

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

DRAFT
ENVIRONMENTAL STATEMENT
FOR

Minnesota Route 43 in
Winona County, Minnesota

Minnesota Project RF-U 042-1 ()
State Project 8502

From: Interstate 90 at Wilson
To: U.S. 61 in Winona

Prepared By
**THE STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS**

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FHWA-MN-EIS-76-2-D
Federal Highway Administration
Region 5

Minnesota Route 43 in Winona County, Minnesota

Minnesota Project RF-U 042-1 ()
State Project 8502

From: Interstate 90 at Wilson
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ADMINISTRATIVE ACTION
DRAFT

ENVIRONMENTAL IMPACT STATEMENT
U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration

and

STATE OF MINNESOTA
Department of Highways

Submitted pursuant to 42 U.S.C. 4332 (2)(C)

March 12, 1976 Frank D. Marzitelli
Date Frank D. Marzitelli
Commissioner
Department of Minnesota Highways

3-12-76 E. Dean Carlson
Date E. Dean Carlson
Division Administrator
Federal Highway Administration

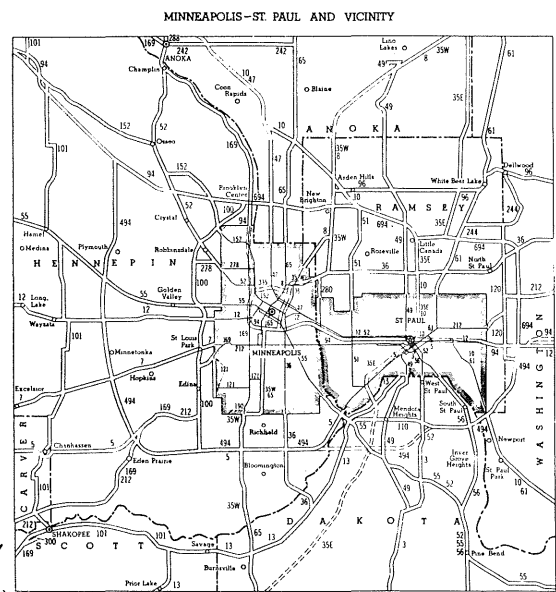
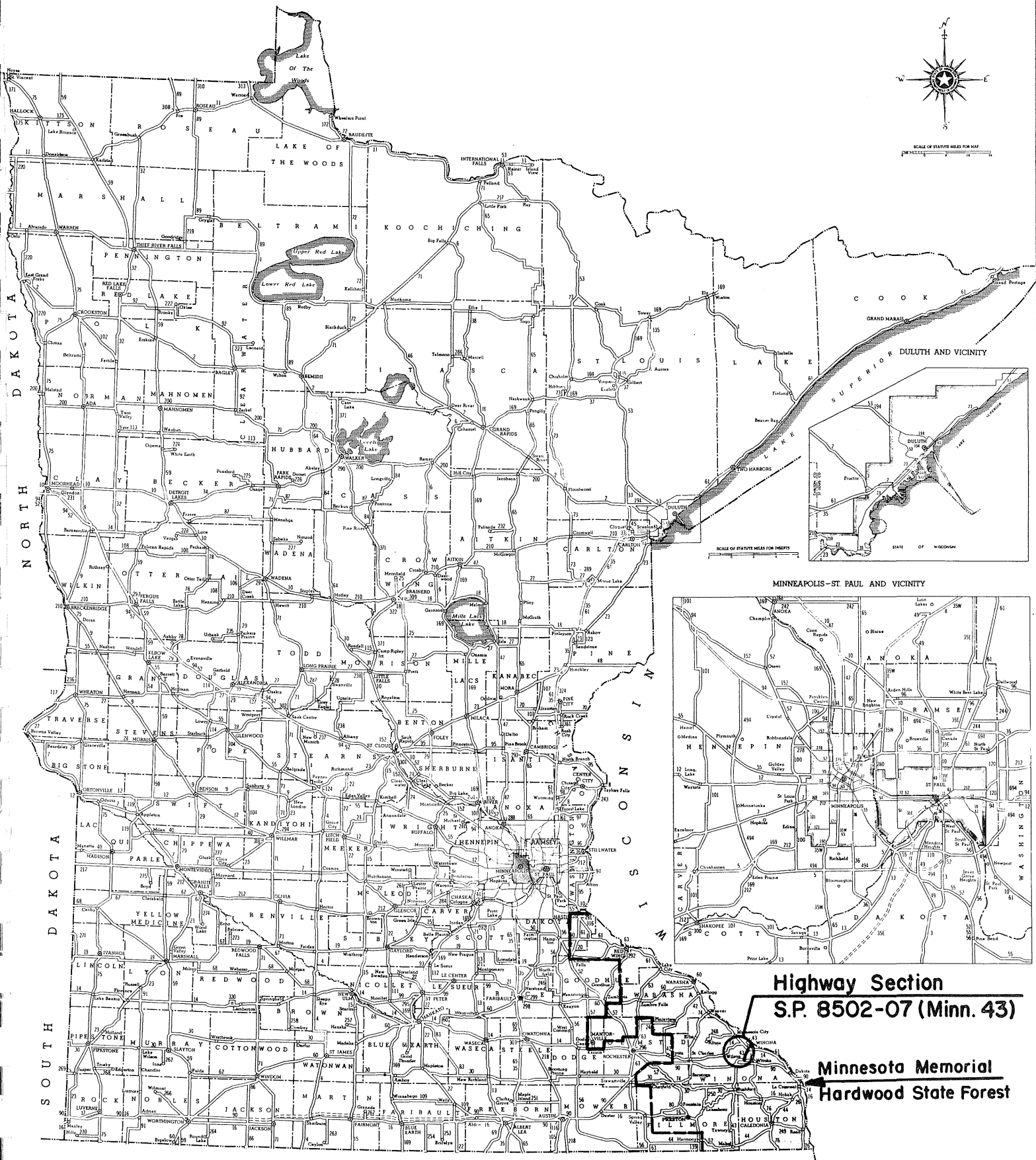
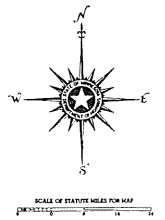
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STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
WORK MAP



Highway Section
S.P. 8502-07 (Minn. 43)

**Minnesota Memorial
Hardwood State Forest**

INDEX MAP

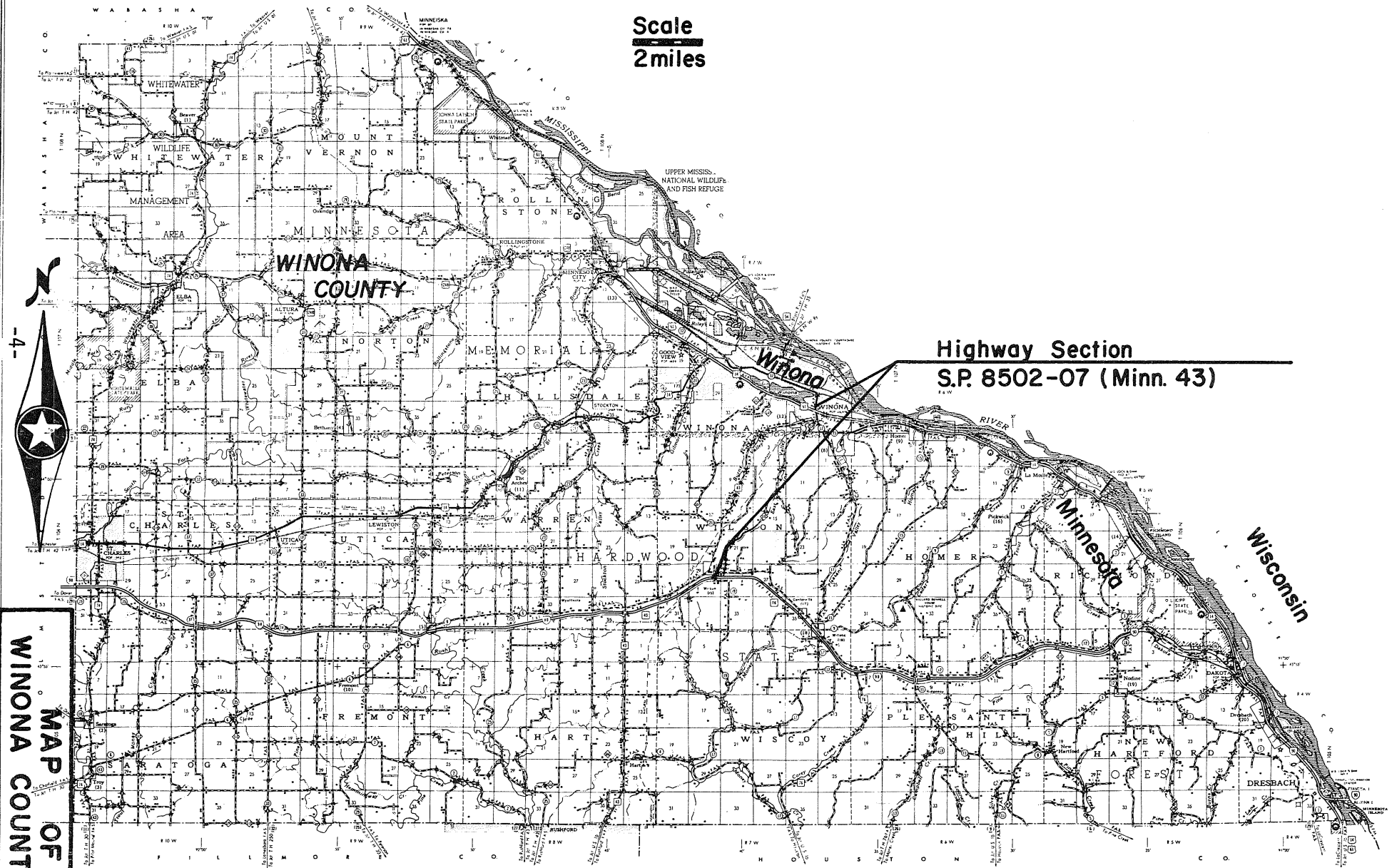
Scale
2 miles

Highway Section
S.P. 8502-07 (Minn. 43)

-4-

MAP OF
WINONA COUNTY

WINONA COUNTY





SCALE: 1" = 1 MILE

END S.P. 8502-07 (Minn. 43)

BEG S.P. 8502-07 (Minn. 43)

INDEX MAP

SUMMARY

Federal Highway Administration

Administrative Action Environmental Statement

(X) Draft () Final
() Section 4(f) Statement Attached

Additional information about this proposal and statement can be obtained from:

MHD District Engineer
Box 6177
Rochester, Minnesota 55901
Tel. 507-288-2661

FHWA Division Administrator
Suite 490
Metro Square Building
St. Paul, Minnesota 55101
Tel. 612-725-7001

Description

This action relates to proposed FHWA approval of use of Federal Aid Funds in the proposed 6.5 mile relocation of Minnesota Highway 43 (Minn. 43) from Interstate 90 (I-90) at Wilson to U.S. 61-14 in Winona. No improvements are anticipated on a short four-lane segment at I-90. This two-lane highway is being proposed for reconstruction as a four-lane expressway with controlled access and having access points at selected sites along the route.

