

Planning Report

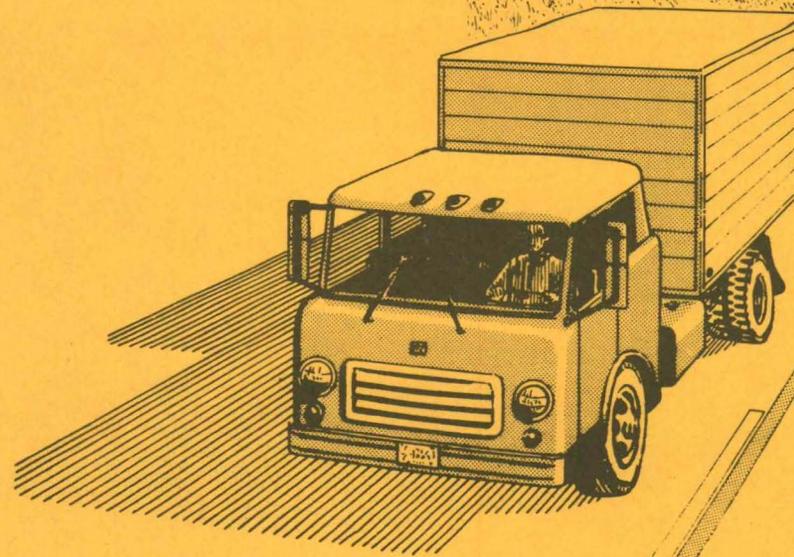
IOWA ROUTE 44

IN

HARRISON

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IOWA ROUTE 44 IN
HARRISON COUNTY

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ROUTE IMPROVEMENT STUDY

OF IOWA 44 IN

HARRISON COUNTY

FROM U.S. 30 EASTERLY

TO THE SHELBY COUNTY LINE

FEBRUARY 1974

A Report Produced By

The

IOWA STATE HIGHWAY COMMISSION

In Cooperation With The

FEDERAL HIGHWAY ADMINISTRATION

UNITED STATES DEPARTMENT OF TRANSPORTATION

Compiled By The

PROJECT PLANNING SECTION
of the
CORRIDOR PLANNING DEPARTMENT
within the
DIVISION OF PLANNING

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FOREWORD

Improving Iowa's older, less traveled primary highways involves problems not encountered with the more highly traveled facilities. Road-user benefits are enjoyed by fewer people, making costs relatively higher. Highways built 40 years ago and designed for travel in that period are not sufficient for today's motor vehicles. However, costs to replace or improve these facilities appear quite high when used by a smaller number of vehicles.

In agricultural areas, good farm to market roads are necessary if productivity is to be stable. A dependable transportation system is needed if farm supplies and products continue to flow steadily, even during wet seasons.

This report has been prepared to present five possible improvements for Iowa 44 in Harrison County. The socio-economic needs of the area have been described and the general environmental impact expected from the project has been presented.

This report will serve as a basis for a corridor public hearing on this project. The hearing will be held to inform those interested in the project's status and to solicit public views. After the hearing, a formal location decision will be made by the Iowa State Highway Commission.

STUDY AREA

Project Description

The proposed improvement of Iowa 44 begins at the junction of U.S. 30 in Harrison County and extends easterly to the Shelby County line, a distance of approximately 9.6 miles.

Existing Route

Iowa 44 crosses Iowa in an east-west direction; beginning at U.S. 30 in Harrison County it extends easterly to Iowa 141 in Polk County. In Harrison County, it serves only a rural area through its entire 10-mile length.

In 1919 this road was designated Iowa 39, but remained unimproved until 1930 when it was reconstructed and graveled. For some time the short segment in Harrison County was the only unpaved mileage of Iowa 39. In 1939, a bituminous penetration pavement was completed, and in 1968 Iowa 39 was changed to its present number, Iowa 44.

Sufficiency Study

The existing 22-foot wide bituminous pavement has a 1973 sufficiency rating of 38, which is in the critical range. The low structural adequacy and the deteriorated surface of this highway account for the critical rating. Six bridges within this 10-mile section range from 20-foot to 24-foot wide. All have H-loadings of 15 and were constructed in 1930. The bridge over Six-Mile Creek, approximately one mile east of U.S. 30, was inspected by the Maintenance Department in October, 1973. It was determined that

degradation of the stream bed had caused some movement in the bridge's substructure. It was recommended that the replacement of this bridge not be deferred beyond 1978.

Accident Analysis (1968-1972)

A five-year study of accidents on this section of Iowa 44 is as follows: 16 property damage accidents (PD), 9 personal injury accidents (PI), and 1 fatal accident (F).

These are shown by year in Table 1. Locations of the accidents are scattered throughout the project area.

TABLE 1

RURAL ACCIDENTS - IOWA 44

| Year | PD | PI | F | Total |
|------|----|----|---|-------|
| 1968 | 3 | 3 | 1 | 7 |
| 1969 | 6 | 1 | 0 | 7 |
| 1970 | 2 | 1 | 0 | 3 |
| 1971 | 4 | 1 | 0 | 5 |
| 1972 | 1 | 3 | 0 | 4 |

The 1972 study for motor vehicle accidents on Iowa's rural two-lane primary highways gave an average rate of 201 accidents per 100 million vehicle miles of travel. Computing Iowa 44's accident rate for 1972 gave an accident rate of 357 per 100 million vehicle miles of travel.

1973 Traffic

Average daily traffic on Iowa 44 from U.S. 30 to the Shelby County line in 1973 was 410 vehicles. Most of this is local traffic; 18% are trucks.

Functional Classification & Access Control

All roads and streets in Iowa are classified according to the type of service they provide for the public. This functional classification has been required by law since enactment of House File 394 of the 63rd General Assembly of the Iowa Legislature in 1970. The bill was amended by House File 1103. The three systems of classification for Iowa's primary

highways are the Freeway-Expressway, the Arterial and the Arterial-Connector.

Iowa 44 in Harrison County is part of the Arterial-Connector System. It provides service for short-distance intrastate and interstate traffic and provides connections between highways classified as Arterials and Freeway-Expressways.

Access control on this section of Iowa 44 is presently Class IV. This classification indicates that this is a planned controlled access highway, which gives through and land service traffic equal consideration. With any of the proposed improvements presented in this report, the access control would remain Class IV.

LOCATION OF ALTERNATES

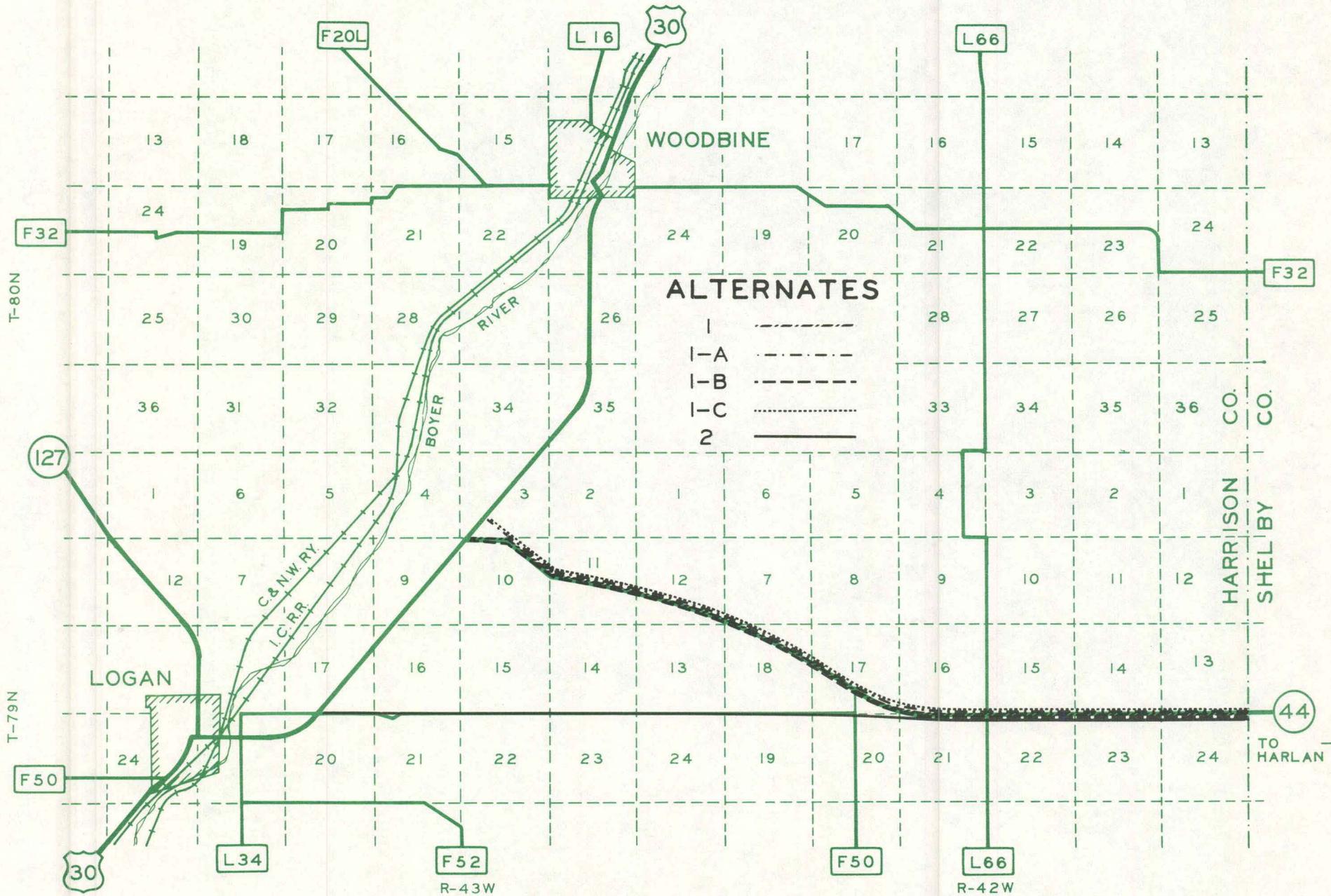


FIGURE 2

ALTERNATES STUDIED

Five alternatives for improving Iowa 44 are presented in this report. The Do Nothing Alternate is also considered. The five construction alternates are as follows:

improvement would also provide granular shouldering for the existing four to six foot wide shoulders. However, 1-C would also include relocating the U.S. 30 intersection ¼ mile north

TABLE 2

CONSTRUCTION CONCEPTS

| Alternate | Length Miles | Pavement Improvement | Replace Bridges & Culverts | Intersection U.S. 30 & Ia. 44 |
|-----------|-----------------|-------------------------|-------------------------------|------------------------------------|
| 1 | 9.59 | Reconstruct | Yes | Present Intersection Reconstructed |
| 1-A | 9.55 | Reconstruct | Yes | Relocated ¼ mi. N. |
| 1-B | 9.63 | Resurface | No | Resurfaced |
| 1-C | 9.55 | Resurface | Yes | Relocated ¼ mi. N. |
| 2 | 10.62 | Reconstruct | Yes | Relocated East of Logan |

Alternates 1 and 1-A are both reconstruction alternates with 24-foot wide pavement and 10-foot wide stabilized shoulders. Alternate 1 provides for reconstruction of the intersection of U.S. 30 and Iowa 44 at its present location. This alternate would also include costs for reconstructing U.S. 30 for 0.66 miles and costs for a paved detour along U.S. 30. (See Construction Costs in Table 4.)

Alternate 1-A would relocate the U.S. 30 intersection approximately ¼ mile north to improve the present sight distance. Costs in Table 4 include removing the old intersection paving and reconstructing U.S. 30 for 0.21 miles.

