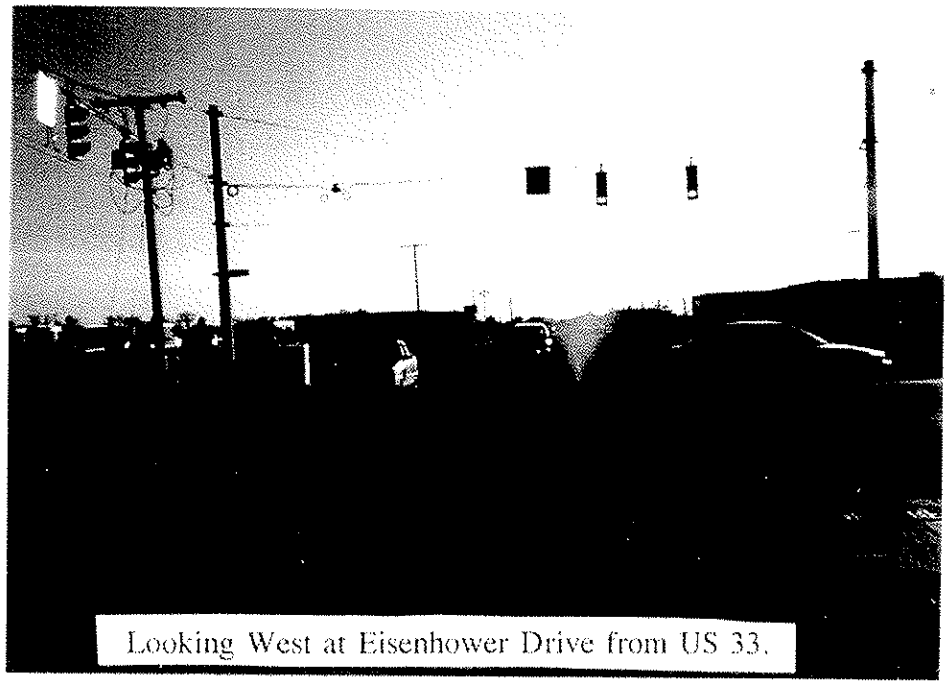
Looking North at US 33 from Eisenhower Drive.



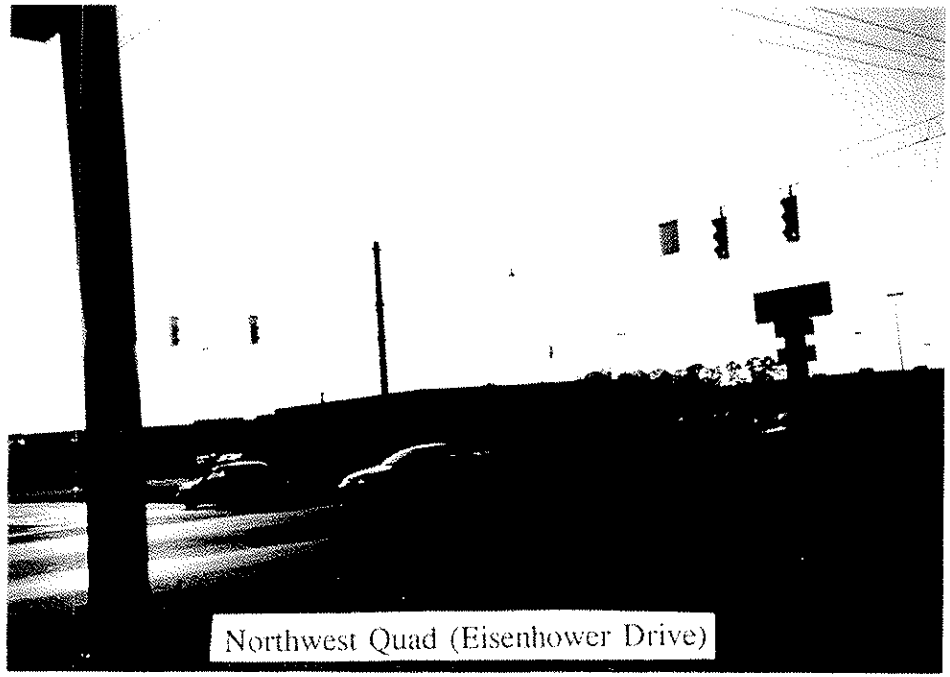
Looking South at US 33 from Eisenhower Drive.



