FHWA-IOWA-EIS-77-03-D

EXTENSION OF INTERSTATE 380

FROM: JUNCTION OF INTERSTATE 380, FREEWAY 520
AND U.S. 218 IN WATERLOO, IOWA

TO: JUNCTION OF FREEWAY 518 AND U.S. 20
IN CEDAR FALLS, IOWA

BLACK HAWK COUNTY

ADMINISTRATIVE ACTION

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

AND

IOWA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

SUBMITTED PURSUANT TO 42 U.S.C. 4332 (2)(c), 23 U.S.C. 128 (a),
49 U.S.C. 1653 (f) AND 16 U.S.C. 470 (f)

APRIL, 1977

Technical studies used in the preparation of this report
and appendices were developed by the firm of

BRICE, PETRIDES & ASSOCIATES, INC.

FHWA-IOWA-EIS-77-03-D
Federal Highway Administration
Region 7

EXTENSION OF INTERSTATE 380

From: Junction of Interstate 380, Freeway 520 and U.S. 218 in Waterloo, Iowa

To: Junction of Freeway 518 and U.S. 20 in Cedar Falls, Iowa

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Submitted pursuant to 42 U.S.C. 4332 (2)(C)
23 U.S.C. 128 (a), 49 U.S.C. 1653 (f) and
16 U.S.C. 470 (f)

4/7/77
DATE

FOR THE DIVISION ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION

SUMMARY

Federal Highway Administration

Administrative Action

Environmental Statement

(X) Draft

( ) Final

( ) Section 4(f) Statement
Attached

Additional information regarding this statement can be obtained from:

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Description of Action

This project pertains to the construction of a six-lane interstate highway facility beginning at the junction of proposed Freeway 520 and U.S. Highway 218 in the southeast portion of Waterloo, and proceeding northwesterly approximately 7.7 miles to the junction of U.S. Highway 20 and proposed Freeway 518 in the vicinity of the Waterloo Metropolitan Airport. The project is located within the Waterloo-Cedar Falls metropolitan area in Black Hawk County, State of Iowa.

Actions Required by Other Federal Agencies

- U.S. Army Corps of Engineers (404 Permit)

  (Refer to Appendix "D" for Inventory for Environmental Assessment relative to 404 permit.)

Summary of Environmental Impacts

Major environmental impacts from the project will include the relocation of people and businesses and the acquisition of properties for right-of-way. All of the alternatives will require urban developed and undeveloped land, and some alternatives will require land from publicly-owned parks. Each alternative will include crossings of the Cedar River floodplain. Construction of this project will result in loss of vegetation, wildlife and wildlife habitat, and change the visual aspects of portions of the corridor. Noise and air quality would deteriorate in areas near the proposed alternatives, while improving somewhat in other areas. During the construction phase, noise, air pollution, deterioration of surface water quality, street closures and utility disruptions will temporarily be experienced.

Benefits of the project would include reduced traffic congestion on many streets; reduction in traffic fatalities and injuries through safer transportation; savings in travel time, fuel and the cost of operating vehicles and improved accessibility throughout the metropolitan area. Provisions for a lake-based recreation area may also be included in conjunction with this project.

Summary of Major Alternatives

Six alternatives for the I-380 extension have been considered. Alternative A proceeds generally along the existing Chicago, Rock Island and Pacific Railroad right-of-way through Waterloo and Cedar Falls, and considers the railroad to be relocated. Alternative B is similar in alignment to Alternative A, although the railroad remains in place and will generally be located in the median of the proposed I-380 Alternative B. Alternative C(RRX) follows Alternative A from the southerly terminus to near proposed Hackett Road Bypass, then curves northerly across the Cedar River and then west along U.S. Highway 20. Alternative C(RR) is similar to the above, except that the railroad remains in place as in Alternative B. Alternative D(RRX) follows Alternative A from the southerly terminus to west of Ansborough Avenue, then curves north across the Cedar River and then west along U.S. Highway 20. Alternative D(RR) is similar to the above, except that the railroad remains in place as in Alternative B.

In addition to the six I-380 alternatives, two alternatives which exclude the I-380 extension have been considered. These include "Widening of Existing Streets" and "Do Nothing".

List of All Entities Solicited for Comment

Federal Agencies:

Department of Housing and Urban Development
Department of Agriculture
Department of Interior
Department of Health, Education and Welfare
Environmental Protection Agency
Army Corps of Engineers
Federal Aviation Administration
Federal Railroad Administration
Urban Mass Transportation Administration

State Agencies:

Iowa Development Commission
Iowa Department of Soil Commission
Iowa Conservation Commission
Iowa Natural Resources Council
Iowa Department of Environmental Quality
Iowa State Historical Society
State Historic Preservation Officer
Office of State Archaeologist
Iowa Department of Agriculture

Local Agencies:

Black Hawk County Board of Supervisors
Iowa Northland Regional Council of Governments
Mayor of Waterloo
Mayor of Cedar Falls
Mayor of Evansdale
Black Hawk County Conservation Board
Waterloo Board of Park Commissioners

Others:

Iowa Public Interest Research Group (I.P.I.R.G.)
Citizens for Parks and Open Spaces (C.P.O.S.)
Iowa Confederation of Environmental Organizations (I.C.E.O.)

NEED FOR PROJECT

The cities of Waterloo and Cedar Falls are located in the northeast section of the State of Iowa, as shown in Figures 1a, 1b, and 1c. Historically, the need for an improved transportation facility between the cities of Waterloo and Cedar Falls was investigated and established by the following documents and steps:

A. The Automotive Safety Foundation completed a State-wide traffic analysis in 1958 which led to the adoption of a State-wide Freeway-Expressway Plan. This plan identified the need for a freeway facility in the Waterloo metropolitan area in a corridor approximating the one currently being evaluated for the I-380 Extension.

B. The Metropolitan Planning Commission of Black Hawk County was established in 1963 to, among other things, initiate the areawide transportation study mandated by the Federal-Aid Highway Act of 1961. (The name of the aforementioned planning agency was later changed to the Iowa Northland Regional Council of Governments.)

C. An areawide metropolitan transportation plan was completed and adopted by the Metropolitan Planning Commission and the Transportation Policy Board in 1968, entitled the Waterloo Metropolitan Area Transportation Study, Final Report, Alan M. Voorhees & Associates, Inc., 1968.

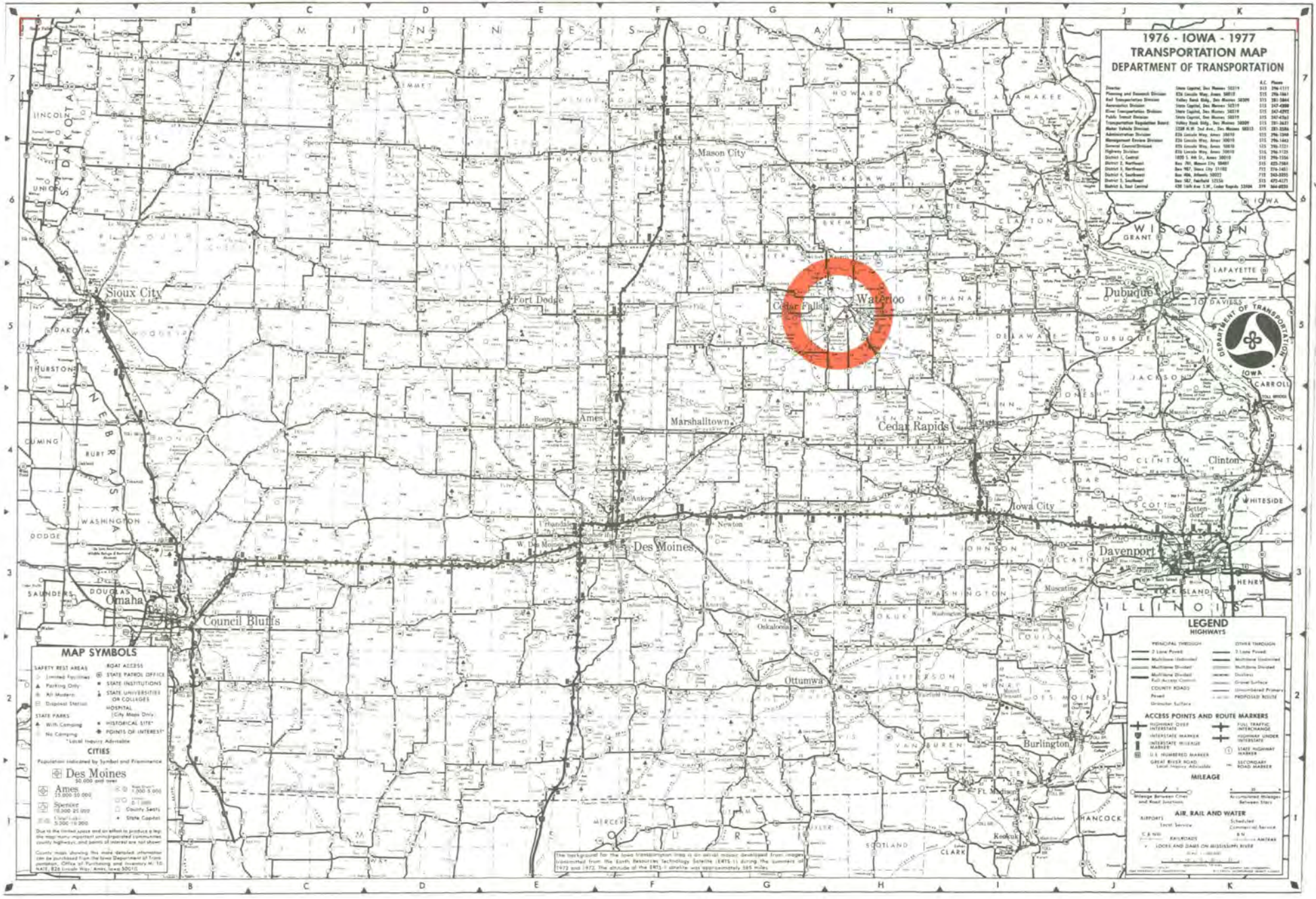


Fig. 1a. Location of Waterloo-Cedar Falls Area.

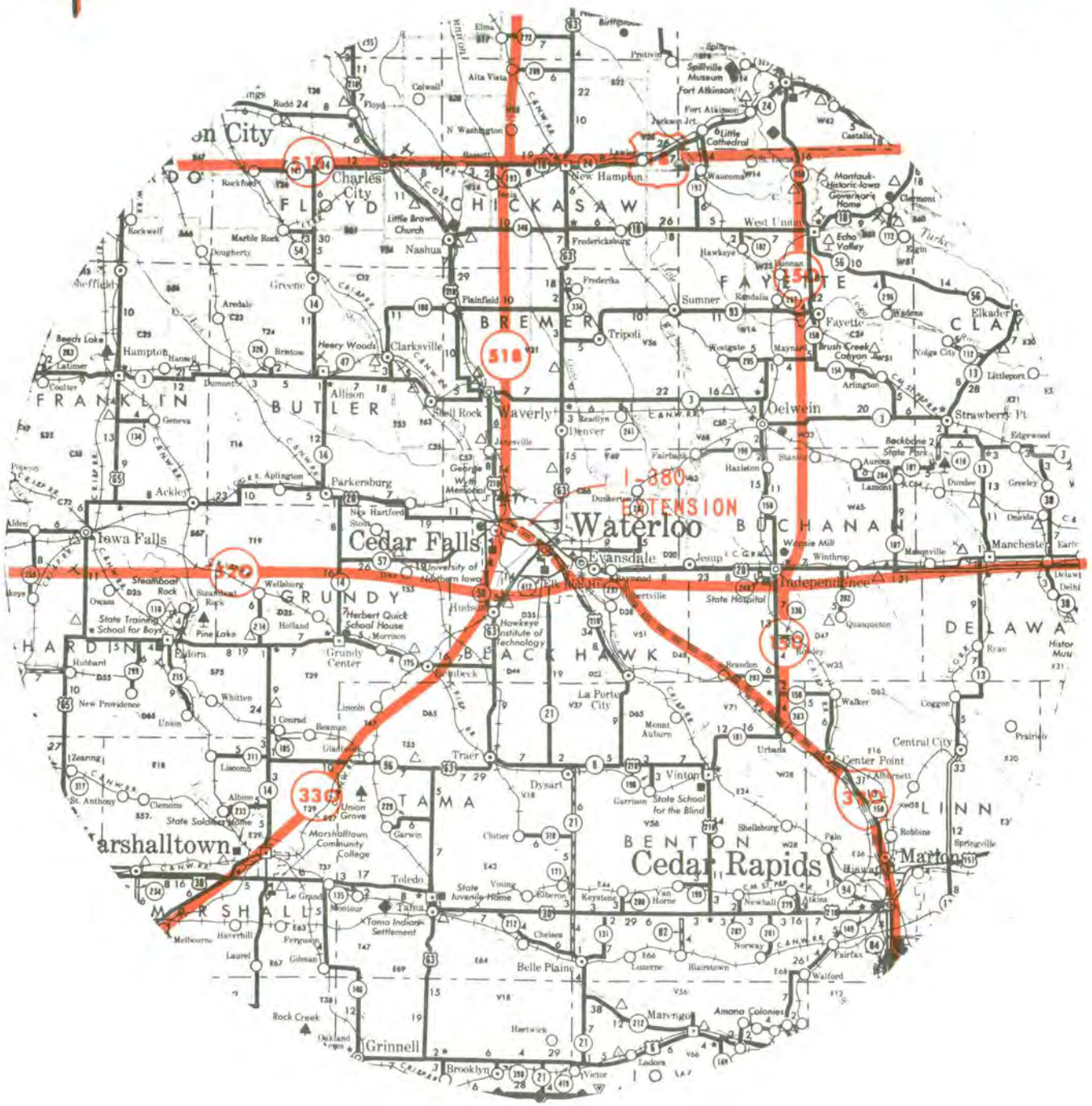


Fig. 1b. Location of I-380 Extension and Linkage To Other Highways and Freeways.

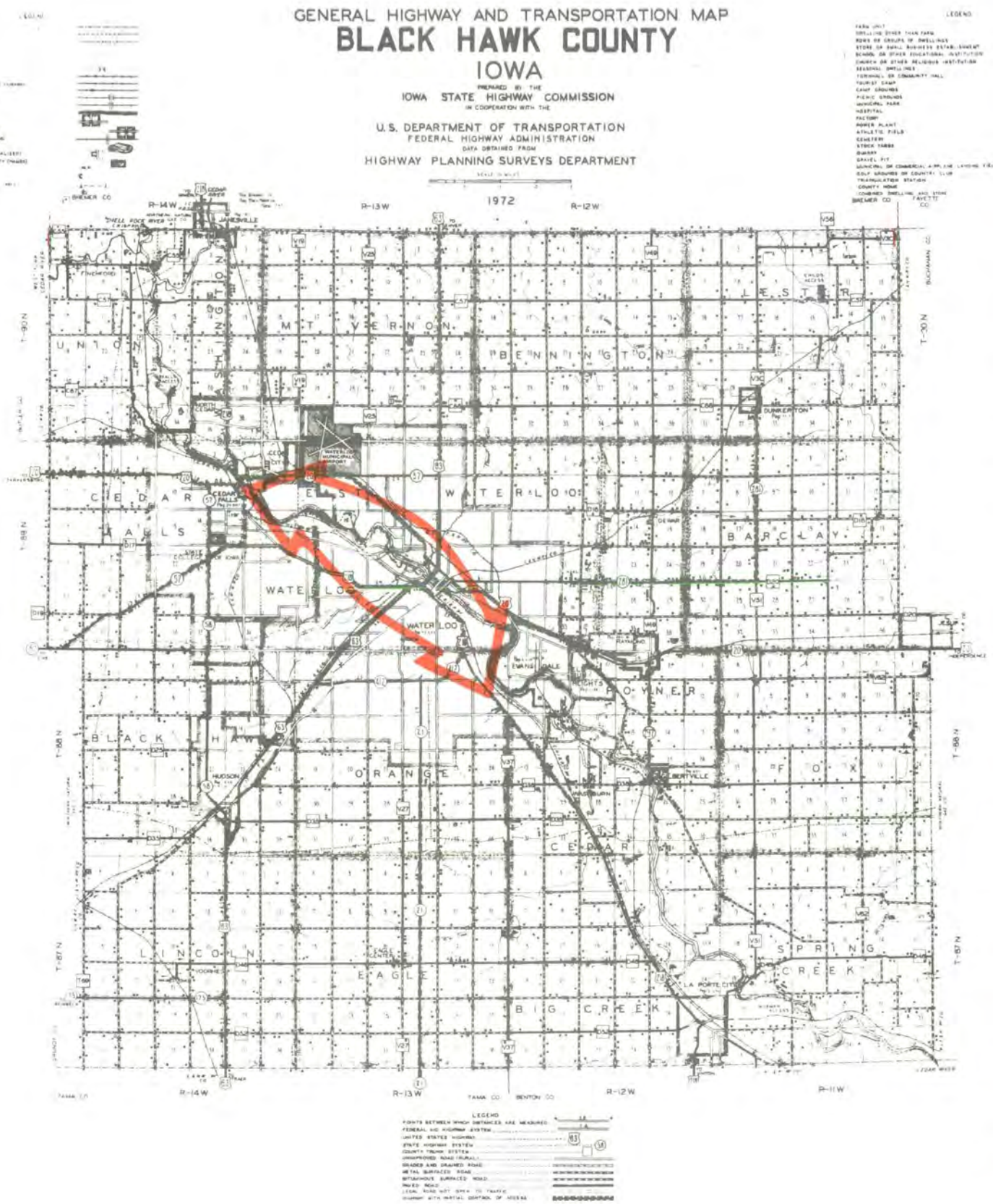


Fig. 1c. Location of Project Corridor Within Black Hawk County.

1. The report used data from three other studies:

   a. Origin and Destination Study, 1964 -- established travel patterns.

   b. Street and Highway Inventory, December, 1964 -- listed surface width, length, direction of travel, number of lanes, average speed and other characteristics of existing streets.

   c. Existing Transit Usage -- analyzed the usage of existing public transportation system, including public busses, school passengers and factory workers (car pooling).

2. The report estimated future land development patterns, prepared a traffic model for forecasting future traffic, and forecasted traffic and parking for various alternative plans.

3. Three highway alternatives, in addition to testing the existing and committed street system, were analyzed and evaluated.

4. The adopted and approved plan recommended a triangular freeway network connecting Waterloo, Cedar Falls and Evansdale and a supporting arterial system to tie together the freeway network and solve the transportation needs of 1990 (see Figure 2). The I-380 Extension is the northern segment of the triangular network. The following maps from the Waterloo Metropolitan Area Transportation Study show graphic representation of need:

   a. In Figure 3, thick dark lines indicate projected 1990 traffic volumes for the existing and committed street system. Widths of lines indicate amount of traffic in a certain direction.

   b. In Figure 4, thick dark lines indicate the 1990 travel desire lines.

D. Based on the findings of this plan, the cities of Waterloo and Cedar Falls and the Waterloo Urban Renewal Board initiated, in 1968, a preliminary design for the "Waterloo-Cedar Falls Freeway". Present route

location procedures were not used in the resulting report, the "Waterloo-Cedar Falls Freeway Preliminary Design", February, 1969, Brice, Petrides & Associates, Inc., Engineers, Waterloo, Iowa. The freeway route in the aforementioned preliminary design approximately corresponds to Alternate A of the current report.

E. As provided in the Federal-Aid Highway Act of 1961, a continuing, coordinating, comprehensive planning process was initiated which provides for an annual assessment of the transportation plan. Minor amendments to the 1968 plan were adopted in 1974 and 1975.

Updated land development, economic information, and transit usage were incorporated in the plan:

1. Latest land use plan, (see "Land Use Planning" for Land Use Map).
2. Two reports on transit usage by the Iowa Northland Regional Council of Governments:

   a. Waterloo Metropolitan Area Transit Development Program, 1976-1980.

   b. Regional Transit Development Program, 1977-1981.

   Both of these studies have been aimed primarily at the establishment of a short-term (5-year) improvement program. Input from these studies was provided in the updating of the Transportation Plan. Public transit usage amounted to 1.6% of average daily person trips in 1964. This figure declined to 0.8% in 1972 and 1973, and has since been stable.

3. Accuracy of the currently used transportation model was checked (by screen line counts) and calibrated. This means that the current traffic volumes predicted by the model were actually measured in various control sections of the cities and predicted volumes corresponded to actual traffic counts.

F. The Federal Highway Act of 1968 (Section 14 of Public Law 90-495, Section 103d of Title 23) increased the Interstate mileage and included a segment from I-80 near Iowa City north through Cedar Rapids to Waterloo. On

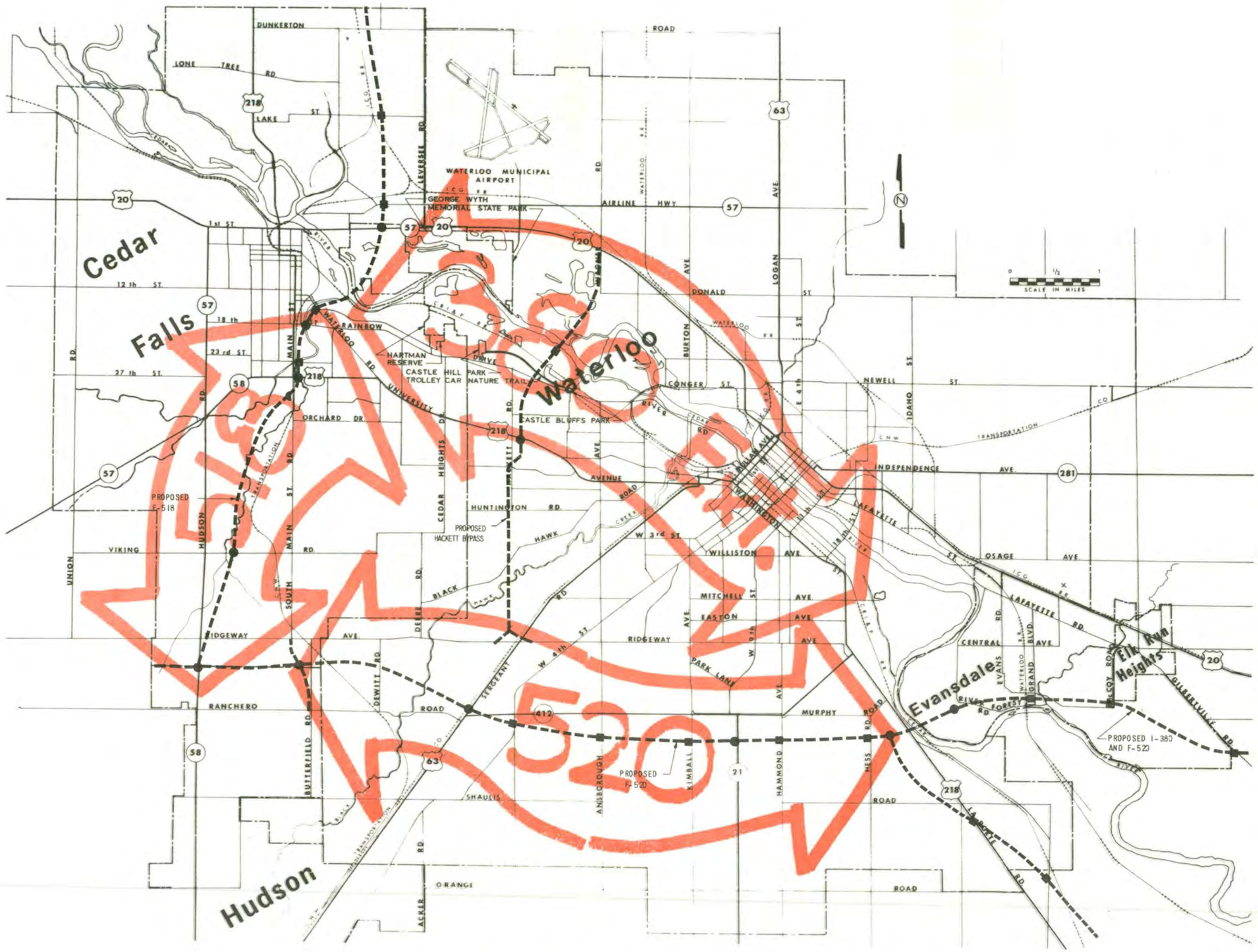
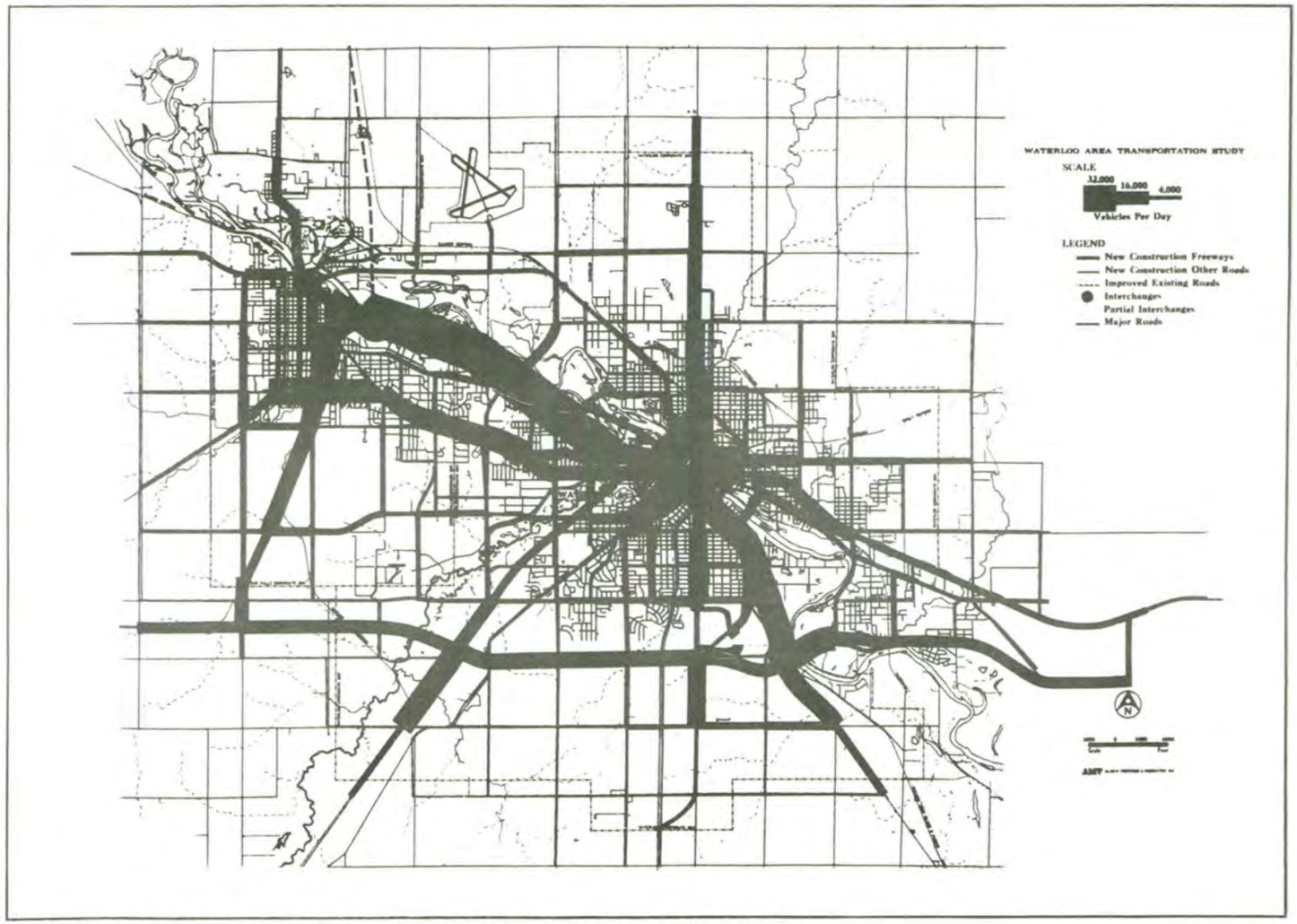
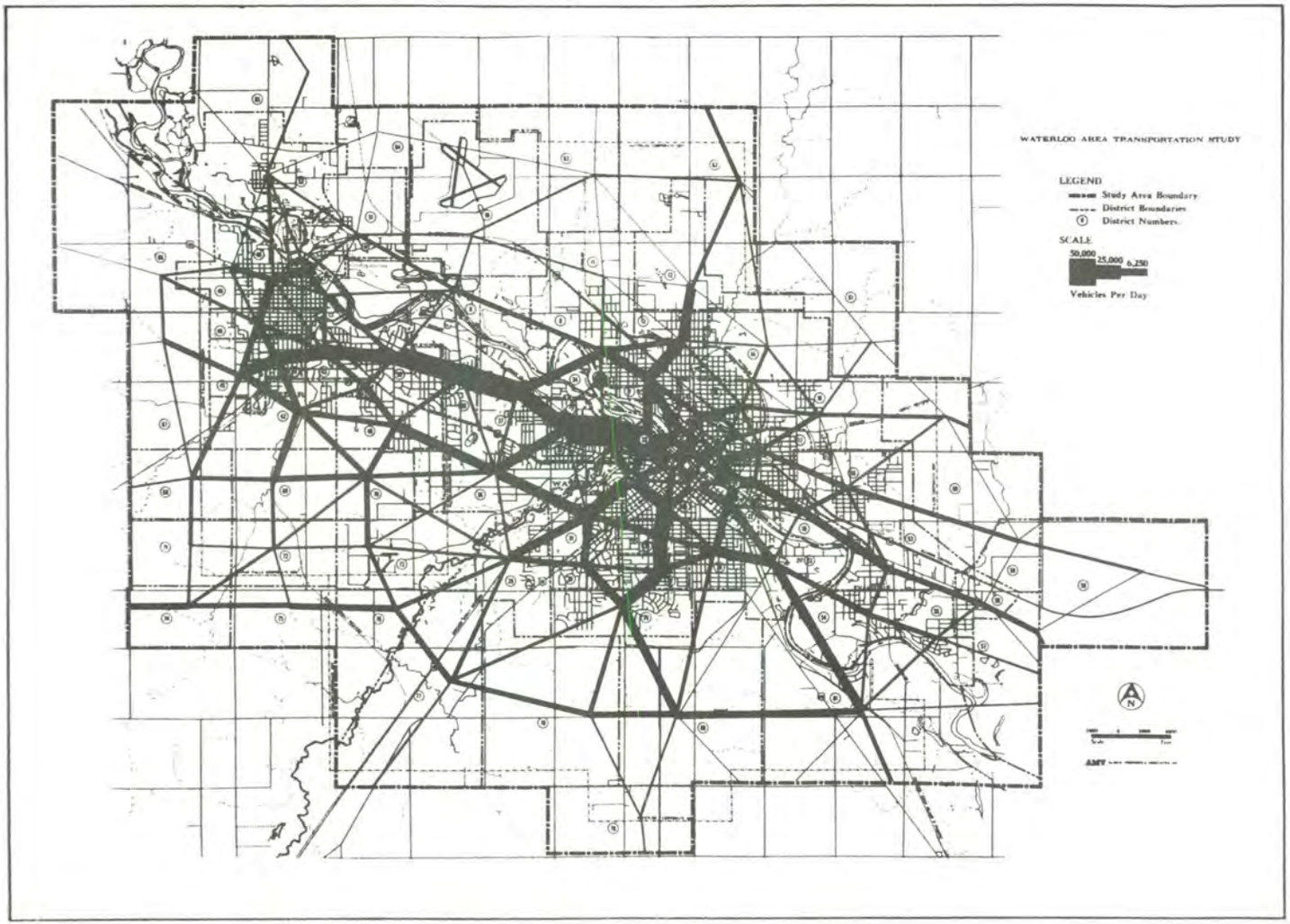