Action required by other Federal Agencies:

Corps of Engineers - 404 Permits

Environmental Impacts

Beneficial environmental effects include improved safety, increased capacity and reduced travel time.

Detrimental impacts include acquisition of 75 acres of agricultural cropland, 55 acres of woodland, nine residences and three businesses. 6800 feet of channel change relocation is also a detrimental environmental impact.

Alternatives

The following four alternates were considered:

- Alternate 1 - West Burns Valley Route (Preferred Alternate)
- Alternate 2 - Middle Route
- Alternate 3 - East Burns Valley Route
- Alternate 4 - Do-Nothing

COMMENTS ON THIS DRAFT ENVIRONMENTAL IMPACT STATEMENT ARE BEING
REQUESTED FROM:

Council Environmental Quality
Department of Transportation

Department of the Interior

Department of Health, Education & Welfare

Corps of Engineers

Department of Agriculture

Advisory Council on Historic Preservation

U.S. Coast Guard

FRA (Federal Railroad Administration)

FAA (Federal Aviation Agency)

Department of Housing & Urban Development

Environmental Protection Agency

Minnesota Historical Society

State Planning Agency

Minnesota Department of Natural Resources

Minnesota Water Resources Board

Winona County Board of Commissioners

City of Winona

I. NEED FOR IMPROVEMENT

Studies of State Highway needs in recent years indicate that Minn. 43 should be improved to a modern, high capacity, multi-lane facility. These studies include:

- 1) "Interim Service Level Classification Study of 1966"
This study designated Minn. 43 as an expressway recognizing its function as a major and direct route of travel.
- 2) In 1972, the MHD "Backbone Concept Plan" for highway construction planning showed this highway as a first priority.
- 3) "1990 National Functional Classification Study" classified all of the nations public roads according to their type and character of service they should provide. Minn. 43 was designated as a Principal Arterial. This is the highest classification within the rural system and includes multi-lane freeways and expressways.

Condition Rating Survey

This needs study shows Minn. 43 having the following structural ratings in 1974:

Serviceability Rating	2.6
Structural Rating	2.0
Condition Rating	2.3

A condition rating of 2.8 or less points to a structural deficiency and reflects the need for improvement by taking into account the amount of traverse, longitudinal, and alligator cracking, as well as the rutting, patching, and rideability of the roadway.

Traffic Data

Traffic studies indicate the following average daily traffic two-way volumes:

	<u>Existing (1975)</u>	<u>Future (1997)</u>
Near Wilson	1,200	4,750
Near Jct. U.S. 61 in Winona	7,500	10,500

The total truck volumes are estimated at 9% to 11% of these above volumes. See Route Map, on page 38, for additional 1997 traffic volumes.

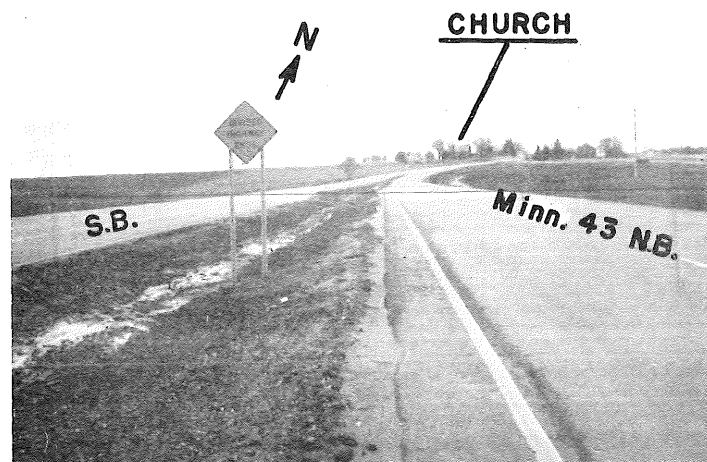
II. PROPOSED HIGHWAY ACTION

Location and Type of Facility

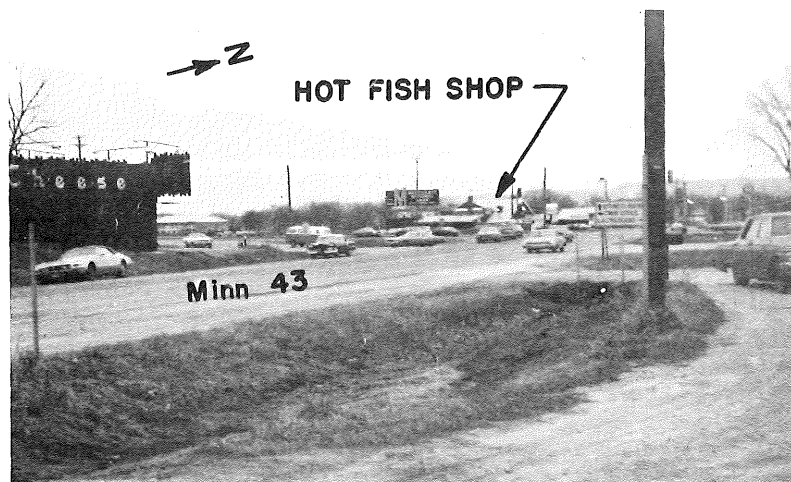
Minn. 43 traverses in a basic north and south direction bisecting Winona County. The 6.5 mile segment proposed for improvement begins near Interstate 90 near the community of Wilson and continues to U.S. 61-14 in the City of Winona (1970 population 26,438).

Existing Minn. 43 is a four-lane facility for 0.5 mile north of Interstate 90 and then narrows to a two-lane facility for the remainder of the highway section covered by this action. The two-lane facility has 11 foot wide traffic lanes, 6 to 8 foot wide aggregate shoulders with $1\frac{1}{2}$:1 maximum inslopes, and a spring load limit of 5 tons per axle. Minn. 43 was constructed prior to 1924.

Looking northerly from beginning of proposed improvement with church in background. See Location A on Index Map page 5.



Looking northerly towards junction of U.S. 61-14 in Winona where proposed improvement terminates.



The proposed action will provide a four-lane divided expressway with limited access control, 2-12 foot wide traffic lanes in each direction with 10 foot wide outside and 3 foot wide inside shoulders with 6:1 inslopes for safety. This facility serves as a western link from Interstate 90 and surrounding area to the City of Winona.

Right of Way

The existing right of way is generally 100 feet wide without access control. Some properties have access points which are no longer needed since operations have changed over the years. The proposed right of way will have a basic width of 284 feet with limited control of access. Turning lanes and cross-overs will provide at-grade intersections at all public roads. Access will also be provided to most existing private property along Minn. 43.

Improved Safety Features

Minn. 43 proposed design features include the following:

- increased capacity by two additional traffic lanes and reducing the "no passing zones" from its present 40% restriction.
- proposed design speeds of 70 m.p.h. on rural segment and 45 m.p.h. on the urban segment. Even though the posted speed limits of 55 m.p.h. on rural segment and 30 to 45 m.p.h. on the urban segment are below the design speeds, the higher design speeds provide an additional margin of safety and a higher level of service. Basically, the higher design speed has longer, flatter horizontal curves of three degree or less and longer vertical curves to provide better sight distance. Existing Minn. 43 has 2850 feet of horizontal curves over three degrees.
- proposed centerline separation varying from 84 feet in the rural area to 36 feet in the urban area near U.S. 61 in Winona.
- the wide 10 foot outside shoulders will be surfaced and provide a safe area for stopping vehicles which may be disabled.
- flat 6:1 shoulder inslopes with a 30 foot "clear zone" between the edge of rural traffic lane and the nearest obstacle (i.e., bridge railings, culverts, highway signs, etc.)
- guardrail will be provided where appropriate to protect highway users from obstacles which cannot reasonably be removed from the "clear zone".
- full approach roadway width provided across bridges.

Existing Minn. 43 would have the following undesirable items which would lack safety if not reconstructed:

- 11 foot wide traffic lanes with a level of service which would continue to decrease with anticipated future traffic volumes.
- 40% "no passing zones" with poor horizontal and vertical alignment.
- 6 to 8 foot wide shoulders with steep 1½:1 inslopes.
- 27 foot wide bridge over West Burns Valley Creek. See Location C on page 5.
- no 6:1 slopes for recovery areas.

Status

Planning for an improved Minn. 43 was initiated based on the various highway needs studies. A location public hearing (April 16, 1969) considered the corridor route locations. The Federal Highway Administration (FHWA) approved the alternate 1 (West Burns Valley Route) recommendation of the location study report. A design public hearing (July 1, 1970) considered design features and social, economic and environmental effects.