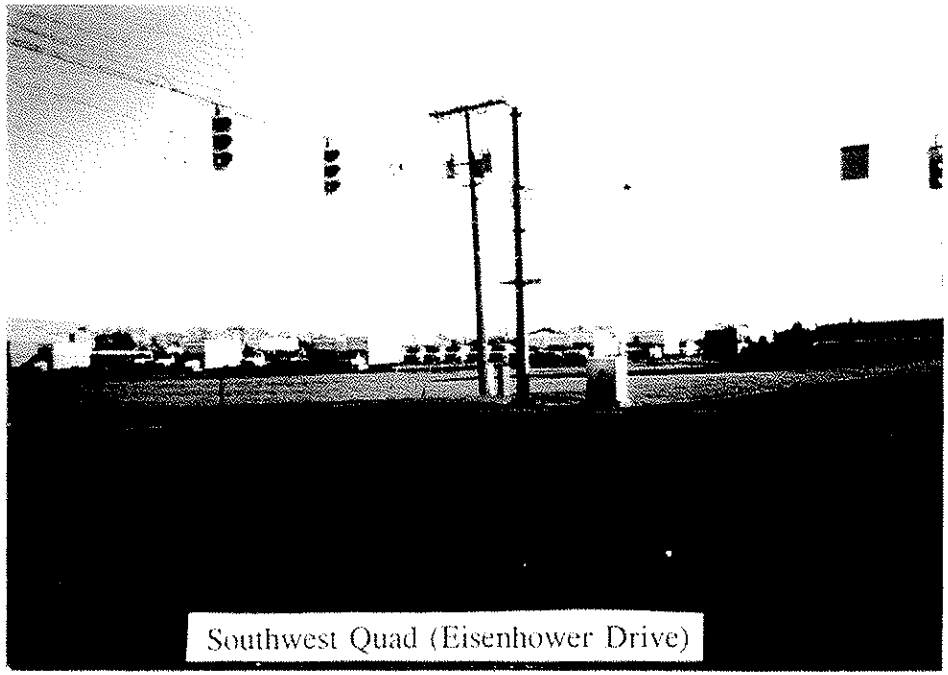
Looking East at Eisenhower Drive from US 33.



Looking West at Eisenhower Drive from US 33.



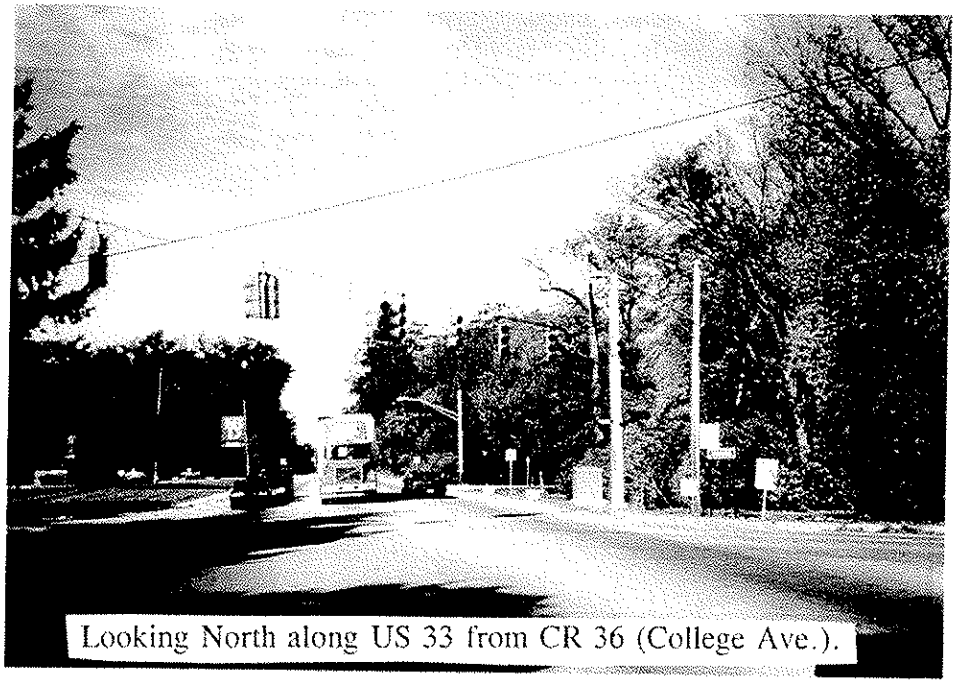
Northwest Quad (Eisenhower Drive)