FIG. 2. MAJOR METROPOLITAN TRANSPORTATION CORRIDORS.
(NUMBER INDICATES PROPOSED FREEWAY)



Source: Waterloo Metropolitan Area Transportation Study,
Alan M. Voorhees & Associates, Inc.

Fig. 3. Projected 1990 Traffic Volumes.



Source: Waterloo Metropolitan Area Transportation Study, Alan M. Voorhees & Associates, Inc.

Fig. 4. Desire Line Volumes.

September 15, 1974, a revision was approved to FAP Route No. 380, extending the termini by 7.7 miles and describing the route as follows: FAP Route No. 380 "From a junction with I-80 near Iowa City, via Cedar Rapids and Waterloo, to a junction with FAP Routes 20 and proposed 518 in the vicinity of the Waterloo Metropolitan Airport" (See Figure 1a). (For further information see Volume I.)

Traffic volume projections for the existing and committed street system, as well as for various alternates of the I-380 extension, have been developed by the Iowa Department of Transportation. Such projections take into consideration future industrial expansions and other growth areas, as well as existing traffic generators (see Figures 8a and 8b in next section).

The future of the area's economy looks promising. John Deere Waterloo Tractor Works, the major metropolitan industry, has shown a healthy growth in recent years. In 1974, a new plant was constructed (John Deere Engine Works), and in 1976 a further major expansion in the northeastern portion of Waterloo was announced. The John Deere Product Engineering Center is also showing healthy growth. No work force reductions are anticipated at existing plants as a result of industrial expansion to new locations (see Figure 8b in next section).

Due to growth areas such as the above, increasing traffic volumes in the metropolitan area are presently causing congestion on many streets, including U.S. Highway 218 between Crossroads Shopping Center and Main Street in Cedar Falls, U.S. Highway 63 North, Ansborough Avenue, Ridgeway Avenue, and Rainbow Drive in Waterloo, and Main Street, Sixth Street and Hudson Road in Cedar Falls. Photographs of existing streets are included in Appendix Volume II.

The degree of traffic congestion on a street is measured by an index called the "Level of Service". Figures 5a and 5b are visual representations of the various levels of service ranging from A to F. Urban transportation facilities are normally designed to operate at a level of service "C", which provides a stable flow of traffic with some limits to maneuverability, relatively satisfactory operating speeds and increased safety. Streets operating at a level of service "D" or lower are considered deficient, and indicate a basis for corrective action.

Figure 6 shows deficiencies of the existing and committed street system for the projected year 2000 traffic volumes. This map indicates all streets that will provide less than level "C" service in the absence of additional improvements in the transportation system. Several of the streets shown are physically incapable of accommodating the projected traffic demands. (See Appendix "A" for projected traffic volumes.)

The proposed extension of I-380, in conjunction with the widening of certain streets (see "Alternatives"), will relieve the indicated traffic congestion and will provide a level of service "C" or better throughout the transportation system.

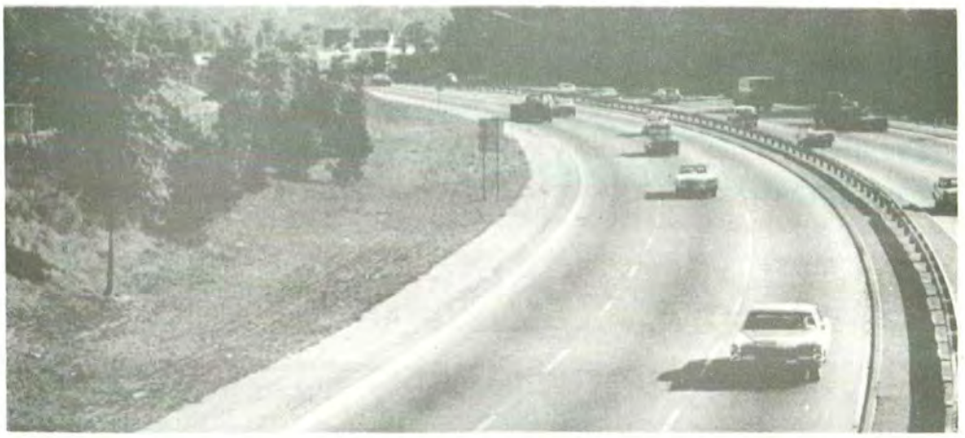
Additional benefits of the proposed action may be outlined as follows.

National Level (See Figure 1a).

The City of Waterloo will be connected to I-380, which in turn connects to I-80 near Iowa City. This area will cease to be the only metropolitan area in excess of 100,000 population that lacks interstate connection.

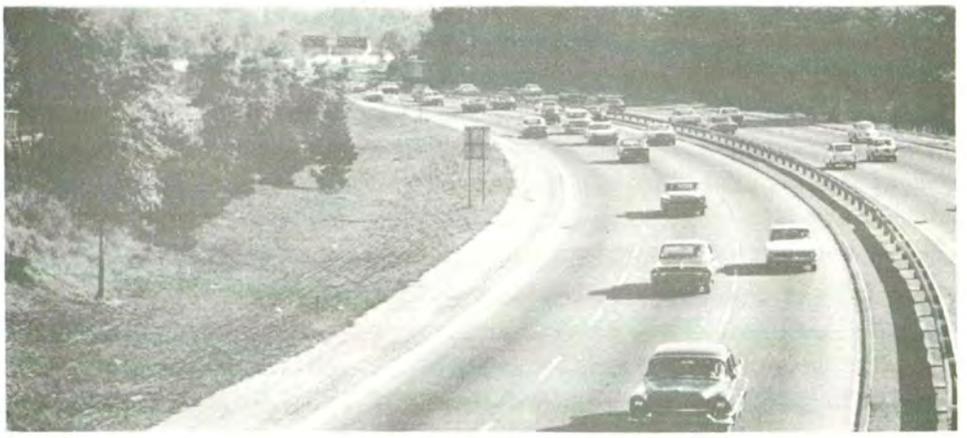
LEVEL A

Free flow, low density, little restriction of maneuverability, little or no delays.



LEVEL B

Stable flow, minor restrictions in operation, driver has reasonable freedom in changing lanes.



LEVEL C

Lesser stable flow; most drivers are restricted in changing lanes or passing, relatively satisfactory operating speed.

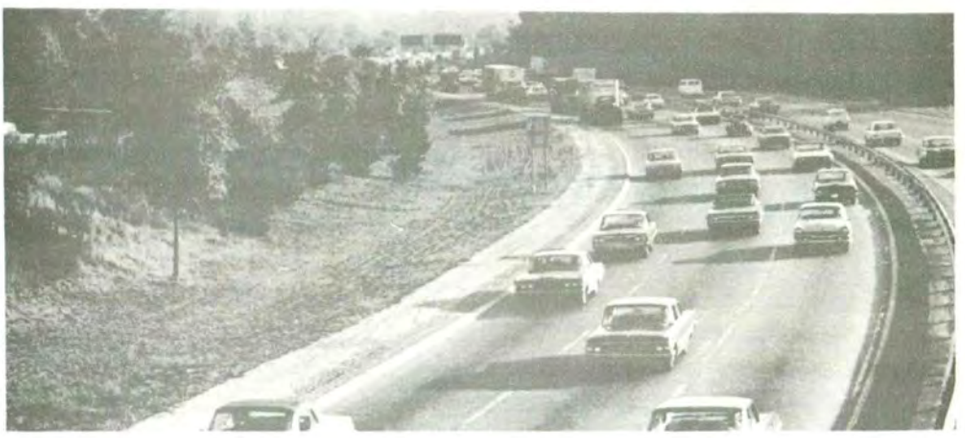


Fig. 5a. Levels of Service Characteristics Levels A, B, and C.*

*Highway Capacity Manual, Highway Research Board, Special Report 87, 1965, pp. 75-87.

LEVEL D

Approaching unstable flow, low operating speed, little freedom to maneuver, condition tolerable for short periods only.

LEVEL E

Unstable flow, lower operating speeds, some momentary stoppages, volumes at or near capacity.

LEVEL F

Forced flow, operations at low speeds, highway acts as a storage area, many stoppages.

Fig. 5b. Levels of Service Characteristics Levels D, E, and F.*

*Highway Capacity Manual, Highway Research Board, Special Report 87, 1965, pp. 75-87.

State Level (see Figure 2)

The proposed action connects to existing highways and proposed Freeways 520 and 518, to provide easy metropolitan access in all directions.

Community Level

The proposed action will benefit the metropolitan travelers and constitute the backbone of the local transportation system. The I-380 Extension, through connection to the proposed north-south Hackett Road Bypass facility, will provide additional linkage between the cities of Waterloo and Cedar Falls.

Due to the overtaxed situation, the structural condition of the existing facilities will continue to deteriorate and higher maintenance costs are anticipated in the absence of transportation system improvements.

Under the "Do Nothing" alternative, the levels of air pollution will increase near congested streets due to stop and go driving (see Appendix Volume VIII).

The property value and living environment of residences near the overtaxed street system are due to decrease, causing social and economic hardships to residents of heavily traveled streets.

If the Proposed Action is implemented, road user savings to the traveling public between "No Build" and the Proposed Action are expected to be in the range of $45,000,000 to $50,000,000 annually.

Figure 7 shows the locations of reported traffic accidents within the metropolitan area during the year 1975. Increases in traffic volumes will cause the level of traffic accident occurrence to rise in future years. It is estimated that the proposed project will result in approximately 1,400 fewer accidents per year, compared with the "Do Nothing" alternative.

As stated in the above paragraphs, the project is needed to relieve congestion, improve safety, satisfy anticipated growth in transportation, and serve the economic and social needs of the community.

Figure 7a shows the approved Waterloo Metropolitan Area Transportation Plan (revised in July, 1976), which was developed by the Iowa Northland Regional Council of Governments. The general location of the proposed action, as well as various other elements of the transportation network, are indicated in this map. Subsequent to the July, 1976, revision, the ramps connecting the proposed I-380 extension with Seventh and Eighth Streets in Cedar Falls have been deleted from the Transportation Plan. (This change is further discussed under "Alternatives".)

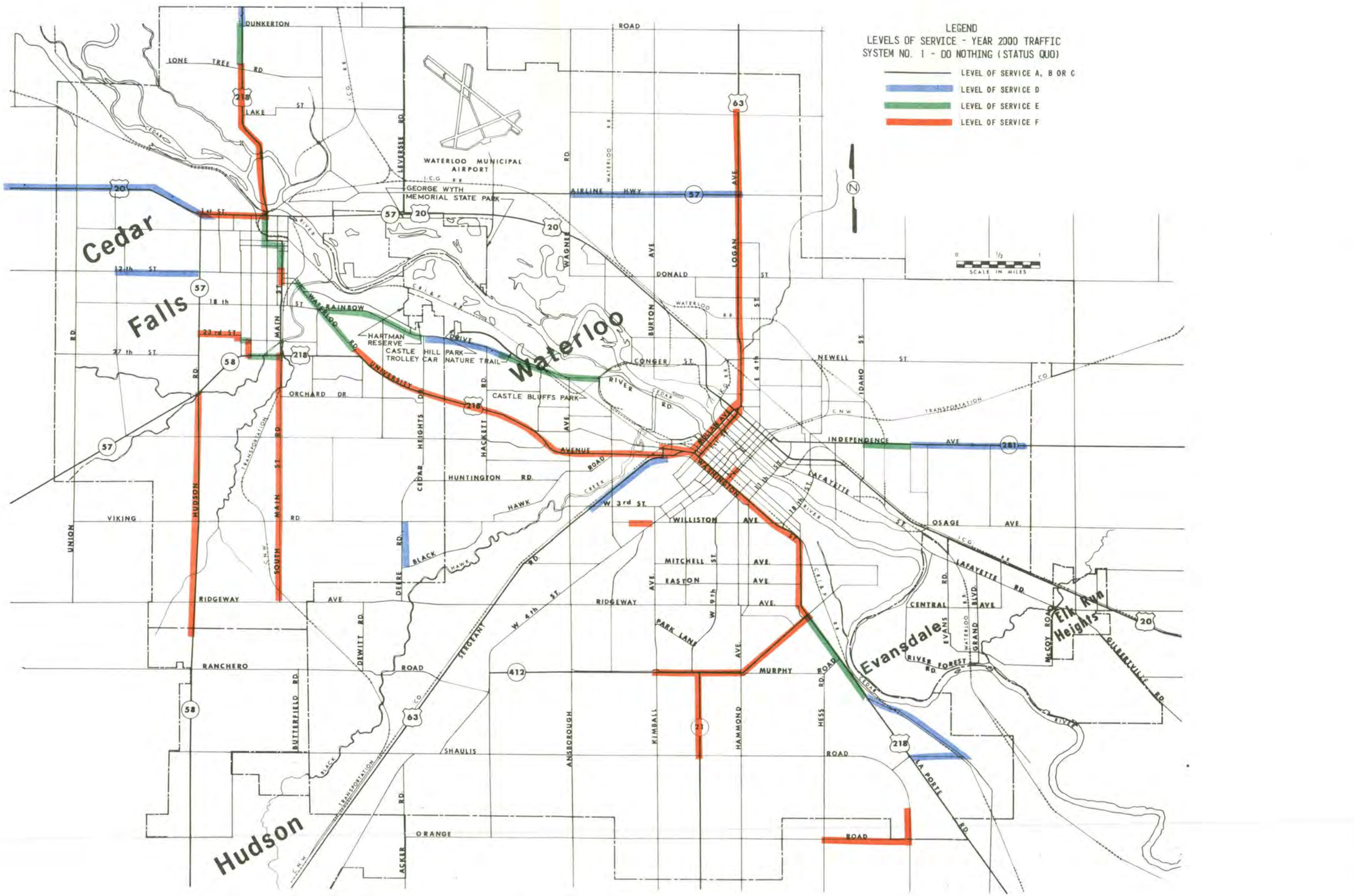


FIG. 6. LEVELS OF SERVICE - SYSTEM NO. 1.

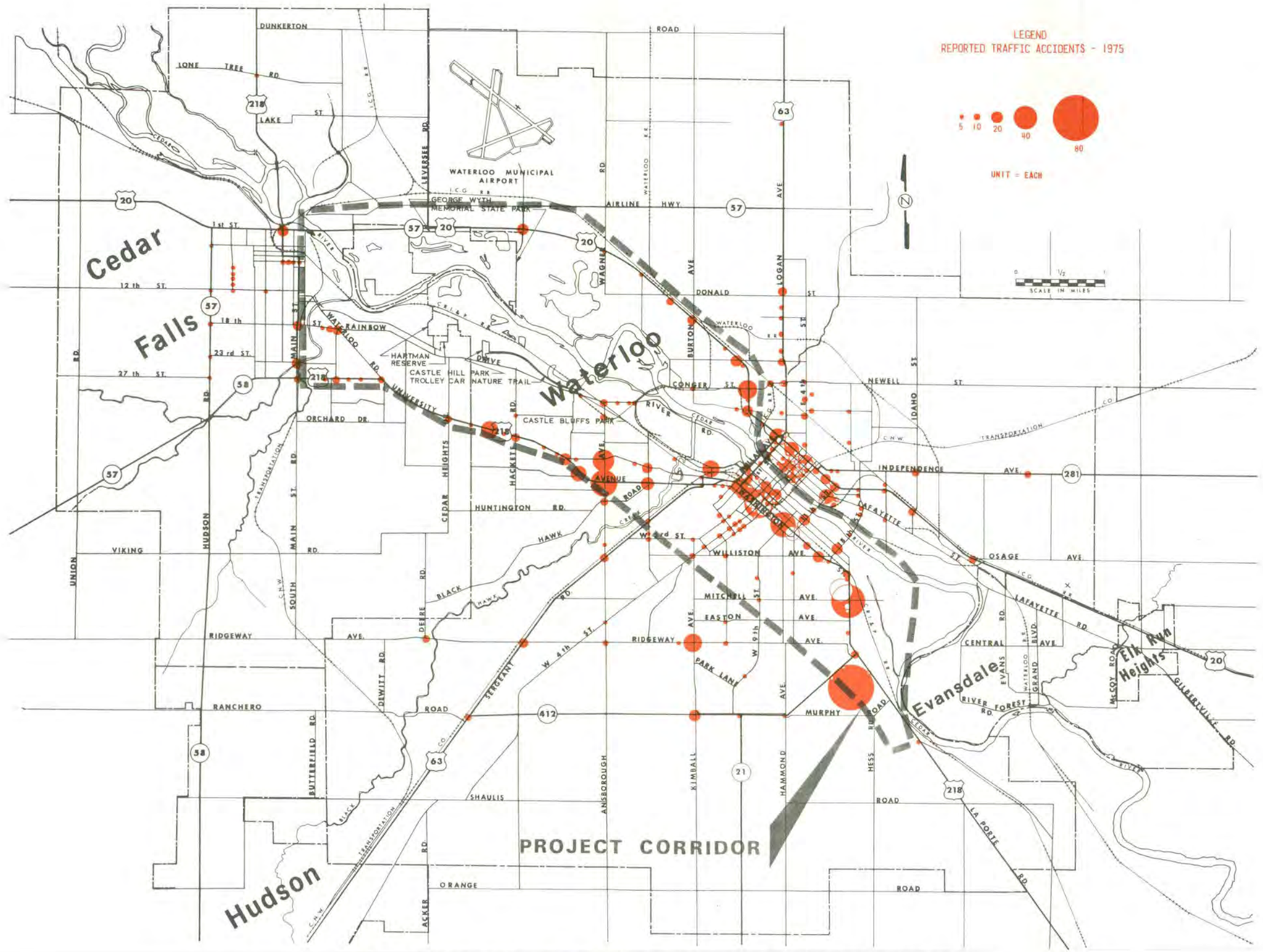


FIG. 7. ACCIDENT SPOT MAP FOR 1975 SHOWING I-380 EXTENSION PROJECT COORIDOR.

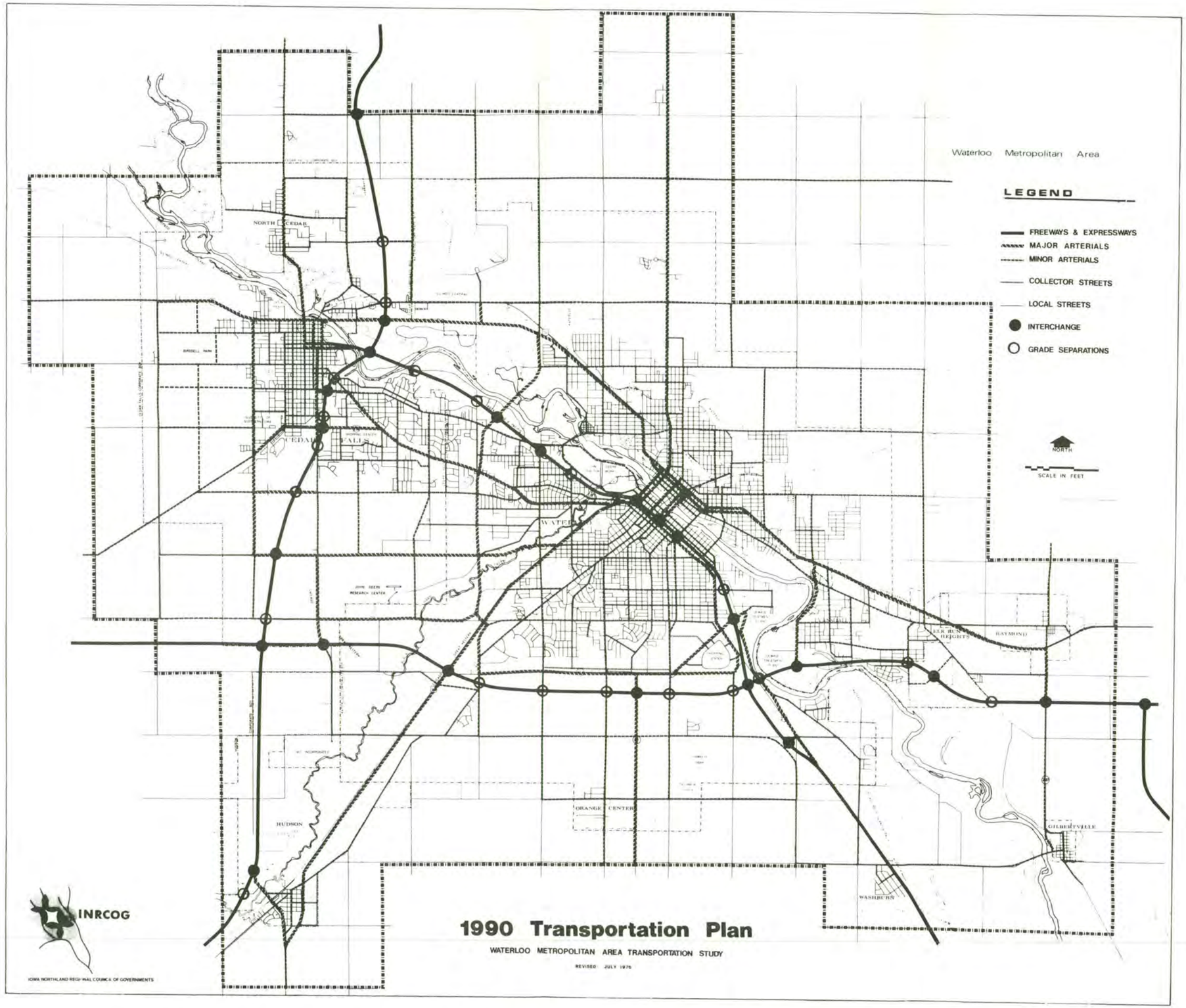


FIG. 7A. 1990 WATERLOO METROPOLITAN AREA TRANSPORTATION PLAN

DESCRIPTION OF PROPOSED ACTION

The Proposed Action consists of a six-lane interstate highway facility beginning at the junction of I-380, Freeway 520 and FAP Route 218, and proceeding northwesterly approximately 7.7 miles to the junction of FAP Routes 20 and proposed 518 in the vicinity of the Waterloo Metropolitan Airport.

The above Proposed Action is to be located within a defined corridor (shown in Figure 8a). The proposed interstate highway facility will serve traffic generators such as industries and commercial areas (indicated in Figures 8a and 8b), and also satisfy the needs and travel desires of the public presently using and forecasted to use this corridor.

Under paragraphs entitled "Alternatives", consideration was given to solve the transportation problems with a lesser facility than the proposed described action.

The Proposed Action is located in the sections shown in Figure 9, within the Waterloo Standard Metropolitan Statistical Area (SMSA), and is located within the City limits of the cities of Waterloo and Cedar Falls and Black Hawk County, Iowa.