Alternates 1-B and 1-C include resurfacing the existing 22-foot wide roadway with 4½ inch asphaltic concrete; the

to improve sight distance and replacing the existing, narrow bridges. This alternate would also include reconstructing 0.21 miles of U.S. 30 at the new intersection location. The existing sub-standard vertical and horizontal alignment would remain with Alternate 1-B or 1-C. There are presently thirteen hills and three curves where passing is restricted because of insufficient sight distance.

Alternate 2 proposes relocating Iowa 44 along County Road F-50 for 6.5 miles. This alternate would have 24-foot wide paving, 10-foot stabilized shoulders, new bridges, and a newly constructed intersection with U.S. 30 east of Logan. This alignment would utilize 4.25 miles of the present Iowa 44 alignment east to the Shelby County line. The remaining 5.58 miles of old Iowa 44 would then become an

unnumbered route. At present Harrison County has no plans to improve this route.

Future Traffic

Estimated average daily traffic for 1979 and 1999 is given in Table 3.

TABLE 3

FUTURE TRAFFIC

Alternates 1, 1-A, 1-B, 1-C

| Location | Mi. | 1979 ADT | 1999 ADT | Trucks |
|-------------------|------|----------|----------|--------|
| From U.S. 30 | | | | |
| Jct. Co. Rd. F-50 | 5.58 | 450 | 610 | 18% |
| Jct. Co. Rd. L-66 | 1.5 | 460 | 620 | 18% |
| Shelby Co. Line | 3.0 | 460 | 620 | 18% |

Alternate 2

| | | | | |
|-----------------------|------|-----|-----|-----|
| From New Jct. U.S. 30 | | | | |
| Old Iowa 44 | 6.52 | 390 | 580 | 18% |
| Jct. Co. Rd. L-66 | 1.25 | 460 | 620 | 18% |
| Shelby Co. Line | 3.0 | 460 | 620 | 18% |

Residual Traffic - Old Iowa 44

| | | | | |
|-----------------------|------|-----|-----|-----|
| From Old Jct. U.S. 30 | | | | |
| Jct. New Iowa 44 | 5.58 | 150 | 200 | 18% |

Construction Costs

Construction costs for the construction alternates are given in Table 4.

TABLE 4

CONSTRUCTION COSTS (\$1,000)

| | 1 | 1-A | 1-B | 1-C | 2 |
|---------------------|----------------|----------------|--------------|----------------|----------------|
| Length | 9.59 | 9.55 | 9.63 | 9.55 | 10.62 |
| ROW | 381* | 379* | -- | 32 | 417* |
| Structures | 979 | 979 | -- | 599 | 687 |
| Grade | 1,201 | 1,054 | -- | 108 | 1,249 |
| Pavement | 1,204 | 1,199 | 272 | 367 | 1,345 |
| Misc. & Contingency | 508 | 485 | 41 | 161 | 492 |
| Reconstruct U.S. 30 | 279 | 82 | -- | 82 | -- |
| Detour - U.S. 30 | 96 | 37 | -- | 37 | -- |
| Total | \$4,648 | \$4,325 | \$313 | \$1,386 | \$4,190 |

*Right-of-way estimates include relocation assistance for three houses.

Maintenance Costs

Maintenance costs for Iowa 44 in Harrison County are given in Table 5 for fiscal years 1971 through 1973.

TABLE 5
MAINTENANCE COSTS

| Fiscal Year | Cost/Mile/Year |
|-------------|----------------|
| 1971 | \$2,281 |
| 1972 | \$2,362 |
| 1973 | \$1,904 |

Road User Analyses

The annual road-user benefit-cost analysis is a method used to measure the economic feasibility of a project. Dollars saved by the road users each year from the proposed improvement are compared to the Do Nothing Alternate. If the savings in reduced operating costs for the improved highway are greater than the annual amortized costs to construct and maintain the project, the benefit-cost ratio will be larger than 1.0. Any project having a ratio larger than 1.0 is considered economically feasible by this method of analysis. Table 6 gives the benefit-cost ratios for the five proposed project concepts.

TABLE 6

| ROAD-USER ANALYSES | | | |
|--------------------|------------------------|-------------------------------|--------------------|
| Alternate | Annual Road User Costs | Annual Constr. & Maint. Costs | Cost-Benefit Ratio |
| 1 | \$738,940 | \$363,920 | .17 |
| 1-A | 738,560 | 338,230 | .18 |
| 1-B | 782,680 | 50,810 | .47 |
| 1-C | 752,500 | 125,860 | .42 |
| 2 | 702,990 | 332,950 | .30 |
| Do Nothing | 795,600 | 23,500 | -- |

A road-user economic study is one tool used to help determine if a proposed improvement should be made on a public highway. The *Code of Iowa* states in Section 313.8 that "Improvements shall be made and carried out in such

manner to equalize the condition of the primary roads, as nearly as possible, in all areas of the state" and that "the relative urgency of the proposed improvements shall be determined by a consideration of the physical conditions, safety, and service characteristic of the various primary roads."

This means that if the benefit-cost ratio is less than 1.00, the improvement of a primary highway may be justified by a consideration of the quality of the road, safety, service, and the condition of road facilities in the area.

Iowa 44 in Harrison County has a low sufficiency rating for structural adequacy. Traffic volumes are relatively low and are expected to increase only slowly. Yet, this 10-mile portion of Iowa 44 connects to U.S. 30 and is necessary for route continuity of Iowa 44. For this reason this project has been programmed for improvement. The construction schedule for Iowa 44 currently lists right-of-way acquisition for 1978, and grading and paving to follow in 1979-1980.

SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDY

Regional and Community Growth

The Iowa 44 project area is located in western Iowa in Harrison County; it is 35 miles northeast of the Omaha-Council Bluffs metropolitan area, 75 miles southeast of Sioux City and approximately 100 miles west of Des Moines. Interstate 29 and U.S. 30 serve as the principal north-south routes in Harrison County. The county lacks a major east-west route.

Agriculture and its related services constitute the economic base of Harrison County. Although the farm population has been declining steadily since 1900, the economic dependence upon farming has not lessened. Advances in agricultural technology and production have contributed significantly to the loss of farm population and the consolidation of farms. This loss of agricultural employment in Harrison County has stimulated a migration to urban areas for increased employment opportunities. Since Harrison County lacks cities and urban areas, most of this migration is out of county, resulting in a loss of county population. Between 1950 and 1970 Harrison County's population declined 3,320 people or approximately 17%. Most of the towns in Harrison County have also lost population over the last two decades, while two communities, Modale and Woodbine, experienced small increases.

Prospects for growth and development in Harrison County and the Iowa 44 study area appear remote for the immediate future. However, the relatively close proximity of the Omaha-Council Bluffs metropolitan area to Harrison County and the study area could become a favorable element in the future stabilization and growth of Harrison County.

Conservation and Preservation

In recent years an increasing awareness of the fragile state of our environment and the importance of its preservation has been manifest throughout the nation. This new consciousness is reflected in current highway planning and construction practices, which give consideration to the management of soil, water, wildlife, fish and plant life; while in the past, highways were built with concern only for transportation economy and ease of construction.

The improvement of Iowa 44 would do little to change the environment of the area. Erosion control measures will be instituted to minimize erosion during construction. Existing drainage practices will be maintained. Wildlife cover in the area will be preserved wherever possible. Natural cover which is destroyed by construction will be replaced with legumes and native grasses.

Alternate 1-B would have almost no impact on the existing terrain or wildlife habitat, since it consists of resurfacing the present alignment. Adoption of one of the other three proposed improvements on the existing alignment (Alternates 1, 1-A and 1-C) would cause varying degrees of disruption to the area's general ecology because of additional right-of-way requirements. Alternates 1-A and 1-C follow a new alignment at the west end of the project where they connect with U.S. 30. Construction of either alternate would necessitate the loss of some timber and farmland at the new intersection location. Of all the proposed improvements, Alternate 2, a relocation of Iowa 44 along County Road F-50, would require the greatest amount of right-of-way. This alternate

would also be the most damaging to wildlife habitat and woodland areas.

There are no natural or historic landmarks in the project study area which would be affected by any of the proposed improvements. No lakes or recreational areas are situated along or within the vicinity of the highway which would be affected by the proposed construction. Arrangements for surveying the project area have been made with the Office of the State Archaeologist.

Public Facilities and Services

The rural people in Harrison County depend on highways for access to public facilities. In recent years modern highways have greatly increased accessibility to medical, educational and religious institutions. Highways have also made emergency services such as ambulance facilities, and police and fire protection available to more people.

TABLE 7
MEDICAL FACILITIES

| | Missouri Valley | Logan | Woodbine | Harlan |
|-----------------------|--------------------|-------|----------|--------|
| Miles from Ia. 44 | 12 | 4 | 5 | 11 |
| Medical Practitioners | 8 | 2 | 2 | 13 |
| Clinics & Hospitals | 2 | - | - | 1 |
| Nursing Homes | 2 | 1 | 1 | 1 |
| Ambulance Service | - | | 1 | 1 |

Improving Iowa 44 would improve the accessibility of area medical facilities and reduce the time distance between communities. Study area residents depend primarily on four towns for medical services; Missouri Valley, Logan, Woodbine and Harlan. The location of these communities and available health care is given in Table 7.

The proposed improvement of Iowa 44 passes through three school districts -- the Harlan Community School District, the Logan-Magnolia Community School District and the Woodbine Community School District. Along most of the project, Iowa 44 serves as the boundary between Woodbine Community School District on the north and Logan-Magnolia Community School District on the south. The improvement of Iowa 44 will not disrupt school district boundaries or operations, but some rerouting of buses may occur during construction. Alternates 1 and 1-A would make school bussing safer and more convenient by providing a wider pavement, improving the geometrics and replacing narrow bridges. Alternate 1-B would improve the surface condition of the road. Alternate 1-C would also improve safety by providing wider bridges and improving sight distance at the intersection of U.S. 30 and Iowa 44. Alternate 2 would improve travel conditions for buses using County Road F-50, as it is now a graveled road.

Improved highways have contributed to the development of the State's Area Community Colleges. The Iowa 44 study area is within the boundaries of the Area XIII - Iowa Western Community College, with the main campus in Council Bluffs. Secondary centers are located in Harlan and Clarinda. Any of the proposed improvements would improve travel conditions

to the Council Bluffs and Harlan centers. These alternates would also provide a faster, safer, more relaxing drive for commuting students that reside in the project area.

Police protection is provided by the Harrison County Sheriff and his deputies in Logan. Any of the reconstruction alternates (Alternates 1, 1-A, and 2) with new pavement and wider bridges or Alternate 1-C with its wider bridges and resurfacing would provide faster and safer travel.

Fire protection in the study area is on a contractual basis with the Logan and Woodbine fire departments. Any improvement of Iowa 44, with the exception of Alternate 1-B, would improve the mobility of fire fighting units in this area.

Religious institutions are located in Logan, Woodbine, Missouri Valley and Harlan. Any of the construction alternates should improve travel conditions for Sunday worshippers.

Since this is a rural project, few utility relocations will be needed. Any necessary adjustments will be worked out during the final design stage of the project. Alternate 1-B and the Do Nothing Alternate would have no impact on utilities.

The Iowa 44 project is just 14 miles north of Interstate 80 and 14 miles east of Interstate 29, the closest designated national defense routes.

Community Cohesion

Since the Iowa 44 project traverses a rural area without entering an urban community, residential and neighborhood character will not be affected by any of the proposed improvements. According to the 1970 study on general population characteristics published by the U.S. Bureau of the Census neither Cass Township nor Jefferson Township, the area in which the project is located, contain members of a racial minority. Thus, no racial minorities should be affected by any of the proposed alternates for the improvement of Iowa 44.