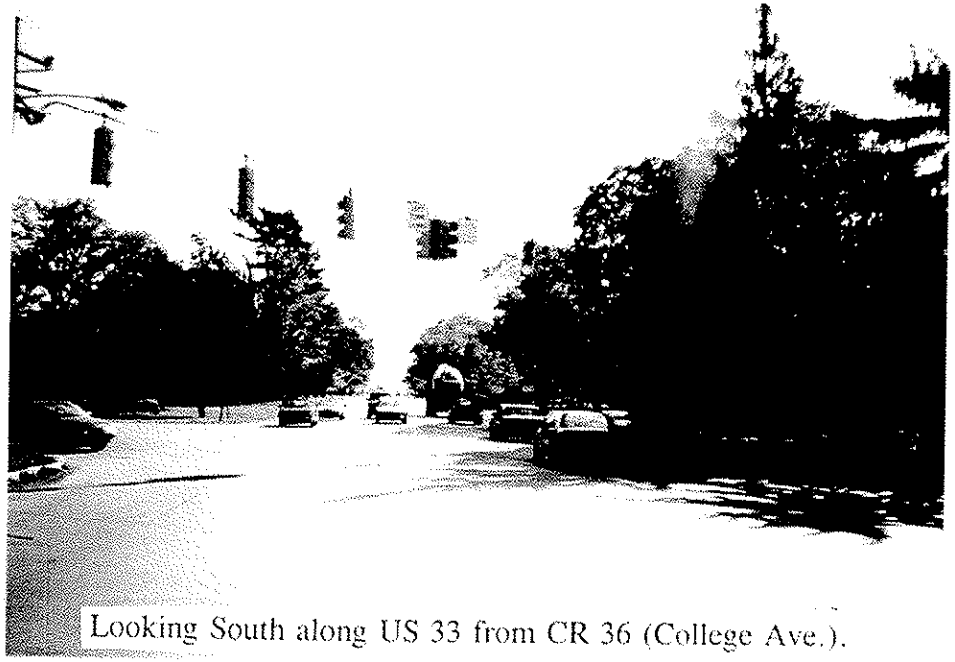
Southwest Quad (Eisenhower Drive)

Northeast Quad (Eisenhower Drive)

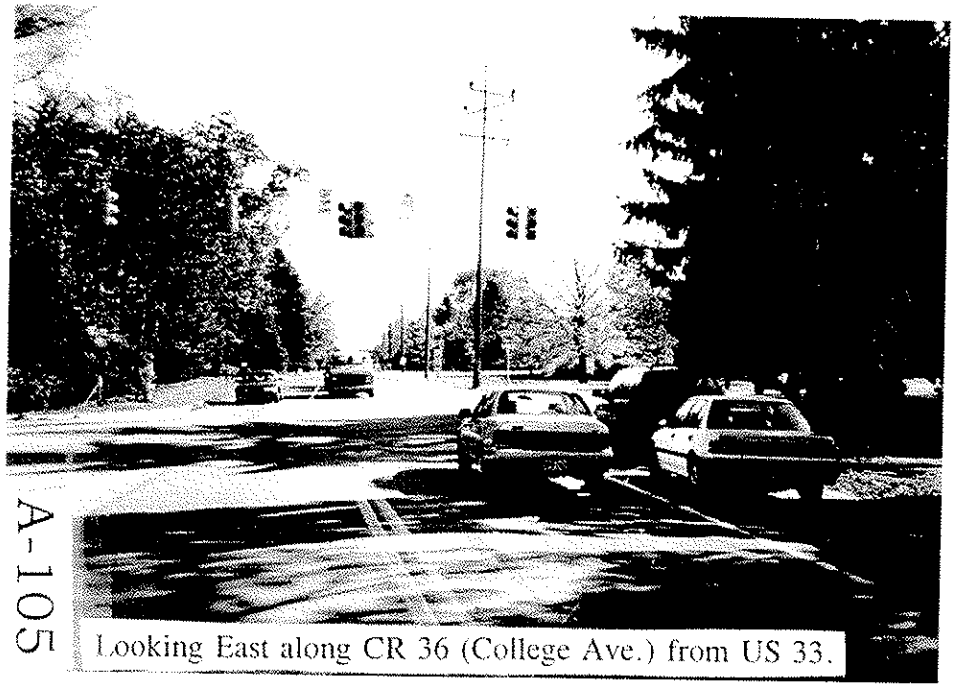
Southeast Quad (Eisenhower Drive)