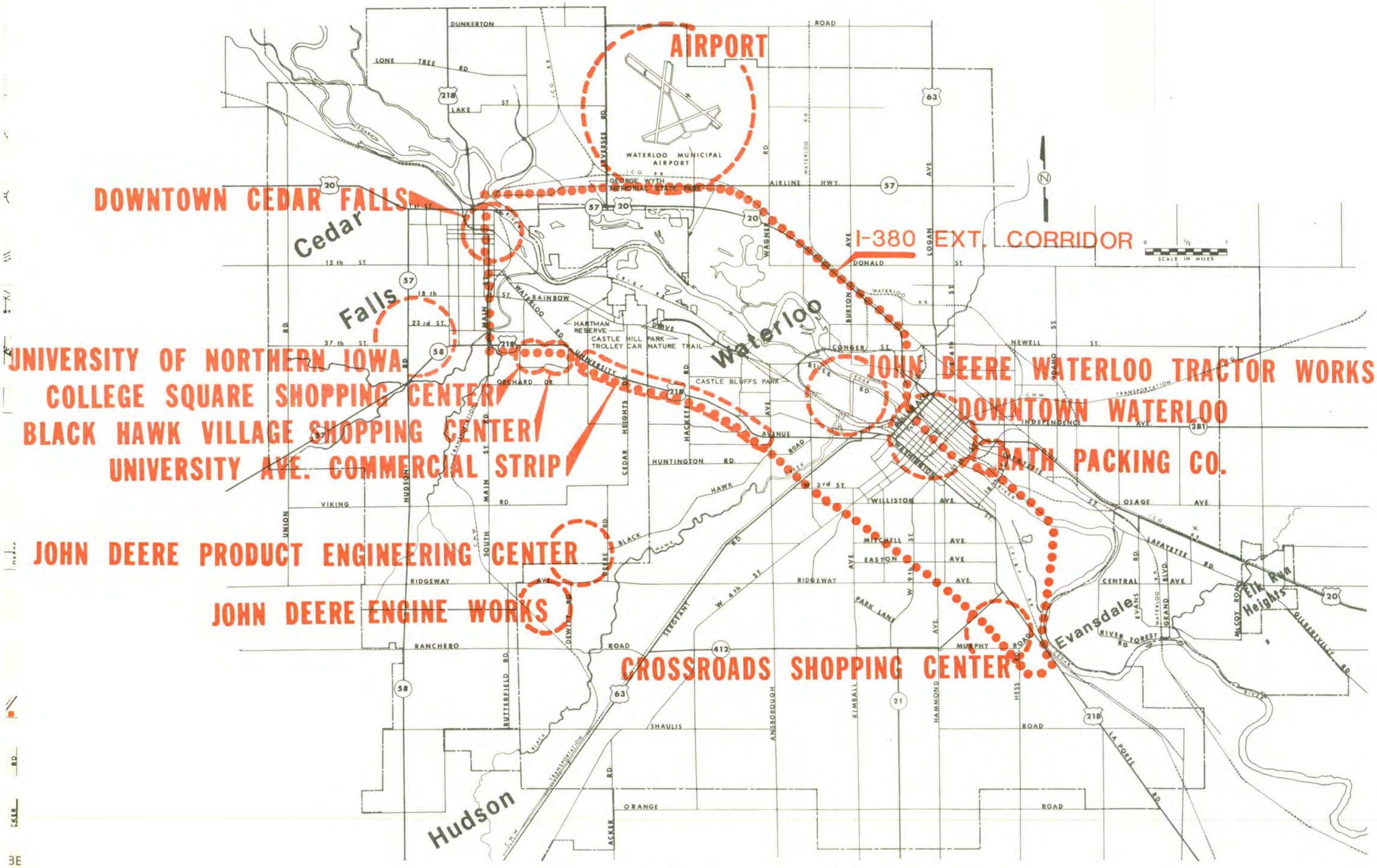


FIG. 8. A. MAP SHOWING MAJOR TRAFFIC GENERATORS.

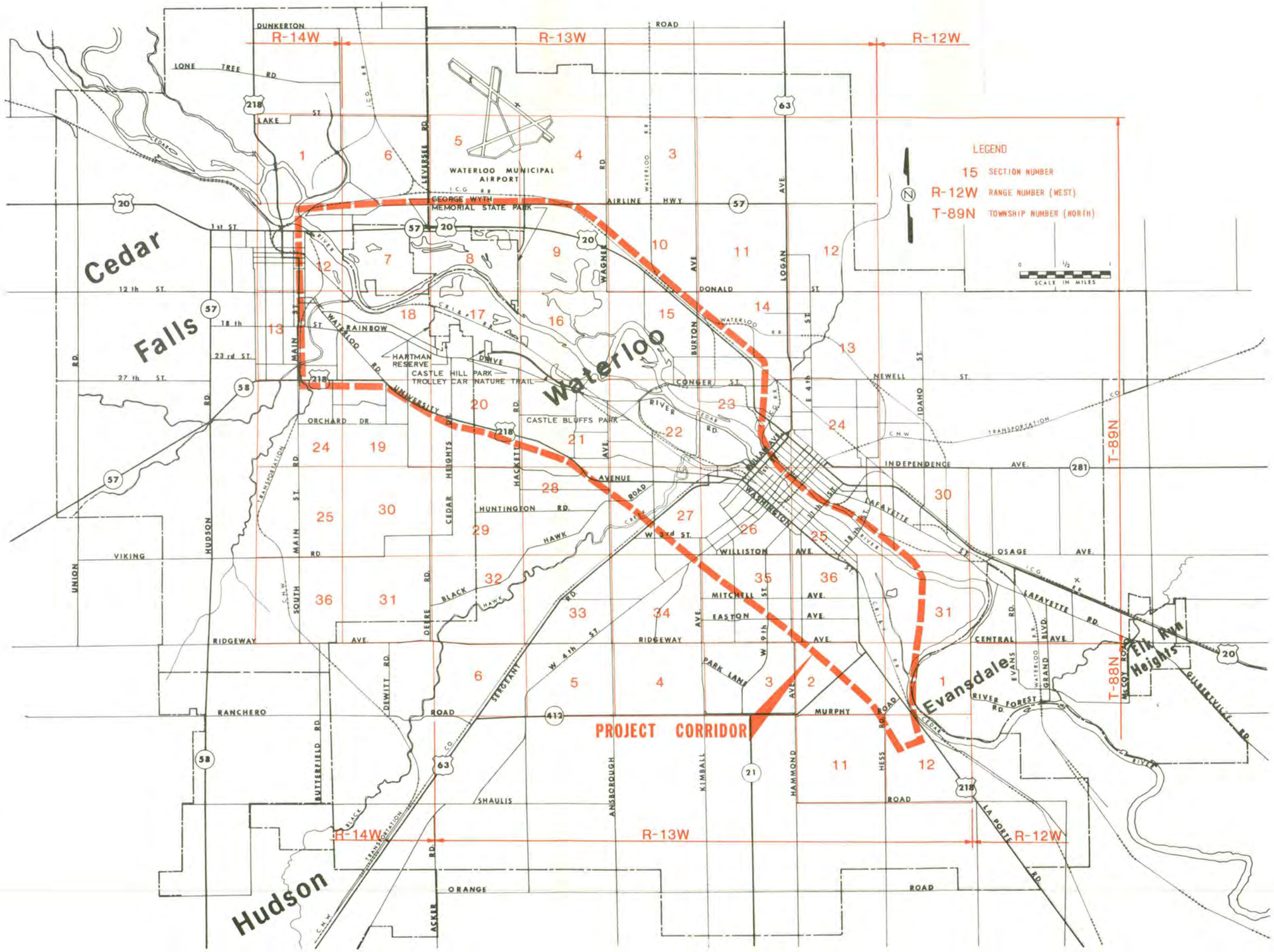


FIG. 9. LOCATION OF PROJECT CORRIDOR.

SOCIAL, ECONOMIC AND ENVIRONMENTAL CONTEXT OF THE AREA

Natural Environment of Project Area

The Waterloo-Cedar Falls metropolitan area has a rolling topography interrupted by valleys with streams or dry runs of various sizes.

The major stream and a dominant feature of the area is the Cedar River, as shown in Figures 8a and 8b of the previous section. The Cedar River is not navigable; however, some recreational activities, such as boating, are undertaken during relatively normal to high flow periods. Black Hawk Creek, the second largest stream in the metropolitan area, joins the Cedar River near the John Deere Waterloo Tractor Works.

The floodplain (area inundated during floods) of the Cedar River extends a considerable distance on both sides of the River. (For a drawing of the Cedar River floodplain in the vicinity of the project corridor, refer to Figure 5, page 81, Appendix Volume VIII.) Portions of the project corridor are located within this floodplain. Various segments of flood control works by the U.S. Army Corps of Engineers have been completed on both sides of the Cedar River and Black Hawk Creek in Waterloo.

There are no natural major lakes, although some "ox-bows" (low areas that retain water after subsidence of floods and become dry during dry weather), or other minor lakes are located in and near George Wyth State Park as well as in the floodplain of the Cedar River. Many artificial

lakes or ponds have been created from borrow pits and sand quarry operations. With the exception of George Wyth Lake, public usage of such lakes is not currently permitted.

Geologically the corridor is situated on limestone deposits belonging to the Cedar Valley Formation (Devonian), clayey soils (glacial tills) and sandy or gravelly deposits (Alluvium).

Ice and water have eroded the limestone formations and a gently rolling topography developed. The streams have cut through the clayey and limestone deposits and sand and gravel has been settled in the eroded areas. Some of the limestone supplies both Waterloo and Cedar Falls with good quality potable water.

The climate of the project area is of a continental character and accordingly has a wide variation in both temperature and precipitation during the four distinct seasons. Average annual precipitation is 32 inches, though annual amounts have varied from 17 to 50 inches per year. Extreme temperatures have ranged from -34 degrees to 112 degrees Fahrenheit.

The noise environment of the I-380 study area is representative of a typical metropolitan cross-section. Existing noise arises primarily from transportation sources and industrial activity near the Waterloo Central Business District, while in the most remote residential areas, domestic activities and natural sounds provide the prevailing background noise. The remainder of the study area experiences noise which is characterized as being somewhere between these two extremes relative to the nature of its environmental noise.

Air quality is also a function of distance from industrial and, more importantly, motor vehicle activity. Although neither of these air pollution sources imposes a severe impact upon the area's air quality, pollution concentrations are known to be higher near these activities. The overall air quality throughout the I-380 study area is not seriously affected by man-made air pollution and is generally compatible with the existing land use. A possible exception would be the periodic and local effects of the odor-producing industrial activity at the Rath Packing Company which is located north and east of the I-380 project corridor in Waterloo. This industry would not be affected by the proposed highway project.

The following paragraphs pertain to vegetation and fauna within the lesser developed portions of the project corridor, in and near the Cedar River floodplain. The native vegetation in this area is a deciduous forest type and borders the Cedar River. Along the south bank of the Cedar River, a gradually rising floodplain gives way to a steep north-facing upland slope, while the north bank floodplain gradually rises to a level plain that has been developed for agricultural, residential and industrial uses.

Several vegetation types are associated with these elevational changes (see Figure 10). Immediately adjacent to the river, on areas that are frequently flooded, a floodplain vegetation type, dominated by flood-tolerant willow, silver maple, and box elder occurs. Ground cover and shrubs are sparse.

On slightly higher ground that is rarely inundated, either further from the river or on elevated knolls along the banks, a bottomland forest

dominated by American elm, burr oak, green ash, and black walnut occurs. A dense shrub and ground cover is present, including several species of dogwood, honeysuckle, elderberry, and gooseberry, and many species of annuals.

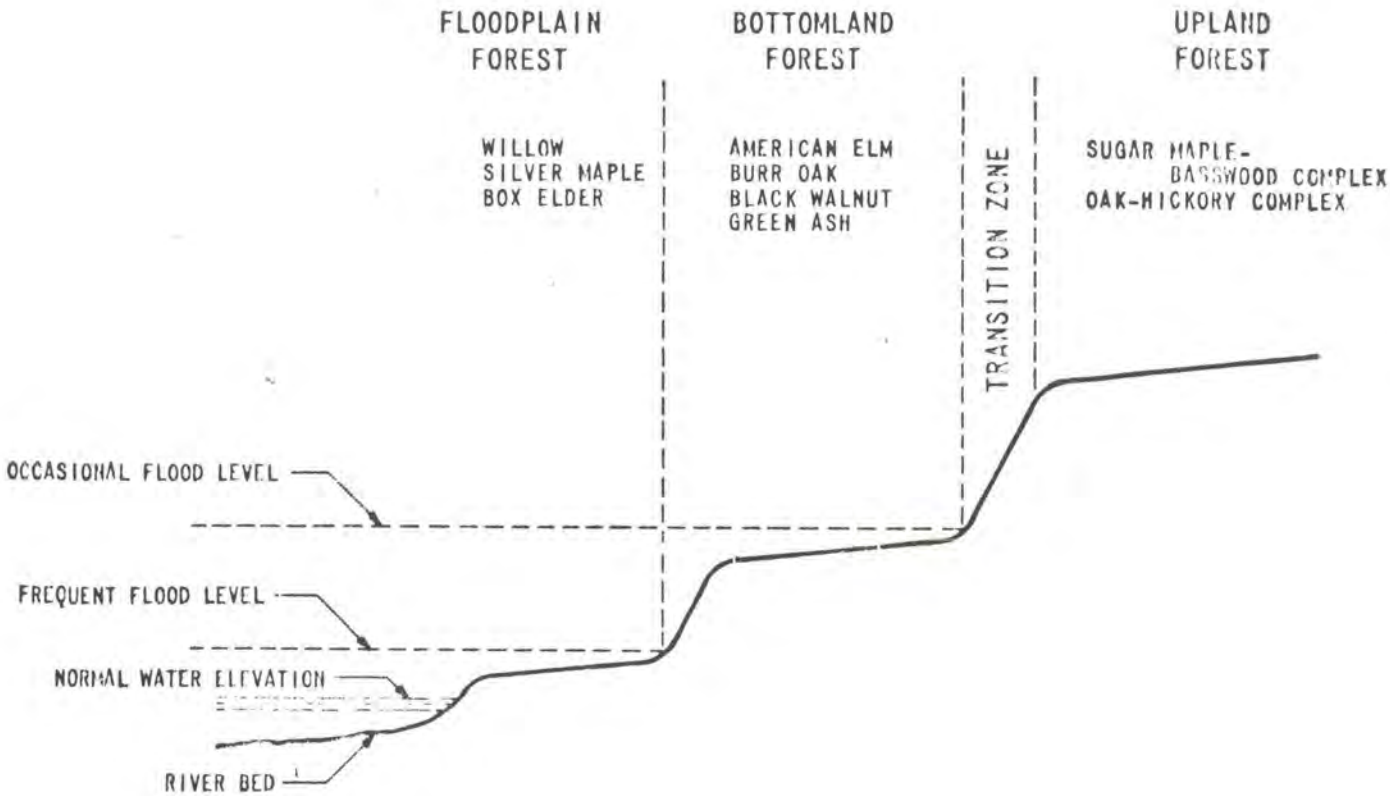


Fig. 10. Changes in Vegetation Associated with Elevational Changes in the Cedar River Floodplain.

All of the bottomland areas have been disturbed, either by timbering, grazing, or residential development. Much of the land along the north banks are currently being grazed. In addition, many dead and diseased American elms are present, and are being replaced naturally by hackberry.

On the upper slopes and tops of the north facing bluffs, a climax upland deciduous forest occurs. The sugar maple, basswood complex is

present on the moister soils, while oak (red, white) and shagbark hickory dominate the drier soils. A variety of associated sub-dominants, shrubby, and herbaceous species are present. Numerous spring ephemerals and ferns indicate a long history of stability. However, the upland forest is steadily being encroached upon by residential development, and has experienced some past timbering of hickory.

A transition zone with both upland and bottomland species occurs on the lower bluff slopes and at its base.

Along the elevated railroad bed, a strip of mixed-vegetation type occurs. Here shrubby and herbaceous plant species of prairie and bottomland forest origins occur together. Several old fields adjacent to the railroad bed also harbor prairie and bottomland perennials and annuals. None of the plant species occurring within the project corridor are considered rare or endangered.

The fauna of the lesser developed areas of the project corridor near the Cedar River is quite diverse, associated with the diversity of aquatic and terrestrial habitats present. Fifty-three species of fish, 8 species of amphibians, 15 reptile species, 41 mammal species and over 130 species of birds are known to occur in the corridor area. In addition numerous invertebrates are harbored in the soil, water, and flora. Several uncommon species that occur in the corridor are: the blue-spotted salamander, rainbow darter, mud minnow, pileated woodpecker, and several species of dragonfly. A small beaver colony is active along the banks of the Cedar River in this area. The bald eagle may occasionally

fly over the area, but is not known to use the area for nesting or feeding purposes. White-tail deer are common in both the upland and bottomland forests throughout the corridor. No rare or endangered species are resident within the corridor area.

Numerous small, temporary ponds in the bottomland areas provide excellent habitats and egg-laying sites for many invertebrate, amphibian, and reptile species during the spring and summer months. Several large, permanent bodies of water provide excellent fish habitat and feeding and resting areas for migrating waterfowl.

Both upland and bottomland forest provide winter cover for mammals and birds, as well as nesting and denning areas. During the spring nesting woodducks are common throughout the corridor. Mammal dens are commonly encountered in the wooded areas.

Grasses, forbs, and shrubs along the railroad right-of-way provide food and cover for seed-eating mammals and birds.

Social Environment of Project Area

Historically, the Waterloo-Cedar Falls area was once a stopping-off place for Indian tribes traveling between nearby villages, with a considerable number spending their entire summers in the Cedar Valley area. No permanent Indian settlements remain in the corridor or near the cities today.

The first settlers came to the Waterloo-Cedar Falls area in 1845 and established a village called Prairie Rapids Crossing. In 1850 the name of the village was changed to Waterloo, and platting of the cities of Waterloo and Cedar Falls began in 1853.

Population

The current population of Waterloo and Cedar Falls, as well as age and sex breakdowns according to the 1975 special census, are listed in Table 1.

TABLE 1

POPULATION OF WATERLOO AND CEDAR FALLS, IOWA
BY AGE, SEX AND TOTAL[a]

Age	Waterloo			Cedar Falls		
	Male	Female	Total	Male	Female	Total
17 and Under	11,712	11,201	22,913	4,519	4,275	8,794
18-24	4,429	4,979	9,408	4,185	4,897	9,082
25-34	5,056	5,011	10,067	2,354	2,191	4,545
35-44	3,322	3,555	6,877	1,452	1,562	3,014
45-54	3,850	4,152	8,002	1,465	1,481	2,946
55-64	3,422	3,921	7,343	1,053	1,117	2,170
65 and Over	3,297	5,157	8,454	969	1,634	2,603
TOTAL	35,088	37,976	73,064	15,997	17,157	33,154
Median	27.3	29.8	28.5	23.8	24.0	23.9

[a]U.S. Department of Commerce, Bureau of the Census, Special Census of Waterloo, Iowa, August 25, 1975 (Series P-28, No. 1535), and Special Census, Summary of Special Censuses . . . Between July 1, 1974, and December 31, 1974 (Series P28-1512).

The population of Waterloo and Cedar Falls has shown an increase of 1,088 persons between the 1970 census and the 1975 special census. Population projections developed by the Office for Planning and Programming,

TABLE 2

POPULATION PROJECTIONS, BLACK HAWK COUNTY

Year	Population	Percent Increase From 1975
1975	135,712	. .
1980	132,278	1.9%
1985	141,515	4.3%
1990	144,550	6.5%

TABLE 3

POPULATION STATISTICS OF WATERLOO AND CEDAR FALLS

	Population Breakdown	
	Waterloo	Cedar Falls
Race	91.3% White	99.7% White
	8.7% Black	0.3% Black
Parentage	90.4% Native (Native Parentage)	91.2% Native (Native Parentage)
	8.1% Native (Foreign or Mixed Parentage)	7.0% Native (Foreign or Mixed Parentage)
	1.5% Foreign Born	1.8% Foreign Born
Education	12.3 Years Average	12.8 Years Average
(Persons 25 Years or Older)	60.1% High School Graduates	78.2% High School Graduates
Marital Status	64% Married	53% Married
(Persons 14 Years or Older)	23% Single	39.4% Single
Number of Families with Children Under 18 Years	19,083	6,640

State of Iowa, indicate that Black Hawk County will continue to grow in population in coming years. Table 2 shows the official Iowa Population Projections for Black Hawk County.

A breakdown of the populations of Waterloo and Cedar Falls according to various statistics is shown in Table 3. The map in Figure 11 shows the general locations of ethnic neighborhoods and concentrations within the cities. As indicated, the project corridor does not traverse any areas of significant ethnic concentration.(i.e., areas where minority population exceeds city-wide average).

Housing

Total available housing within Waterloo and Cedar Falls, according to the most recent data available (1970 Census), consists of 33,456 housing units, of which 23,120 are owner-occupied. Housing units are defined to include all houses, apartments and boarding house rooms within the corporate limits of Waterloo and Cedar Falls. Hotel and motel units are excluded from these totals.

Recent estimates of housing vacancy rates range between 0.6 and 1.6 percent vacant in Waterloo and between 1.3 and 5.0 percent vacant in Cedar Falls. In addition, several housing projects are in the planning stages in the metropolitan area, including single-family and multi-family units and housing for elderly persons. Additional housing data is presented under "Relocation Impact".

Transportation

Existing and proposed highway facilities for the metropolitan area, as well as their relationship to state and national transportation net-

works, have previously been discussed under "Need". The remaining transportation facilities are summarized below.

The City of Waterloo is served by four railroads, four intercity bus lines, eighteen motor freight carriers, one airline, and local bus and taxi service. Cedar Falls is served by three railroads, three bus lines, eight truck lines, thirty motor freight lines, one airline, and local bus and taxi service.

Public transportation is offered throughout the cities of Waterloo and Cedar Falls by a number of intercity and intracity bus lines. Ridership of public transportation has declined in recent years, and presently constitutes less than one percent of the overall person-trips within the area. Recent trends do not indicate that public transportation will overtake a significant share of the total person-trips in the foreseeable future.

Recreation

Figure 12 shows the location of all publicly-owned parks within the metropolitan area. A number of these parks are situated within the project corridor.

George Wyth State Park is the largest park land within the corridor, and offers a variety of recreational opportunities. George Wyth Lake, which originated as a borrow site for the construction of U.S. Highway 20, is used for warm weather activities of fishing, swimming, sailing and other boating, and for ice skating and ice fishing during the winter months. The remainder of the park offers such activities as picnicking, camping, nature and hiking trails and snowmobiling.

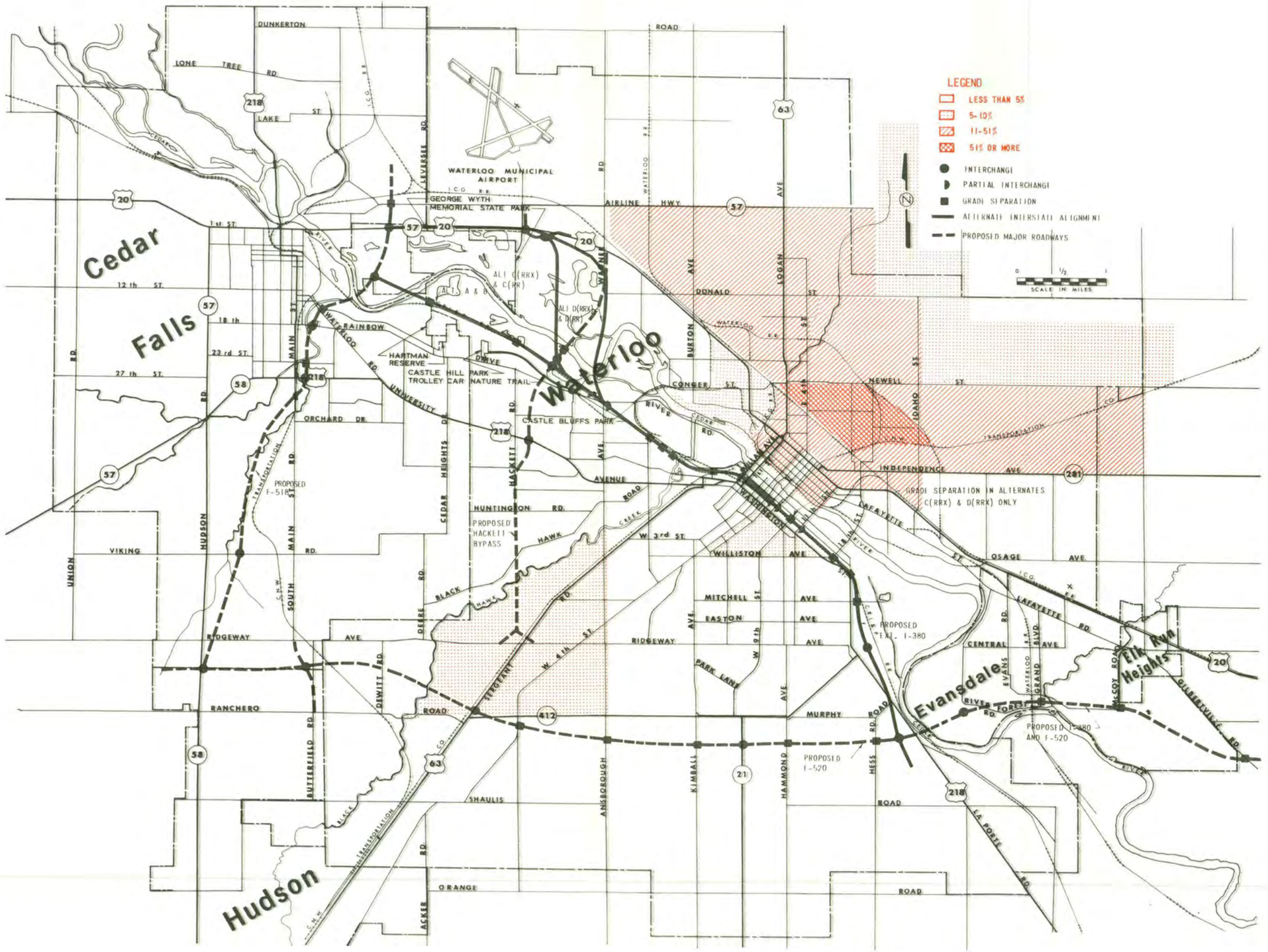


FIG. 11. ETHNIC CONCENTRATIONS BY CENSUS TRACT.