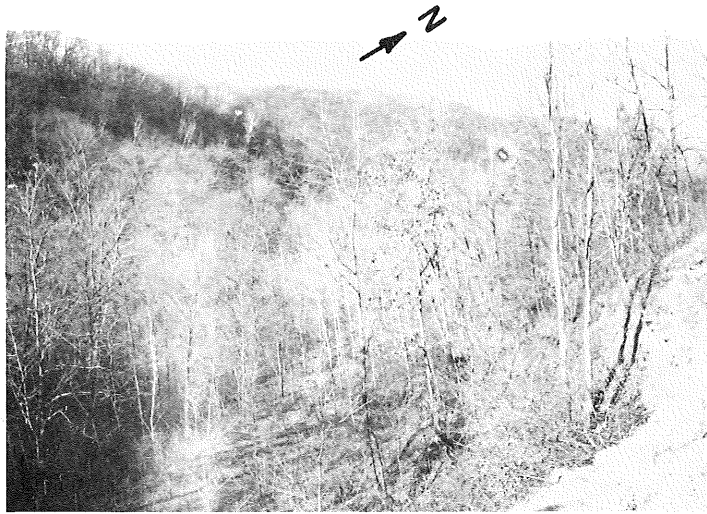
For planning purposes, the following steps will be pursued:

<u>Stage</u>	<u>Tentative Time Schedule</u>
Draft EIS	March 1976
Public Hearing	April 1976
Final EIS	July 1976
Design Study Report	August 1976
Final Plans	February 1977
Right of Way and Relocation Completed	April 1977
Grading Contract	April 22, 1977

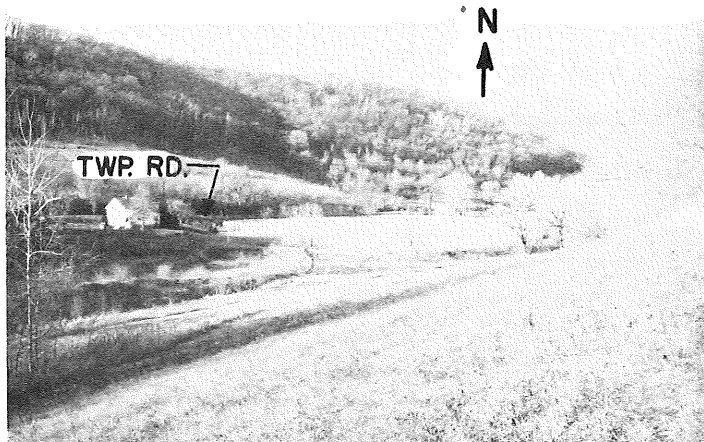
Surrounding Natural Features

The terrain is varied with rolling agricultural land for the southern third, steep sloped rock, and wooded bluffs for the middle third, and relatively flat agricultural, residential, and commercial land for the northern third. The following photos show some of these features.

Upper part of
West Burns Valley
near the quarry.
See Location B on
page 5.



Lower part of
West Burns Valley
near the bridge
location. See
Location C on
page 5.



Winona County lies near the southeastern corner of Minnesota, separated from Wisconsin by the Mississippi River. The major part of the county is a dissected plateau with deep, sharp valleys alternating with narrow, flat-topped ridges. The uplands of the western county lie within the glaciated region of the State, but the surface relief reveals only slight modification through glaciation. These uplands stand about 600 feet above the Mississippi River Valley and about 100 feet above the crests of the limestone bluffs.

Predominant geologic formations of Winona County in the vicinity of the City of Winona are of the Ordovician era. Oneota Dolomite measures approximately 180 feet in thickness, while the Jordan sandstone, which underlies the Oneota formation, measures about 95 feet in thickness. Formations underlying the Jordan sandstone which may be exposed in stream valleys and open cut faces are the Dolomitic St. Lawrence formation (about 55 feet thick), the sandstone Franconia formation (about 150 feet thick) and the sandstone Dresbach formation (about 530 feet thick).

The Minnesota Memorial Hardwood State Forest boundaries include Winona County, as well as parts of or all of Houston, Fillmore, Olmsted, Dakota, Dodge, Wabasha, and Goodhue Counties. See index map on page 3. There are no lands proposed for use in this action that are currently part of the Minnesota Memorial Hardwood State Forest or are known to be part of a definite plan for acquisition to the Minnesota Memorial Hardwood State Forest.

Presently, about 25% of Winona County is covered with forests of the hardwood variety. A much larger percentage previously was forest, but expansion of the urban areas and cropland encroachment has significantly reduced this percentage to 25%. Most of the remaining woodlands are on bottom lands or uplands which are not suitable for development.

Common forest species along the Mississippi River region are elm, ash, cottonwood, box-elder, green ash, and silver maple. The moist, rich alluvial lands along the lower reaches of the East Burns Valley and West Burns Valley Creeks contain willow trees.

The limestone slopes and the uplands contain red oak (60%), as well as a variety of hickory and other species. The other species include basswood and box-elder.

The relatively short transition between the bottomlands and uplands is dominated by red oak, green ash, and box-elder.

Immediately above the stream bottoms on the driest lands contain birch, white oak, burr oak, and red oak. Red oaks are the most dominate variety (60%).

The ridge tops contain red oak, birch, and shagbark hickory.

Sunny uplands have significant amounts of vegetative cover of sumac and aspen.

Thickets of blackberries are also present, mostly along township roads in the upper East Burns Valley Creek drainage area.

The wildlife found in any given area is determined by the variety and quality of habitat available within the area, and the areas location within the geographic range of a given species. Minnesota possesses a wide variety of wildlife because of the State's position in the transition belt between the forested regions of the east and the prairie complexes to the west.

In general, the Winona County area supports good populations of deer, grey squirrel and grey fox. Red fox, mink, raccoon and muskrat populations also exist at moderate population levels on habitat sites which are suitable for these species. The woodlands also support a fair number of ruffed grouse. Woodcocks and cottontails inhabit the field-forest fringe area. Habitat is poor for pheasant, beaver, jack rabbit and hungarian partridge, but representatives of the species occur in various areas.

Public Facilities and Services

The City of Winona has three four-year colleges (Winona State University, St. Mary's College, and College of St. Teresa). The community also has a Winona Area Vocational-Technical School which is structured around the needs of the area.

Twenty-two parks and playgrounds consisting of 1400 acres are located in Winona. In addition Levee Park adjacent to the Mississippi River for a distance of 1500 feet; Bluffside Park which comprises 1500 landscaped acres of picnic and outing facilities; Lake Park surrounding Lake Winona; Garvin Heights Park which towers 575 feet above the City and affords a ten mile view of the Mississippi River Valley; and Prairie Island on the river offering full camping and park facilities; round out Winona's parks and playgrounds.

Public utilities, police and fire protection and other emergency services will be provided at all times during the construction of the action.

Aesthetic View from Road

The scenic and natural resources of the Minn. 43 corridor are an asset to planning a new facility. The view from Minn. 43 varies from urbanized scenes of home clusters and commercial-industrial complexes to natural somewhat undeveloped valley scenes.

III. LAND USE PLANNING

Land use within the study area falls into three tiers which are definable through a geo-topographic distribution. They are: cash-crop agriculture on the level uplands, small farm-rural usage in the low lands and hillsides, and an urban structure within the City of Winona and its immediate environs. The following is a more detailed description of these tiers:

Rural

In general, the county economy is rural agricultural, somewhat supplemented by forestry and recreation. Communities within the rural sector are comparatively small and are primarily farm service centers. Within the major land portion of the county, agriculture, retail trade, and services are the dominant employers. Recently, a significant number of workers from the rural areas have begun commuting to Winona.

Farm size in this agricultural region varies widely with the majority of units falling within a range of 100 to 205 acres. Very few exceed the 205 acre size. Many of the farm units appear to be below marginal economic size, but cash-crop farming and livestock are still the primary source of farm income.

The land has good inherent fertility, but it is not quite as high as that of land farther west. The major economic activities on the farms of Winona uplands are cattle-raising (primarily dairy) and the raising of cash-crops like corn and soybeans.

Rural Valleys and Rough Land

Most parcels within the valleys still possess the physical characteristics of a farmstead, though farming is not presently being conducted. Small amounts of crops and livestock are raised, but farming is performed on such a small scale in the valleys that it indicates that farming is undertaken as a supplement to other sources of income. The majority of landholders in this area are employed in Winona.

Grazing takes place on the open land, including the stream banks, and within the woodlands where the slope is suitable for such usage. In areas unsuitable for grazing, the major activities are quarrying and logging. The quarrying is profitable business while the extraction of wood products is probably supplemental. Stumpage is or has been used by thirteen county producers; five in production of lumber, five in preparation of sawlogs for resale to lumber producers, while three producers are currently idle. Accurate information is not available concerning the markets for stumpage, but the majority of the stumpage does go to local mills. The primary species sought by the local producers are red oak, white oak, basswood and cottonwood.

City Environs

Winona (1970 population 26,438) is one of three regional centers serving southeastern Minnesota. These three cities (Winona, LaCrosse and Rochester) provide a full range of retail operations plus services, wholesaling and manufacturing. Winona's top ten employers in 1973 employed 4100 of the City's 4950 manufacturing employees. Total employment within Winona was approximately 12,750 in 1973.

The City of Winona has developed a City Plan, June 1972, extended to 1990; with a projected population level of 35,000. This particular objective carries with it several significant implications regarding the land use and economic structure of Winona:

- 1) A population increase of approximately 10,000. Most of this increase is expected through in-migration, the two major attractions being the City's three colleges and an expanding industrial base.
- 2) One hundred seventy additional housing units will be needed annually (assuming a constant increase over the twenty year planning period). Recent trends indicate that these units will require about 45 acres of land each year. Higher density development, of course, could reduce this figure. This is based on an estimated average of 2.9 persons per dwelling unit.
- 3) Four thousand new jobs must be created, either through expansion of present firms or the development of new industrial units. Assuming a normal employee/land ratio of 20/1 an additional 200 acres of industrial land will need to be utilized.

As is quite common in land use, one implication leads to another and there are some which may reflect directly upon the area's transportation system. There are two major sites that are planned as industrial parks. Frog Island and River Bend are shown on Route Map page 38. Each contains about 200 acres, and each is also serviceable by rail. Frog Island, however, is located along the Mississippi River and will cater to industries which transfer shipments to other transportation systems. River Bend, on the other hand, is located adjacent to Minn. 43 and U.S. 61 at the north end of the proposed project. River Bend Industrial Park is anticipated to handle firms which would rely on rail and/or highway transportation systems.