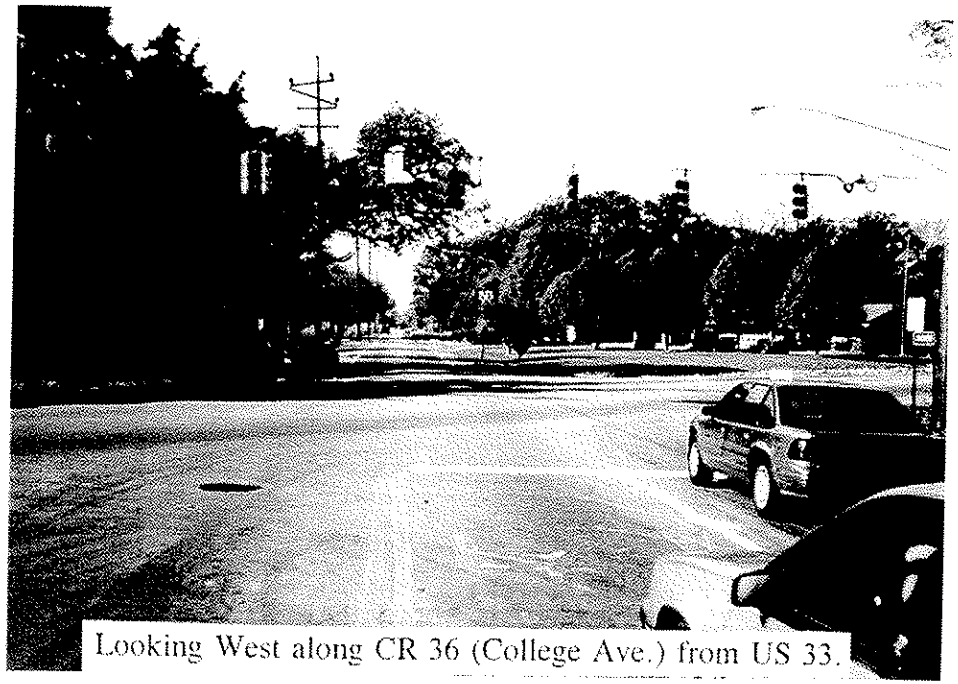
Looking North along US 33 from CR 36 (College Ave.).



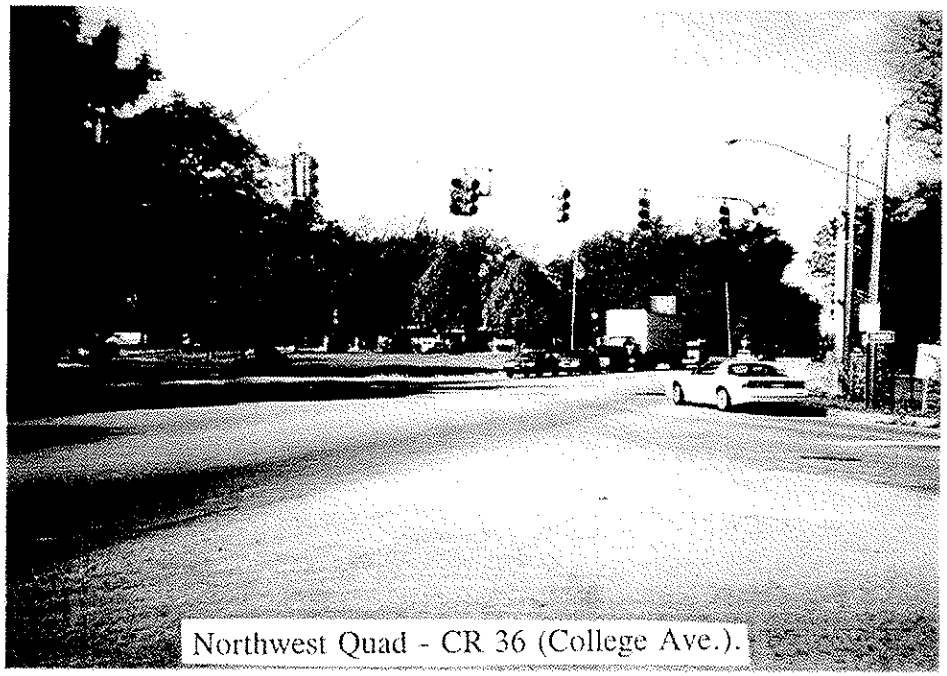
Looking South along US 33 from CR 36 (College Ave.).



Looking East along CR 36 (College Ave.) from US 33.