The improvement of Iowa 44 will require the removal of some property from the tax rolls due to right-of-way acquisition, unless Alternate 1-B is adopted. Since Alternate 1-B provides for resurfacing of the present alignment, no right-of-way will be required. See Table 8 for the projected right-of-way costs incurred by the different alternates. The estimated right-of-way costs for Alternates 1, 1-A and 2 includes relocation assistance for three houses. Even with the adoption of the most expensive alternate in terms of right-of-way costs, Alternate 2, the loss in tax revenue will be practically negligible compared to the total tax revenue in Harrison County.

The effect on conduct and financing of government will be slight during or following the completion of this project. No social services will be eliminated or disrupted permanently during or following the improvement.

TABLE 8

RIGHT-OF-WAY COSTS

| Alternates | Costs |
|------------|-----------|
| 1 | \$380,650 |
| 1-A | 379,250 |
| 1-B | --- |
| 1-C | 31,990 |
| 2 | 416,700 |

Often property values increase as development occurs adjacent to an improved highway. In order for this to occur, however, the highway improvement which causes these changes in property values is usually on a new alignment and causes significant changes to the landscape and major alterations in traffic patterns. Property values along the Iowa 44 project are not expected to change, since all of the proposed alternates, except Alternate 2, follow the existing alignment and none of the proposals cause significant changes to the landscape or make important modifications in traffic patterns. Additional rural right-of-way will be required along the project, but the overall effect on rural property values should be negligible, since the possibility for land use change is limited.

If nothing is done to improve Iowa 44, the tax base will remain unaffected as a result of not building the project. Factors other than highway improvements, however, will continue to influence land use along the existing highway.

Displacement of People, Businesses and Farms

Agriculture constitutes the primary economic sector both in the Iowa 44 study area and Harrison County. Approximately 94% of the land in the county is used for agricultural purposes. Corn and soybeans are the major money crops. Livestock, principally hogs and beef cows, is equally important in Harrison County's farm product sales. The farm population and number of farms in the county has been declining steadily. Increased mechanization and technological developments have resulted in the consolidation of existing farming units and the decline of rural populations. As a result, the average size of farms has increased. Table 9 illustrates this trend in Harrison County during the last decade. The improvement of Iowa 44 should provide for faster transportation of livestock and crops to the marketplace.

TABLE 9

HARRISON COUNTY AGRICULTURAL TRENDS

| | 1960 | 1970 |
|-----------------------|-------|-------|
| Farm Persons | 6,897 | 5,159 |
| No. of Farms | 2,004 | 1,433 |
| Av. Farm Size (Acres) | 216 | 300 |

The two communities located closest to the project area, Logan and Woodbine, exist primarily as retail and service centers for their rural trade area residents. In addition to its

trade function, Logan has six small manufacturing firms and serves as the county seat. Woodbine also has a small industrial base with five manufacturing firms. Since most businesses and industries rely heavily upon truck transportation, an improvement of Iowa 44 would allow for faster and more efficient distribution of their products. Adoption of Alternate 2 would make travel to Logan more convenient for people residing along Iowa 44.

No business or industry will be adversely affected by an improvement of Iowa 44, but a certain amount of valuable agricultural land will be lost to highway right-of-way needs if Alternate 1, 1-A, 1-C or 2 is adopted. Construction of Alternate 1, 1-A, or 2 will also require the acquisition of three houses.

The owners of property acquired for highway right-of-way needs will be paid just compensation for the value of land and buildings taken. Relocation assistance will also be provided to all eligible relocatees on this highway project.

With Alternate 1-B or the Do Nothing Alternate, no additional right-of-way will be needed and no right-of-way or relocation costs will be incurred.

Air, Noise and Water Pollution

Increased concern for the deteriorating quality of our environment makes it imperative that our transportation systems contribute in every practical way to the elimination of pollution. Unfortunately, motor vehicles constitute one of the primary causes of pollution. The internal combustion

engine, with its inefficient operation, adds a variety of harmful pollutants to the air, including: carbon monoxide, hydrocarbons, oxide of nitrogen, unburned particles and lead. Although the primary responsibility for the reduction of motor vehicle pollutants lies with the automobile manufacturers, improved highway designs can also help reduce harmful emissions by enhancing combustion efficiency.

Motor vehicles are also a principal source of noise pollution, much of which originates from engines, exhausts, tires and brakes. Noise levels as well as exhaust emissions are highest when a vehicle accelerates or decelerates; so it is possible to reduce noise and air pollution simultaneously with a modern highway which reduces the need for acceleration and braking.

Since Iowa 44 is a rural project with a relatively low traffic volume, the impact of motor vehicle pollution on the project area is relatively minor. Adoption of proposed Alternate 1-B or 1-C would provide a smoother highway surface, while the reconstruction alternates (Alternates 1 and 1-A) and Alternate 2 would provide a wider, smoother highway surface with improved geometrics. Any of the above improvements would aid in enhancing combustion efficiency and reducing vehicle pollutants.

The Do Nothing Alternate, because of further deterioration of the roadway surface and possible increased traffic volumes, could eventually result in a higher level of air and noise pollution.

Water pollution should not be a serious problem on this project. Control measures will be carried out during construction to prevent erosion of soil and minimize the amount of siltation. With Alternate 1, 1-A, 1-C or 2, some sedimentation will occur during construction of new bridges. Since Alternate 1-B has no bridge improvements, no sedimentation will result from its adoption. Also, trace amounts of oil, chemicals and de-icing compounds will be contained in the pavement surface run-off. The surface run-off rates will be similar for old and new pavements.

With the Do Nothing Alternate, no changes would be made in the present highway, therefore no water pollution from siltation and sedimentation would occur during construction.

Aesthetic and Other Values

The construction of public highways should be undertaken with some thought as to the preservation of natural beauty and aesthetics. A highway should be integrated with the landscape to produce a facility which is pleasing to those who must view the road and to those who travel on it.

The proposed improvement of Iowa 44 passes through a rural section of Harrison County. The area consists of rolling farmland with pockets of timber. The highway crosses numerous creeks which will be crossed with new and wider

structures (with the exception of Alternate 1-B) without any channel changes.

The aesthetics of the study area will not change appreciably with the improvement of Iowa 44. All of the proposed alternates utilize the existing alignment with the exception of the western connection of Alternates 1-A and 1-C with U.S. 30, and Alternate 2. The new connection provided by Alternates 1-A and 1-C would cut through some farmland and timber. However, the increased safety provided by this new T-intersection would more than compensate for any minor aesthetic detraction it would create. Alternate 2 involves a relocation of present Iowa 44 along County Road F-50; this alignment would reduce the aesthetic appearance of a timbered area that it passes through. Unlike the Do Nothing Alternate, an improvement of Iowa 44 would make travel safer and more enjoyable for the motorist.

Multiple use of space by highways involves integrating the facility into the environment so that the transportation corridor serves more than one purpose. In urban areas, this concept is utilized to a fuller degree than in rural areas. Multiple use of space for present Iowa 44 includes public utilities in the highway right-of-way. Since most of the proposed alternates follow the existing alignment and none of the alternates pass through an urban area any extensive multiple use of the right-of-way corridor is not required or foreseen in the immediate future.

PROPOSED CONSTRUCTION AND SUMMARY

The proposed improvement of Iowa 44 in Harrison County extends from U.S. 30 to 300 feet east of the Harrison-Shelby County line. One of the alternates proposes the relocation of Iowa 44 along County Road F-50. This alignment would follow about four miles of highway on the east end of present Iowa 44 and approximately six miles of County Road F-50. The other alternates utilize the present alignment of Iowa 44 with variations in its connection with U.S. 30, variations in structures to be replaced, and various types of pavement improvement. A description of the proposed alternates may be found in the section entitled ALTERNATES STUDIED on page 6 . If Iowa 44 is reconstructed, rural intersections will be reconstructed to improve safety conditions. Where improvements are necessary, the county roads will be aligned to intersect Iowa 44 at right angles. Grade changes will be made to make the intersections safe and easy to traverse. The intersections will also be daylighted to provide adequate sight distance from the county roads. This daylighting consists of clearing a triangular section in each quadrant of a crossroad intersection and in two quadrants of a T-intersection. No crops or fixed objects will be allowed to remain in the corners of the daylighted intersection. An example of daylighting at a T-intersection is shown in Figure 3.

The extent of the daylighting is determined by the amount of traffic on the local road. Intersecting roads with an average daily traffic of less than 400 vehicles use a standard length of 200 feet. With greater than 400 vehicles per day, 300 feet is used as the base length. The length may also be shortened in some instances to reduce property damages.