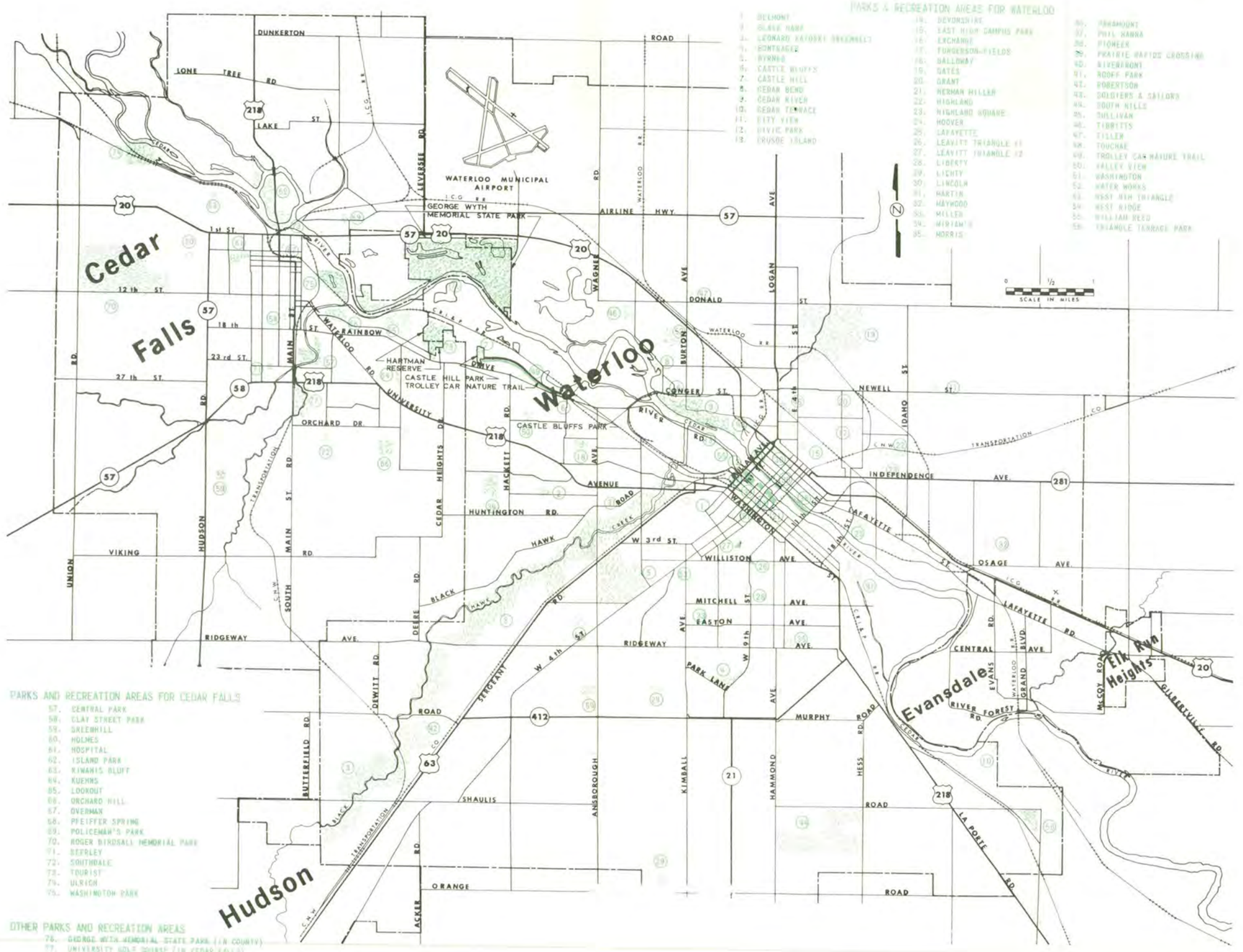


FIG. 12. LOCATION MAP OF EXISTING PARKS IN PROJECT AREA.

Other parks within the project corridor range in size from less than one acre to approximately 82 acres for Cedar River Park. The majority of these parks are developed and offer recreational areas such as picnic grounds, playgrounds and sports fields. Hartman Reserve, which occupies 69 acres and is the third largest park in the corridor, is predominantly an undeveloped natural forest area, and has been used for camping and nature studies.

A more detailed discussion of parks and recreation areas affected by the proposed action is presented in succeeding chapters of this report.

Cultural, Public and Community Facilities

The location of all existing schools, churches, and certain other public institutions and facilities within the project corridor are shown in Figure 13. This map also shows the location of certain institutions outside the corridor which may be affected by the proposed action. Such institutions include the University of Northern Iowa in Cedar Falls and Hawkeye Institute of Technology in Waterloo.

Two major public facilities are located within the project area in Waterloo: Conway Civic Center, and the Waterloo Recreation and Arts Center, both located in the Waterloo Central Business District (see Figure 13). Conway Civic Center is a recently constructed multi-purpose facility, used primarily for conventions and meetings. The Waterloo Recreation and Arts Center houses a theatre, art galleries, arts and crafts shops and other related facilities.

Municipal utilities consist of water supply and distribution, sewage collection and treatment and solid waste collection. In addition, the

City of Cedar Falls operates its own electric plant and natural gas distribution system. The City of Waterloo purchases these services from a private utility, "Iowa Public Service Company". Telephone service for the entire area is provided by Northwestern Bell Company, and the county sanitary landfill is operated by Landfill Services, Inc.

Fire protection services are provided by the individual communities of Waterloo, Cedar Falls and Evansdale. Three of the eight Waterloo fire stations and one of the two Cedar Falls fire stations are within the study corridor. Each of the three fire departments also provide ambulance services within their respective communities.

Police protection is provided by individual police departments of the three aforementioned communities and the Black Hawk County Sheriff's Department, in addition to the assistance of the Iowa Highway Patrol.

Four hospitals are located within the metropolitan area, with three being located in Waterloo and the other in Cedar Falls. Regional hospital services are located at Rochester, Minnesota and at Iowa City, Iowa.

Aesthetics

Existing visual qualities of the project area vary considerably throughout the corridor. A major portion of the corridor is located in the Cedar River Valley, an area of scenic and recreational value. Areas of the corridor between Ansborough Avenue and the southerly terminus include a major industrial area, a central business district, residential neighborhoods and various commercial areas. The majority of these areas are residential. Northwesterly of Ansborough Avenue, the corridor is less

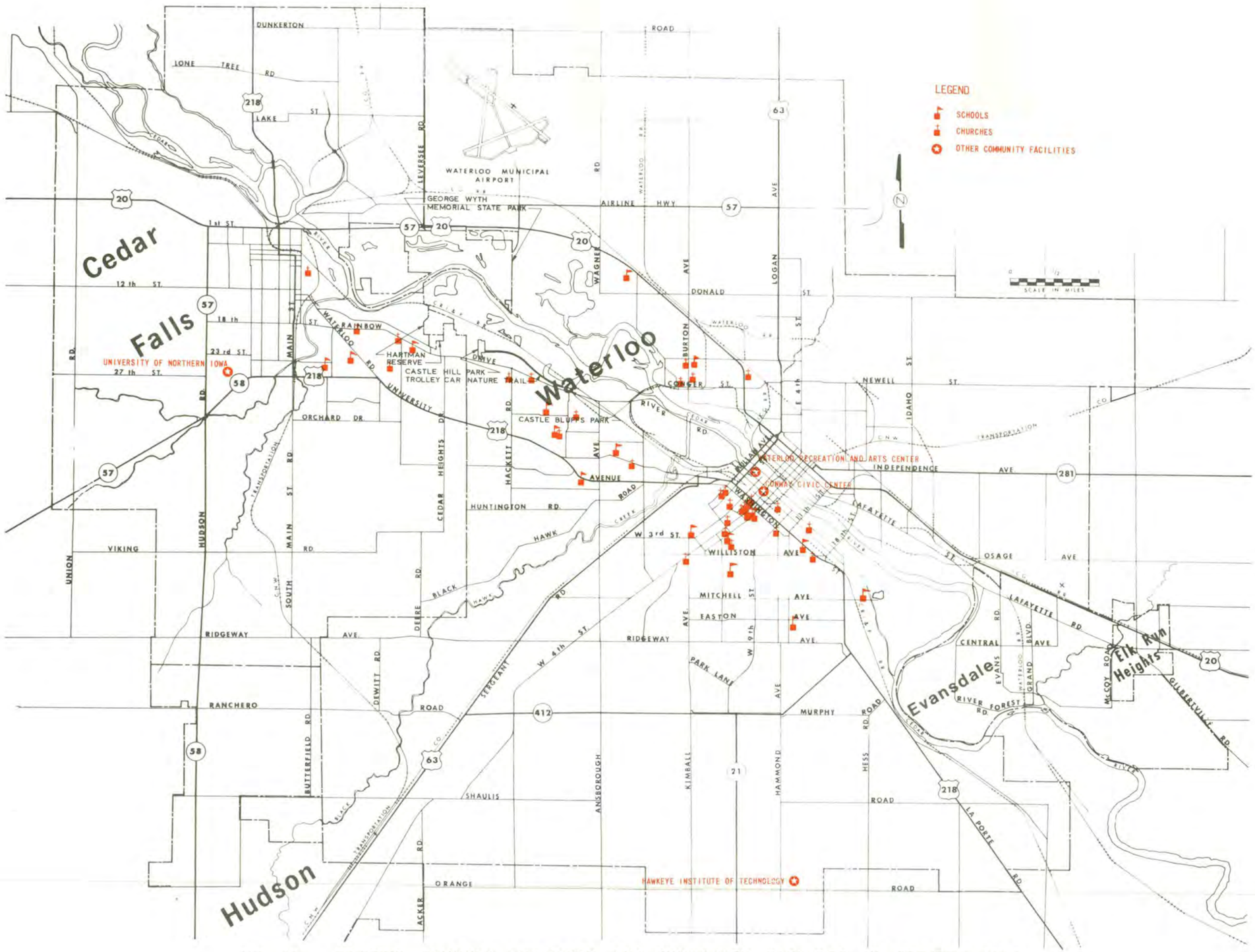


FIG 13. EXISTING SCHOOLS, CHURCHES AND COMMUNITY FACILITIES IN PROJECT AREA.

developed, and includes floodplain areas along the Cedar River Valley, bounded on the south by a north-facing bluff. Residential areas are located on the bluff area, as well as along the river in portions of the floodplain area.

Economic Environment of Project Area

The following discussion summarizes the existing and projected economic conditions in the project area. Additional information on economic factors is provided in Appendix Volume VI.

Labor Force and Employment

The labor force is comprised of all persons who are either employed, or who are unemployed and are seeking a job. The average annual labor force for Waterloo-Cedar Falls in 1975 was estimated at 59,800 persons (see Table 4). Of this total, 4,100 were unemployed, resulting in an unemployment rate of 6.8 percent for the year. The unemployment rate in the Waterloo-Cedar Falls Standard Metropolitan Statistical Area (SMSA) for the period 1970 through June of 1976, has ranged from a low of 2.9 percent in 1973 to a high of 8.3 percent in January and February, 1976.

As shown in Table 4 , the area's labor force declined slightly from 1970 to 1971. From 1971 to 1974, the labor force rose 13.2 percent as the area experienced expansion in manufacturing and an increase in jobs. As unemployment increased, the labor force decreased during 1975 as marginal labor force participants dropped out. Additional data on employment is provided in Table 5 .

Employment in Black Hawk County is projected to increase from an estimated 63,400 jobs currently to 73,500 jobs in 1985. This is based on current trends in employment nationally and does not include the impact of the proposed I-380 extension.

During 1975, the median "Effective Buying Income"* was $14,602 per household in Waterloo, and $14,954 per household in Cedar Falls. Median number of persons per household during 1975 was 2.5 persons in Waterloo and 3.1 persons in Cedar Falls.

Figure 14 shows the spatial dimensions of the Waterloo-Cedar Falls laborshed field, or the region which supplies daily commuters to Waterloo and Cedar Falls to work or operate a business. The friction of distance is evident, for once out of Black Hawk County, the number of workers who commute to the Waterloo-Cedar Falls metropolitan area drops off sharply. The figure also shows that Waterloo-Cedar Falls has the least competition from the north.

Retail Sales

The Waterloo-Cedar Falls metropolitan area has developed into the retail center for the surrounding area. Black Hawk County ranks highest in retail sales for each type of retail activity as well as highest sales per retail outlet, compared to other counties in the area (see Volume VI). Retail centers in the metropolitan area include two large regional shopping centers (College Square and Crossroads), two major central business districts, and several smaller neighborhood centers.

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*Sales Management, Inc., 1976, P.C-77. Effective Buying Income is personal income including wages, salaries, interest, dividends, profits, and property income minus federal, State and local taxes. It includes: 1) net cash income, plus 2) income in kind (payments in non-cash, goods, and services), plus 3) inputed income (food consumed on farm that produced it, and inputed rent of owner-occupied housing). Generally speaking, the "Effective Buying Income" is equivalent to the federal government's "Disposable Personal Income".

TABLE 4

ANNUAL LABOR FORCE
WATERLOO-CEDAR FALLS SMSA[a]

Year	Labor Force (Annual Average)	Change from Previous Year
1970	55,100	(n/a)
1971	54,400	-1.3%
1972	56,800	+4.4%
1973	59,900	+5.5%
1974	61,600	+2.8%
1975	59,800	-2.9%

a Area Manpower Review, Waterloo-Cedar Falls, Iowa, SMSA, Labor Force Summary, 1976.

TABLE 5

1975 AVERAGE ANNUAL RESIDENT EMPLOYMENT
WATERLOO-CEDAR FALLS SMSA[a]

Resident civilian labor force	59,800
Resident unemployment	4,100
Percent unemployed	6.8%
Resident employment	55,800
Nonagricultural, wage and salary	49,400
Self-employed, unpaid family and domestic workers	4,600
Agriculture	1,700

a Area Manpower Review, Waterloo-Cedar Falls, Iowa, SMSA, Labor Force Summary, 1976.

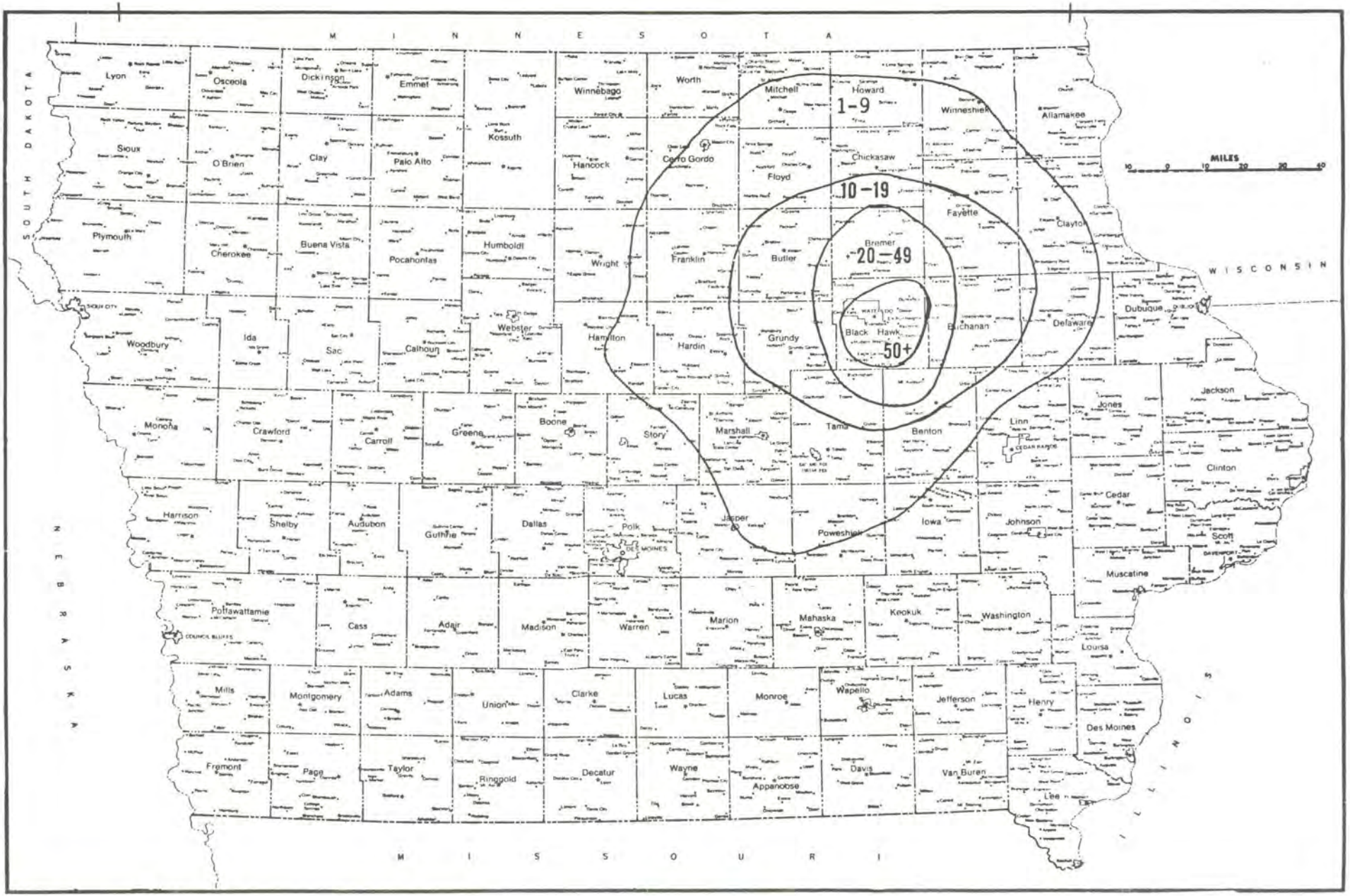


Fig. 14. Commuter Zones - Percentage of Work Force Working in Waterloo and Cedar Falls.

The number of retail establishments within the Waterloo-Cedar Falls SMSA has increased from 2,416 in 1954 to over 2,834 in 1975. Total retail sales have increased from $125,000,000 to $387,000,000 in this same time period.

Land Values and Tax Base

The value of land in the Waterloo-Cedar Falls area varies considerably, depending on location, zoning, accessibility, and other factors. Within the affected areas of the project corridor, the average value of residential properties is $32,000 per home, based on estimated current (1976) market values.

Total assessed valuation tax base for Waterloo, Cedar Falls, and Cedar Falls Township are listed below. Portions of each of these areas comprise the I-380 project corridor. Properties owned by railroads and public utilities are excluded from the total valuations shown.

City of Waterloo:	Valuation = $830,000,000
City of Cedar Falls:	Valuation = $273,964,238
Cedar Falls Township:	Valuation = $ 8,958,780

Tax Rates

Table 6 lists tax rates for various areas and school districts in Black Hawk County. Included are total corporate and county tax rates and school tax rates, in dollars per thousand assessed valuation, for the year 1976.

TAX RATES – BLACK HAWK COUNTY, IOWA

FOR TAXES PAYABLE IN SEPTEMBER, 1976 AND MARCH, 1977

TAX RATES ARE DOLLARS PER THOUSAND OF THE JANUARY 1, 1975 VALUATIONS

	Rates
General County	.71526
Emergency	.27000
Poor	.53934
County Indemnification Fund	.00500
County Mental Health and Institutions	.92036
Election Expense	.07594
Health Center	.27701
Veteran Affairs	.06527
Court Expense	.96095

	Rates
County Health Center Bonds	.03785
County Care Facility Bonds	.12850
Court House Site Bonds	.02118
Court House Building and Equipment Bonds	.10559
Memorial Hall	.00586
Fair and 4-H Club	.02382
Conservation	.22907
Secondary Road	.16875
F.I.C.A.	.13089
I.P.E.R.S.	.07788

	Rates
County Agri. Extension District	.02909
Total County (Except Assessor)	**4.78761**
General County	4.78761
County Assessor	.26715
County Special Appraiser	.05060
Total County (Towns and Cities except Waterloo)	**5.10536**

	Rates
Secondary Roads (Townships)	2.13549
Weed Eradication (Townships)	.06750
Library (Townships)	.05329
Total County (Townships)	**7.36164**
General County	4.78761
Waterloo Assessor	.15159
Waterloo Special Appraiser	.03835
Total County (Waterloo)	**4.97755**

CITIES AND TOWNS	Area Voc. School	School	County	Corporation	TOTAL
1. Waterloo	.43730	13.66400	4.97755	12.52476	31.60361
2. Waterloo, Cedar Falls	.43730	15.39025	4.97755	12.52476	33.32986
3. Waterloo, Hudson	.43730	14.52862	4.97755	12.52476	32.46823
4. Waterloo, C. H., Waterloo	.43730	13.66400	4.97755	12.52476	31.60361
5. Waterloo, C. H., Cedar Falls	.43730	15.39025	4.97755	12.52476	33.32986
6. Cedar Falls	.43730	15.39025	5.10536	7.78459	28.71750
7. Cedar Falls, Hudson	.43730	14.52862	5.10536	7.78459	27.65587
8. Cedar Falls, Waterloo	.43730	13.66400	5.10536	7.78459	26.99125
9. Dunkerton	.43730	13.76215	5.10536	7.92566	27.23047
10. Elk Run Heights, Waterloo	.43730	13.66400	5.10536	7.31057	26.21723
11. Evansdale, Waterloo	.43730	13.66400	5.10536	9.35638	28.76304
12. Gilbertville, Waterloo	.43730	13.66400	5.10536	7.05973	26.49639
13. Hudson	.43730	14.52862	5.10536	5.37796	25.44924
14. Janesville	.43730	17.93244	5.10536	4.62286	28.09796
15. LaPorte City	.43730	15.34097	5.10536	8.18195	29.06558
16. Raymond, Waterloo	.43730	13.66400	5.10536	4.46047	23.66713

TOWNSHIPS	Area Voc. School	School	County	Township	TOTAL
1. **Barclay, Dunkerton**	.43730	13.76215	7.36164	.09750	21.65859
2. Barclay, Jesup	.43730	13.04845	7.36164	.09750	17.94489
3. **Bennington, Denver**	.43730	16.19403	7.36164	.28422	24.27719
4. Bennington, Dunkerton	.43730	13.76215	7.36164	.28422	21.84531
5. Bennington, Wapsie Valley	.43730	11.61225	7.36164	.28422	19.69541
6. **Big Creek, LaPorte City**	.43730	15.34097	7.36164	.20250	23.34241
7. Big Creek, Vinton	.46258	11.68370	7.36164	.20250	19.73042
8. **Black Hawk, Hudson**	.43730	14.52862	7.36164	.28388	22.61143
9. Black Hawk, Dike	.43730	10.51754	7.36164	.28362	18.60010
10. **Cedar, Waterloo**	.43730	13.66400	7.36164	.12750	21.59044
11. Cedar, LaPorte City	.43730	15.34097	7.36164	.12750	23.26741
12. **Cedar Falls, Cedar Falls City**	.43730	15.39025	7.36164	.19813	23.35732
13. Cedar Falls, Dike	.43730	10.51754	7.36164	.19813	18.51461
14. Eagle, Dysart-Geneseo	.43730	11.82377	7.36164	.25088	19.87359
15. Eagle, Hudson	.43730	14.52862	7.36164	.25088	22.57844
16. Eagle, Waterloo	.43730	13.66400	7.36164	.25088	21.71382
17. **East Waterloo, Waterloo**	.43730	13.66400	7.36164		21.46294
18. East Waterloo, Dunkerton	.43730	13.76215	7.36164		21.56109
19. **Fox, Jesup**	.43730	10.04845	7.36164	.09650	17.94419
20. Fox, LaPorte City	.43730	15.34097	7.36164	.09650	23.23641
21. **Lester, Dunkerton**	.43730	13.76215	7.36164	.29728	21.65937
22. Lester, Wapsie Valley	.43730	11.61225	7.36164	.29728	19.70847
23. **Lincoln, Hudson**	.43730	14.52862	7.36164	.22223	22.54979
24. Lincoln, Reinbeck	.43730	10.21407	7.36164	.22223	18.23524
25. **Mt. Vernon, Cedar Falls**	.43730	15.39025	7.36164	.26819	23.45738
26. Mt. Vernon, Denver	.43730	16.19403	7.36164	.26819	24.26116

TOWNSHIPS	Area Voc. School	School	County	Township	TOTAL
27. Mt. Vernon, Janesville	.43730	17.93244	7.36164	.26819	25.99957
28. Mt. Vernon, Waterloo	.43730	13.66400	7.36164	.26819	21.73113
29. **Orange, Waterloo**	.43730	13.66400	7.36164	.16467	21.62761
30. Orange, Hudson	.43730	14.52862	7.36164	.16467	22.49223
31. **Poyner, Dunkerton**	.43730	13.76215	7.36164	.24520	21.80629
32. Poyner, Jesup	.43730	13.04845	7.36164	.24520	18.09259
33. Poyner, LaPorte City	.43730	15.34097	7.36164	.24520	23.38511
34. Poyner, Waterloo	.43730	13.66400	7.36164	.24520	21.70814
35. **Spring Creek, LaPorte City**	.43730	15.34097	7.36164	.24109	23.38100
36. Spring Creek, Jesup	.43730	10.04845	7.36164	.24109	18.08848
37. **Union, Cedar Falls**	.43730	15.39025	7.36164	.74250	23.93169
38. Union, Janesville	.43730	17.93244	7.36164	.74250	26.47388
39. Union, New Hartford	.43730	14.61627	7.36164	.74250	23.15771
40. Union, Waverly-Shell Rock	.43730	12.67132	7.36164	.74250	21.21276
41. **Washington, Cedar Falls**	.43730	15.39025	7.36164	.18697	23.37616
42. Washington, Janesville	.43730	17.93244	7.36164	.18697	25.91835

AGRICULTURAL LANDS

CITIES AND TOWNS	Area Voc. School	School	County	Road	TOTAL
1. Waterloo	.43730	13.66400	4.97755	.31173	19.39058
2. Waterloo, Cedar Falls	.43730	15.39025	4.97755	.31173	21.11683
3. Waterloo, Hudson	.43730	14.52862	4.97755	.31173	20.25520
4. Waterloo, C. H., Waterloo	.43730	13.66400	4.97755	.31173	19.39058
5. Waterloo, C. H., Cedar Falls	.43730	15.39025	4.97755	.31173	21.11683
6. Cedar Falls	.43730	15.39025	5.10536	.15178	21.08469
7. Cedar Falls, Hudson	.43730	14.52862	5.10536	.15178	20.22306
8. Cedar Falls, Waterloo	.43730	13.66400	5.10536	.15178	19.35844
9. Dunkerton	.43730	13.76215	5.10536	.....	19.30481
10. Elk Run Heights, Waterloo	.43730	13.66400	5.10536	.....	19.20666
11. Evansdale, Waterloo	.43730	13.66400	5.10536	.33750	19.54416
12. Gilbertville, Waterloo	.43730	13.66400	5.10536	.....	19.20566
13. Hudson	.43730	14.52862	5.10536	.33750	20.40878
14. Janesville	.43730	17.93244	5.10536	.....	23.47510
15. LaPorte City	.43730	15.34097	5.10536	.33707	21.22070
16. Raymond, Waterloo	.43730	13.66400	5.10536	.....	19.20666

TABLE 6

TAX RATES - BLACK HAWK COUNTY, IOWA

LAND USE PLANNING

The existing land use map for the metropolitan area is shown in Figure 15. Land use planning for the Waterloo-Cedar Falls area is coordinated through the Iowa Northland Regional Council of Governments (INRCOG), a regional planning agency, with input from other governmental agencies including the cities of Waterloo and Cedar Falls.

Land use within the transportation corridor has been relatively stable in recent years. The largest portion of the corridor area is zoned residential, although significant commercial, industrial, and park and open space areas are also present.

The City of Waterloo, through its Planning and Programming Commission, professional staff and citizen input, is in the process of developing a long-range land use plan and policy for the community. Some of the goals of the Land Use Plan are as follows: 1) Strive to attain an optimum future land use development pattern which addresses the physical, social, and economic needs of the citizens while enhancing the quality of life in the community; 2) Encourage future development which provides for proper conservation and management of the area's many natural resources; 3) Utilize the provision of public facilities, utilities, and services in a manner which insures that growth will be least costly for the community; 4) Provide equitable services and opportunities to all neighborhoods with a minimum of

disruption to existing, sound development; 5) Strengthen the attractiveness of the Central Business District as a retail, employment, and living area of the community; and 6) Integrate the diverse elements of the urban environment to provide orderly growth and development.

General objectives relating to the transportation system have been developed by the City of Waterloo to serve as guidelines for the relationship between land use and transportation facilities. They include: 1) Utilize programmed, major transportation facilities, such as the extension of I-380, as the backbone of the growth pattern of the community; 2) Define and strengthen the role of each hierarchal level of streets so as to utilize the overall network efficiently while not creating "pressures" on various streets which cannot be feasibly improved to handle increased volumes; 3) Maximize the ratio of mileage of improved streets to development intensity; 4) Associate the intensity of various land use activities directly with the design capacity of highways, thereby increasing compatibility of development and transportation facilities; and 5) Recognize the transportation needs of the area and promote a safe and efficient network of streets, roads and highways.