The City of Winona intends that the population increase strived for in the City Plan will reside within the City limits. This desire cannot be guaranteed. An Economic Analysis Report (1969) indicated that fifteen percent of the people employed in Winona did not reside within the City or the immediate adjoining townships. This is partly a result of surplus labor from the work force in the rural areas, and partly a result of the desire of some people for a rural atmosphere in their residency.

If employment opportunities increase in Winona, the number of commuters should increase. Whether the increase would vary percentage wise from the fifteen percent is uncertain.

Nearby suburban development will also put additional pressure on areas not directly influenced by the City Plan. Land within the City study area most likely to feel this pressure falls under jurisdiction of the County Zoning program. Both branches of Burns Creek are presently zoned R-2, a community residence district. This classification provides for low density housing in unincorporated areas or fringe areas where municipal utilities may become available. The upland area which lies between the two branches, as well as the remaining uplands in the study area is zoned A-2, a general agriculture district. This allows for the retention of general farming activities in suitable areas and regulates the encroachment of non-farm land uses. There are no special restrictions in the A-2 classification, but, while single family dwellings are allowable, subdivisions would not be permitted within the agricultural district.

IV. PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

Beneficial Environmental Effects

Beneficial environmental effects are as follow:

A. Improved Safety

The proposed improvement will replace an old two-lane highway and uncontrolled entrances with an expressway utilizing partial control of access. The highway will be constructed to modern expressway standards which are listed in Section II.

The three year average number of accidents per million vehicle miles is 3.3 for the above section of Minn. 43. The statewide accident rate is 3.0.

An expressway will reduce head-on and rear-end collisions because opposing lanes are separated and turning lanes allow traffic to decelerate off the through lane. Off the road and fixed object accidents will also be reduced because modern highways have a thirty foot clear zone beginning at the edge of the traffic lanes to any fixed objects (i.e., light and sign posts). The clear zone allows the driver, who strays from the traffic lane, time to regain control of his vehicle. Breakaway fixtures will reduce property damages and personal injuries.

B. Increased Capacity

Improved highway design will increase the capacity of this highway by having two full lanes in each direction, reducing cross-traffic conflicts, and providing turn lanes to allow vehicles to decelerate off the through lane. The existing highway does not have these features.

C. Reduced Travel Time

Travel time will be reduced 18%* for through motorists by avoiding numerous at-grade crossings and turning movements, on this section.

Detrimental impacts are as follows:

A. Loss of Agricultural Land

Acquisition of an estimated 75 acres of agricultural cropland will mean the loss of some farm income and production.

*Based on $8\frac{1}{2}$ minutes at an average speed of 45 m.p.h. on existing Minn. 43 as compared to 7 minutes at an average speed of 55 m.p.h. on the proposed $6\frac{1}{2}$ mile expressway. ($1\frac{1}{2} \div 8\frac{1}{2} = 18\%$) Based on data in "A Policy on Geometric Design of Rural Highways 1965".

B. Severance of Farm Land

Minn. 43 access will be provided to all local public roads. Continual liaison with local and area planning agencies assures compatibility with future area plans. Severed parcels without access frequently have value to adjacent farm operations.

C. Displacement of Occupied Buildings

The proposed action will necessitate relocating the occupants of nine residences, two of which are farm homes, as well as, three businesses. The occupants of three residences have been relocated. The six remaining residences are within three miles of Winona.

Other environmental effects are as follows:

A. Relocation Assistance

The proposed action will necessitate relocating nine families (twelve individuals) and three businesses. Three of the families have relocated. Of the nine, six are owner-occupants and three are tenants. All are white except one indian woman.

Incomes of the owner-occupants are estimated to be middle to upper middle. Only one owner-occupant family consist of more than two people, that being a couple with two school aged children. The others are older with no children living at home.

Incomes of the tenants are estimated to be middle to lower middle. All are couples with no more than one child.

Two owners and one tenant live in the two farm houses to be acquired. Three families live in rural residential neighborhoods. The remainder live in urban residential neighborhoods in the City of Winona. Winona is the primary shopping and social center for all who may be displaced.

A survey of available replacement housing in the Winona market area was conducted in April, 1975 and showed an abundance of available homes (over 100) of varying sizes and prices. The economic situation in Winona may in part explain the large number of available homes. From January, 1972 to January, 1975, employment has dropped from 12,619 to 11,790. Replacement housing should be available for those displaced by this proposed action.

A fair market price will be paid for acquired lands and buildings. Displacees will receive assistance in their search for safe, decent and sanitary housing. A displacee may be eligible for relocation payments involving moving costs, replacement housing and incidental expenses on real estate transfers. Negotiations

for property acquisition will commence as early as possible to allow maximum time for the displacees to find suitable housing. Three residences have already been acquired by the MHD as "hardships" at the request of the property owners.

The businesses to be displaced are a service station-garage and a dairy store. A portion of a quarry, including its office and maintenance building will also be acquired. The service station relies primarily on its repair business for its livelihood with gas sales being a sideline according to the owner. Adequate replacement facilities are expected to be available at the time of acquisition. The dairy store is located at the junction of highways 43 and 61, and is part of a business having more than one outlet. There are no buildings in the immediate area which could house this business, however, there is commercially zoned property within one block which is available and on which a replacement building could be constructed.

The quarry is one of several operated by a Rochester, Minnesota concern. The operation may be able to be reestablished on the remaining property.

There are no known Federal, State or community projects which will cause concurrent displacement with the subject project. Winona does have a downtown urban renewal project with relocation of nine families expected to be completed by February 1976. The reconstruction of Highway 61 through Minnesota City, a small town six miles northeast of Winona, will involve the displacement of twenty-one families with routine acquisition scheduled to begin in early 1976. Ten of these families have relocated.

The normal allowance of 120 days in which to vacate following acquisition should provide ample time to carry out an orderly and humane relocation program. If additional time is needed, present housing could be leased from the State for a short period after the established vacation date.

B. Air Impacts

The air quality impact of the proposed improvement has been analyzed. The proposed improvement is not anticipated to have significant air quality impacts and is not inconsistent with the approved State Implementation Plan. Prior consultation with the Minnesota Pollution Control Agency and the detail of the air quality analysis is considered to have been accomplished as documented in and by the Minnesota Pollution Control Agency/Minnesota Highway Department Memorandum of Understanding.

C. Noise Impacts

The future 1997 noise levels were predicted to be 70 decibels at a distance 105 feet from the proposed centerline. The present noise reading at this point is 68 decibels. A review of the action by the FHWA and MHD revealed no noise sensitive areas where predicted 1997 noise levels exceeded the applicable design noise levels along any part of the route for existing land use.

D. Natural, Ecological or Scenic Resources

The natural resources affected by this project are approximately 55 acres of woodlands, the land upon which the highway will be constructed. The most direct loss is the economic value of the amount of resource which may be lost to resource utilization from woodlands to highway construction.

E. Stream Modification

Highway Department criteria covering roadway construction and drainage systems is that the roadway should not materially change existing drainage and water quality levels. This is, of course, tempered somewhat in reality by the existence of other constraints which may be placed on the design of a highway.

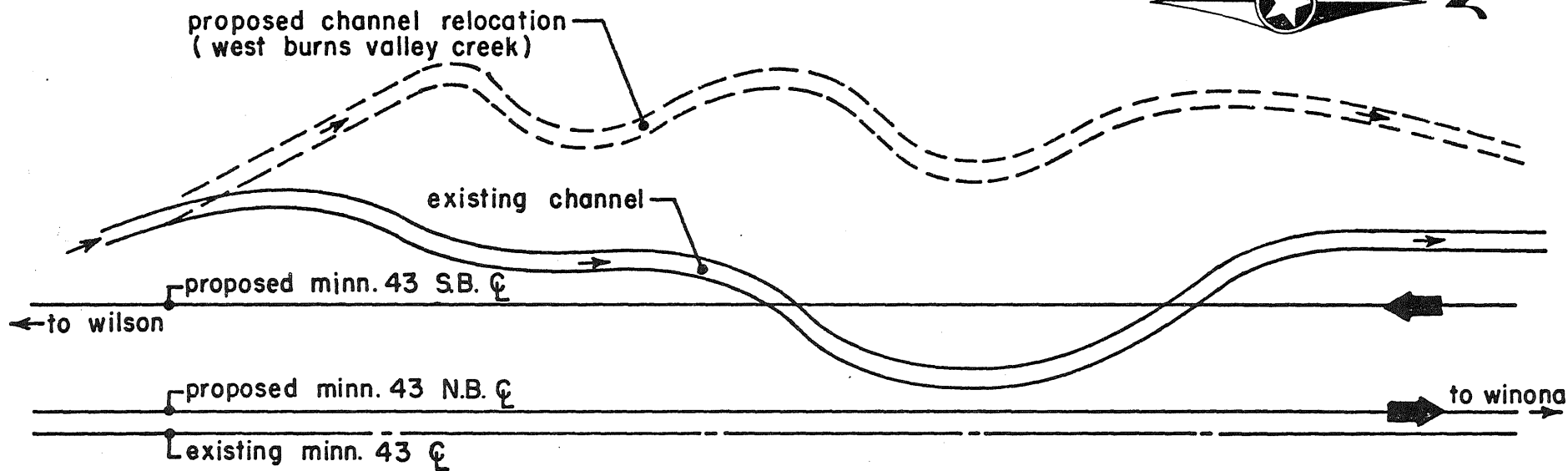
A channel relocation is proposed on West Burns Creek. The channel relocation is approximately 6800 feet long traversing from the West Burns Creek bridge to the quarry. No work will be performed within the in-place channel until the channel change section has been built and the stream diverted to the new channel. This will eliminate any equipment actually working in the streambed. Most of the channel change bottom will be on native rock as is the in-place channel bottom. Therefore, the erosion potential will be minimal.