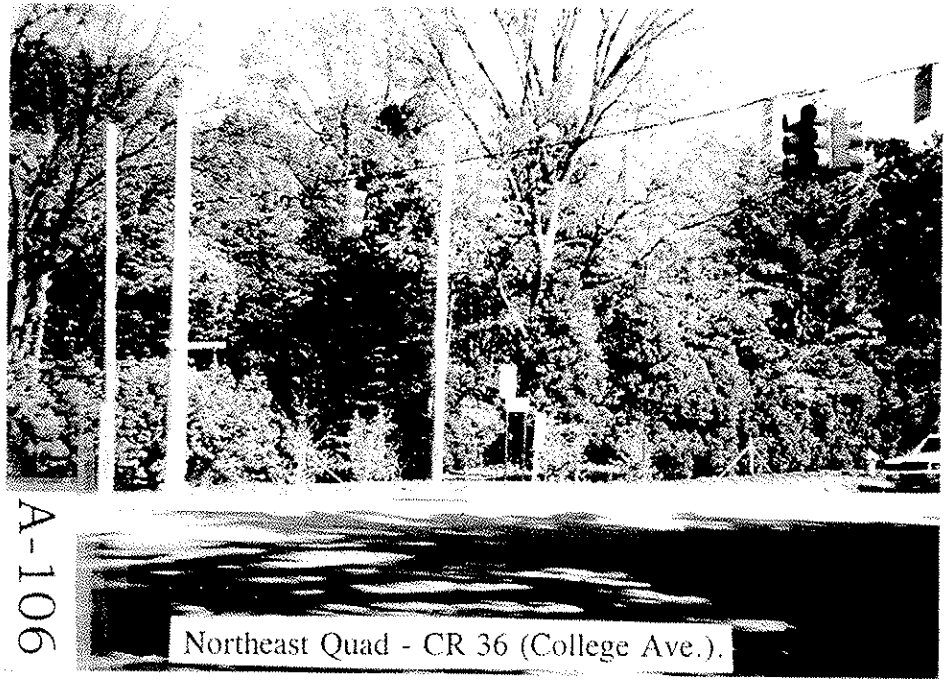


Looking West along CR 36 (College Ave.) from US 33.



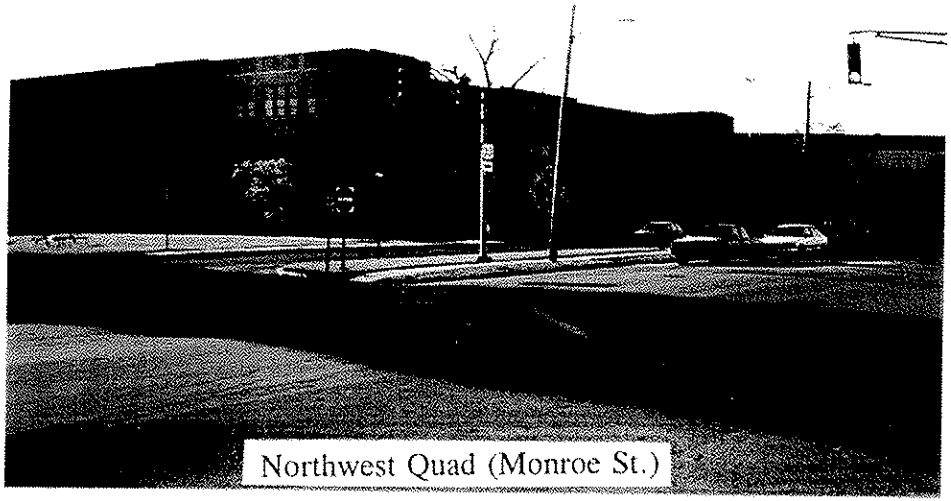
Northwest Quad - CR 36 (College Ave.).

Southwest Quad - CR 36 (College Ave.).