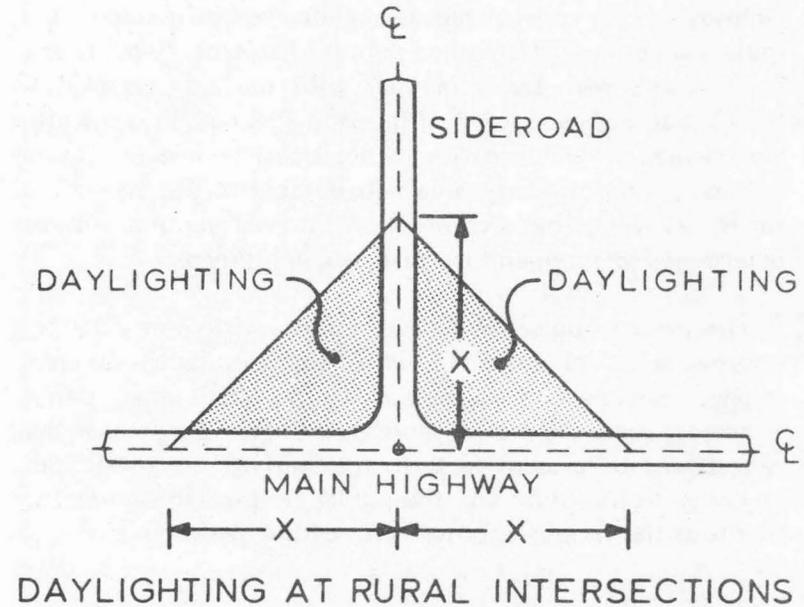


FIGURE 3

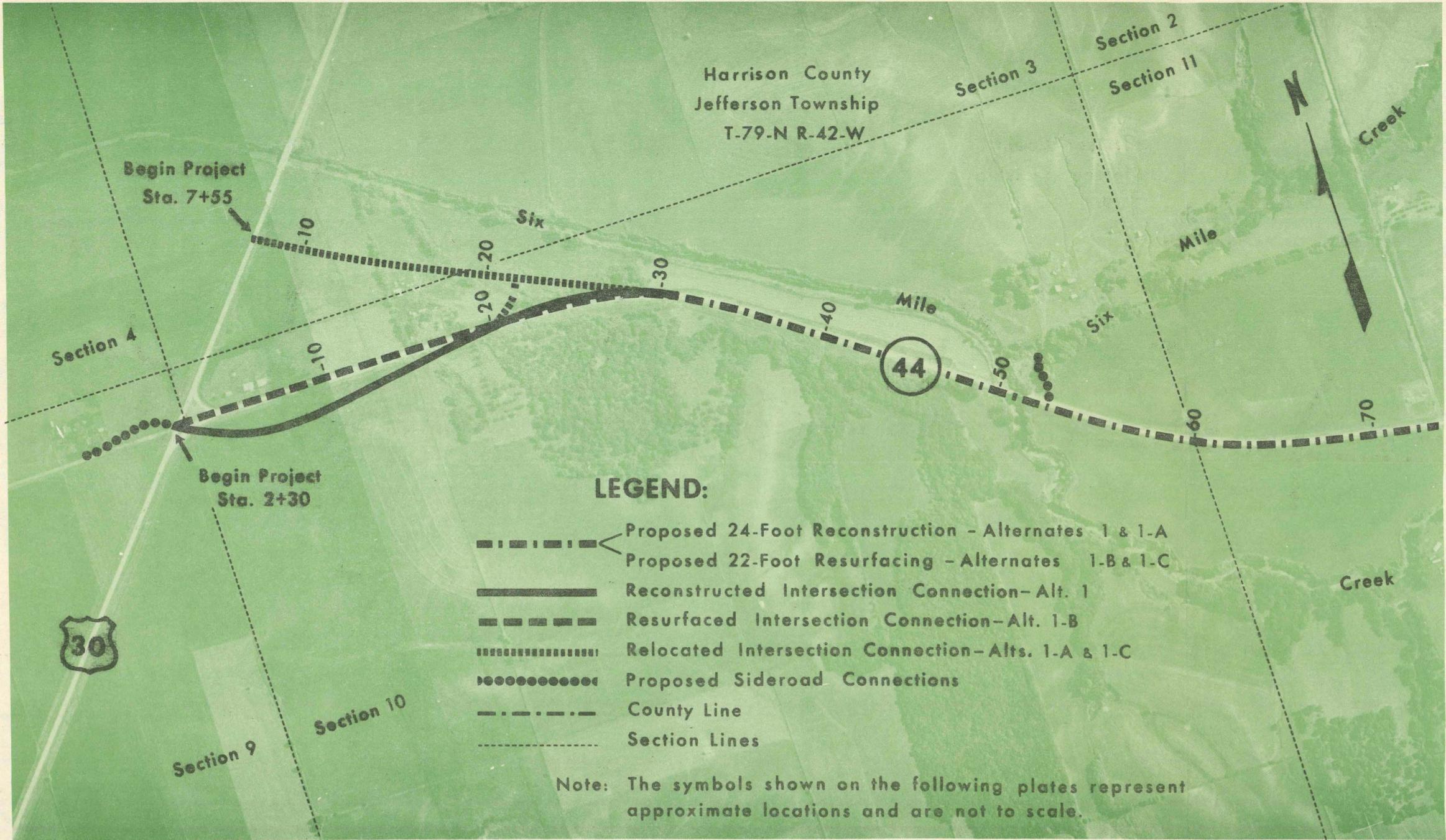
The alternates which provide only for resurfacing will not be daylighted, have grade changes, or have realignment of intersecting roads. The highway will be resurfaced at its present width of 22 feet, and will have 6-foot granular shoulders.

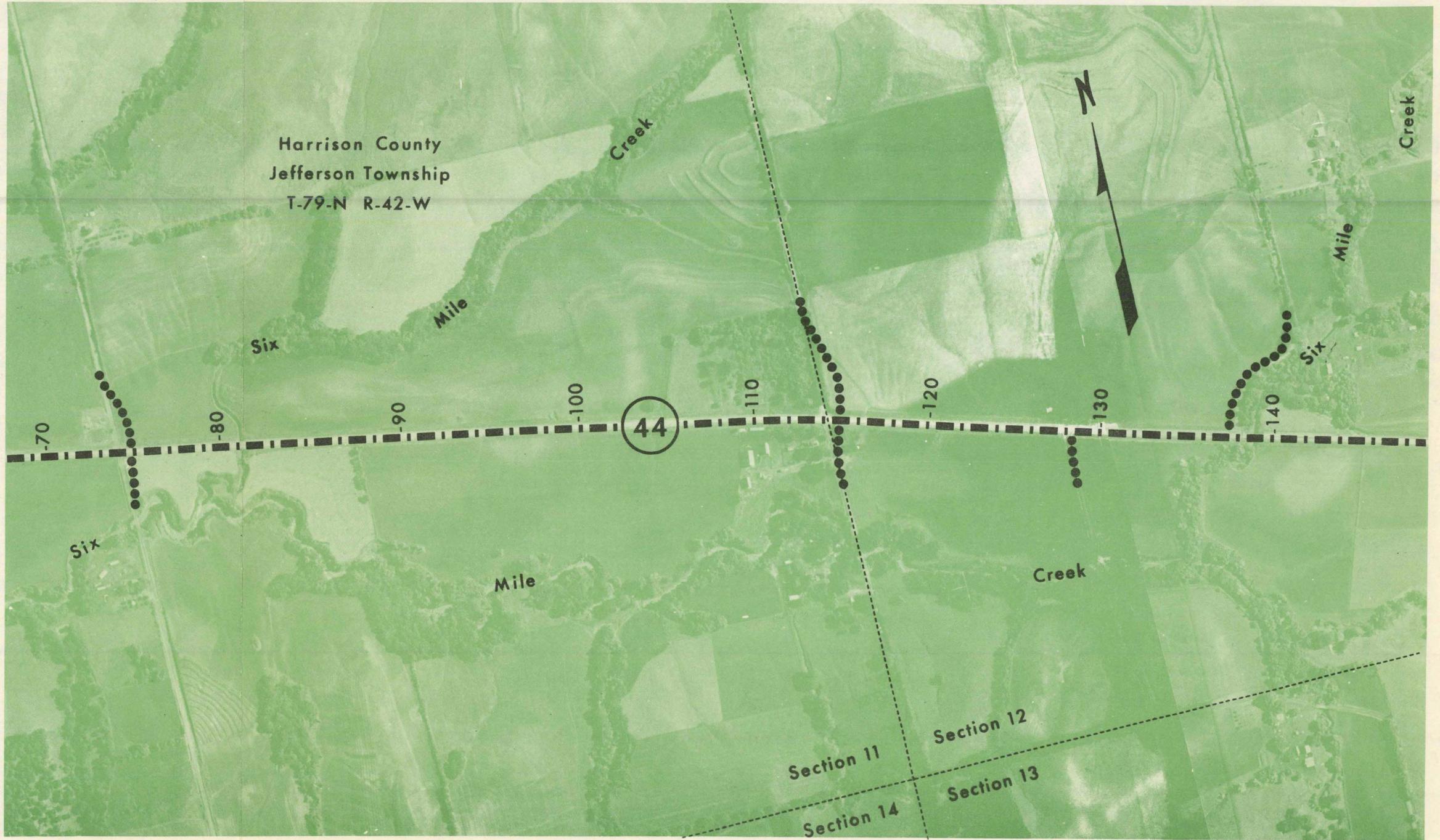
During construction traffic flow will be detoured and local residents will be allowed access to and from their homes or to other roads depending on road and weather conditions. If Iowa 44 is only resurfaced, traffic will be allowed to use the highway as it is constructed. Complete reconstruction of the route would require a marked detour of suitable paved roads. All travelers who are unfamiliar with the area, as well as trucks that require a paved surface and adequate bridge width and clearance, will use this route. Local people and those familiar with the study area will be able to use secondary roads, as well, for detouring. The final detour will be determined later, when final plans are developed.

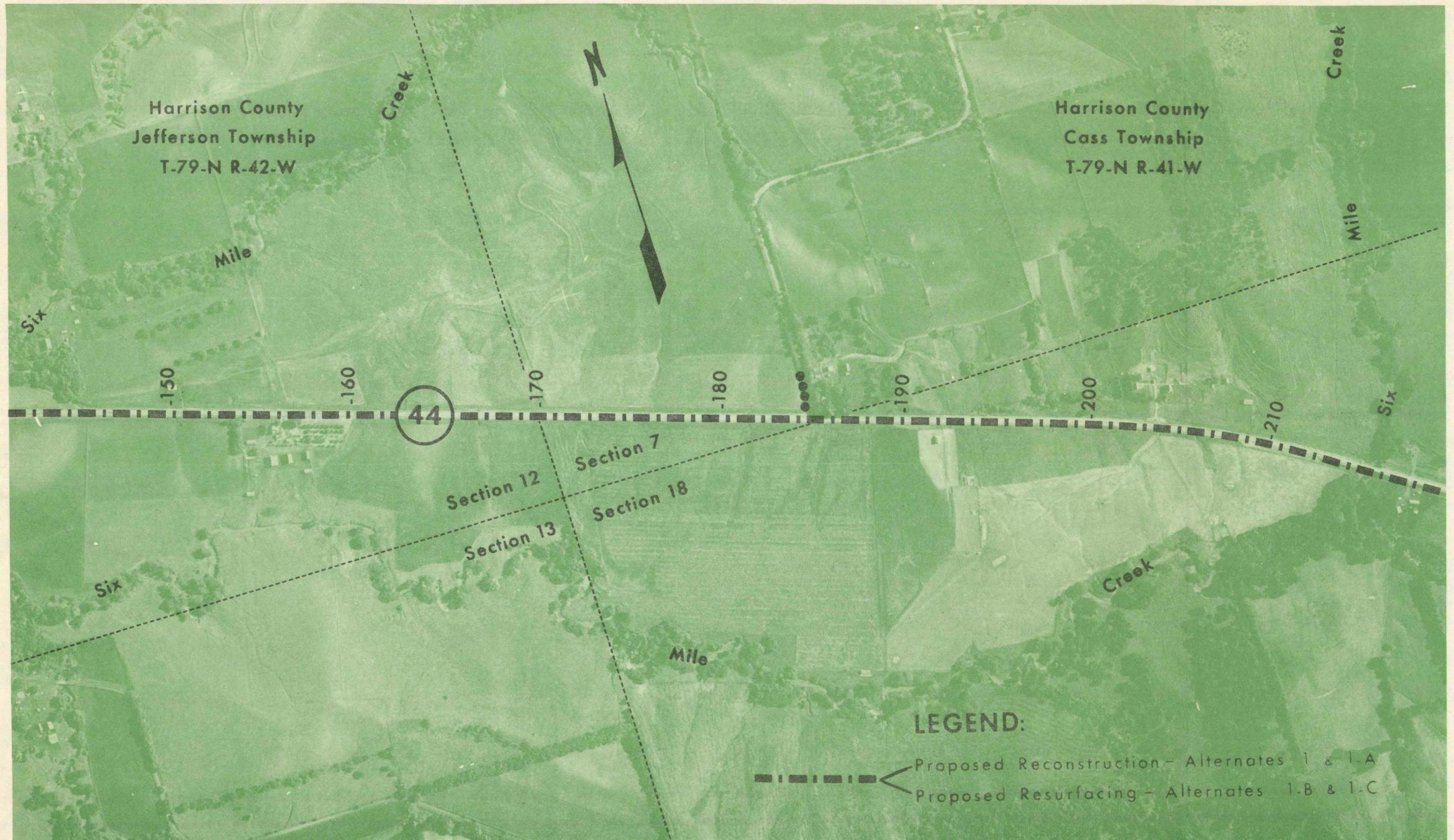
The primary objective of this report was to study various improvements of Iowa 44 with regard to environmental impact, socio-economic effects upon the area, design concepts, costs and traffic service. A further purpose of this report was to present facts to the staff of the Iowa State Highway Commission and the public concerning the relative merits of the various improvements of the highway.

The Iowa State Highway Commission is directed by state law to make improvements on the primary road system in such a manner as to equalize the conditions of the primary roads, as nearly as possible, in all areas of the state and to schedule these improvements by considering the physical conditions, safety, and service characteristics of the various primary roads. The Do Nothing Alternate does not respond to this mandate, although it is considered for economic reasons.