The channel relocation will be performed prior to any roadway grading in the area of channel relocation. The water will be diverted to short segments of the new channel as they are completed. Excavated material will be used for embankment of the proposed roadways and for filling the existing channel. The type of material excavated will be mostly rock debris with approximately 48,000 yards of excavation being required for the channel excavation. The existing channel which is being relocated will be under highway embankment. See page 21a for typical channel relocation. No work will be performed on the existing channel which is not relocated.

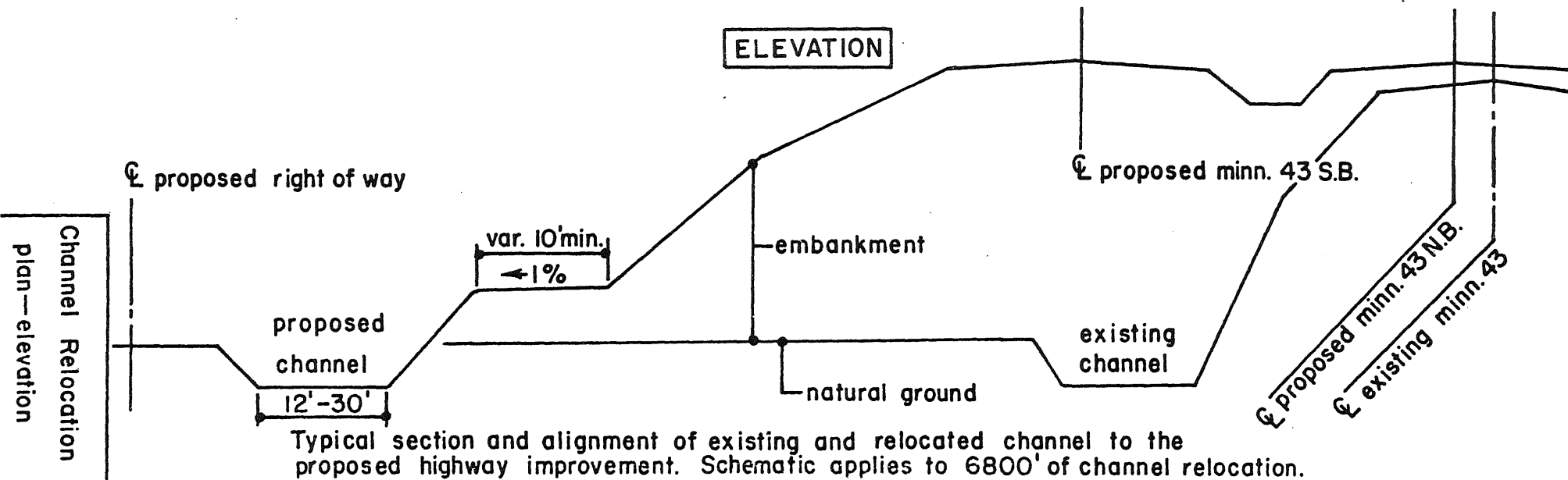
Measures taken to reduce siltation are described in the Standard Specifications for Highway Construction published by the Minnesota Highway Department. These specifications require that earthwork operations be separated from flowing streams by a dike or other barrier that will keep sediment from entering the flowing water. Care will be taken during construction and during removal of such barriers to minimize muddying of the stream.

TYPICAL CHANNEL RELOCATION

PLAN



ELEVATION



The type of habitat in the area of the channel relocation is box-elder, willow, cottonwood, and ash, suitable for wildlife such as deer, rabbit, fox and rodents. No wetland acreage will be involved in the channel relocation. The new channel will be meandered as much as possible to maintain the same channel gradient. The new channel will be seeded with grasses. Other vegetation should reestablish naturally.

F. Water Quality

Because of the intermittent nature of both branches of Burns Creek, the realignment and water quality facets of the highway project may be somewhat altered. Slope stabilization on roadway embankments will minimize increases in sediment load, which is the most common deterioration of water quality associated with highway projects. The intermittent nature of the streams will restrict occurrence of any problem to a short, seasonal duration during construction. After vegetation has been established on the roadway slopes, the sedimentation problem will cease.

G. Construction Impacts

During construction of the action, borrow areas will be needed for embankment material. Borrow sites shall be left in a neat and presentable condition. All borrow areas shall be returned to a condition suitable for previous land use.

As the potential for erosion is greatest during construction, the latest erosion control measures as established by the MHD will be used. Temporary erosion controls, such as berms, dikes, dams, sediment basins, fiber mats, netting, gravel mulches, grasses and slope drains to effectively prevent erosion shall be employed by the contractor.

H. Permits

In addition to local and state permits, the action will require a Corps of Engineers 404 Permit. This permit is required whenever fill material is placed in navigable waters or contiguous wetlands. With the construction of this action, fill material will be placed in West Burns Creek and the existing channel relocated outside the roadway embankment. See page 26 for a description of fish life in West Burns Creek.

I. Wildlife Habitat

There will also be a direct loss of wildlife habitat and a resultant decrease in the area's wildlife resource.

J. Snow and Ice Controls

The proposed project will increase the Minn. 43 lane mileage in the Burns Valley Watershed from 11 lane miles to 22.5 lane miles. Winter maintenance of this additional lane mileage could increase

the amount of deicing chemicals entering the waters of Burns Valley Creek, the East and West tributaries to the creek and the Mississippi River.

The Minnesota Highway Department uses sodium chloride (rock salt) almost exclusively as the chemical additive to the sand-chemical deicing mixture used in winter road maintenance. The chloride from the sodium chloride appears in the highway runoff and receiving streams and in large concentrations can be detrimental to the water users of the receiving streams.

The winter conditions and deicing application rates of 1974-75 were applied to the Burns Valley Watershed to provide an estimate of the increased chloride concentration in the receiving waters created by the proposed project. The estimated average annual concentration for existing and proposed conditions are as follows:

<u>Location</u>	<u>Estimated Chloride Concentration, mg/l</u>	
	Before Construction	After Construction
West Burns Valley Creek at Jct. of Minn. 43	11	22.5
West Burns Valley Creek at Jct. of East Burns Valley Creek	15	30.4
Burns Valley Creek at Jct. of C.S.A.H. 17	15	30.5

The above values are average values that would occur until May 1, when all of the salt would be dissipated. These average values will be exceeded periodically during actual conditions. Also, these values are based only on the Highway Department salt usage and does not reflect other possible salt sources.

The estimated chloride concentrations are well below the reported tolerable chloride concentration limits for fish, fish food organisms, industrial consumption, and human consumption. It is not expected that the periodic increases in chloride concentration in the waters adjacent to the proposed project will have a noticeable effect on the area's water users.

K. Weed and Brush Control

Presently, minimal spraying is performed along highway right of way. Generally only one spot spraying operation is done per year using 2-4-D for annual broad leave weeds and Tordan for Canada Thistle. Previously, 2-4-5-T has been used for brush control. The use of 2-4-5-T has been discontinued. The effects of intermittent spraying of spot locations is difficult to quantify however, it is anticipated that this limited spraying will have a minimal effect on the total ecosystem.

V. STEPS TAKEN TO MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS

Planners and designers have taken steps to minimize environmental degradation during project planning and such measures will continue during construction. Recommendations from Federal and State agencies as well as local governmental units have been and will be considered in planning and construction of this improvement. The contractor will be required to secure and comply with all permits and licenses necessary for the construction of this project.

Latest property ownership maps have been reviewed to determine the location of connecting roads and frontage roads to reduce the severance of property and circuitous travel.

The extent of the rock cut on the preferred West Burns route has been minimized by reducing the roadway separation in that area to 47 feet. Stability, erosion control, and establishment of vegetation are major concerns in the rock cuts.

Measures taken to reduce siltation are described in the Standard Specifications for Highway Construction published by the Minnesota Highway Department. These specifications require that whenever earthwork operations are located in or adjacent to flowing streams and rivers, such areas will be separated from the main stream by a dike or other barrier that will keep sediment from entering the flowing water. Care will be taken during construction and removal of such barriers to minimize muddying of the stream.

Noise, air, water and solid waste pollution will conform with Federal and State regulations and standards during and after construction of this proposed improvement. The Highway Department uses a number of methods to dispose of trees and brush. One of the following methods will be used on this project:

- The material obtained from the clearing and grubbing operation will be burned if burning permits can be obtained. State, County and local ordinances will be observed if burning permits can be obtained.
- If this is not possible, then the material will be buried on the project beyond the roadway construction limits.
- If there is insufficient room to bury the material and it cannot be burned, then the material will be hauled to a land fill for disposal.

Most construction debris (concrete, masonry and metals) can be buried in the fill. Lumber and other organic material will have to be disposed of in the same manner as the material obtained from the clearing and grubbing operation.

Exposed slopes steeper than 3 to 1 will be seeded with a special mixture consisting of legumes, grasses and sumac which will establish itself in stages. The first stage germinates in fourteen days, in four weeks some growth will be seen, and in two months there should be enough growth to stabilize the slope. The channel slopes will be seeded with a different seed mixture consisting of legumes and grasses. This mixture should germinate and stabilize the channel slopes in approximately the same time as stated above. Seeding operations will be performed as soon as possible after completion of earthwork operations.

Consultation with the Minnesota Historical Society revealed six archaeological sites in a 1975 study. A further study will be conducted for additional data during the completion of the detailed plan. If objects of archaeological or paleontological nature are discovered within the areas of construction, appropriate officials of the State Historical Society under established procedures will be contacted to preserve the discovered objects or record the desired data.

VI. ALTERNATIVES

Four alternate designs considered for Minn. 43 from Wilson to Winona were:

- Alt. 1 West Burns Valley Route (Preferred Route)
- Alt. 2 Middle Route
- Alt. 3 East Burns Valley Route
- Alt. 4 Do Nothing

Alternate 4 would continue to provide a low level of service of C to D, whereas the other three alternates would provide a level of service of A in the rural area and of B in the urban area. See Route Map on page 38 for orientation. The above alternates are under consideration and after the public hearing a specific alternate will be selected by the MHD.