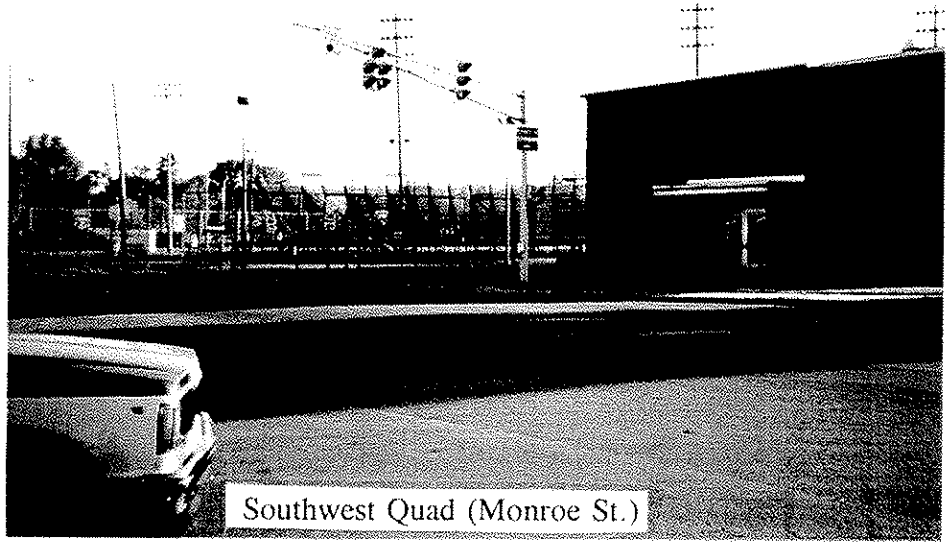


Northeast Quad - CR 36 (College Ave.).

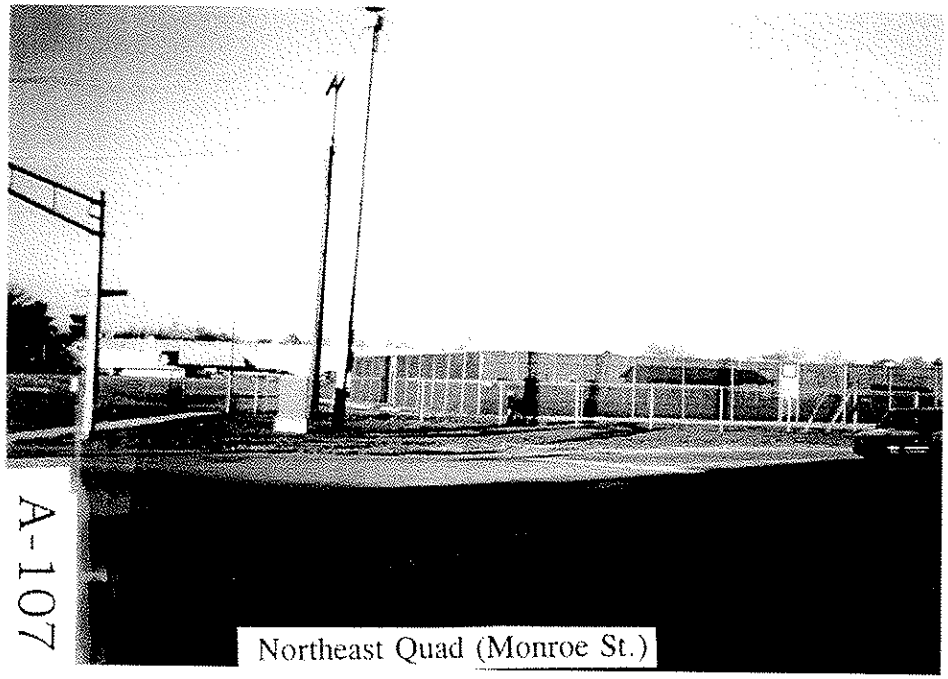
Southeast Quad - CR 36 (College Ave.).



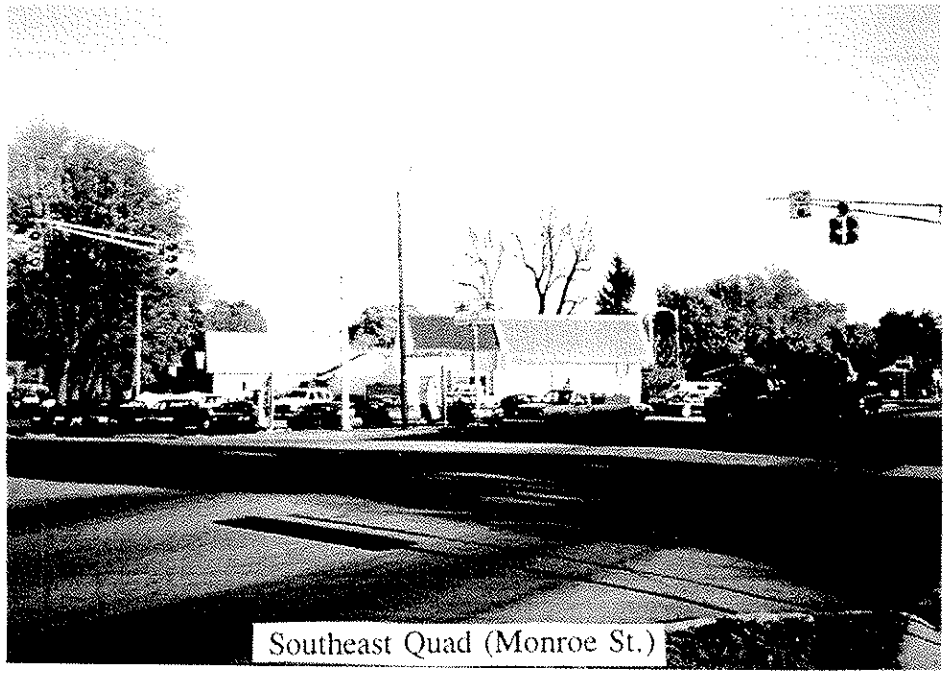
Northwest Quad (Monroe St.)