The City of Cedar Falls, through its Planning and Zoning Commission, has defined the following goals and objectives for land use in the Lincoln Street-Roosevelt Street area near the proposed Freeway 518-U.S. Highway 20 interchange: 1) Provide for orderly growth and development that will minimize any adverse impact on the environment; 2) Provide for properly located and well-designed neighborhood and community facilities to better accommodate both pedestrians and vehicles; 3) To promote the location of new industrial development in selected areas having adequate service and minimum environmental

impact; 4) To recognize the transportation needs and promote a safe, pleasant and efficient network of streets, roads, and highways; and 5) The City of Cedar Falls anticipates expanded commercial development along the west and possibly east side of Roosevelt Street in response to development of Interstate 380.

As indicated, the proposed extension of I-380 is consistent with the land use goals and objectives of Waterloo and Cedar Falls, and has been incorporated into the future land use planning for the area. Potential impacts of the proposed action, such as land use changes or accelerated development in areas where accessibility is improved, are considered among the goals of land use planning.

A future land use map has been prepared from information furnished by INRCOG, and is shown in Figure 16. As part of this study, areas have been determined where more rapid development is likely to occur because of improved accessibility (see "Index of Development Pressures", Appendix Volume VII). To date, the projected changes are consistent with current land use planning. The City of Waterloo, in anticipation of the I-380 extension, has attempted to maintain compatible land use within the project corridor during recent years.

Secondary impacts of the proposed action may consist of changes in the goals of land use planning or land use changes away from the immediate corridor. Secondary impacts of freeway-type construction are difficult to predict because of the influence of other community planning factors and controls. Economic factors could also drastically alter the direction of

future land use. Because of the long history of planning for the extension of Interstate 380, and considering its incorporation into the future land use planning of the area, secondary impacts relative to land use are expected to be minor.

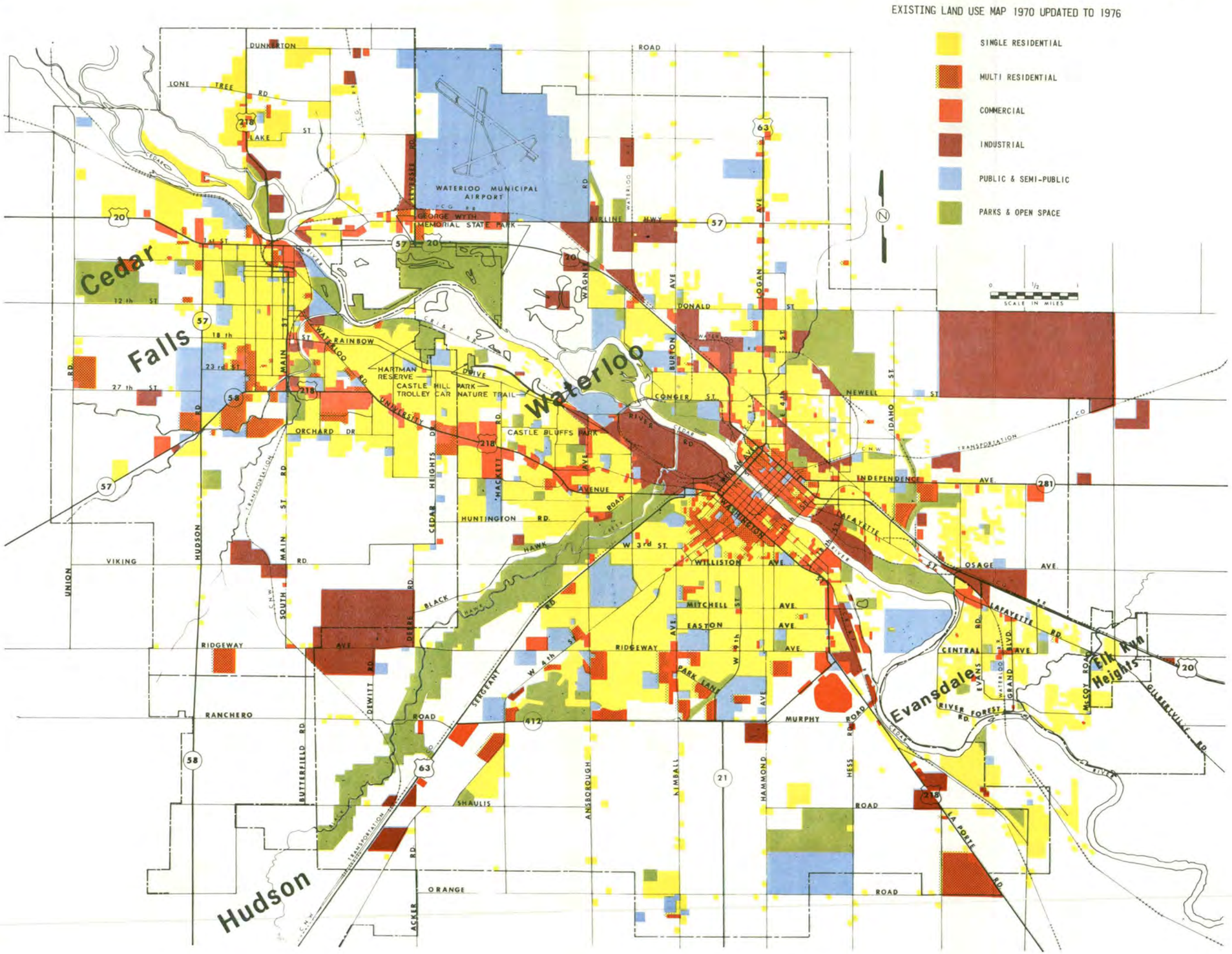
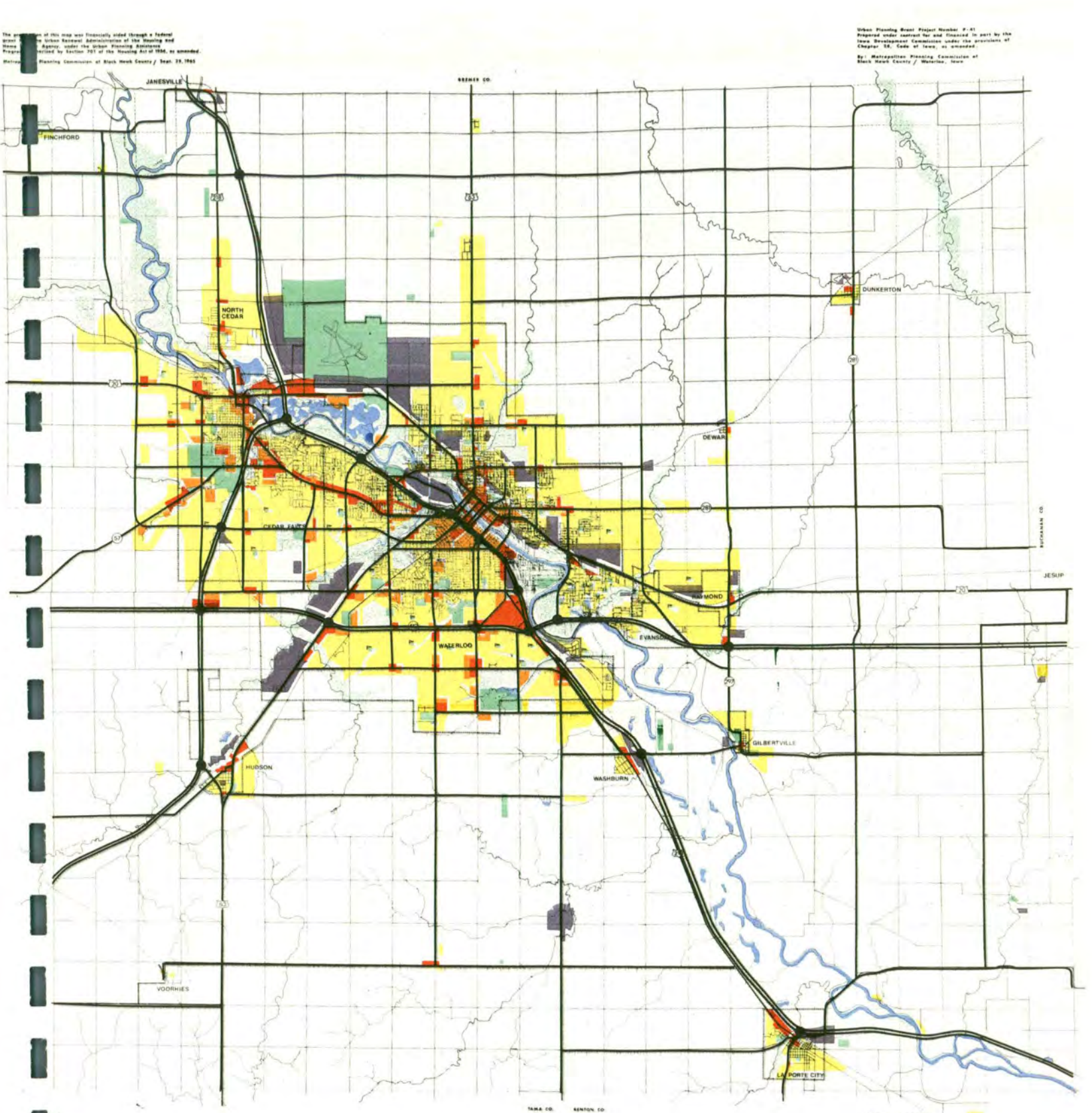


FIG. 15. EXISTING LAND USE MAP.



The preparation of this map was financially aided through a federal grant from the Urban Renewal Administration of the Housing and Home Finance Agency, under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

Metropolitan Planning Commission of Black Hawk County / Sept. 29, 1965

Urban Planning Grant Project Number P-41
Prepared under contract for and financed in part by the Iowa Development Commission under the provisions of Chapter 16, Code of Iowa, as amended.

By: Metropolitan Planning Commission of Black Hawk County / Waterloo, Iowa

metro

METROPOLITAN PLANNING COMMISSION of Black Hawk County

LAND DEVELOPMENT PLAN

A PROPOSED PATTERN FOR THE ARRANGEMENT OF FUTURE LAND USES

FIG. 16 FUTURE LAND USE PLAN

PROBABLE IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT

Natural, Ecological, or Scenic Impact

The majority of the following discussion relates to the portion of the project corridor north and west of the Ansborough Avenue-Rainbow Drive intersection. Much of the aforementioned area is relatively natural, undeveloped land within the Cedar River floodplain. The remainder of the project corridor is predominantly urbanized and developed land.

The portion of the corridor to be studied was traversed by foot to locate areas of native vegetation and fauna. Figures 17 and 18 present the location of major vegetation types encountered. Sites were chosen in order to represent the various vegetation types as well as to represent areas along the different alternates under consideration (see Figure 19). Vegetation quality as indicated by species composition, diversity, density, frequency, and dominance was assessed at each site. Surveys of animal life at each site were conducted. Existing vegetation and fauna have previously been discussed under "Social, Economic and Environmental Context of the Area", and a comprehensive report of the ecological study is included in Appendix Volume VIII. (The latter report also contains listings of common and scientific names of flora and fauna observed in the corridor).

Impact on Vegetation

The primary impact of the proposed highway construction within the above defined area will be the removal of natural vegetation during the construction phase. Segments of upland forest, second terrace forest,

floodplain forest, and mixed vegetation along the railroad right-of-way will be removed. None of these areas contain rare or endangered species. The effects of vegetation removal will be most detrimental on the upland forest, as this is the rarest forest vegetation type in the area, as well as the one that takes the longest to replace itself after disturbance. In addition, the upland forest occurs on steep slopes that are susceptible to soil erosion.

Any unnecessary disturbance to adjacent vegetation, either by construction machinery or human trampling, should be avoided, particularly in areas of good quality vegetation (see Figure 18). Revegetation of areas left bare after construction will be as soon as possible. Any planting will be of species native to the particular vegetation type of the site. In the strip immediately bordering the highway, native prairie grasses are suggested. Impacts other than the direct removal of vegetation during the construction phase are listed below.

Soils

The amount of area directly exposed by construction activities will be susceptible to erosion, and topsoil removal will inhibit future plant growth. This impact will be greatest in areas where steep slopes are now covered by vegetation (Site 2, Figure 19). Increased soil in surface runoff will lead to increased siltation of aquatic systems. These levels may become high enough during certain periods of construction to adversely affect aquatic life.

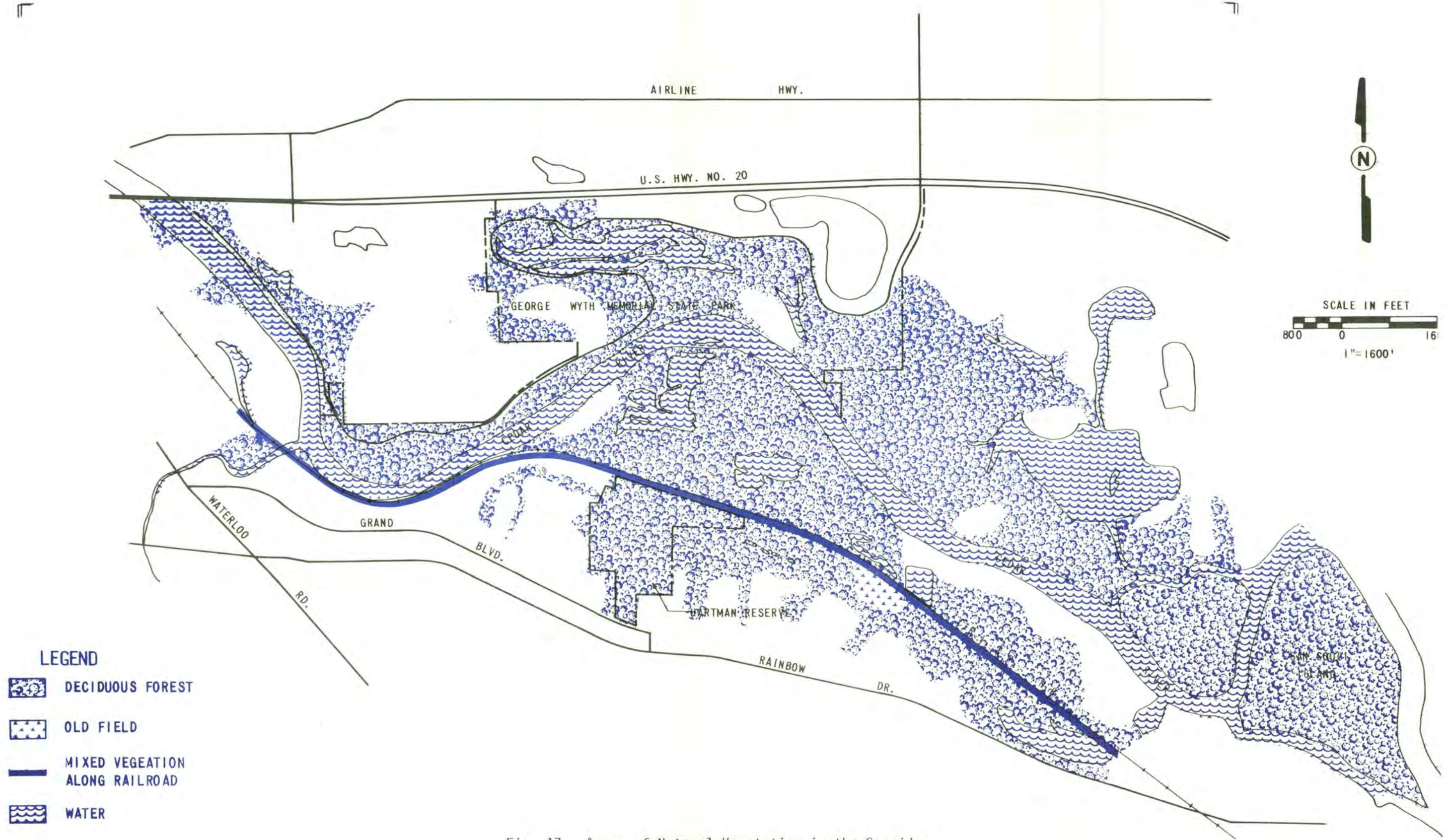


Fig. 17. Areas of Natural Vegetation in the Corridor.

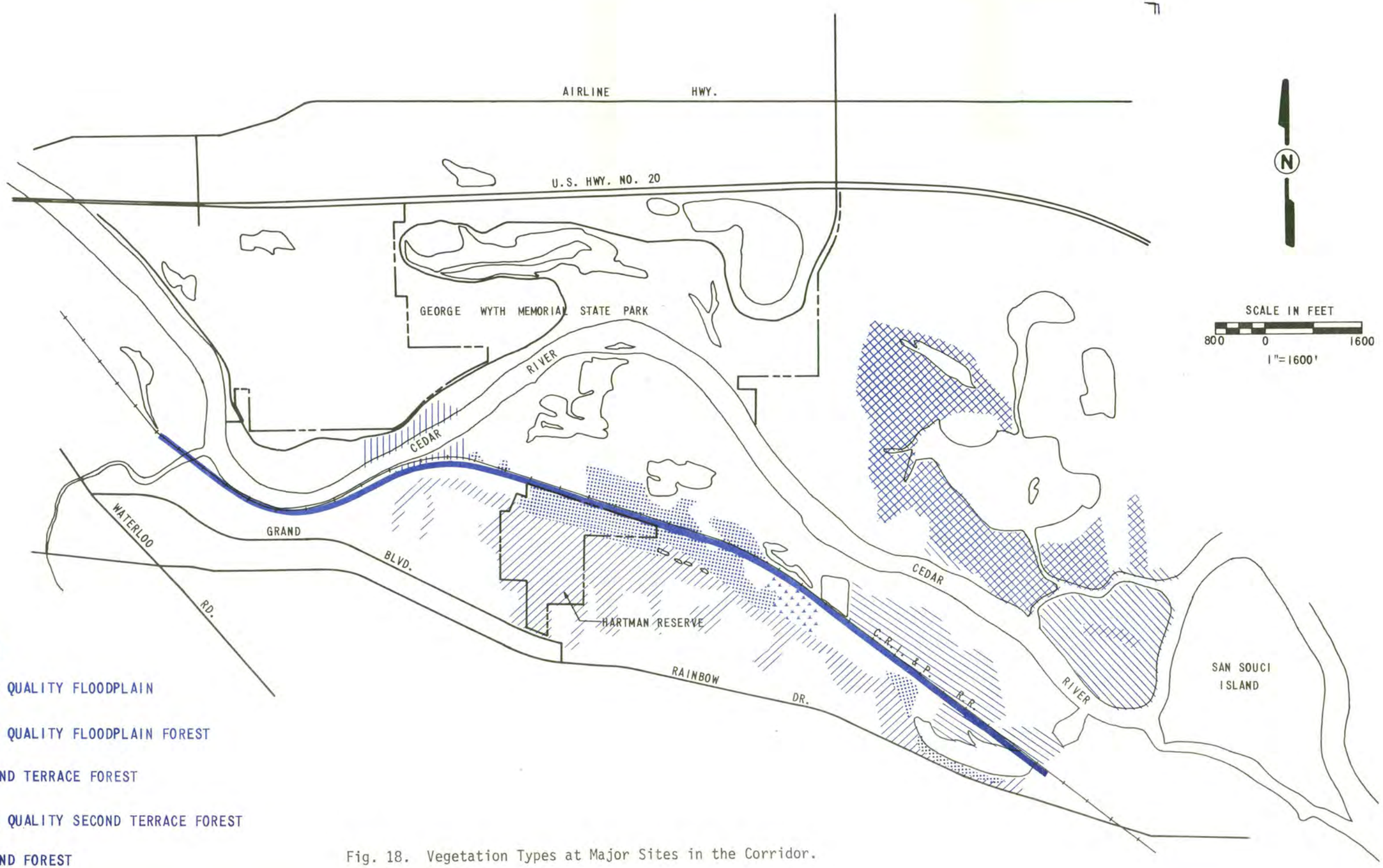


Fig. 18. Vegetation Types at Major Sites in the Corridor.

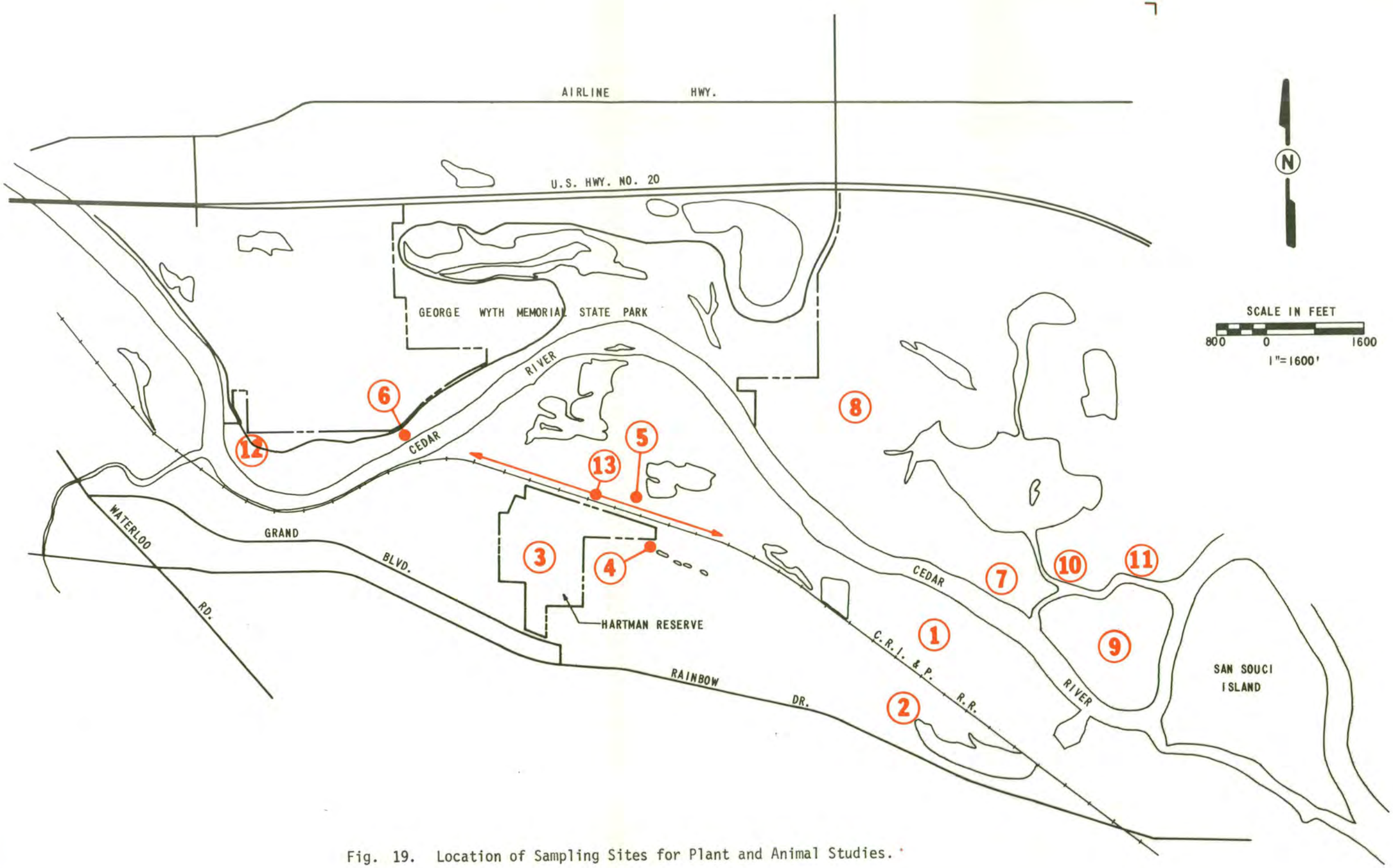


Fig. 19. Location of Sampling Sites for Plant and Animal Studies.

Any changes in soil characteristics as a result of construction will indirectly affect the vegetation. Soil compaction lowers soil moisture and aeration. Clearing of vegetation results in increased soil temperatures and lower soil moisture. Soil moisture and temperature affect soil organisms and, in turn, most of the terrestrial ecological relationships.

Stabilization of areas susceptible to erosion and restoration of vegetation on bare areas after construction will have a beneficial effect on soil organisms. The time frame for restoration of normal soil life will depend on the success of revegetation.

Fill Transport

A change in plant species composition of an area may accompany the removal of fill from a lowland location to an upland location. Along with the different soil type, seeds of the lowland species will also be transported. Escape of lowland "weedy" species could impair the character of upland communities. The sites where the potential for this impact exists are Site 2 (Alternates A, B, C(RRX), and C(RR); Figure 19), and Site 4 (Alternates A and B, shown in Figure 19). Highway management of vegetation along the right-of-way will concentrate on eliminating weedy lowland species from the upland.

Weedy Species Introduction

Any operation which removes or seriously disturbs natural vegetation may lead to an invasion or increase in weedy species. Weedy species may be better competitors than the naturally occurring species and may partially or wholly replace them. However, many of the plant species now present in the corridor are weedy, indicating past or current disturbance.

Maintenance Chemicals

De-icing chemicals, particularly sodium chloride, are known to have detrimental effects on roadside vegetation. Injury comes not only from saline contamination of surface runoff, but also from direct contact of the plant surfaces with spray from vehicles.

Salt apparently interferes with normal photosynthetic and respiratory process, and results in burned or browning foliage and a die-back of shoot tips. Several tree species especially susceptible to salt toxicity, such as sugar maple (acer saccharum), occur in the corridor. Aquatic vegetation could potentially be affected by high concentrations of salt in highway runoff. Algal blooms, mercury contamination, and cyanide contamination have been associated with salt runoff into aquatic systems.

Effects on terrestrial vegetation are minimized by highway design plans which call for the routing of most surface runoff to the Cedar River. Thus, the major source of surface contamination will be vehicular spray. Where sensitive vegetation occurs, the area can be screened from direct vehicular spray by planting of salt resistant tree species and by lining right-of-way fences with plastic strip screen.

Other unavoidable secondary impacts to vegetation include herbicides used in highway maintenance, heavy metals in surface runoff, air pollution, drainage system changes, and chemical spills during construction

Impact on Fauna

Although located within an urban area, the I-380 extension corridor contains areas of excellent animal habitat and a variety of animal life. The primary

impact of the proposed highway construction on fauna within the study area will be animal mortality and habitat removal. Ground-dwelling and aquatic animals would be particularly susceptible to death as construction proceeds. The microfauna in the soil would also not survive soil disturbances. These organisms are important to the maintenance of nutrient cycling.

Aquatic fauna would be adversely affected by increased sediment load accompanying construction. Certain species of fish can tolerate large quantities of suspended sediment for only relatively short periods of time, especially the eggs and fry. Large quantities of sediment that increase water turbidity and change characteristics of the bottom can adversely affect the invertebrate fauna which serve as fish food. Construction work within the Cedar River may cause loss of food essential to fish life and disruption of food chains in that reach of the river.

The deaths of animals in the highway path is unavoidable. None of these species are rare or endangered. However, the blue-spotted salamander (Amblystoma laterale) is very uncommon, only occurring in two locations in Iowa. It is strongly recommended that a survey for this species be undertaken in areas where the highway passes through this species' habitat, and that individuals be relocated in suitable adjacent habitat.

Removal of habitats provided by vegetation, topsoil, detritus and aquatic areas at construction sites would directly affect species which depend on them for survival. Permanent changes in habitat types would result in shifts in faunal species composition to those animal life species more adapted to the new habitat types. An additional impact would be the resultant pressure placed on ecosystems adjacent to the new highway if

fauna that formerly occupied the area were forced into these adjacent areas. The ability to sustain animal life in these adjacent areas may be exceeded, thus leading to a deterioration of the habitat and in turn a reduction in the animal populations.