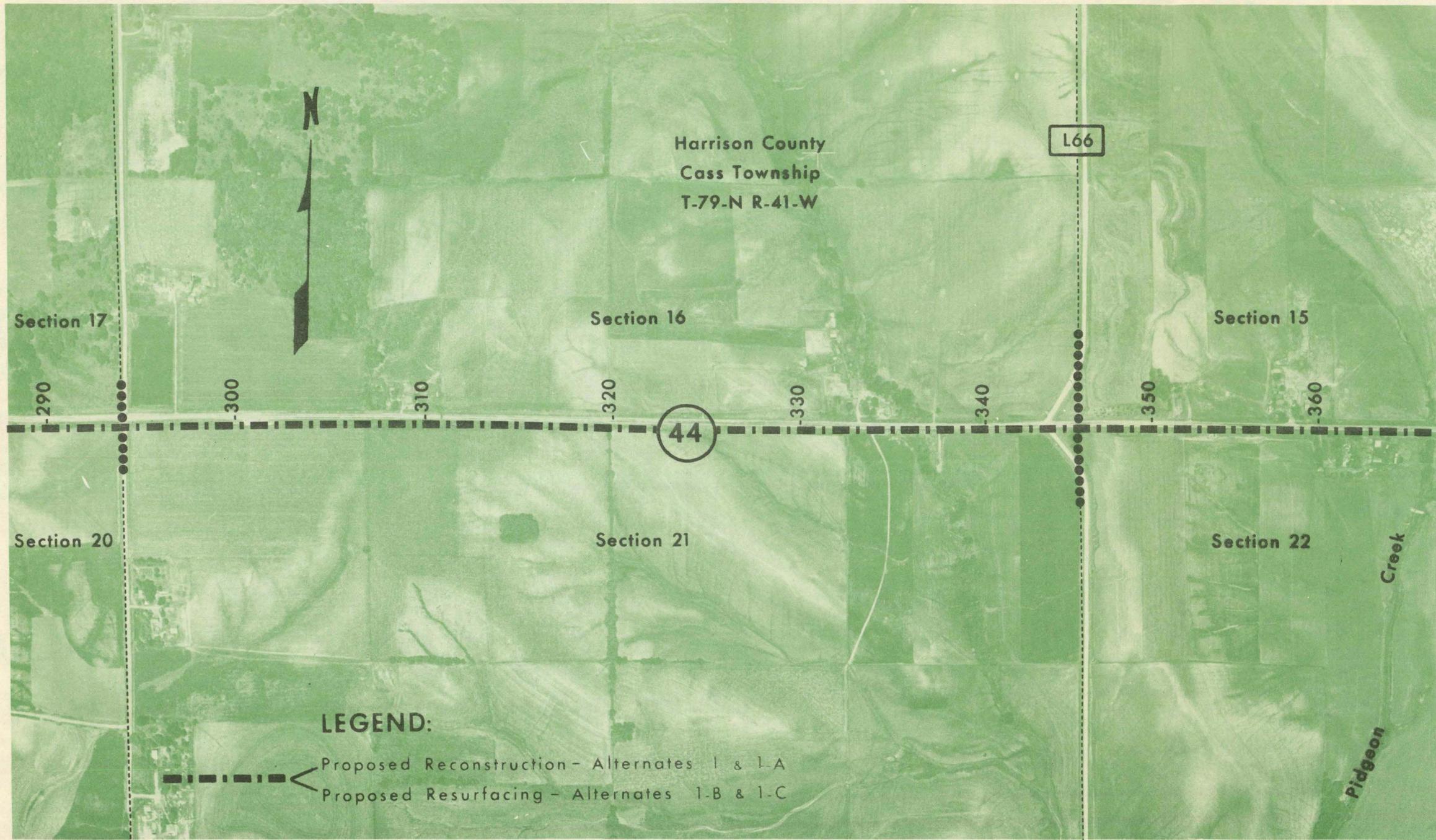
The results of this route improvement study indicate that some improvement of Iowa 44 is needed. The level of improvement provided by Alternate 1-C appears to be the most prudent in the light of traffic forecasts and the studies of costs and impacts. A final determination will be made following the corridor public hearing.

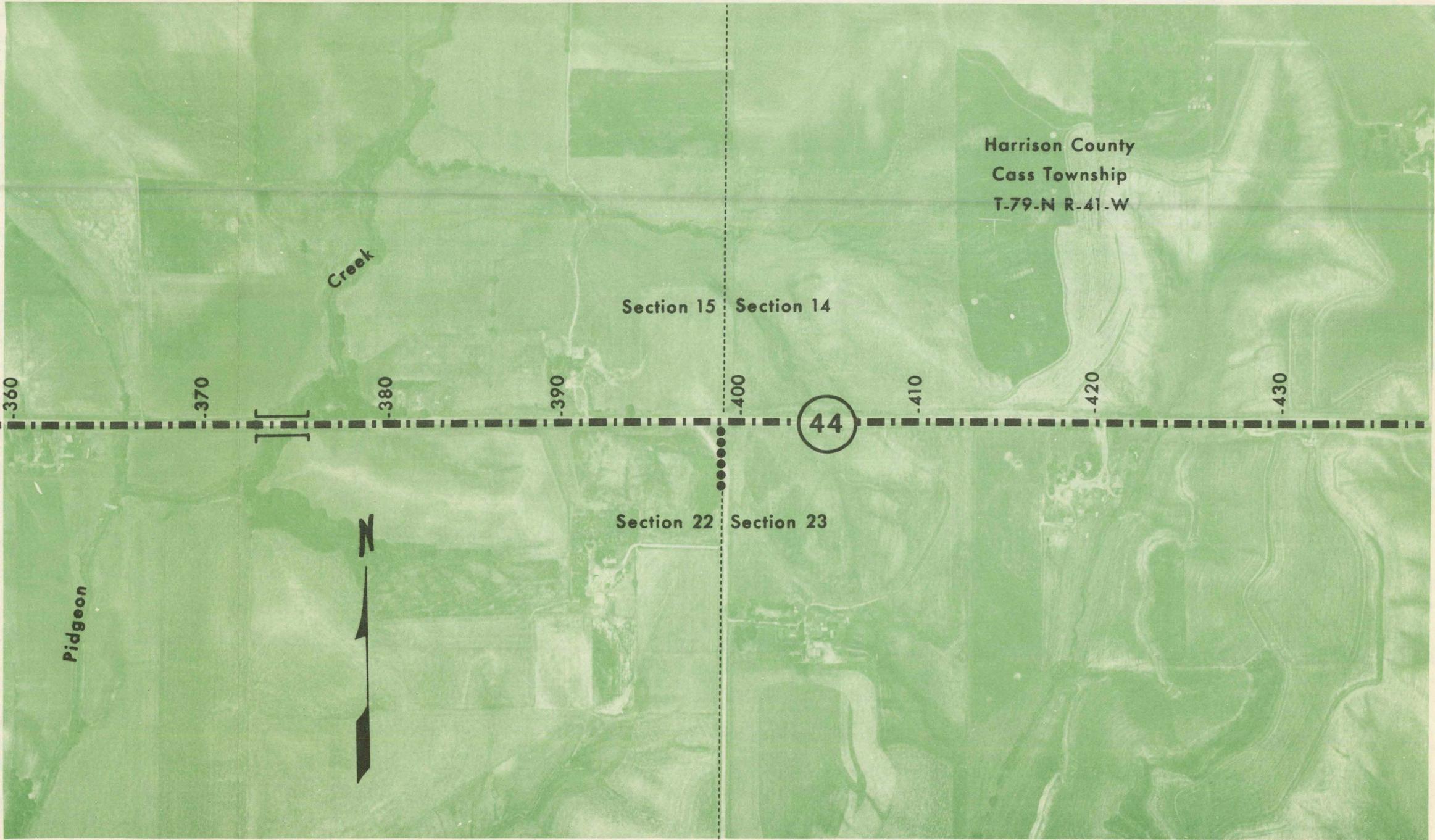


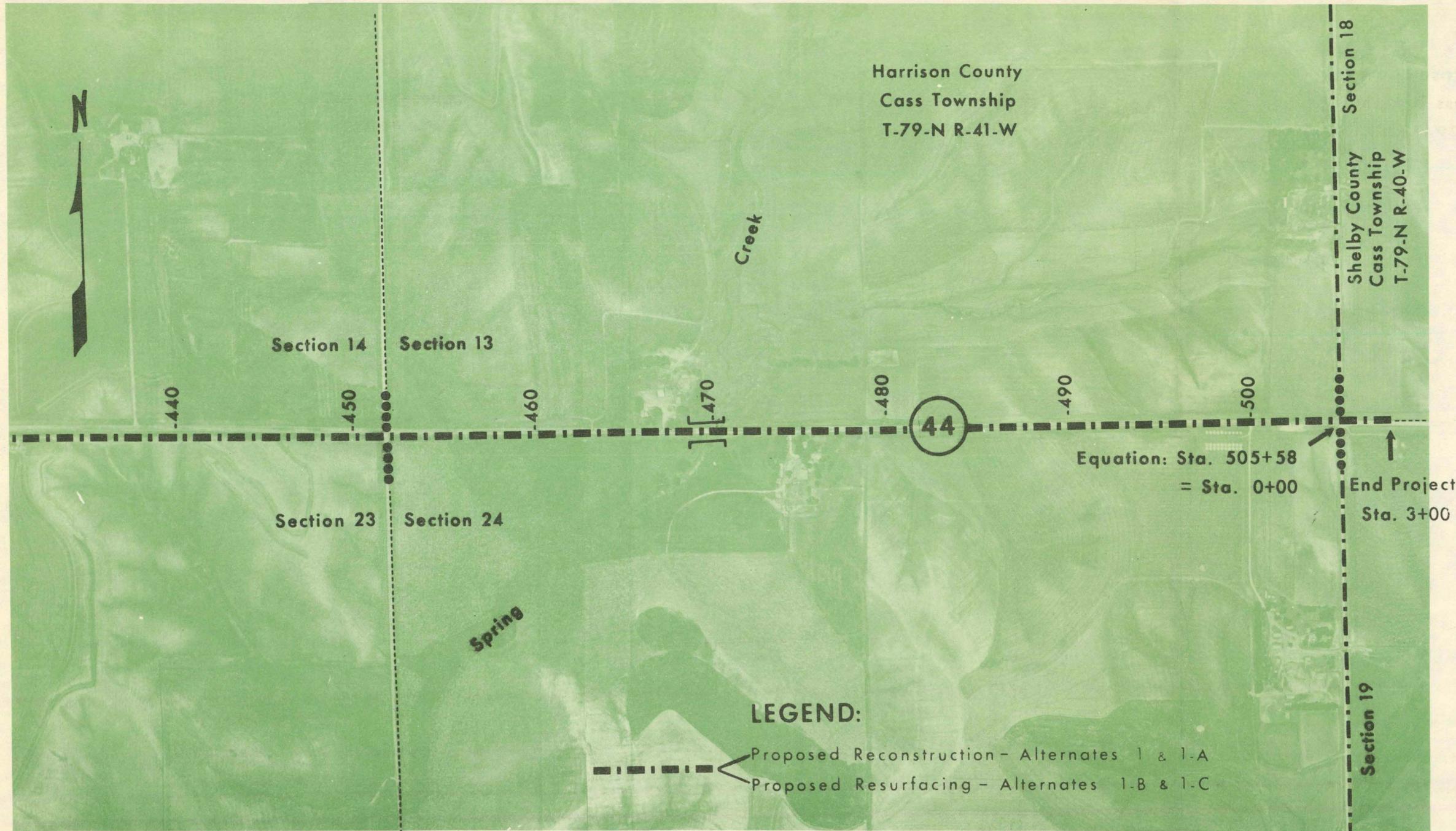












ALTERNATE 2

ALTERNATE 2

This improvement of Iowa 44 begins at a junction with U.S. 30 and extends in an easterly direction along County Road F-50 and present Iowa 44 to a point 300 feet east of the Harrison-Shelby County line. The following aerial photographic plates indicate the proposed alignment. This alternate location is shown in Figure 2 on page 5 .