A. West Burns Valley Route (Preferred Route)

1. Location: Proposed Minn. 43 follows the existing Minn. 43 alignment for most of its 6.5 miles. Near I-90 at Wilson, the proposed southbound and northbound roadways have a centerline separation of 84 feet for 2 miles. Then, a 47 foot centerline separation with a V-ditch is provided as Minn. 43 descends the West Burns Valley to the West Burns Valley Creek bridge. The centerline separation then widens to 84 feet until near Winona where it is 46 feet wide with a raised median. The undivided proposed four lane north of U.S. 61 on Mankato Avenue in Winona will have a 38 foot wide centerline separation.
2. Right of Way: Basic proposed right of way total width is 284 feet. Total right of way needs include 65 acres of existing Minn. 43 right of way and 135 acres of new right of way.
3. Environmental Impacts: Aspects of the environment along Minn. 43 include:
 - a. farm operations - Construction of Minn. 43 involves acquiring 75 acres of tillable farm land and 55 acres of woodland from 31 farms. Two of the farms, one about $\frac{1}{2}$ mile north of Wilson and one about $1\frac{1}{2}$ miles south of Winona, would have their homes acquired and are eligible for relocation assistance, as explained on pages 19-20.

Of the 75 acres of tillable land involved, 28 acres (37%) is located within $1\frac{1}{2}$ miles of Wilson. The average width of the new right of way is 155 feet in this area. The seven farms in this area vary from 40 acres to 155 acres. Therefore, the average farm of 100 acres would be reduced in size about four acres (4%). This impact in farm size and income is not expected to force changes in ownership

or type of operation. The farm, 1½ miles south of Winona, would have its size reduced from 382 acres to 368 acres (14 acres tillable and all its farm outbuildings). This also represents a 4% reduction in its size but with 368 acres remaining, it could continue to operate from a new cluster of outbuildings and house if the owner desires.

The 55 acres of woodlands are scattered throughout the project with about 30 acres (55%) near the West Burns Valley Creek where Minn. 43 descends the valley. Oak, ash and birch are the predominant species.

- b. land severance - By use of ownership maps during route location, land severance was held to a minimum. Of the 69 acres that would not have access to Minn. 43, 14 acres (20%) would have access by traveling an additional one mile or less on county or township roads. Ownership of the other 55 acres may change.
- c. displacement of urban properties - Two businesses, a cheese store and a gas station located south of U.S. 61, would be acquired with the five acres of residential and commercial land in Winona. The other business, an office and shop for the quarry operation, located mid-way on Minn. 43, is expected to relocate on adjacent properties. Relocation assistance will be provided to these businesses as well as the other individuals as explained on pages 19-20.
- d. channel realignment - As shown on the Route Map on page 38, 6800 feet of West Burns Valley Creek would be realigned as Minn. 43 descends the valley. The realignment will include meandering the channel and restoring it to its natural appearance and elevation. The upper limits of the existing creek flows at a very low level during some periods and is considered a dry run. The high rocky terrain on the east side of Minn. 43 and the close proximity of the existing West Burns Valley Creek on the west side in this area, control the channel realignment areas.

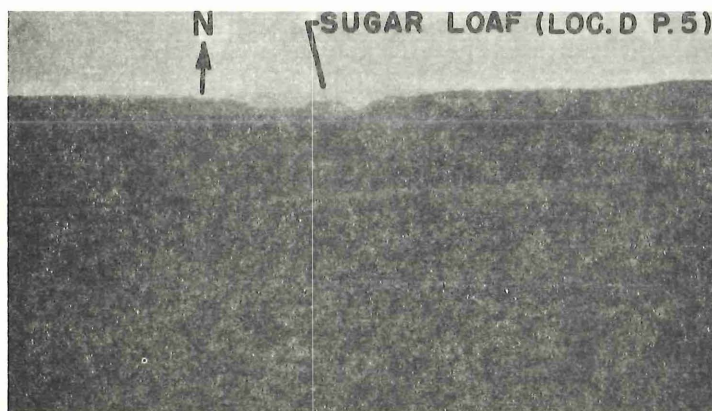
The type of fish life in West Burns Creek are minnows of the following species: white sucker, long nose dace, black nose dace, creek chub, brassy minnow, fat head and stone roller. Water cress is the common plant life found in this creek. Insect life in the creek includes fresh water shrimp, may fly and caddis fly. West Burns Creek is not a designated trout stream.

- e. wildlife habitat - The main species of wildlife in the area are deer, mink, fox, grouse, and squirrel. No threatened or endangered species are involved. The surrounding Minnesota Memorial Hardwood Forest as shown on page 3, will provide habitat to any wildlife that may be affected.

- f. community service - Improved Minn. 43 will reduce travel time by 18%* for such community services such as fire, mail, and school bus service, work, social and shopping trips. Two proposed residential developments adjacent to Minn. 43 and Glen View Road near Winona revised their plats to fit proposed Minn. 43, thus avoiding disruption.
- g. turnback of existing Minn. 43 - A 0.7 mile segment of existing Minn. 43, located about 3/4 mile south of Winona, will provide access to six houses. This frontage road will be turned back to local units of government upon completion of Minn. 43 construction. This turnback is less than alternate 2 (4.5 miles) and alternate 3 (5.2 miles).
- h. land use - See land use map on page 37 for details.

B. Middle Route

- 1. Location: This alternate is common with alternate 1 to about 1¼ miles north of Wilson as shown on the Route Map on page 38. It then leaves the existing Minn. 43 and veers northeasterly with a 84 foot centerline separation following the top of the bluff which is between the West and the East Burns Valleys. The route then descends the bluff along a ravine as shown in this picture in Wilson Township.



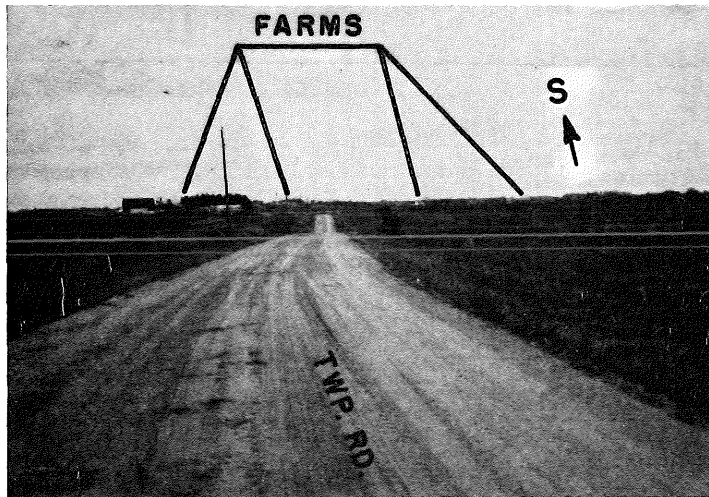
Looking northeasterly toward Winona on Alternate 2 and viewing the proposed wide median.

* See page 18 for computations.

The maximum centerline separation is 1000 feet in this area and then narrows to 84 feet wide near Glen View Road in Winona where it coincides with the alternate 1 urban alignment.

2. Right of Way: Total right of way width for the rural area varies from 284 feet to 1200 feet and requires 40 acres of existing Minn. 43 right of way and 280 acres of new right of way.
3. Environmental Impacts: Aspects of the environment along this alternate include:
 - a. farm operations - Construction on this alignment would require 175 acres of tillable farm land, 100 acres of woodland, and three farmsteads. The 11 farms involved vary in size from 40 acres to 300 acres. Therefore, the average farm of 150 acres would be reduced in size about 25 acres (6%). The alignment traverses diagonally through the Winona Sanitary Landfill and would reduce its size by ten acres. Virtually all of the woodlands are located in the wide 1000 foot centerline separation area as shown on the Route Map on page 38. Farm income would be reduced more than with alternate 1, since alternate 2 requires 100 (175-75=100) acres more of tillable land.
 - b. land severance - Seven farms would experience severance and require additional travel distance to farm their triangular shaped parcels. The usefulness of these parcels would be reduced due to the increased costs of travel and their irregular shapes. Forty acres would also be land-locked with no access.
 - c. displacement of urban properties - The cheese store, the gas station, and six residential homes would be relocated.
 - d. channel realignment - none is required.
 - e. wildlife habitat - Same species as alternate 1, but since this alternate requires 145 acres more right of way than alternate 1 (280-135=145); the wildlife habitat would experience a greater impact.
 - f. community service - Even though Minn. 43 would be 0.4 mile shorter than alternate 1, the fewer number of cross overs would cause more circuitous travel and inconvenience. Also, sanitary landfill vehicles would have a two mile long five percent gradeline to contend with.
 - g. turnback of existing Minn. 43 - A 4.5 mile segment of existing Minn. 43, located about 1½ miles north of Wilson to the Winona Corporate Limits would be turned back to local units of government to provide access to West Burns Valley residences.

- h. land use - The existing land use along the southerly three miles is farming as shown in the following photo:



Looking southerly on Alternate 2 from the top of the bluff.

Since about $4\frac{1}{2}$ miles of alternate 2 is on new alignment, changes in land use or ownerships may be accelerated. New developments generally follow the relocated traffic volumes. This would result in the "loss of privacy".

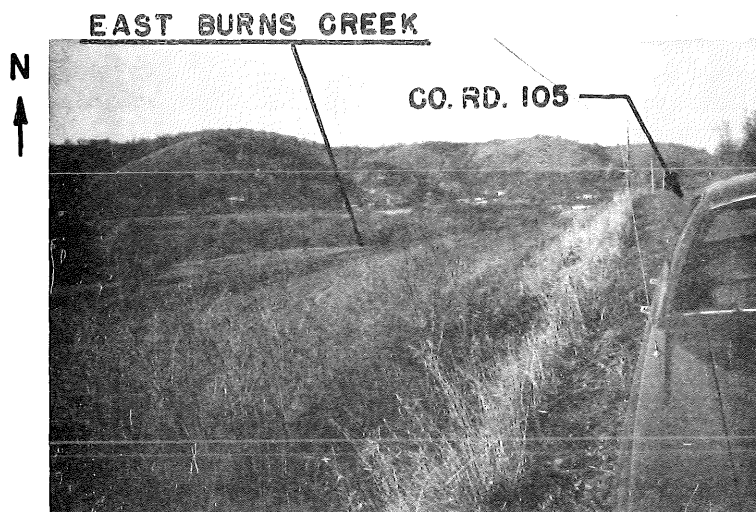
- i. comparisons to other alternates - see tabulated summary on page 33 for additional data.