Measures to control soil erosion during and after construction will be provided. Revegetation should proceed as quickly as possible to restore habitats. The planting of native species is urged, as this would encourage the return of native animal life to the area. Although the highway will have removed animal habitat, the highway right-of-way has the potential for creating new habitats that are favorable for certain native animals. The planting of native grasses, forbs, and shrubs immediately adjacent to the highway would provide food and cover for many grass-eating, seed-eating, and browsing species. Small rodents, seed-eating birds, and insects would utilize this new habitat. Further from the highway, planting of native shrubs would provide additional habitat for a variety of animals. The borrow site reservoir will provide new aquatic habitat in the area.

Impacts on fauna other than removal of habitat and animal mortality during construction are listed below:

Construction Noise

High noise levels from heavy construction equipment and haul trucks, although short-range, cause adverse effects on a population during certain periods in the life cycle. Noise abatement equipment will be used to decrease this impact.

Road Kills

Animal mortality resulting from collision with vehicular traffic is the most conspicuous effect of a highway on fauna. Large terrestrial species which routinely traverse large areas in search of food, such as white-tailed deer (Odocoilus virginianus) will be especially susceptible to danger from vehicular traffic. Other animals that are often road kill victims include small mammals, birds feeding on the highway or flying into the path of vehicles, amphibians, particularly if they have to cross a road during the breeding season, reptiles, and insects. For most animal species, however, information on local animal populations is inadequate to determine whether or not road kill has any significant effect on population numbers.

Travel Lane Barriers

A highway roadbed can often effectively block travel by animals that refuse to venture on the highway. Small forest mammals such as the eastern chipmunk (Tamias striatus) and the white-footed mouse (Peromyscus leucopus) are reluctant to venture onto road surfaces where the distance between forest margins exceeds 20 meters (66 feet). Medium-sized mammals will cross roads wider than 20 meters. The barrier could block passage of upland forms to water sources in the lowland, block lowland forms movement to upland areas during flooding, restrict gene flow between populations, and eliminate dispersal as a population regulation mechanism.

Noise

The noise levels projected for the proposed highways are not intense enough to produce permanent hearing losses in wild animals; however, chronic exposure to moderate noise levels could produce some hearing loss and/or influence processes that are hormonally regulated, particularly stress reactions and reproduction. Another impact is the masking effect that noise might have on the normal signals of animal communication. Based on the noise levels projected for the highway, the only effect of highway noise on animals will be to mask communication signals.

Surface runoff pollutants and air pollutants are other unavoidable secondary impacts. Accessibility to previously remote natural areas and business development in such areas would also affect animal life.

Scenic Impact

The proposed I-380 extension will create an impact on scenic values along its alignment, especially within the Cedar River floodplain area. Due to the low elevation and frequent flooding of this portion of the corridor, the proposed highway will be elevated above the existing ground, creating a visible change to the present land form. Another visual change will occur at the borrow site for the project, as significant quantities of earth fill will be removed.

Impact on scenic values are additionally discussed under "Aesthetics", "Earth Borrow", and "Parks and Recreation Areas". Detailed drawings, landscaping plans, and artistic renderings of the proposed alternatives are included in Appendix Volumes II, III, and VIII.

Relocation Impact

The proposed extension of I-380 will involve the relocation of 196 to 242 home-owner housing units and 187 to 225 rental housing units, depending on the alternative selected. In addition, railroad relocation which is integral to some of the I-380 extension alternatives will include the relocation of 13 to 17 home-owner units.

Family characteristics of persons to be relocated range from low to middle-class relative to income, and most are white relative to race. No neighborhoods of significant ethnic concentration are either traversed or split by the proposed I-380 extension. The overall number of persons to be displaced by the various I-380 alternatives ranges from 1,021 to 1,283. Of the persons affected, approximate family characteristics include the following: 32 percent are under age 18, 17 percent are over age 62, and 0.3 percent are black.

An estimate of the income levels for potential relocatees was made, based on average income patterns throughout the census tracts traversed by the proposed alternatives. (Information on individual incomes of persons living in the corridor is not available.) According to these estimates, approximately 17 to 20 percent of the households to be relocated will be in the "low income" category; that is, having incomes below the poverty level.

Each of the I-380 alternatives generally follows existing neighborhood boundaries, including La Porte Road and the Chicago, Rock Island and Pacific Railroad. Existing neighborhoods will not be divided by the I-380 extension, and no individual residences will be isolated by its construction.

Acquisition payments will be made to all owners whose property is to be acquired. Such payments are based on fair market values, and will be determined by appraisal of the properties at the time of acquisition. This appraised value will be in accordance with current real estate selling prices at the time of acquisition.

In addition to acquisition payments, all eligible relocatees of the project will receive relocation assistance from the Iowa Department of Transportation in compliance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970 and House File 182, 64th General Assembly, State of Iowa.

The Relocation Assistance Program assists owners and tenants displaced by a highway project in finding decent, safe and sanitary housing. It offers payment to displaced landowners, tenants, businesses and farm operations for actual moving expenses. Additional payments are made when necessary, to assist in finding comparable replacement housing. In the event comparable replacement housing is not available, last resort housing would allow housing to be constructed in conjunction with the proposed highway project.

The availability of adequate housing for potential relocatees is an important consideration should any one of the construction alternatives be adopted.

In their Housing Strategy Update (1975), the Iowa Northland Regional Council of Governments reported that the net increase in housing units in the Waterloo-Cedar Falls metropolitan area between the period of 1970 and 1975 was 2,438 units; approximately 488 units annually. Although this was considered "an accelerated growth pattern of housing stock", the current (late 1976 and early 1977) housing vacancy rate in the Waterloo-Cedar Falls area may be described as relatively "tight". It has been estimated that the current vacancy rate in Waterloo is somewhere between 0.6 and 1.6 percent, while in Cedar Falls the rate has been estimated at between 1.3. and 5.0 percent. Regarding Cedar Falls, city officials have indicated that the vacancy rate for multi-family units in October, 1976, was 5.0 percent, while the rate for single-family units for the same period was 0.3 percent.

There are several housing projects now in the planning stages in the metropolitan area; included are 80 Housing and Urban Development "Section 8-Elderly" apartments and 50 "Section 8-Family" units in Waterloo. Since mid-1975, in excess of 526 acres of land in Waterloo have been approved for R-1 (Single-Family Housing) through R-4-RP (Multiple Residential and Planned Residential Housing) developments. In Cedar Falls, 1,200 multi-family units are planned for the southern area of the city. Given these potentials for development, in relation to the number of housing units displaced for Systems 2 through 8 (estimated to be between 1.6 and 1.9 percent), one may conclude

that there should be sufficient housing available for most relocatees. The one exception to this forecast concerns low-income households. Since it has been estimated that a number of relocatees are low-income people, it is possible that "last resort housing" may have to be considered for these individuals since many of the newer housing developments may be beyond their financial means. Should "last resort housing" become necessary, it is estimated that the total number of units required would not exceed 100. The development of additional Section 8 housing is also anticipated to supplement this need.

It is anticipated that services in both cities, consisting of water supply and distribution, solid waste collection and disposal, electric service, hospitals, schools, local street system; fire, police, and ambulance services, will be able to cope with anticipated growth. The natural gas supply is limited in both cities. The City of Waterloo is better able to accommodate sewer system expansion than the City of Cedar Falls, although both cities have planning under way to correct all sewer system deficiencies.

Businesses to be displaced by the I-380 extension include 110 to 157 commercial units and 7 industrial units. Most such businesses are expected to relocate within the metropolitan area, as previously discussed. Relocation of any business will cause an impact on its patrons, as they will be required to travel elsewhere to obtain its service or products.

Of the businesses to be relocated, the majority are ordinary businesses such as service stations, restaurants, and stores, which are duplicated at other locations throughout the metropolitan area. Unusual or unique businesses to be relocated by the I-380 extension are listed below:

J.J. Meany Casket Company (Manufacturer of Caskets)

C.W. Shirey Company, Pre-cast & Pre-stressed Concrete (Manufacturer of Pre-cast and Pre-stressed Concrete Products)

Weissman Iron & Metal, Inc. (Processor of Scrap Iron and Steel)

Arthur Murray Dance Studio (Dance Instruction)

Waterloo Sickroom Equipment and Supply (Sales and Rental of Hospital Supplies and Equipment)

Waterloo Bus Depot

While it is the option of individual businesses to cease operation or to relocate in the event of their displacement, it is expected that the majority of the above businesses will relocate and remain in operation within the metropolitan area. As discussed under "Economic Impact", new industrial parks are being planned and developed within the metropolitan area and will accommodate industrial relocation.

Social Impact

As previously stated, the proposed I-380 extension will have minimal impact on established neighborhoods and ethnic concentrations.

Schools and school attendance boundary lines will not be affected by the I-380 extension, and no change in current school busing patterns will be required by the project. No churches will be acquired for the proposed construction.

Travel patterns and access to community centers will be changed by the I-380 extension. In general, accessibility to local educational, religious, recreational, medical, and business areas will be improved by the proposed project, although the degree of accessibility depends on the

particular origin and destination of each trip. For a small percentage of the trips, accessibility and travel times may be adversely affected by street closures which will accompany the I-380 construction. Accessibility related to fire and police protection and ambulance service will be generally improved by the construction of I-380. Additional data on accessibility is included under "Effects on Transportation Factors".

Economic Impact

The economic impacts of the proposed I-380 extension include commercial-industrial relocation, effects on businesses, effects on employment, changes in property values, and changes in tax base.

Relocation

The following industrial units will be relocated by each of the I-380 alternatives: 1) Weissman Iron & Metal, Inc., 700 Falls Avenue; 2) Weissman Steel Supply, 700 Falls Avenue; 3) Pope Manufacturing Company, 530 Falls Avenue; 4) J.J. Meany Casket Company, Inc., 334 Falls Avenue; 5) C.W. Shirey Company, Pre-cast & Pre-stressed Plant, 1845 La Porte Road; 6) American Professional Color Corporation, 405 West Fourth Street; and 7) John Deere Waterloo Tractor Works, Department 68, 338 Rock Island Avenue.

Approximately 327 people are employed by these industrial firms with the exclusion of Department 68 of the John Deere Waterloo Tractor Works. Construction of the I-380 extension will require the noted firms to relocate. The C.W. Shirey Company, Pre-cast & Pre-stressed Plant may be able to be accommodated at its present site; American Professional Color Corporation is expected to relocate to a new site within the metropolitan area in the near

future; and it is anticipated that most of the other firms will relocate within the metropolitan area at the time of construction, thus preserving all existing industrial jobs. The most difficult relocation will involve Weissman Iron & Metal, Inc.

The number of commercial units to be relocated by the proposed I-380 extension varies from 110 to 157, depending on the alternative chosen. It is difficult to know the future plans of the businesses which will be relocated by the I-380 extension. Many of these firms will relocate within the metropolitan area as close to their present area of service as possible, while others may cease to operate. New industrial and commercial parks are being planned and constructed within the metropolitan area and they will easily accommodate relocated businesses or industries.

Business Activity

There are four major shopping centers in the metropolitan area that will experience a positive impact from the presence of the I-380 extension. These shopping centers are Crossroads, Downtown Waterloo, Downtown Cedar Falls, and College Square. Other shopping centers scattered throughout the metropolitan area tend to serve a more localized market mostly from within the city. Accessibility to major shopping areas will be improved by the I-380 extension, both to shoppers located along the I-380 alignments and in the communities surrounding the metropolitan area.

New business activity may develop along portions of the I-380 alignments where accessibility is improved. Such expansion has been anticipated and planned for in areas of Waterloo and Cedar Falls (see "Land Use Planning").

Employment

A major construction project such as the I-380 extension will generate new jobs during the construction process. Additional jobs will be created in service capacities unrelated to the basic (construction) jobs. It is estimated that for each person hired to fill a basic job in the Waterloo-Cedar Falls SMSA, an additional 1.96 people will be hired in a service capacity (see Volume VI). Thus the "employment multiplier" for the Waterloo-Cedar Falls area is 2.96.

Total employment opportunities generated by the I-380 extension are estimated at 2,400 to 3,000 new jobs, depending on the alternative selected. The increase in job opportunities will result in a sharp reduction in unemployment during the construction period. When the construction is completed, the economic development spurred by the highway accessibility will continue to rise and provide job opportunities to replace the employment created by the highway construction.

Property Values

Property values for tracts of land near the proposed I-380 extension will be affected by its construction. Improved accessibility will enhance the value of such land, especially for commercial or industrial properties near the proposed interchanges. Residential properties and other properties farther from the proposed alignments will increase in value to a lesser degree.

Certain effects of the I-380 extension will tend to depress the value of properties abutting or in close proximity to the highway. Noise, air

pollution, scenic disamenities from the highway, and lesser accessibility may well lower some property values. The adverse effect on value would be greater for some kinds of land use, such as residential or recreational development, than for other uses. For some forms of industrial and commercial land uses the noise, air, and visual effects of highways would have little if any adverse influence on property values.

Overall land values are projected to increase upon construction of the I-380 extension. Average value of all residential properties affected by the I-380 extension, including abutting and non-abutting properties, is projected to increase by approximately $1,200 per home upon completion of the I-380 construction. Increases in land values for commercial and industrial properties will vary considerably, depending on their location, zoning and other factors.

Tax Base

In highway and freeway construction there are three major factors that influence the urban tax base: 1) acquisition of right-of-way; 2) changes in existing property values; and 3) property development.

By the acquisition of right-of-way, property reverts to public ownership, resulting in a tax base loss. Through time, services to these areas, by local government, are reduced and property owners move to new locations, thereby restoring the lost tax base. Further, industrial and commercial activities develop along the system, where zoning permits, and enhance the tax base. Consequently, there is a general trend to regain the lost tax base within a short period of time.

The City of Waterloo, the Waterloo Community School District, and Black Hawk County will experience the primary tax loss attributable to the proposed I-380 extension. Other areas which will experience a minor tax loss include: 1) Area Vocational School; 2) Cedar Falls School District; 3) City of Cedar Falls; and 4) Cedar Falls Township.

Total taxes lost by the construction of the I-380 extension will range from $302,400 to $407,400 during the first year, depending on the alternative selected (based on current tax rates). It is estimated that tax gains of approximately five percent will be realized within five years following the construction of the I-380 extension.

Additional data and computations regarding economic impacts are included in Appendix Volume VI.

Air Quality Impact

Overall air quality within the Waterloo-Cedar Falls metropolitan area is projected to be more desirable under the construction alternatives of I-380. Under the "Do Nothing" alternative, total carbon monoxide emissions are predicted to decrease by approximately two tons per day under the I-380 construction alternatives, as compared with the "Do Nothing" alternative (total carbon monoxide emissions for the "Do Nothing" alternative are projected at 19.6 tons per day for year 2000). Carbon monoxide is the major pollutant addressed, as it represents the largest percentage of total vehicle emissions. Other motor vehicle-related air pollutants are not presently identified as a problem in the urbanized areas of Iowa.

The diversion of traffic from existing streets to the proposed extension of I-380 will have a beneficial effect on air quality as experienced in areas adjacent to the existing street network. The proposed alignments of I-380 will introduce mobile source air pollution into areas not now subject to highway traffic, although the effects will be lessened by the increased distance from source to receptor under interstate highway geometrics. That is, a sufficient buffer zone is created by the freeway right-of-way to dilute the pollutant concentrations to innocuous levels by the time they are transported to the sensitive receptor. As a result, pollutant concentrations attributable to expected I-380 traffic volumes are predicted to be below the National Ambient Air Quality Standards and any of the construction alternatives are considered consistent with Iowa's Implementation Plan for maintenance of those standards.

The above conclusions regarding the effects of the construction alternatives upon the air quality of the project study area were based on information derived from the project air quality analysis. The methodology utilized included a microscale analysis (California Line Source Dispersion Model) to estimate representative pollutant concentrations at individual sites adjacent to a particular roadway, a mesoscale analysis to compare the various alternates according to total pollutant burden, and an urban diffusion model (APRAC-1A) to approximate pollutant concentrations at specified locations due to the entire surface network. No on-site monitoring was conducted as a part of the analysis. Computer modeling was used for the microscale and urban diffusion predictions.

An effort was made to apprise Iowa's Department of Environmental Quality (DEQ) of the location and scope of the proposed project along with the alternatives under study. The letter documenting this early coordination with the DEQ's Air Quality Managment Division is attached to this report. (Appendix "B").

Noise Impact

The I-380 project is expected to have both adverse and beneficial effects upon the existing noise environment within the study corridor. In the case of the construction alternatives, all of the alignments under consideration would divert a significant amount of traffic from the existing street network and in so doing would reduce the traffic noise levels on various city streets throughout the study area. On the other hand, the construction alternatives would introduce freeway traffic noise into sensitive areas which are now devoid of significant traffic noise levels. The "Do Nothing" and "Street Widening" alternatives would impose adverse noise impact upon land use adjacent to existing city streets as traffic volumes would continue to increase.

All of the construction alternates would subject nearby homes to noise levels in excess of the design noise levels prescribed for residential land use (FHPM 7-7-3). In some instances the alternate will be so located in relation to the affected homes that traffic noise mitigation features can be applied. In other instances, the reduction of noise at the homes to acceptable levels would be contrary to current land use planning or economic reasonableness. In the latter case, exceptions to the applicable design noise levels will be requested.

The following discussions will summarize the findings of the Noise Study report (see Volume VIII). The noise analysis was conducted in accordance with current methodology and no attempt will be made here to define the procedures and terminology involved in the study. Reference to the manual, Fundamentals and Abatement of Highway Traffic Noise, (Bolt Beranek and Newman, 1973) is recommended for technical background information regarding traffic noise and its control. (See Figures 20 and 21 for location of areas and sites included in the noise analysis).

The sensitive site analysis portion of the project noise study consists of: 1) measuring the existing noise at noise sensitive land use adjacent to the proposed I-380 corridor, 2) predicting the design year noise levels at these locations under conditions of the I-380 construction alternates, and 3) comparing the predicted future noise levels to the measured existing noise levels and to the established design noise levels in an effort to quantify the noise impact. This information is then followed up by recommending noise abatement measures where such features could be successfully applied.

Table 7 presents 18 study sites located in the area of the proposed I-380 corridor which would be most severely affected by traffic noise from the I-380 alternate. Beginning near the southern project terminus the sites are numbered from southeast to northwest along the proposed I-380 alignment. It should be noted, that when more than one I-380 alternate is shown to affect a site, the predicted L_{10} reflects the effect of that alternate which is expected to have the highest design year traffic volume in that section; therefore, the "worst case" conditions are shown. Also included in the sensitive site data are the estimated year 2000 L_{10} without I-380 and the estimated distance from the near lane of I-380 to the generalized 70 dBA L_{10} contour for the year 2000.

Table 8 has been prepared from the data contained in Table 7 and an inventory of the land use to be affected by the predicted noise levels at each site. It serves to summarize the number and types of land uses which would be expected to be severely impacted by I-380 traffic noise, and the anticipated applicability of noise abatement measures.

From Table 8, a total of approximately 150 residences are expected to lie sufficiently near the I-380 corridors being studied to be severely affected by highway traffic noise. Some 115 of these residences are affected by that portion of the corridor which is common to all the alternatives being considered. Sites 12 through 16, which include approximately 15 homes, would be affected only by Alternatives A and B, while Site 7 would be affected by Alternates C(RRX), C(RR), D(RRX), and D(RR). Site 17 (25 homes) would be severely impacted only by Alternate D(RRX) and Alternate D(RR). (Note.--the above-mentioned alternative designations are discussed under "Description of Alternatives").

The noise mitigation proposals will alleviate the traffic noise impact at 75 of the severely affected homes. Approximately 55 residences will continue to experience excessive noise levels after the proposed mitigation measures are taken on that portion of the corridor common to all the alternates. A larger number of homes would be expected to remain affected by I-380 noise although not seriously.

Noise impacts during the construction period would also be expected at the residential areas sited above. The contractors will be required to properly equip and maintain heavy machinery and trucks to reduce noise emissions. Especially noisy activities will be restricted to the daytime hours. Also a good public relations attitude will be encouraged if special problems arise in regard to construction noise.

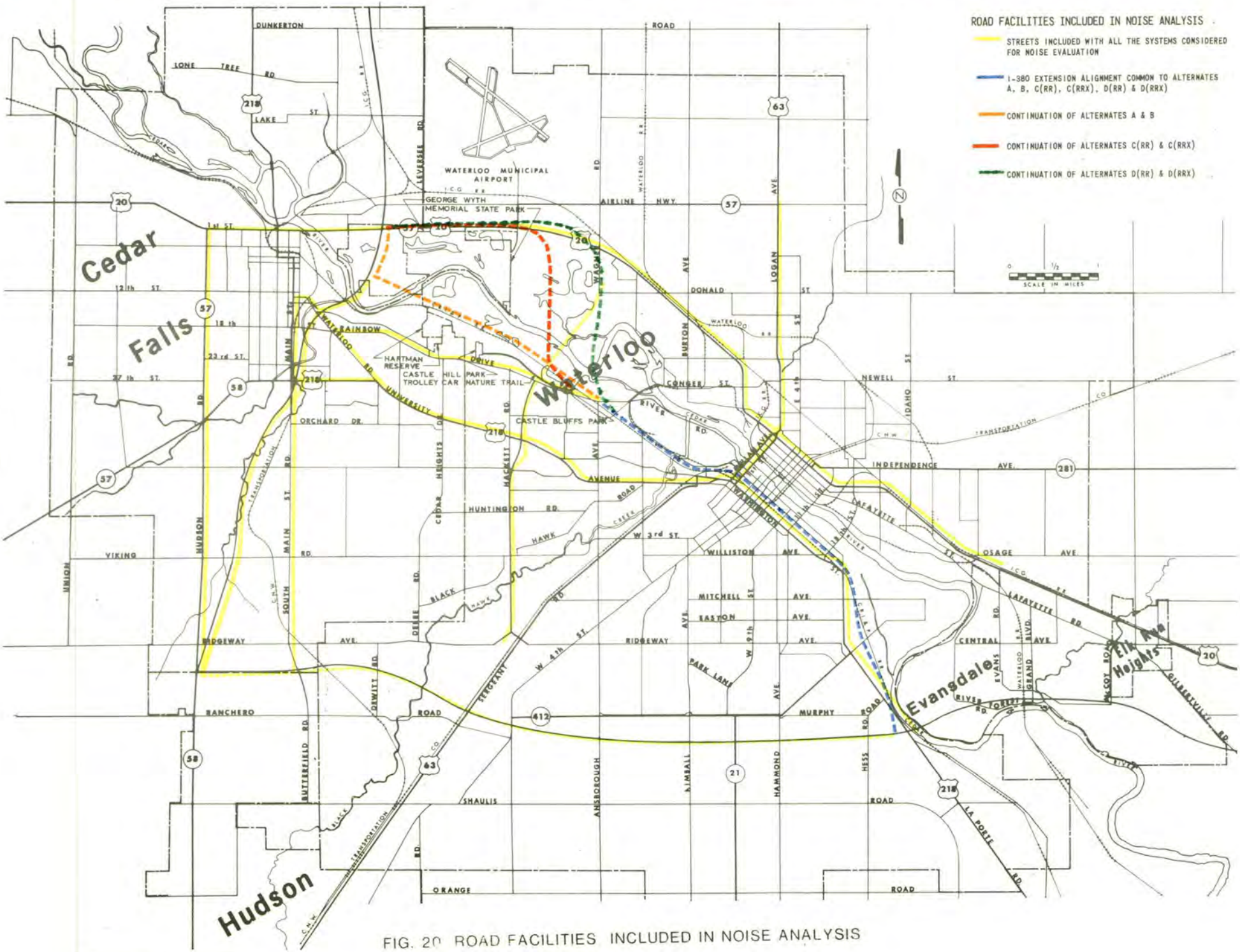


FIG. 20 ROAD FACILITIES INCLUDED IN NOISE ANALYSIS

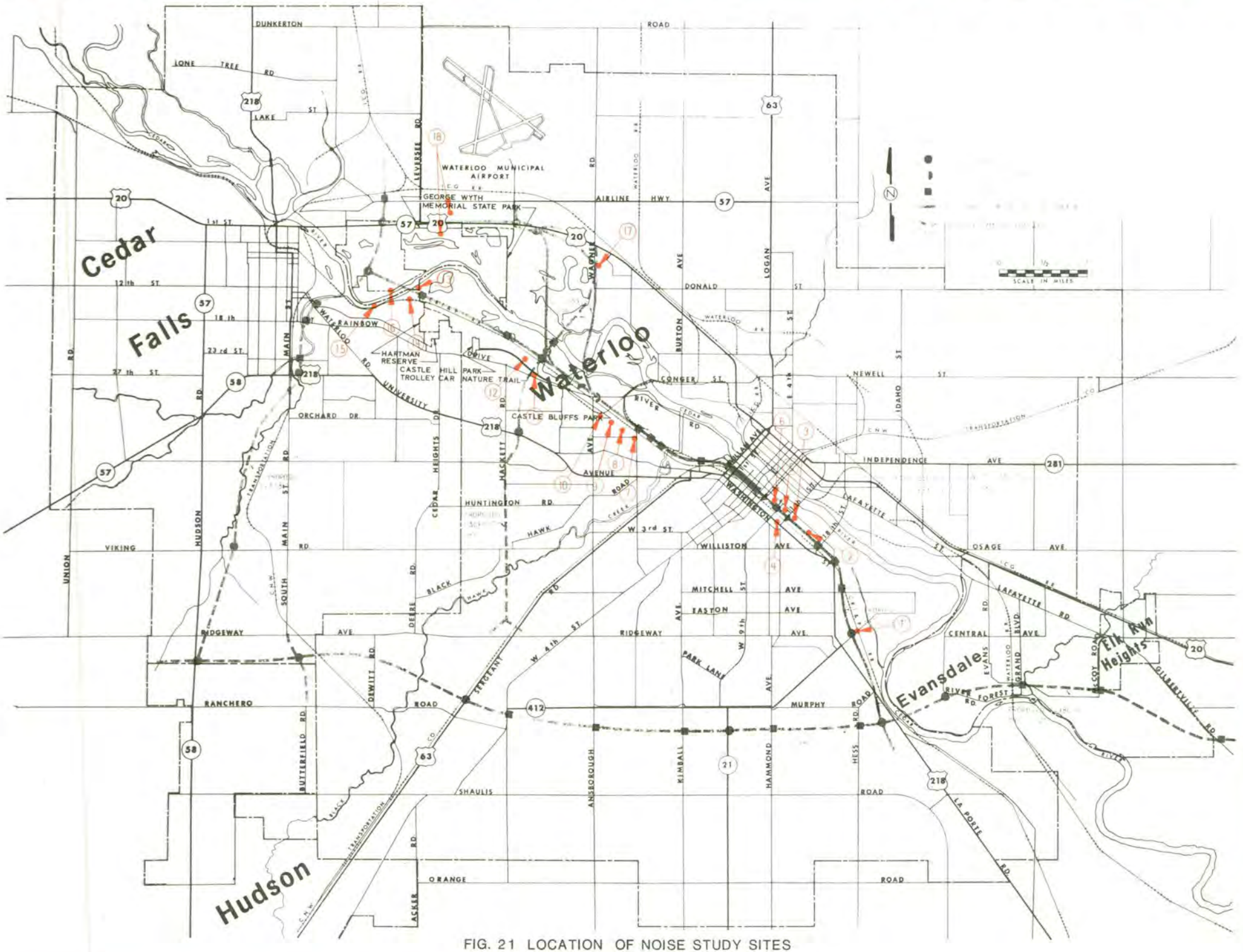


FIG. 21 LOCATION OF NOISE STUDY SITES
FOR SENSITIVE SITE ANALYSIS

TABLE 7

SENSITIVE SITE DATA

Site No.	Land Use	Location	Affecting I-380 Alt.	Measured Exst. L_{10}	Predicted 2000 L_{10}*	Dist. to 70 dBA Contour
1	Residential	Locke Avenue	All	45	77(64)	315'
2	Residential	15th Street	All	50	79(64)	325'
3	Residential	13th Street	All	60	76(67)	300'
4	Residential	11th & Washington	All	76	83(88)	300'
5	Residential	10th Street	All	55	77(63)	290'
6	Residential	7th & Jefferson	All	55	81(72)	235'
7	Residential	Bismarck Ave. & Cleveland Street	All	45	72(45)	315'
8	Residential	Englewood & Stratford	All	45	73(45)	315'
9	Residential	Main & Magnolia	All	45	75(45)	315'
10	Residential	Main & Maynard	All	45	77(45)	315'
11	Residential & Church	Rainbow Drive & Letsch Road	All	65	73(75)	175'
12	Residential	DeSoto Avenue	All	40	60(61)	175'
13	Residential	Cooley Street	A, B	35	71(35)	250'
14	Residential	Park Drive	A, B	35	75(35)	290'
15	Lookout Park	Park Circle	A, B	35	60(35)	220'
16	George Wyth State Park	S.W. Corner of Park	A, B	35	70(35)	220'
17	Residential	Wagner Road	D(RRX), D(RR)	40	75(69)	270'
18	Parkland/ Residen.	Existing U.S. Highway 20	C(RRX), C(RR) D(RRX), D(RR)	60	68(64)	290'

*Figures in parentheses indicate "Do Nothing" conditions with respect to I-380.