The Alternate 2 improvement begins approximately 1330 feet northeast of the intersection of U.S. 30 and County Road F-50. It follows the general corridor of County Road F-50 for approximately 6.46 miles, where it joins present Iowa 44. It then follows the present Iowa 44 corridor for approximately 4.16 miles. The total length of the alternate is approximately 10.62 miles.

The existing gravel road and 22-foot pavement sections will be removed and replaced by 24-foot pavement with 10-foot stabilized shoulders throughout this project. The proposed reconstruction will follow the same general corridor

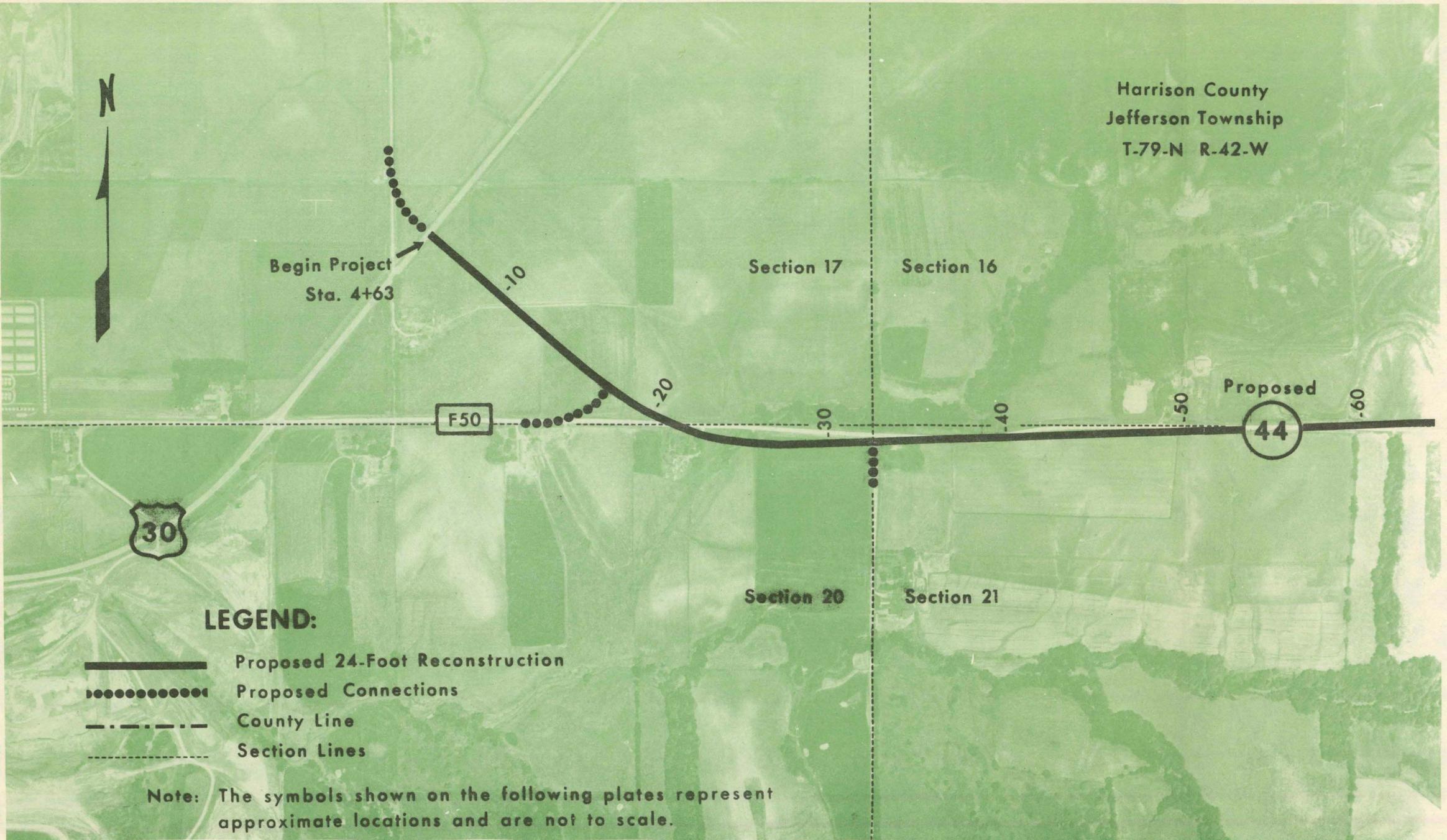
as existing County Road F-50 and present Iowa 44 although several line shifts are proposed in efforts to minimize property damage and to upgrade the horizontal and vertical alignments to modern design standards, thereby creating a faster, safer, more efficient facility.

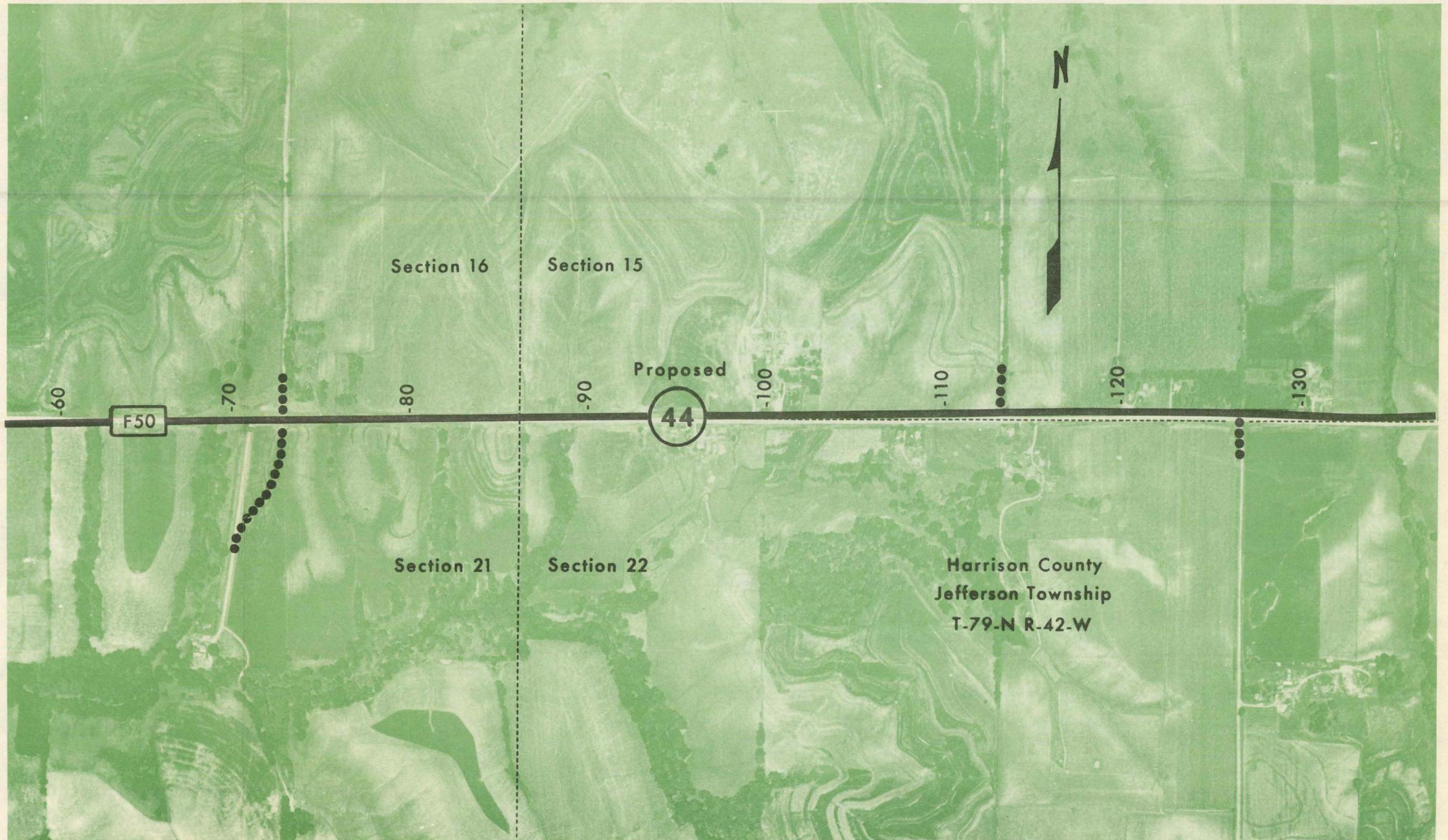
Field entrances and driveways have not been shown on this alternate. When final design plans are prepared, every effort will be made to locate entrances and driveways in compliance with both current design standards and the safety and convenience of the individuals involved.

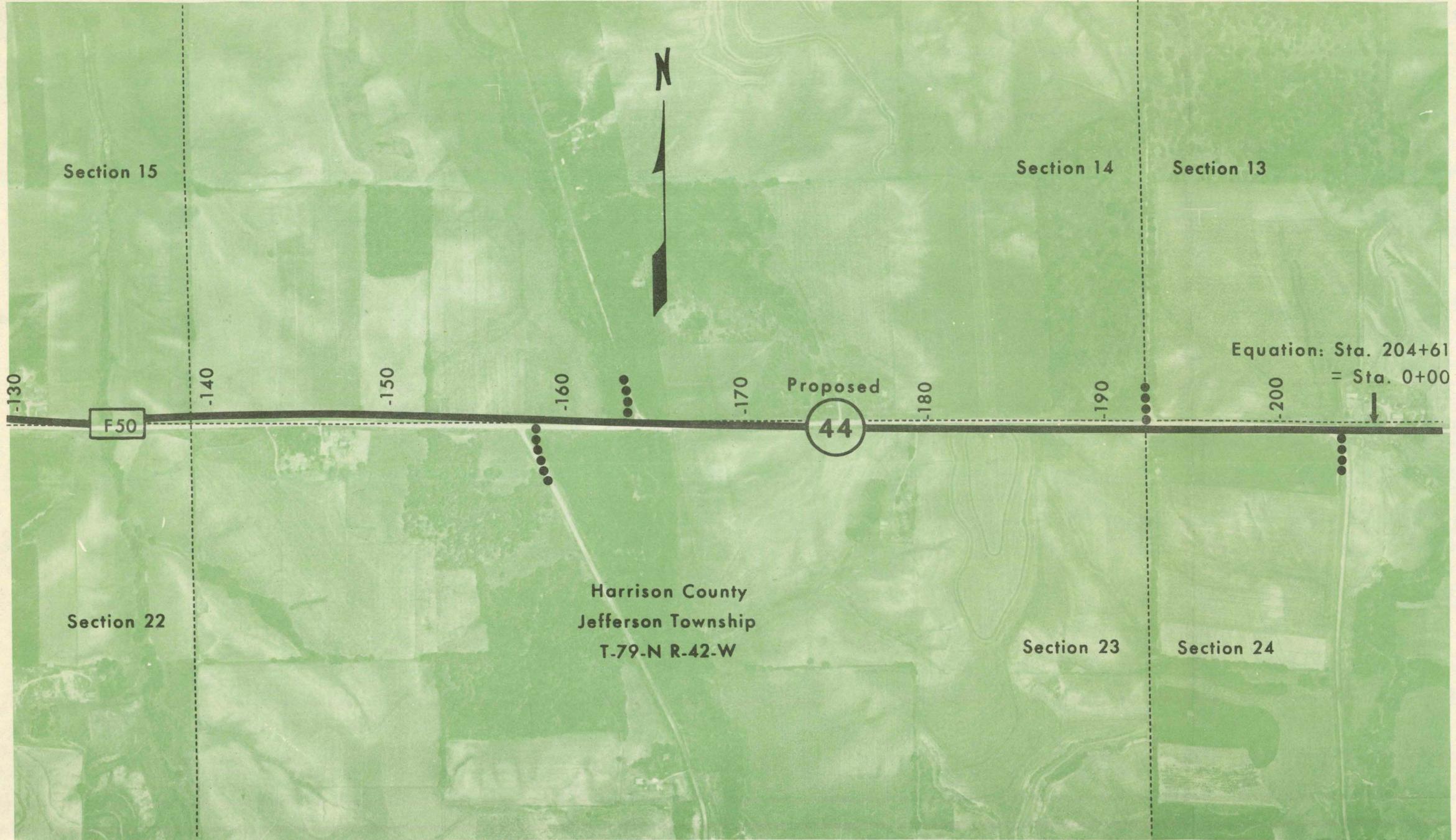
A number of local road connections will be relocated to provide satisfactory intersections with the proposed highway. All county road connections will be reconstructed to match the proposed grade and horizontal alignment of Iowa 44. No road closures are planned for the alternate, at this time.