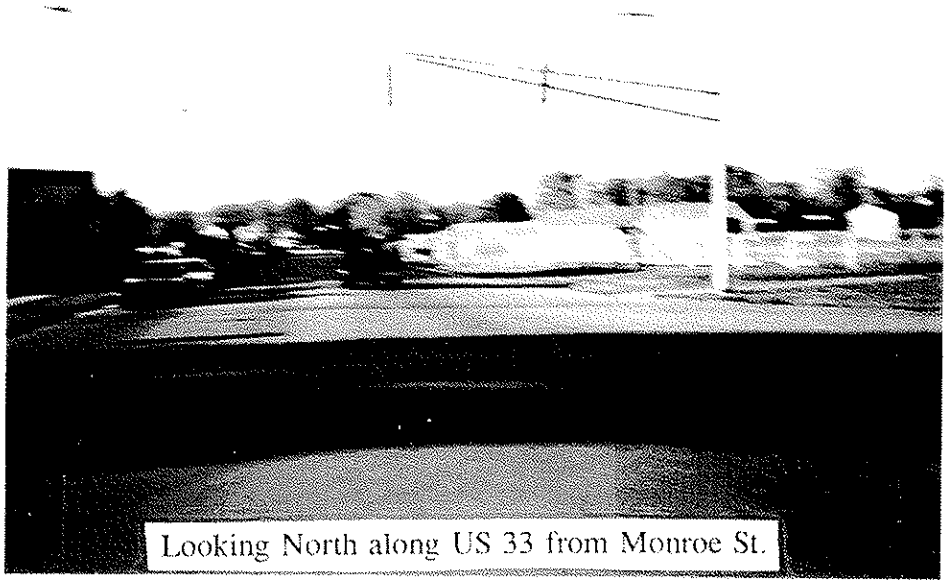
Southwest Quad (Monroe St.)



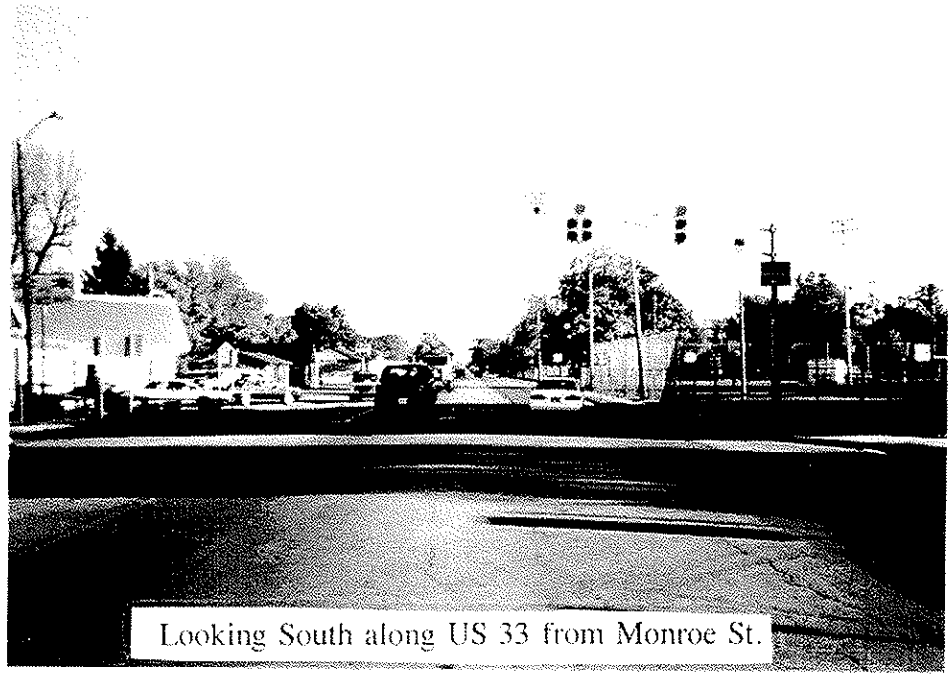
Northeast Quad (Monroe St.)