C. East Burns Valley Route

1. Location: This alternate is common with alternate 1 to about $\frac{1}{2}$ mile north of Wilson as shown on the Route Map on page 38. The route then veers easterly through a scenic wooded ravine with steep slopes for two miles. The centerline separation is a basic 84 foot width for the entire rural segment. For the next three miles, the alignment continues in a northerly direction following a Wilson Township Road and Winona County Road 105 in the East Burns Valley. Near the urban area of Winona, alternates 1, 2 and 3 coincide with existing Minn. 43.
2. Right of Way: Total right of way width is a basic 284 feet except where the exposed rock face (see Route Map on page 38) requires a 500 foot width. Construction of alternate 3 would

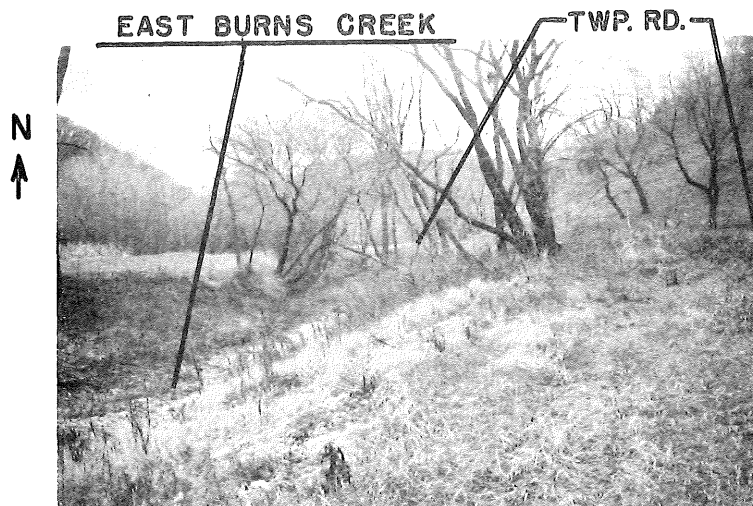
require 35 acres of existing Minn. 43 right of way and 205 acres of new right of way.

3. Environmental Impacts: Aspects of the environment along this alternate include:
 - a. farm operation - Construction on this alignment would require 145 acres of tillable farm land, 55 acres of woodland, and require 28 outbuildings from six farmsites. Ten farms vary in size from 60 acres to 400 acres with the average being 205 acres. Average farm size for alternate 1 is 100 acres and alternate 2 is 150 acres. On alternate 3, farms would be reduced in size an average of 20 acres (10%).
 - b. land severance - Due to the large farm sizes and access to existing local roads, land severance would be a very minimal, if any.
 - c. displacement of urban properties - Same number of urban businesses and homes as alternate 1.
 - d. channel realignment - Due to the close proximity of the East Burns Creek, 9500 feet of channel realignment would be undertaken as shown on the Route Map on page 38. Also, four bridges would be required to cross East Burns Creek where as alternates 1 and 2 required only two bridges. East Burns Creek is a designated trout stream.
 - e. wildlife habitat - Same as alternate 1 and results in 45 acres less of woodlands required than alternate 2.
 - f. community service - Minn. 43 would be 6.2 miles long as compared to 6.5 miles for alternates 1 and 4, and 6.1 miles for alternate 2. Community Services would be improved to residents of the East Burns Valley.
 - g. turnback of existing Minn. 43 - A 5.2 mile segment, or 80% ($5.2 \div 6.5$ miles), of existing Minn. 43 would be turned back to local units of government. Since 2.9 miles of existing Wilson Township Road and Winona County Road 105 would be obliterated, the net gain in road miles to local authorities would be 2.3 miles. This is 1.6 miles more ($2.3 - 0.7$ miles) of turnback than the preferred alternate 1.
 - h. land use - As shown on the Route Map on page 38 and land use map on page 37, alternate 3 for its southerly three miles is a wooded ravine with several smaller side ravines. The next three miles is suitable for farming since it is rather level and located in the valley. East Burns Valley is wider than West Burns Valley and is closer to Winona.



Looking towards Winona from Alternate 3.

Several residential homes have been constructed in this scenic and peaceful East Burns Valley. The scenic value includes wooded slopes, farmsites dotting the landscape, and the East Burns Creek. See the following picture.



Typical East Burns Valley scene, at the upper end of the valley.

D. Do-Nothing

This would involve retaining the existing two lane, undivided roadway without any improvement. Some minor improvements such as a resurfacing, truck climbing lane and wider shoulders would be expected at some future date.

This alternate is not considered appropriate because the roadway would be deficient in such things as surface width, shoulders and passing opportunities all of which restrict the capacity and safety of the roadway.

With truck traffic increasing due to the increased capacity of the grain terminals at Winona, the present roadway would be restricted to lower axle loads during the spring. Increased truck traffic would also mean more vehicles attempting to pass other vehicles on a road that has very poor sight distance. The level of service and running speed would continue to decrease with the projected 1997 traffic volumes.

TABULATED SUMMARY

1. West Burns Valley Route (Preferred Route)
2. Second Alternate (Middle Route)
3. East Burns Valley Route
4. Do Nothing Alternate

	<u>ALTERNATE</u>			
	1	2	3	4
Maximum S.B. & N.B. separation (feet)	84	1000	84	--
Total acres right of way required	200	320	240	65
Existing Minn. 43 right of way (acres)	65	40	35	65
Additional right of way (acres)	135	280	205	0
Tillable farm land (acres)	75	175	145	0
Wooded (acres)	55	100	55	0
Average farm size (acres)	100	150	205	100
Residential/Commercial land in Winona (acres)	5	5	5	0
Residences displaced	9*	6*	9*	0
Farmsites affected**	2	3	6	0
Unoccupied outbuildings (garage, sheds, etc.)	17	12	28	0
Businesses displaced	3	2	3	0
Minn. 43 length (miles)	6.5	6.1	6.2	6.5
Turnback of existing Minn. 43 (miles)	0.7	4.5	5.2	0
Local roads obliterated (miles)	0	0	2.9	0
Net gain to local authority (miles)	0.7	4.5	2.3	0
Channel realignment (feet)	6800	0	9500	0

* Three residences have been purchased.

** Included in "residences displaced" and "unoccupied outbuildings" tabulations.

Alternate 1 requires less right of way and results in less miles of turn-back of existing Minn. 43 when compared to alternate 2 and 3.

Project Costs

Estimated project costs are tabulated below. Construction costs were estimated on a per mile basis using data developed from contour maps, profiles, cross sections, etc. Right of way costs were estimated on an acreage basis from costs of right of way in similar terrain in southeastern Minnesota.

		<u>ALTERNATE</u>	
	1	2	3
Construction Cost	\$10,460,000	\$9,800,000	\$10,700,000
Right of Way	<u>615,000</u>	<u>605,000</u>	<u>660,000</u>
Total Initial Cost	\$11,075,000	\$10,405,000	\$11,360,000

VII. PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Adverse environmental effects which cannot be avoided or abated to acceptable levels:

Removal of trees in wooded areas and loss of wildlife habitat.

Effects minimized by corrective measures:

- 1) Displacement of people
- 2) Acquisition of buildings
- 3) Acquisition of farm and developed land
- 4) Obliteration of a used portion of a quarry
- 5) Exposure of rock faces
- 6) Channel relocations
- 7) Borrow material locations

VIII. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF ENVIRONMENT AND LONG-TERM PRODUCTIVITY

The highway improvement should produce long-term productivity (gains) as follows:

- Provide an improved transportation facility (Minn. 43) from I-90 to Winona consistent with the long range systems planning.
- Reduces existing highway congestion and lessen the potential future traffic congestion and accident potential.
- Remove heavy concentration of highway traffic in the urban area with a four-lane facility.

Environmental losses that will be realized as a result of this improvement are:

Short term: Relocating families, of which three have been already relocated.

Construction of a lengthy channel change and exposure of a rock face, both of which have potential for erosion. This erosion potential should be short lived because of use of special erosion control measures during and after construction.

Long term: Conversion of existing agricultural land to highway right of way.

IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Land that will be converted from existing uses (residential-farmland-forest) to highway use will be a commitment of a resource. This commitment is potentially irreversible but there does remain the possibility of being retrievable if the highway should ever be abandoned.

The trees lost during construction, wildlife habitat, labor, fuels and materials expended for the construction are irreversible and irretrievable commitments of resources.

The highway will not provide access to currently non-accessible areas and therefore, should not promote extensive development of adjacent lands.

X. IMPACT ON PROPERTIES AND SITES OF HISTORIC AND CULTURAL SIGNIFICANCE

A preliminary review of the proposed project indicates that there are no properties included in or eligible for inclusion in the National Register of Historic Places. Appropriate information has been submitted to the State Historic Preservation Officer for further review.

The findings of the State Historic Preservation Officer will be documented in the Final Environmental Impact Statement for this improvement.

If the State Historic Preservation Officer in consultation with the Federal Highway Administration finds that this improvement will have an effect on any historic sites, the Environmental Impact Statement will be revised accordingly.