Relocation assistance will be provided for displaced persons at three locations on this alternate. Highway right-of-way needs will acquire houses located at Station 34± and at Stations 129± and 361±.

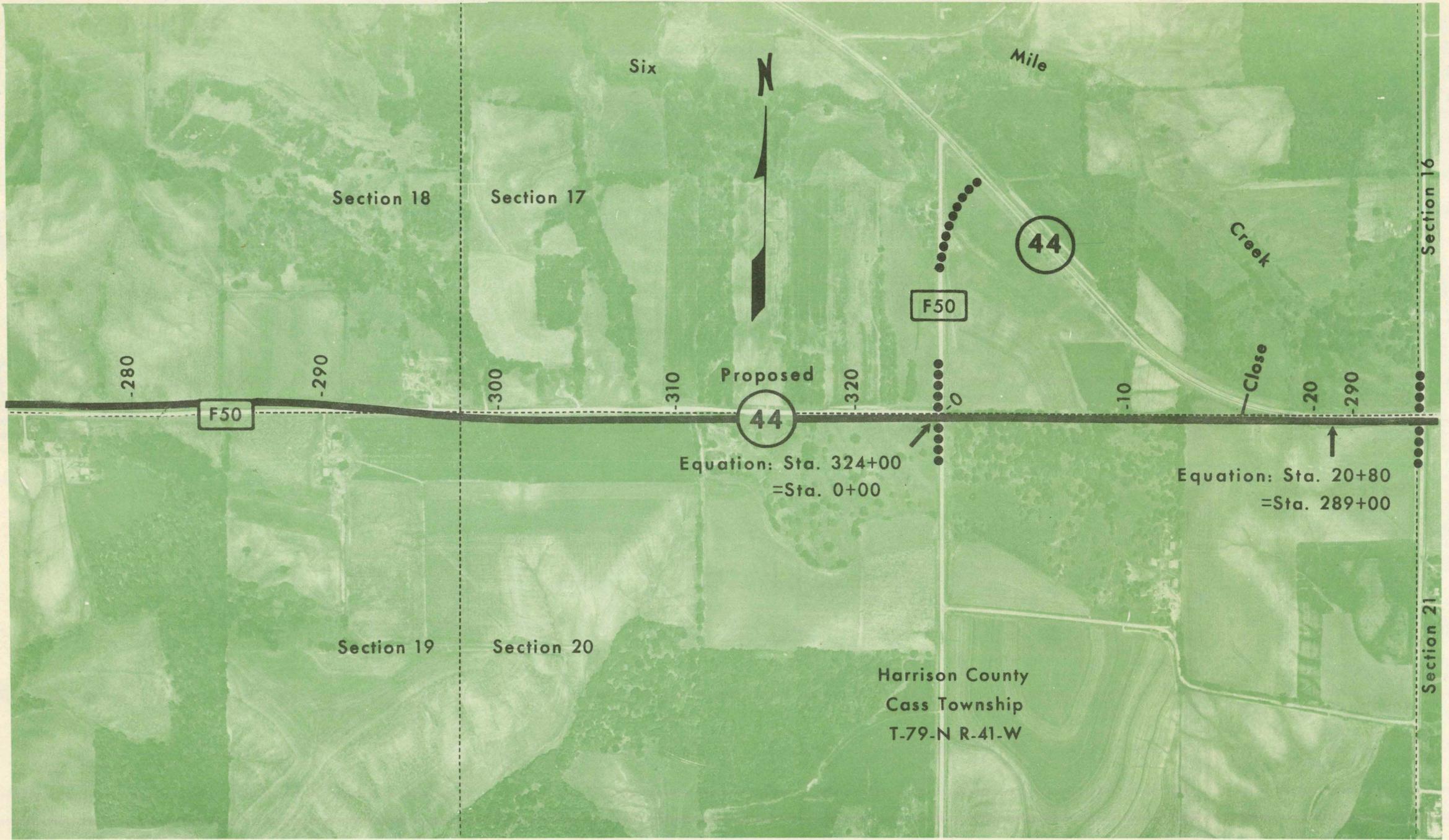
Note: These are preliminary plans and are subject to review and change in final design.