TABLE 8

SENSITIVE SITE IMPACTS AND NOISE ABATEMENT

Site No.	Estimated No. of Residences Severely Affected	Applicable Noise Abatement Measure Recommended
1	15	None (Changing land use)
2	15	None (Changing land use)
3	10	None (Changing land use)
4	5	None (Noise due to Washington Street)
5	5	None (Noise due to Washington Street)
6	5	None (Changing land use)
7	10	Noise wall
8	15	Noise wall
9	15	Noise wall
10	10	Noise wall
11	6	None (Noise due to Rainbow Drive)
12	6	None (Noise impact not expected to be severe)
13	4	None (Economically unreasonable)
14	2	None (Economically unreasonable)
15	(Parkland)	Noise impact not expected to deter use as scenic overlook
16	(Parkland)	None (Economically and aesthetically undesirable)
17	25	Noise wall
18	(Parkland)	None (Not expected to limit park use or disrupt residential environment)

The complete I-380 Noise Study report is included in Volume VIII. Copies of the Noise Study report will be provided to the local planning agencies, along with background information in regard to highway noise and land use, in an effort to promote the development of compatible land use near I-380. Copies of this technical report are also available to interested parties upon request.

Water Quality Impacts

Streams and artificial lakes within the project corridor include the Cedar River, Black Hawk Creek, George Wyth Lake, the Martin-Marietta Quarry Lake and miscellaneous ponds and streams. According to the Water Quality Management Division of the Iowa Department of Environmental Quality, the Cedar River and Black Hawk Creek are classified as Class B streams (warm water aquatic life streams which require protection of water quality for wildlife, warm water aquatic life and non-body contact recreation). George Wyth Lake, which is used for swimming, sailing and fishing, is protected from highway runoff by a holding pond which intercepts runoff from U.S. Highway 20 and some of the surrounding area.

None of the aforementioned water bodies is used for water supply. The Cedar River is used as a discharge for the Waterloo and Cedar Falls water pollution control facilities.

Water quality analyses were conducted at eleven locations within the corridor to determine the existing levels of dissolved oxygen, suspended and dissolved solids, phosphates, nitrates, BOD, pH and water temperature. Samples were analyzed from the Cedar River, George Wyth Lake and other ponds and sand pits in the area.

The existing water quality in the segment of the Cedar River under consideration generally meets all applicable water quality standards; however, during low flow periods, some of the standards are violated due to increased concentration of pollutants. Major cities and industries along the river are involved in projects (as required by the Environmental Protection Agency and the Iowa Department of Environmental Quality) to improve wastewater discharges; as a result overall improvements in the water quality of the river are anticipated. The construction alternates of the I-380 project will not significantly decrease the water quality of the Cedar River (see Appendix Volume VIII).

Existing water quality sampling of Black Hawk Creek was not conducted, as the effect of the proposed extension of I-380 on Black Hawk Creek is anticipated to be insignificant. Water quality samples were taken from George Wyth Lake and various other ponds in the area to predict water quality characteristics in future lakes which will result from borrow operations. (See succeeding sections of this report.)

Groundwater is not in short supply, and construction of the I-380 extension will have no appreciable effects on groundwater resources.

Long-range effects on surface waters, mainly the Cedar River, are minimal and include increases in street surface deposits (grease, oil, rubber, etc.) washed from the streets during rainstorms. Projected total street surface deposits will increase by 160 pounds per day, or a 1.4 percent increase over the "Do Nothing" alternate. This increase will

not significantly affect the water quality of the Cedar River. Increases in de-icing salts and sand required for the additional lane-miles of roadway will likewise have minimal effect on future water quality. Erosion-control measures, including surface drainage facilities, mulching, seeding and sodding, will minimize the impacts of soil erosion on water quality.

It is anticipated that requirements for treating urban storm water will be imposed in the future to further improve water quality in the nation's waterways. Considerations for this goal may be incorporated into the final design of the proposed transportation facilities by providing centralized storage and collection points where possible, which may eventually serve as treatment locations.

Flood Hazard Evaluation

Crossings of the Cedar River and Black Hawk Creek are included in each alternate alignment of the proposed extension of I-380. Each river crossing site was analyzed according to its effect on future flooding.

The Cedar River was analyzed using a computerized hydraulic model of the river between Waterloo and Cedar Falls, obtained from the Rock Island District, Corps of Engineers (see Appendix Volume VIII). Flood data were taken from Flood Plain Information, Black Hawk Creek, Black Hawk County, Iowa, 1968, and Cedar River, Flood Plain Information, Black Hawk County, Iowa, 1970, both by the U.S. Army Corps of Engineers, Rock Island District. Criteria of the Iowa Natural Resources Council were employed in the preliminary hydraulic designs of each alternate alignment of the project. Additional design policies were obtained from Hydraulic Design

of Highway Encroachments on Flood Plains (Federal-Aid Highway Program Manual 6-7-3-2, Federal Highway Administration, U.S. Department of Transportation, 1974).

The flood hazard evaluation for the major streams was based on the 100-year frequency flood. (That is, a flood whose magnitude is equalled or exceeded an average of once every 100 years).

The proposed crossing of Black Hawk Creek by the extension of I-380 will span the flood-control levees, and the bridge structure will be designed to be elevated above the levees. As a result, the crossing will have a negligible affect on future flood flows of Black Hawk Creek.

The crossings of the Cedar River floodplain by each of the proposed alignments of I-380 were designed in accordance with Iowa Natural Resources Council regulations for bridges and road embankments in urban areas. (Natural Resources Council (580), effective 24 November 1975). In general, these regulations require that the project will not increase the water surface level of the river by more than 1.0-foot for the 100-year frequency flood, nor by more than 0.75-foot for the 50-year frequency flood. Bridge openings for each of the I-380 alignments were designed to meet the above requirements, and the affects of the proposed alignments on flooding of the Cedar River will be within the prescribed limits.

Several other minor drainageways are present in the project corridor, and will require cross-freeway drainage structures. At locations where backwater from the drainageways will affect developed land, these

structures were sized to accommodate the 100-year frequency flood. The effect of the proposed project on flood hazards in such areas will be negligible.

Construction Impact

Construction of any of the proposed alternatives except "Do Nothing" will result in certain short-range adverse environmental impacts.

Noise from heavy construction equipment and haul trucks is a relatively short-range but nonetheless disturbing impact upon sensitive land use near the construction site. In an effort to minimize the adverse effects of the construction period, contractors will be required to equip and maintain trucks and machinery so as to limit noise emissions. Contract specifications will also restrict especially noisy construction activity to the day-time hours in order to minimize conflict with noise sensitive night-time activities. Additionally, contractors will be encouraged to exercise discretion and appropriate public relations policies in response to objections to construction noise which may arise.

Air quality will also be subjected to short-range deterioration in the construction areas. Grading operations and the transportation and handling of materials such as earth and aggregates will result in the release of airborne dust. The burning of clearing and grubbing wastes will also contribute to the particulate and pollutant loads in the atmosphere, although such conditions would be infrequent and of relatively short duration. Emissions from construction machinery will add to the motor vehicle classes of air pollution.

Contractors involved with the construction of Interstate 380 will be required to comply with the Iowa Rules and Regulations Relating to Air Pollution Control. Specifically, adherence to Sections 4.2 Open burning, 4.3(2)c Fugitive dust, 4.3(2)d Visible emissions, and 3.1(1) Permits, will be required in the construction contracts in an effort to minimize the short-range effects upon air quality within the project corridor. The above regulations include the following stipulations, among others:

Open Burning - The burning of landscape wastes shall be limited to areas located at least one-fourth mile from any inhabited building.

Fugitive Dust - Reasonable precautions will be taken to prevent the discharge of fugitive dust, including the use of such materials as water, chemicals, asphalt or oil on surfaces which cause fugitive dust. Installation and use of containment or control equipment, to enclose or otherwise limit the emissions resulting from the handling and transfer of dusty materials will be required. Covering, while in motion, of open-bodied vehicles transporting materials likely to give rise to airborne dust will also be required.

Visible Emissions - Exhausts from construction equipment, asphalt plants, and portland cement concrete batching plants are required to comply with Iowa Air Quality Commission's emission standards.

Temporary deterioration of surface water quality will result from grading, bridge construction, and other construction activities. Increased turbidity and siltation, caused by erosion of exposed land and disturbance of the stream beds, will be the greatest construction impact on water quality.

Runoff from disturbed areas may also increase the levels of BOD, metals, pesticides, and nutrients in the streams, depending on the land use and rainfall at the time of construction. Ground water quality is not expected to be appreciably affected by construction operations.

To reduce impacts on water quality, contractors will be required to minimize the area cleared during any time and will employ erosion control measures at all stages of construction. Such measures may include temporary berms, dikes, siltation basins, drains, gravel, mulches and grasses, and will apply to haul roads and borrow sites as well as the permanent right-of-way. Sanitary facilities will be required at the construction sites. Suitable storage areas and careful handling of potentially harmful materials will be required by the contractor.

Traffic patterns and existing access points near the proposed facilities will be affected by construction activities. Construction schedules will be coordinated in advance to minimize the effects of such disruption. Suitable detours will be required to maintain traffic circulation, and areas to be torn up at any time can be controlled to limit the extent of disruption. Contractors will be required to maintain access within a specified distance of any inhabited areas to assure continued fire protection and emergency services.

Impact of Earth Borrow

Construction of the I-380 extension will require rather large quantities of earth borrow for any of the alternatives investigated. Earth borrow requirements for "Widening of Existing Streets" are modest.

One possible solution to obtain sizeable quantities of earth is to borrow from one or two sites, and eventually develop the site(s) into a lake (or lakes). Such a concept is designated as "lake-borrow". This section will discuss the impacts of lake-borrow, although this concept has not necessarily been committed to the I-380 extension project. Other types of earth borrow may be selected and implemented during the final design and construction phases of this project.

Potential lake-borrow sites exist at three locations (hereinafter referred to as Sites 1, 2, and 3) within the study corridor and are shown in Figure 22. Historically, each of these sites has been used for the excavation of sand and gravel. Additionally, the lake-borrow concept has previously been employed at several locations within the metropolitan area, including the Martin-Marietta Quarry (Site 1), George Wyth Lake; and Ansborough Lake and the U.S. Army Corps of Engineers' Lake, the latter two being near the Leonard Katoski Greenbelt.

Each of the three possible lake sites is similar with respect to geology and topography (see Figure 23). The material available at each site is suitable for embankment construction, such as that used in the recent U.S. Highway 20 project.

Sites 2 and 3 will require the purchase of right-of-way, removal of vegetation and topsoil, disturbance of existing fauna, and are located in the Cedar River Valley floodplain. Of these two sites, the environmental impact on existing natural vegetation and wildlife would be more severe at Site 2. Also, the amount of material that could be removed from Site 2 is limited and may not be sufficient to warrant its designation as a lake-borrow site. The Waterloo Wastewater Treatment facility near the location of Site 3, will have a negative impact on the potential usage of a lake in that area. The

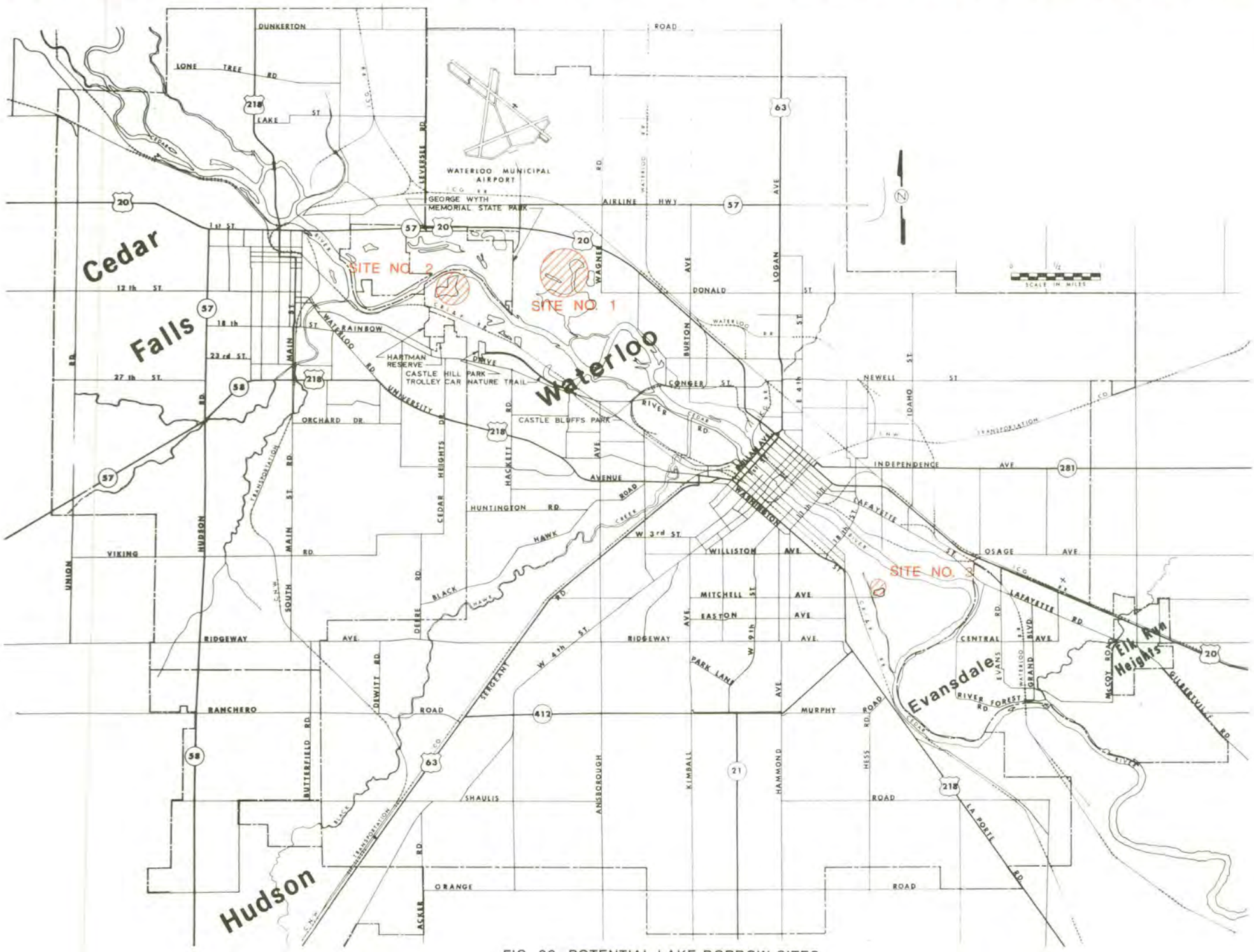


FIG. 22 POTENTIAL LAKE BORROW SITES

magnitude of the impacts listed above will be lowest for lake-borrow Site 1. In addition, the City of Waterloo and the Waterloo Park Department have requested that the Martin-Marietta Quarry (Site 1) be enlarged and developed into a metropolitan recreation area. Site 1 is currently being used for sand and gravel quarry operations by its owner, Martin-Marietta Central Division.

Long-range impacts of a lake-borrow would include impacts on parks and recreation and water quality of the lake. Few natural or artificial lakes now exist in the Black Hawk County area, and a lake-borrow could provide expanded opportunities for swimming, boating, fishing, and other lake-based recreation.

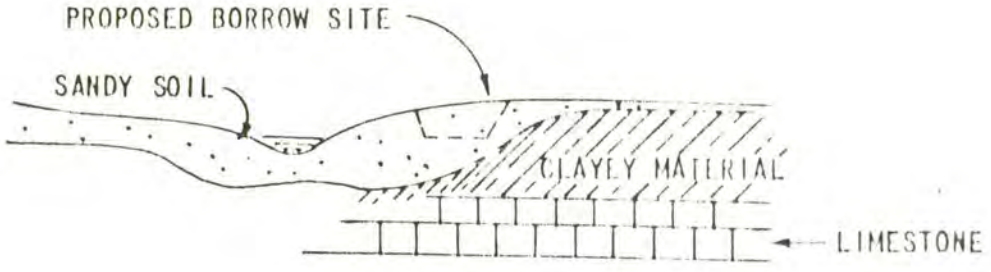


Fig. 23. Typical Geological Cross-Section of Cedar River Floodplain.

Provisions for dikes around the lake-borrow, similar to those around George Wyth Lake, will reduce the frequency that the lake would be flooded by the Cedar River and No Name Creek, thus reducing siltation of the lake and prolonging its useful life. Such dikes would also prevent the passage of rough fish from the rivers into the lake, and permit the establishment of a controlled fish population for sport fishing.

The excavation of a significant portion of the lake-borrow to a depth of at least 16.4 feet (5 meters) will insure sufficient oxygen capacity to carry fish populations over the winter months. Fish populations would serve as controls on potential mosquito populations.

Water quality in the proposed lake-borrow was estimated from present conditions in George Wyth Lake and the Martin-Marietta Quarry Lake. Both of these bodies of water were created by excavations in the floodplain and were filled by seepage of groundwater. Previous studies of Iowa lakes have shown that algal populations are generally at their maximum in July and August, and that total phosphorus concentration of the water and suspended materials determines the magnitude of the algal bloom as measured by chlorophyll a concentrations. Water samples collected from George Wyth Lake and Site 1 on August 31, 1976, contained the following concentrations:

George Wyth Lake:	.039 mg/l Phosphorous 71 mg/Cubic Meter Chlorophyll a
Site 1:	.058 mg/l Phosphorous 87 mg/Cubic Meter Chlorophyll a
Average Iowa Lake (Summer, 1975)	72 mg/Cubic Meter Chlorophyll a

With the above chlorophyll concentrations, water transparency, as measured by the depth at which a white disc disappears from view (Secchi disc depth) would be about 1.64 feet (0.5 meters). While this is not exceptionally good, it is typical of Iowa lakes in general. In Iowa, such lakes are heavily used for recreational purposes. Proposed dikes for the lake-borrow project would reduce the amount of surface runoff entering the lake and hence the amount of plant nutrients that can contribute to the growth of algal blooms.

Given the fertility of the water in the proposed lake-borrow, higher aquatic plants rooted on the bottom are a potential problem for boating and fishing. This can be prevented by maintaining deep water (over 6.6 feet, or 2 meters), except in possible areas where such plants might be encouraged for wildlife habitat.

Additional information on earth borrow is presented in Appendix Volume VIII.

ALTERNATIVES

The transportation planning process conducted by the Iowa Northland Regional Council of Governments (INRCOG) has considered various alternatives including a share of transit usage in solving the transportation needs anticipated in this corridor (see section under "Need").

The results indicate that transit, consisting of a bus system, presently is serving 0.8 to one percent of person daily trips. It is anticipated that with the increasing travel needs, transit will further develop and will share a similar percentage of future travel.

Planning is presently being conducted by INRCOG to increase bus usage by using the proposed action (I-380 extension). Low population density (average 9-12 persons/acre) of the Waterloo-Cedar Falls Metropolitan Area, and extreme seasonal temperature variations make voluntary transit usage an unrealistic solution to satisfy the travel needs anticipated in this corridor by the year 2000. The transportation plan and its updates (see "Need") recommended the selection of highway alternatives for the proposed action.

Eight highway alternatives have been selected for further study regarding the proposed action. Following the completion of the current study, a corridor public hearing will be held with respect to the proposed alternatives. A decision on the final recommendation for the

proposed extension of I-380 will be made after the transcript and comments from the public hearing are evaluated. The following section describes the eight alternatives presently under consideration.

Six alternate alignments of the proposed I-380 extension have been evaluated, in addition to "Widening of Existing Streets" and "Do Nothing". Certain terminology to be used in descriptions of the alternatives is outlined below.

General Descriptions

Committed Network

The committed network consists of streets, highways, and freeways that are considered committed by the Transportation Policy Board of INRCOG (see Figure 24). This network of streets is common to all alternates and alternate systems considered, including the "Do Nothing" or "No Build" solution for the I-380 extension.

No route location, impact consideration or financial analysis was made of this network as all new elements of the network are part of the "No Build" solution as well as all "Build" solutions.

Basic Street Widening

The "Basic Street Widening" (see Figure 25) consists of a network of streets that need to be widened if a "Build" (versus "No Build")-type solution is considered to solve the transportation needs of the Waterloo Metropolitan Area. The widening considered "Basic" and the resulting impacts are common to Systems 2 through 8 (to be described later), and the streets shown on Figure 25 must be widened if any alternate system is adopted except System 1 ("No Build" or "Do Nothing"). The following list represents the status of the

projects in the "Basic Street Widening" network:

A. Freeway 518 - The Route Location Study is completed and the Final Environmental Impact Statement is presently being circulated. The cost of Freeway 518 will be included in the economic analysis of the current project. For the impact of Freeway 518, reference is directed to the document entitled Freeway 518 - Final Environmental Impact Statement.

B. U.S. Highway 63 North Widening - The need for such a project was realized during this study and reflects the projected traffic needs for the northeast John Deere Tractor Works Plant. The "U.S. Highway 63 North Widening" is not committed to date by the Iowa Department of Transportation (IDOT) or any other agency. No route location was conducted or impact statement prepared for this widening. Preliminary analyses made during this project indicate that U.S. Highway 63 may be widened at the existing alignment by purchasing additional right-of-way.

   The assessment of additional right-of-way acquisition, as well as the cost of the project, was included in the analysis of the I-380 extension (see Volume VI of report). The Environmental Impact Statement will be prepared when the project is authorized.

C. Widening of Iowa Highway 412 and Iowa Highway 21 - These two highways distribute the traffic from Crossroads Shopping Center located at the intersection of U.S. Highway 218 and Iowa Highway 412. Although the widening of these highways is not committed to date by IDOT, both highways have sufficient right-of-way to accommodate such widening.

Cost of this widening was included in the financial analysis for the project. The Environmental Impact Statement will be prepared after authorization of the project.

D. Other streets included in the "Basic Street Widening" network are portions of South Main Street, Hudson Road, Deere Road, Mullan Avenue, First Street, Leland Avenue, South Street, and Airline Highway. Intersection improvements shown under Basic Widening include such items as widened approaches, additional turning lanes, or medians. Major intersection improvements include multiple turning lanes or channelization, and are required at two locations: Hudson Road at Viking Road and Iowa Highway 21 at Iowa Highway 412.

The impacts of each of the aforementioned projects will be considered in their respective impact statements at the time the projects are authorized. No further reference to such impacts will be included as part of this document. Estimated costs of each indicated improvement, however, are included in the financial analysis of this project.

Additional Widening

The term "Additional Widening" consists of the network of existing streets that need to be widened if a specific alternate is selected. Such widening will be required in addition to Basic Widening and the Committed Street Network.

"Additional Widening" refers to widening of existing streets, although a segment of the proposed Hackett Road Bypass, a new street, is included under this heading in certain systems. A combined Route Location Study and Environmental Impact Statement (EIS) is presently being completed for the Hackett Road Bypass project.