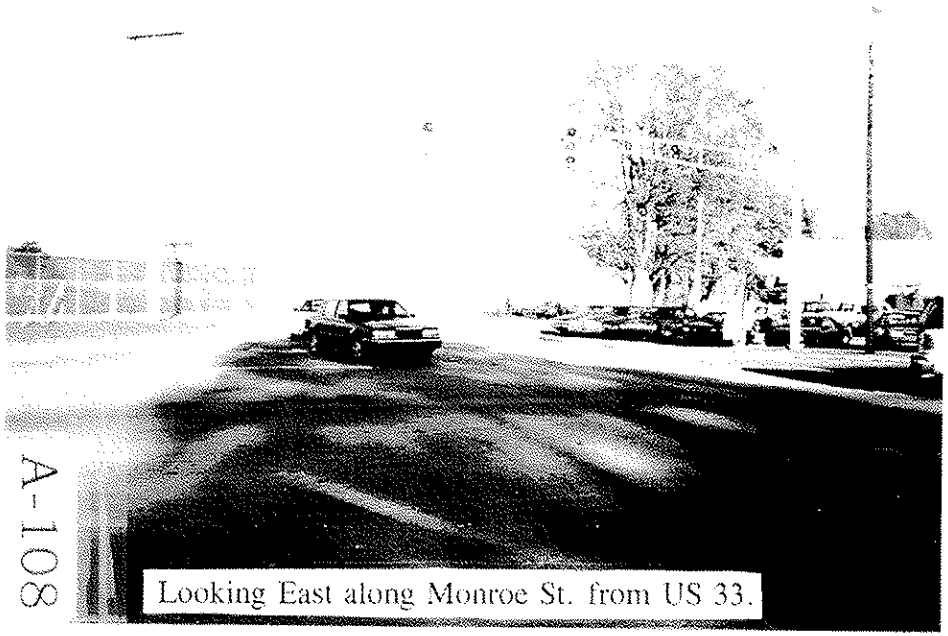
Southeast Quad (Monroe St.)



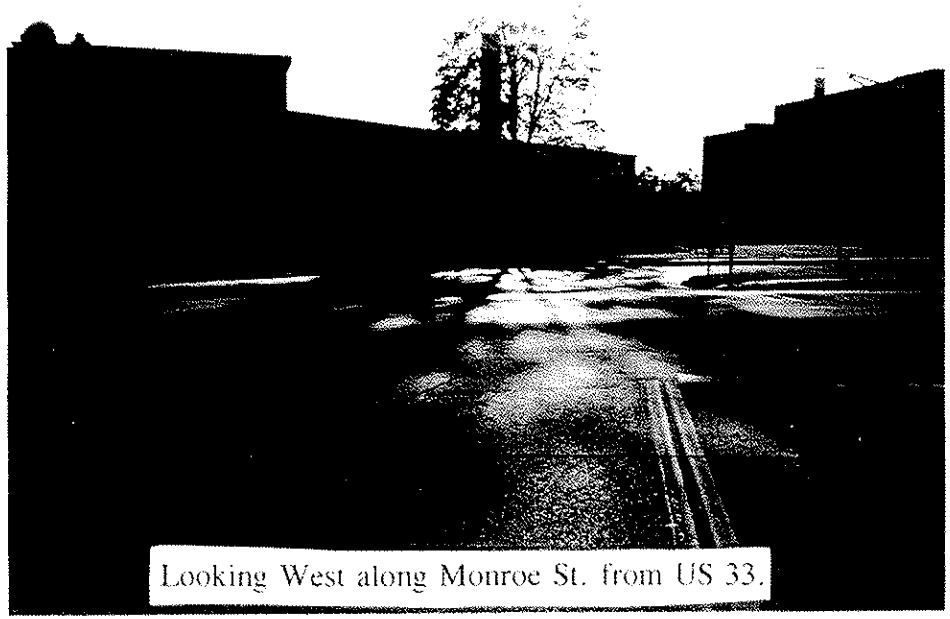
Looking North along US 33 from Monroe St.



Looking South along US 33 from Monroe St.



Looking East along Monroe St. from US 33.



Looking West along Monroe St. from US 33.