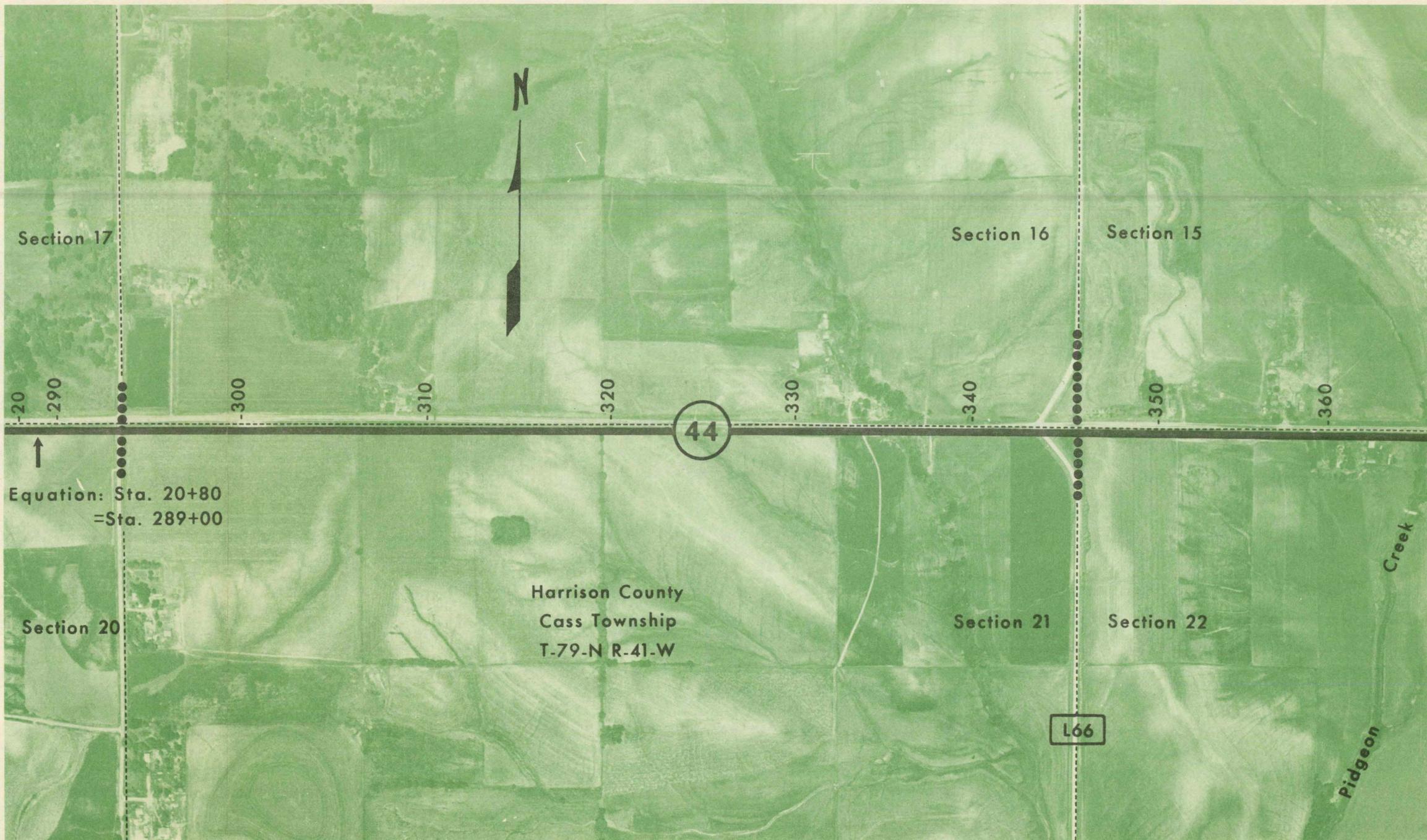


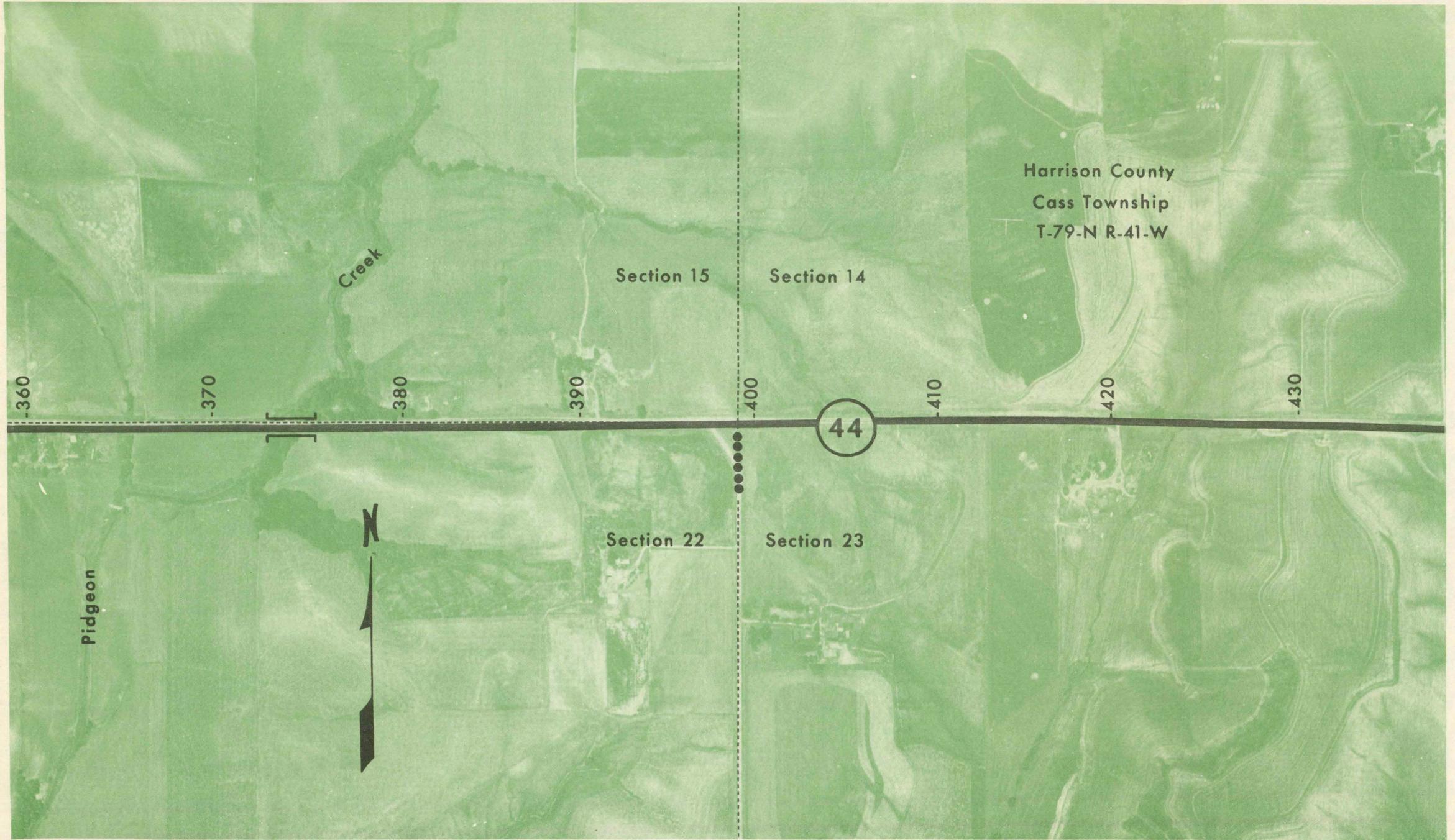


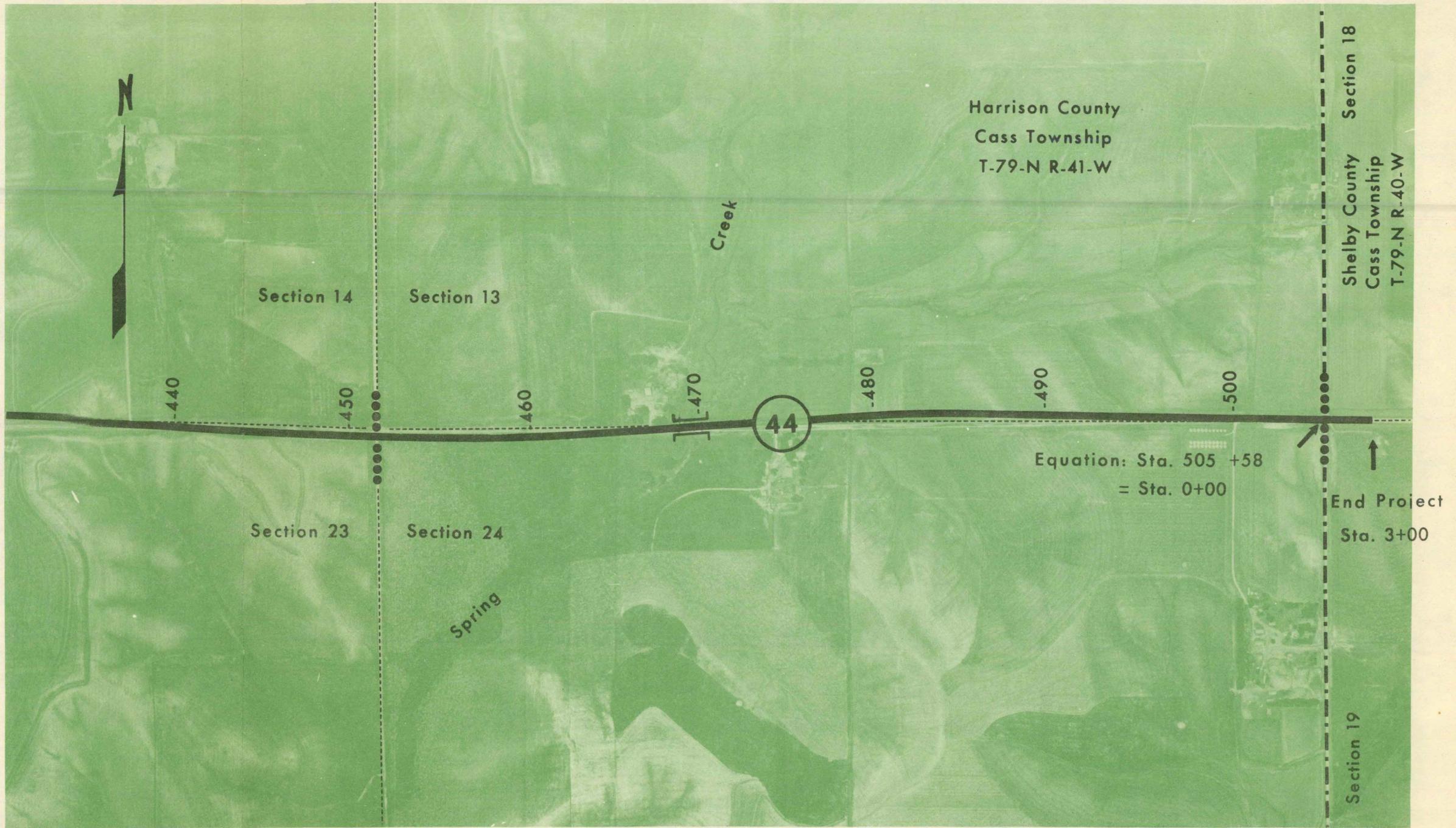








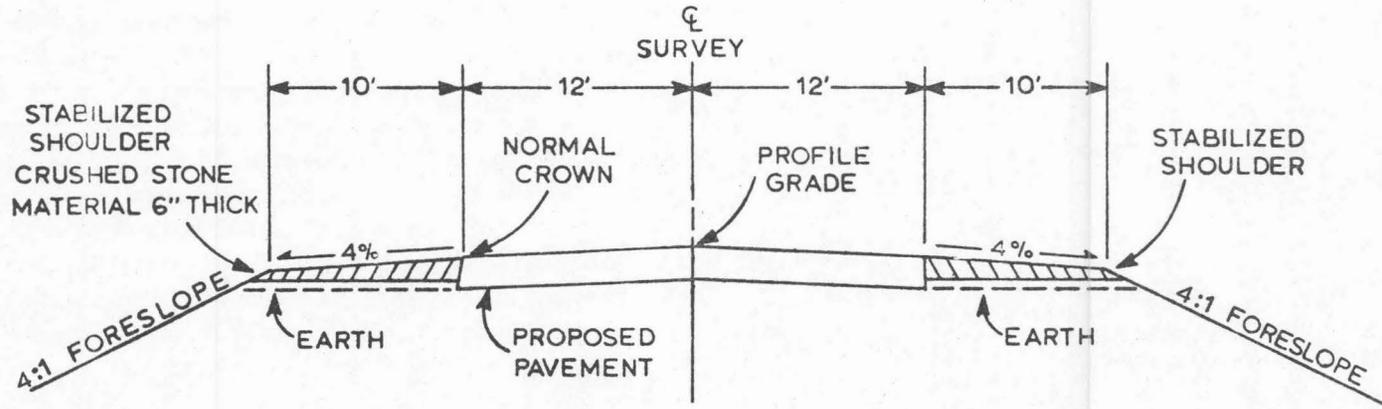




APPENDIX

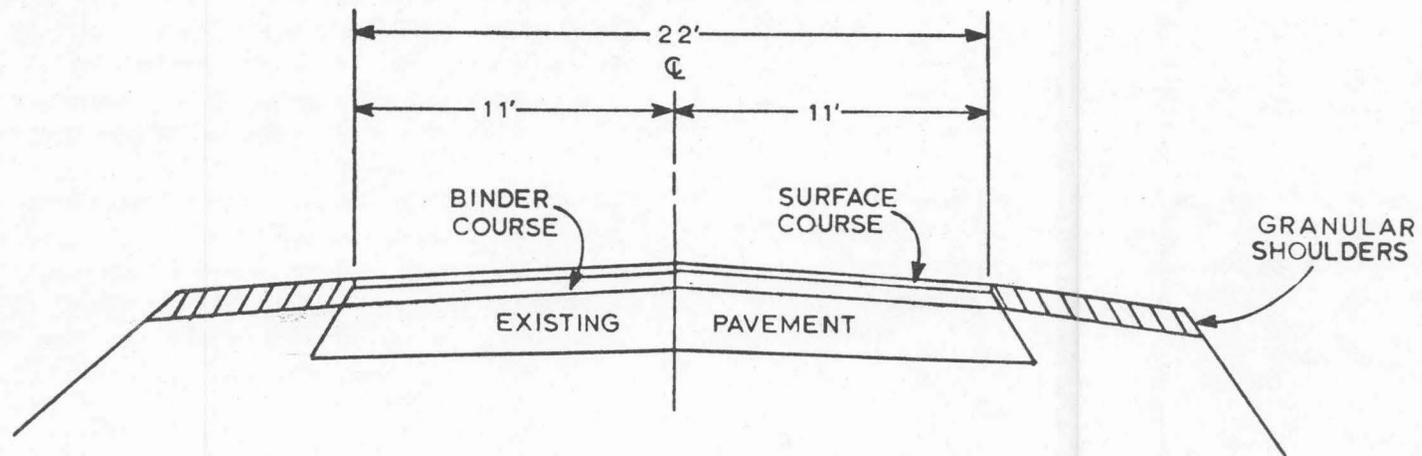
TYPICAL CROSS SECTIONS

24-FOOT RECONSTRUCTION



ALTERNATES 1, 1-A, & 2

A.C. RESURFACING



ALTERNATES 1-B & 1-C

ALTERNATES

1, 1-A, 1-B, & 1-C

ALTERNATES 1, 1-A, 1-B AND 1-C

The improvement of Iowa 44 in Harrison County begins at the junction of U.S. 30 and proceed easterly for a distance of over 9.5 miles, to a point 300 feet east of the Harrison-Shelby County line.

The improvement of Iowa 44 along the present route includes Alternates 1, 1-A, 1-B and 1-C. These four alternate alignments are shown together in aerial plates 1 through 7 and depict the general highway corridor. Alternates 1 and 1-A propose removing the existing pavement and reconstructing the highway to 24-foot pavement with 10-foot stabilized shoulders. Several minor line shifts will occur where necessary to minimize property damage and to correct horizontal alignment problems. Alternates 1-B and 1-C propose resurfacing the existing 22-foot pavement.

The two reconstruction alternates and the two resurfacing alternates vary only in the location of the Iowa 44 - U.S. 30 intersection. Alternates 1 and 1-B begin at the present intersection of U.S. 30, while Alternates 1-A and 1-C begin at U.S. 30, approximately 1090 feet northeast of the present intersection. Both the relocated and reconstructed intersections join the existing alignment at approximately Station 31. These intersections are noted on Plate 1.

With Alternate 1, U.S. 30 would be reconstructed for 0.66 miles where it intersects with Iowa 44. U.S. 30 would be

reconstructed for 0.21 miles for either Alternate 1-A or 1-C. The reconstructed intersection would provide better vertical geometrics.

No bridgework will be done on Alternate 1-B, but the remaining alternates will have bridgework at locations indicated on the aerial photographic plates. (See Tables 2 and 4.)

If Alternate 1 or 1-A is selected, local road connections along the proposed improvement will be relocated to intersect at right angles with the reconstructed highway and will be improved to match the proposed grade and alignment. No sideroad improvements will be made if the highway is only resurfaced, Alternates 1-B and 1-C.

For Alternates 1 and 1-A, relocation assistance will be necessary for displaced persons at three locations. Highway right-of-way needs will acquire houses located at Stations 224±, 226±, and 361±. Alternates 1-B and 1-C will not require the acquisition of any homes.

Field entrances and driveways have not been shown at this time. However, when final design plans are prepared, every effort will be made to locate entrances and drives in compliance with both current design standards and the safety and convenience of the individuals involved.

Note: These are preliminary plans and are subject to review and change in final design.

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