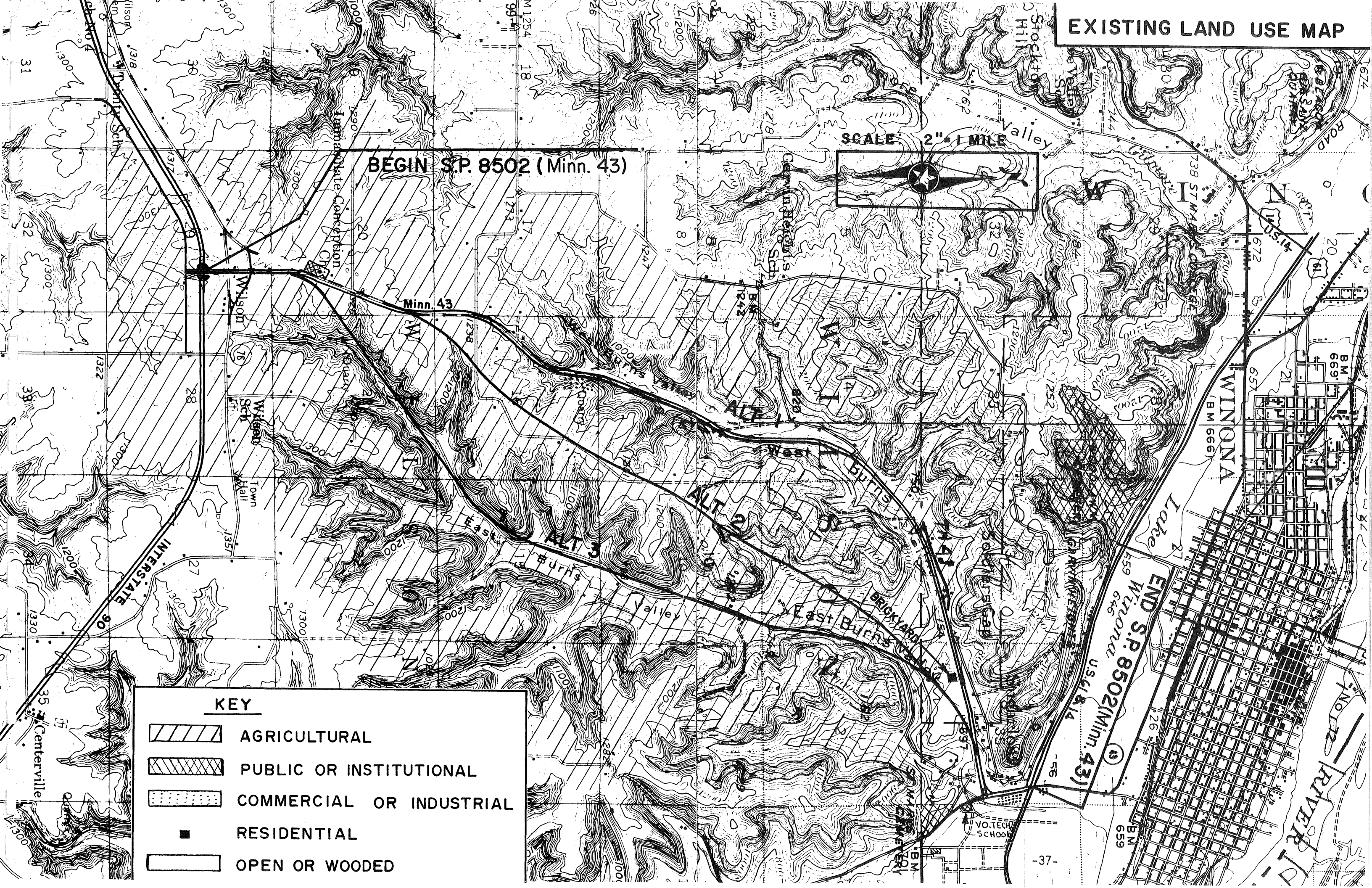
XI. COMMENTS AND COORDINATION

During the corridor and design studies, a number of comments or objections to the Minn. 43 improvement were called to the attention of the Minnesota Highway Department. Individuals and governmental bodies split their support between all the alternate routes with Alternates 1 and 3 receiving more support than Alternate 2. The City of Winona favored Alternate 1 while the County of Winona, Wilson Township and Winona Township favored Alternate 3.

List of References

- 1) "City of Winona, Land Use Plan", City Planning Office, June, 1972.
- 2) "City of Winona, Transportation Plan", City Planning Office, 1972.
- 3) "Economic Base and Population Study for Winona County", Nason, Wehrman, Knight and Chapman, Inc., July, 1968.
- 4) "Winona County Atlas", Title Atlas Company, Inc., Minneapolis, Minnesota, 1973.
- 5) "Winona County Zoning Ordinance", Nason, Wehrman, Knight and Chapman, Inc., Undated.

EXISTING LAND USE MAP

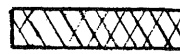
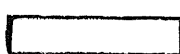


BEGIN S.P. 8502 (Minn. 43)

SCALE 2" = 1 MILE



KEY

-  AGRICULTURAL
-  PUBLIC OR INSTITUTIONAL
-  COMMERCIAL OR INDUSTRIAL
-  RESIDENTIAL
-  OPEN OR WOODED

legend — Proposed Land Use - Development Guide

County Zoning*

A-1: Limited Agriculture - Forest Conservation District

A-2: General Agriculture District

R-1: Residential - Recreational District

R-2: Community Residence District

Winona City Plan



- Commercial



- Industrial



- Educational



- Open Space - Public Recreational



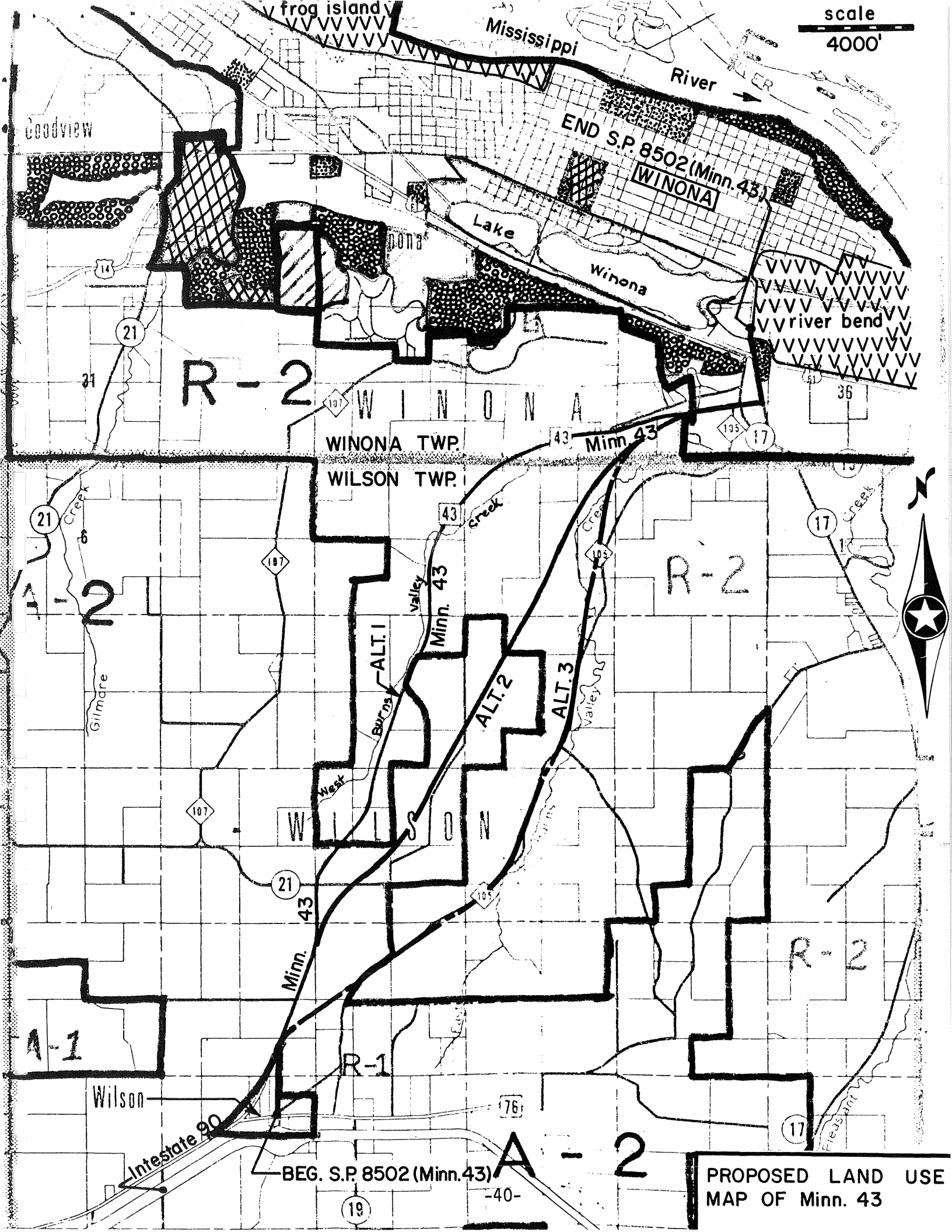
- Protected Lands



- Residential (All densities)

* Appendix includes definition of purpose for county zoning classifications.

scale
4000'



BEG. S.P. 8502 (Minn. 43)

PROPOSED LAND USE
MAP OF Minn. 43

APPENDIX

A. Definition of Purpose: County Zoning Program

A-1: Limited Agriculture - Forest Conservation District.

This classification is intended to allow agricultural activities in relation to topographic and physiographic characteristics in suitable areas, while retaining the substantial stands of natural forest reserves throughout Winona County which form unique scenic attractions for residents and tourists. It is the purpose of this District to: (1) encourage a productive use of land as well as ensure the proper cycling and protect the natural features of existing forest reserves from uncoordinated and poorly planned development of any nature, (2) prevent scattered non-farm growth, and (3) secure economy in governmental expenditures for public services, utilities and schools.

A-2: General Agriculture District.

This classification provides for a district allowing suitable areas of Winona County to be retained for general farming activities including cash crop products and animal husbandry; to regulate the encroachment on agricultural land by non-farm land uses; and to secure economy in governmental expenditures for public services, utilities and schools.

R-1: Residential Recreational District.

This classification is intended to provide suitable areas for the orderly and aesthetic development of residences along the shores of streams and rivers, and in natural environment areas, which will retain the physical features of the shoreland and natural areas, and which will prevent the encroachment of incompatible agricultural, commercial or industrial land uses.

R-2: Community Residence District.

The Community Residence District is intended to recognize and encourage low density residential development in unincorporated communities and in areas adjacent to urban development where municipal utilities are, or may become, available, and where such development relates substantially to the development pattern set forth in the Comprehensive Plan for Winona County.