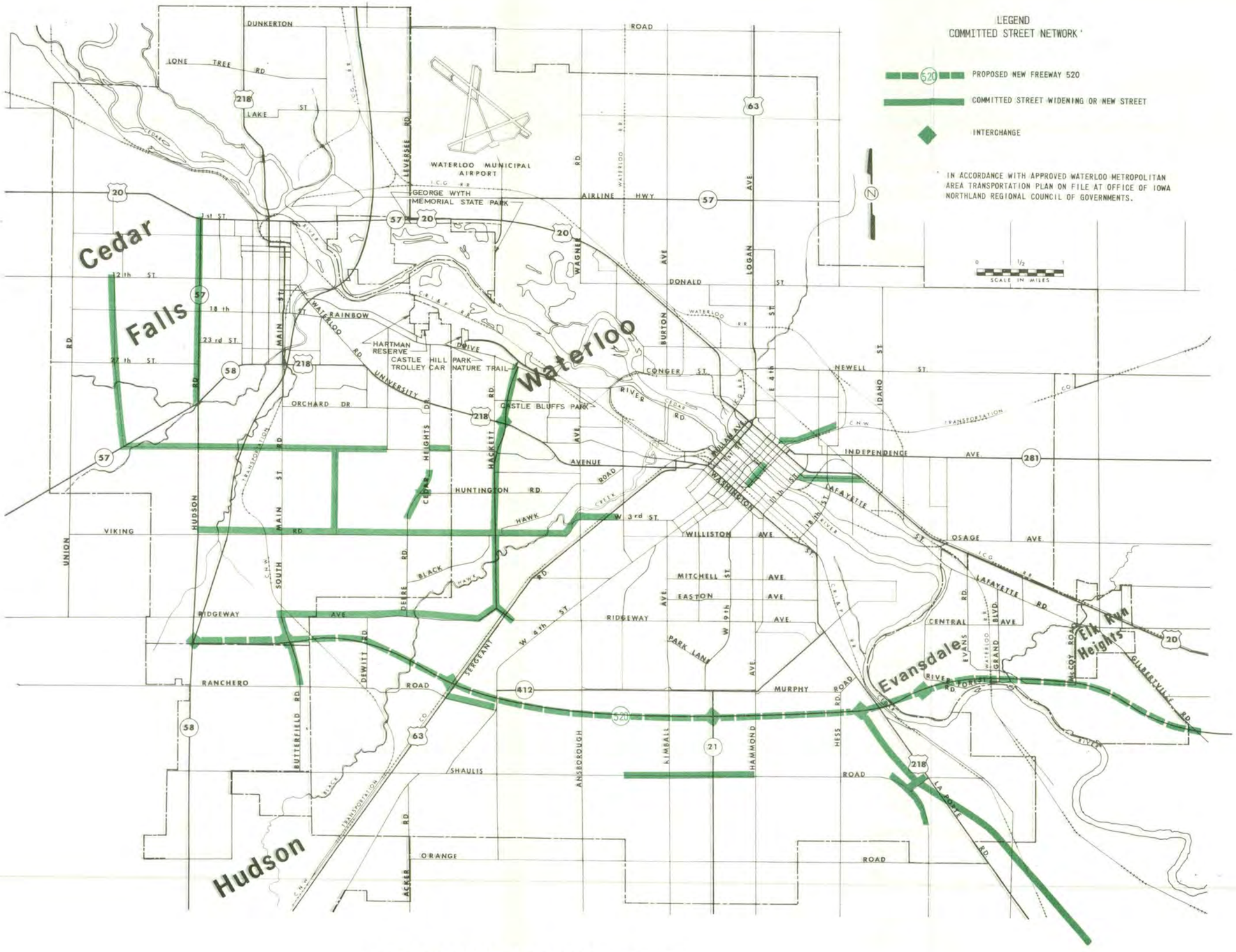


FIG. 24 COMMITED STREET NETWORK

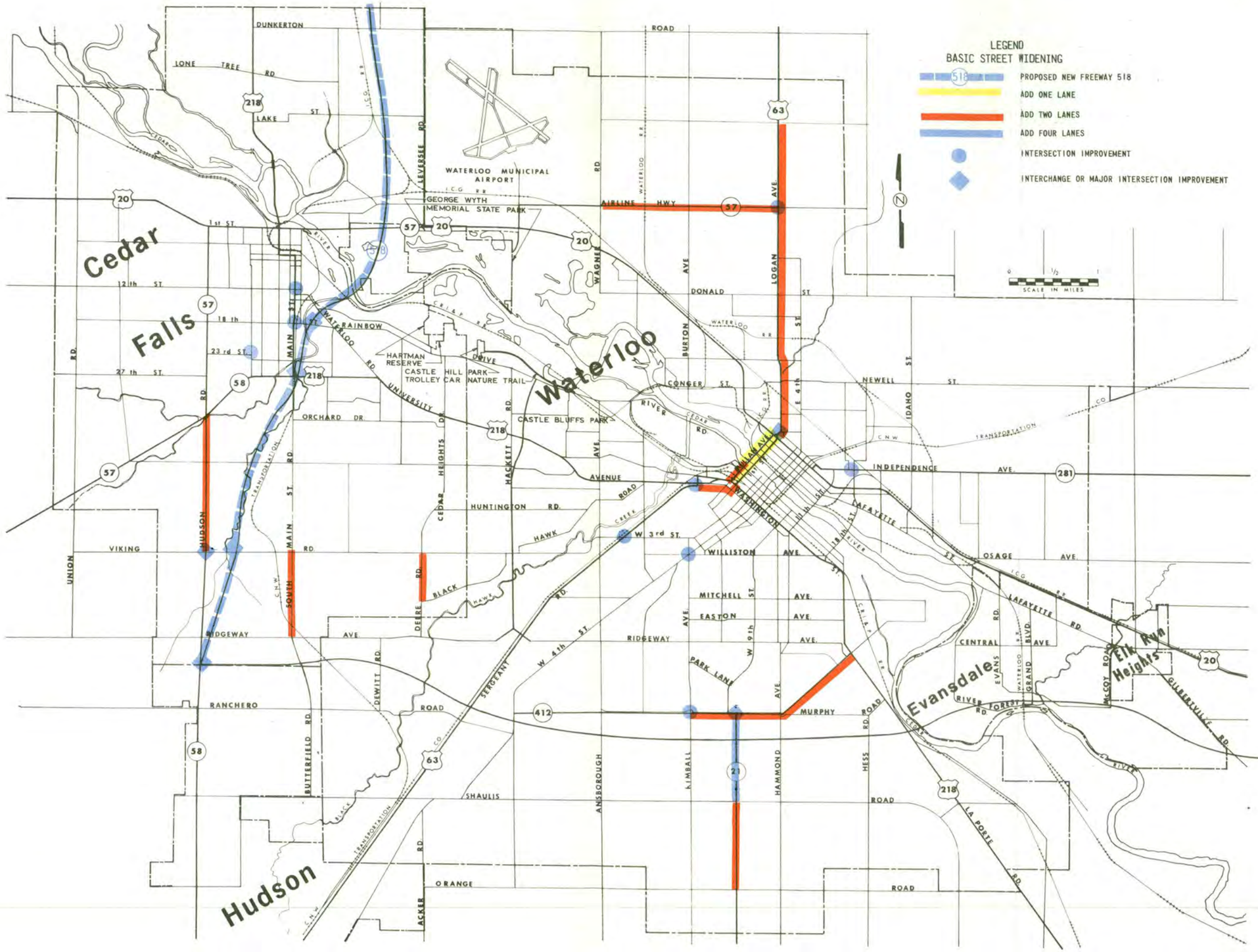


FIG. 25 BASIC STREET WIDENING

Maps of "Additional Widening" for each alternative are shown in Figures 26, 27, 28, and 29. The cost and assessment of the "Additional Widening" has been included in every alternate solution system considered. The Environmental Impact Statement for "Additional Widening" will be prepared when the project is authorized.

Description of Alternatives

A general discussion of each alternative solution is included in the following sections. The aforementioned six alternatives for the extension of I-380, in addition to the two non-freeway alternatives, comprise eight alternate systems as described below. Figure 30 is a location index for all photographs of the various alternatives to be considered.

The design of the I-380 extension, included in Systems 3 through 8, will be a six-lane freeway with the following features: The alignment begins at the interchange of proposed Freeway 520 and Interstate Highway 380 in the southeast section of Waterloo, and ends at an interchange with proposed Freeway 518 in the vicinity of U.S. Highway 20 in Cedar Falls. Three lanes will be provided in each direction, with auxiliary lanes where necessary in the vicinity of certain interchanges. Shoulder widths are 10'-0" right and left, and median widths vary according to design speed and railroad location (40'-0" minimum median width). Interchanges will be located as shown under the various alternatives, while other major streets and railroads will be overpassed or underpassed. For more detailed information, such as cross-sections, design criteria, plan and profile drawings, or right-of-way requirements, the reader is referred to Appendix Volumes II through V.

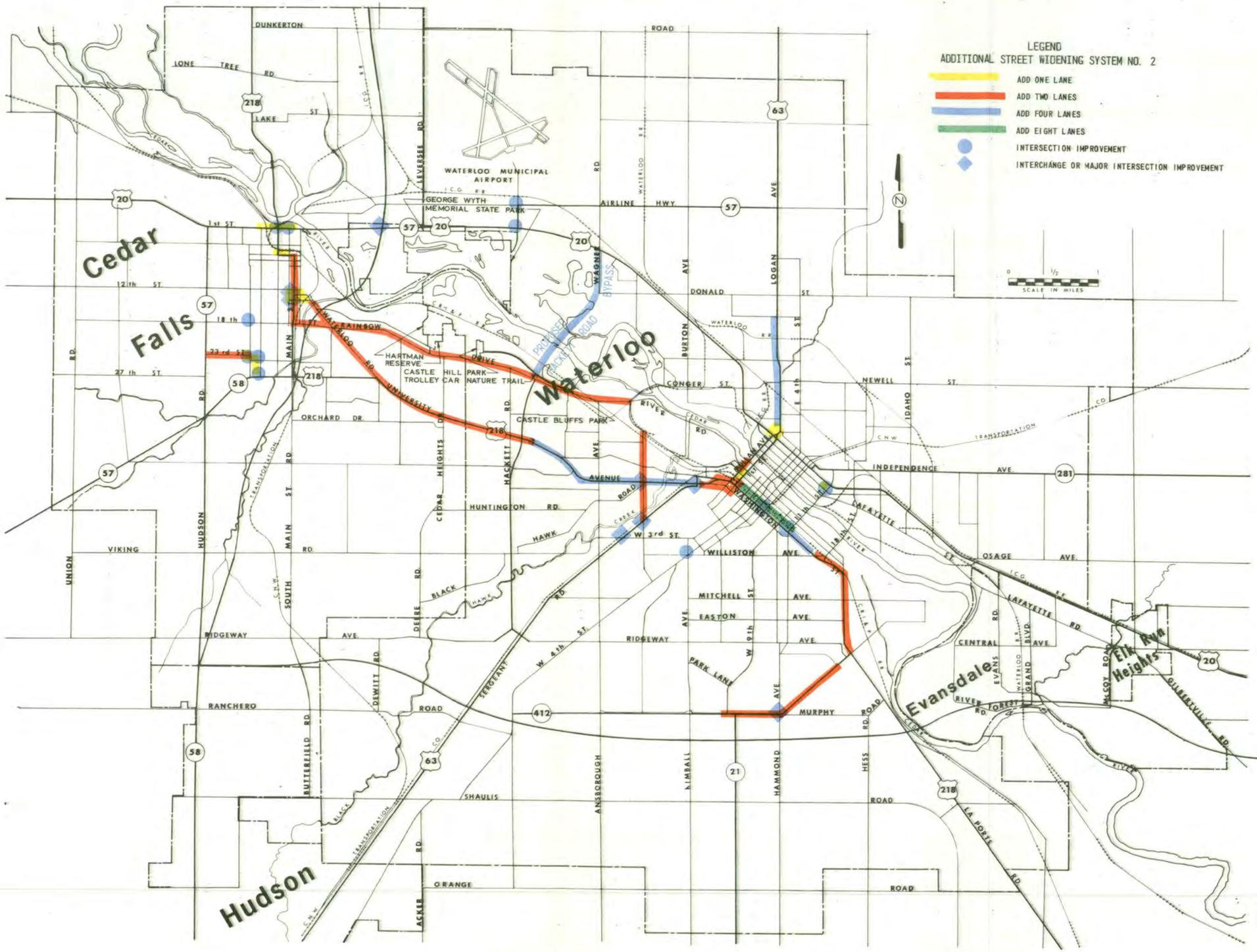


FIG. 26 ADDITIONAL STREET WIDENING - SYSTEM NO. 2

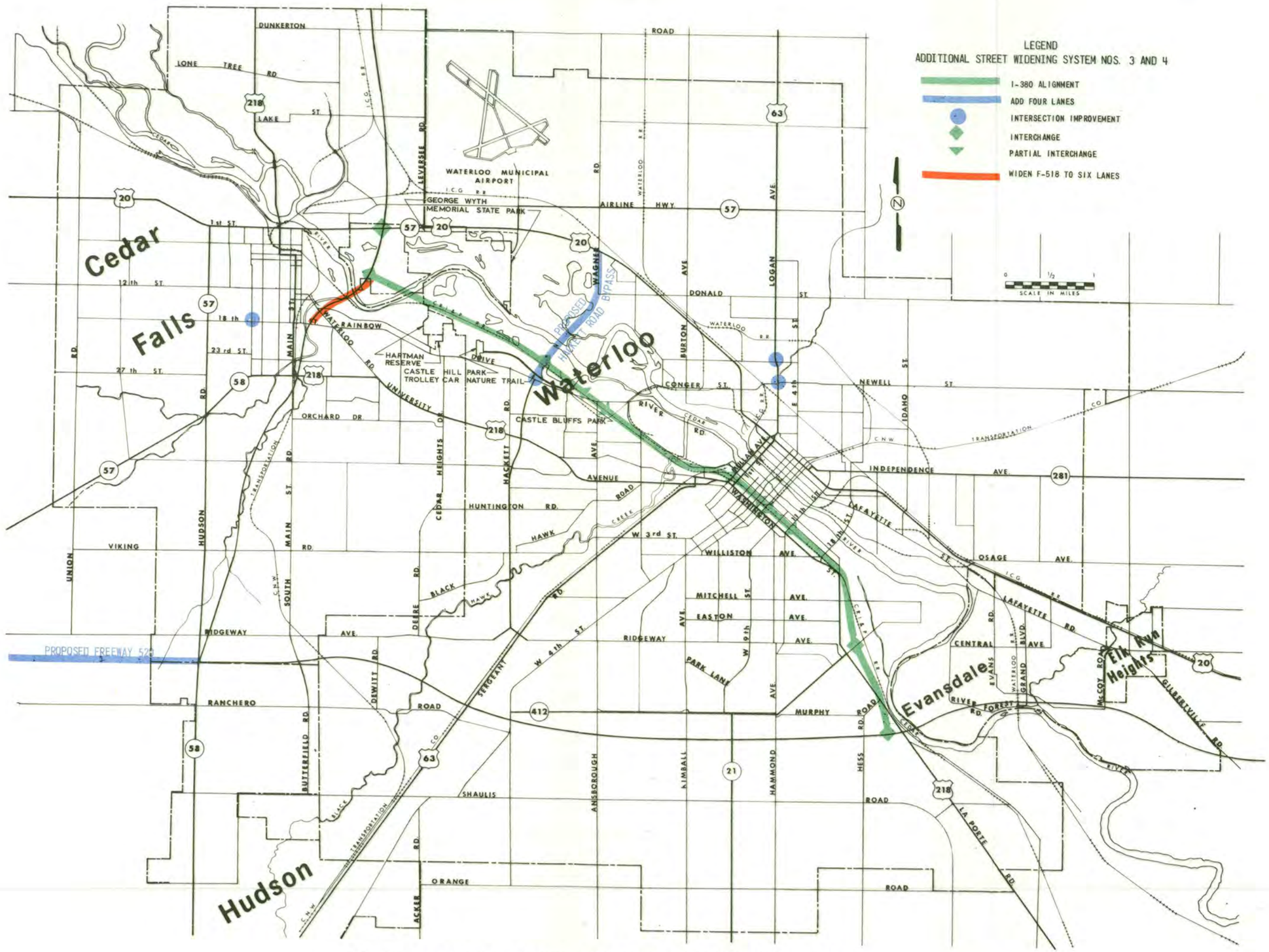


FIG. 27 ADDITIONAL STREET WIDENING - SYSTEM NOS. 3 AND 4

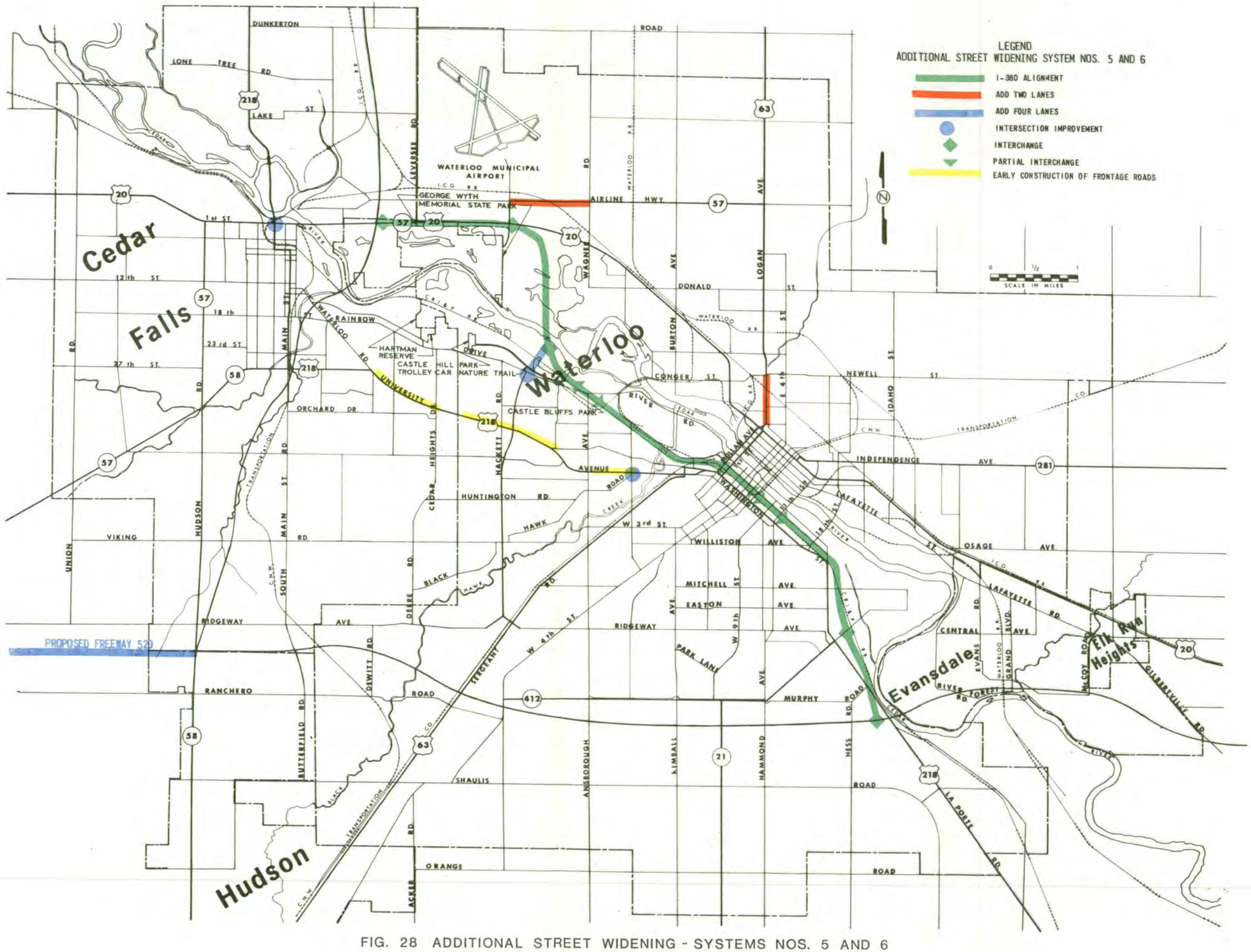


FIG. 28 ADDITIONAL STREET WIDENING - SYSTEMS NOS. 5 AND 6

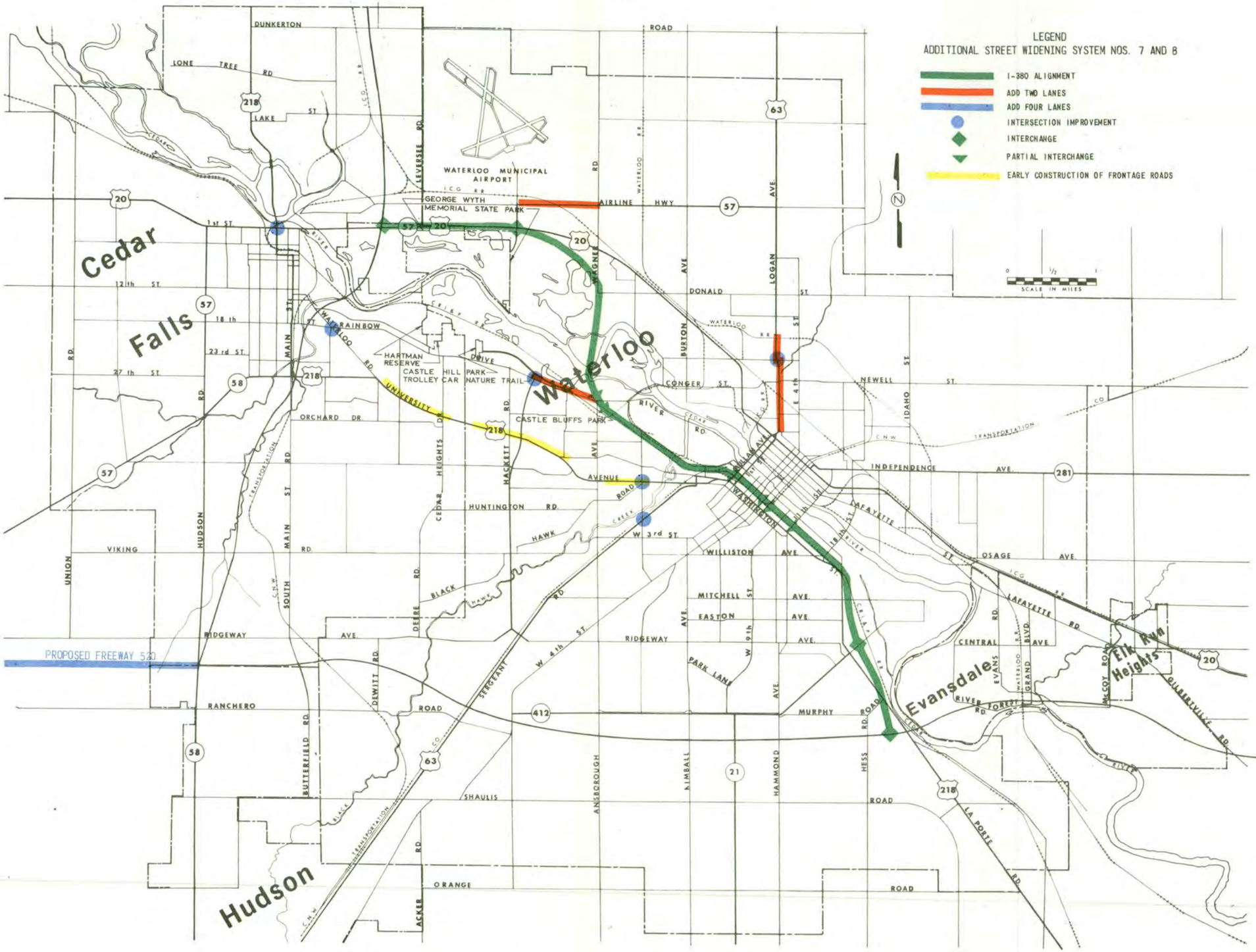


FIG. 29 ADDITIONAL STREET WIDENING - SYSTEM NOS. 7 AND 8

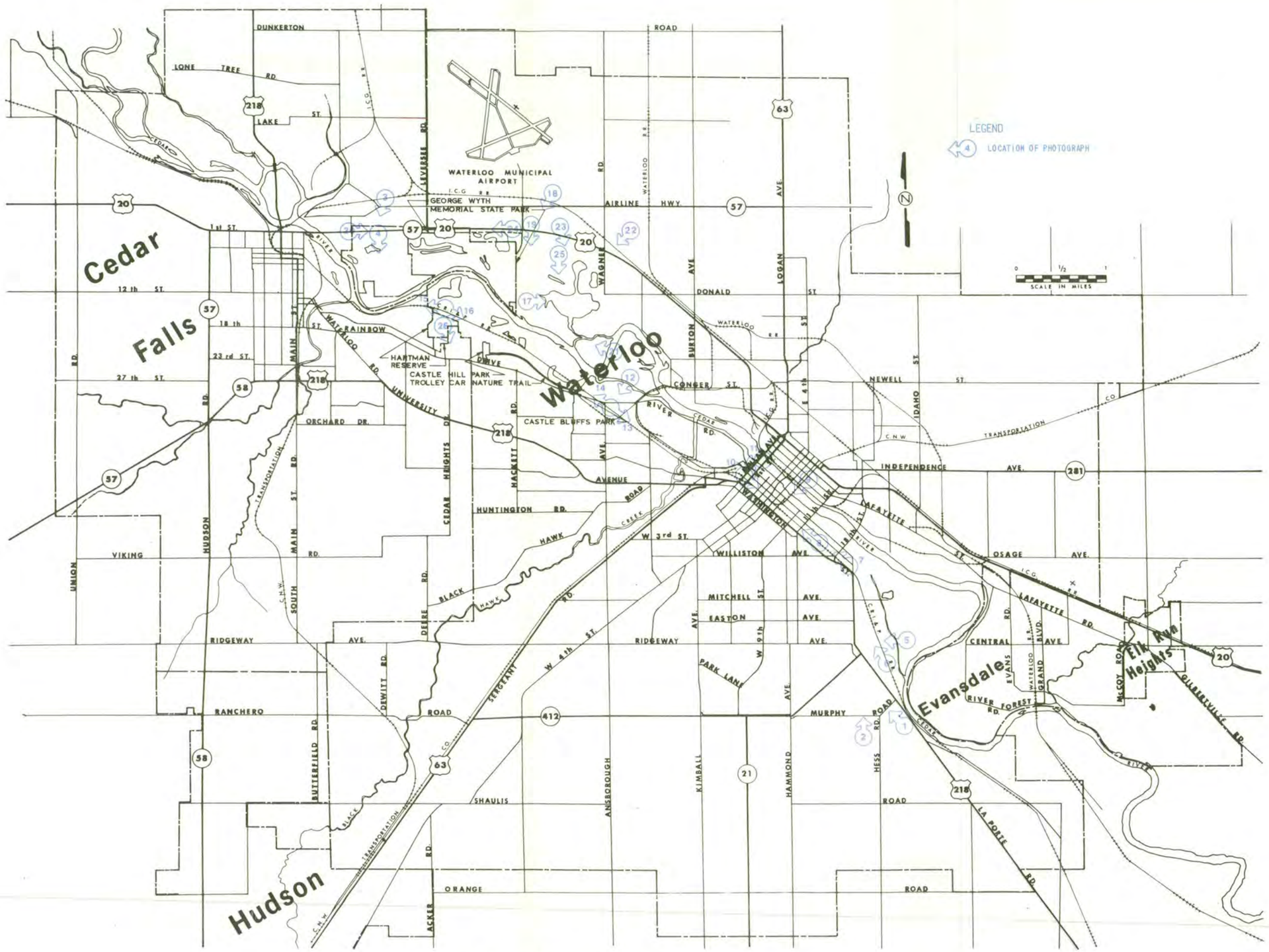


FIG. 30 INDEX MAP OF PHOTOGRAPHS

System 1 (Do Nothing)

This system consists of the existing street network and committed streets as previously described (see Figure 24). No additional street widening is included as part of the "Do Nothing" alternative.

As traffic volumes increase, increased congestion of existing streets will result in subsequent increases in the negative impacts relative to air quality, noise, road user costs, accidents, metropolitan accessibility, land use, and fire, police and ambulance services.

System 2 (Widening of Existing Streets)

This system includes the existing and committed street system, "Basic Street Widening" and "Additional Widening", all as previously defined. "Additional Widening" for this system is shown in Figure 26. Street widening in System 2 includes the proposed Freeway 520 west of Iowa Highway 58, a portion of the proposed Hackett Road Bypass between Rainbow Drive and U.S. Highway 20, and widening of various existing streets and intersections. No major new highway facility in the I-380 project corridor is included in this system. The following additional street widenings are included in System 2:

Twenty-Third Street, Cedar Falls, Hudson Road to College Street (widen 2 lanes)

Walnut Avenue, Cedar Falls, Iowa Highway 58 to Seerley Boulevard (widen 1 lane)

Main Street, Cedar Falls, Sixth Street to Eighteenth Street (widen 2 lanes)

First Street, Cedar Falls, Walnut Street to State Street (widen 1 lane)

Sixth Street, Cedar Falls, Franklin Street to Main Street (widen 1 lane)

Thirteenth Street, Cedar Falls, Main Street to Waterloo Road (widen 1 lane)

Fourteenth Street, Cedar Falls, Main Street to Waterloo Road (widen 1 lane)

Eighteenth Street, Cedar Falls, Main Street to Waterloo Road (widen 2 lanes)

Waterloo Road, Thirteenth Street to U.S. Highway 218 (widen 2 lanes)

Rainbow Drive, Waterloo Road to River Road (widen 2 lanes)

U.S. Highway 218, Waterloo Road to Hackett Road Bypass (widen 2 lanes)

U.S. Highway 218, Hackett Road Bypass to U.S. Highway 63 (widen 4 lanes)

U.S. Highway 218, U.S. Highway 63 to First Street (widen 2 lanes)

U.S. Highway 218, First Street to Eleventh Street (widen 8 lanes)

U.S. Highway 218, Eleventh Street to Eighteenth Street (widen 4 lanes)

U.S. Highway 218, Eighteenth Street to Iowa Highway 412 (widen 2 lanes)

Iowa Highway 412, Iowa Highway 21 to near U.S. Highway 218 (widen 2 lanes)

Leland Avenue, U.S. Highway 63 to South Street (widen 2 lanes)

South Street, Leland Avenue to First Street (widen 2 lanes)

Logan Avenue, Mullan Avenue to Louise Street (widen 4 lanes)

Mullan Avenue and First Street (widen portions 1 or 2 lanes)

System 3 (I-380 Alternative A)

In this construction alternative, a controlled access highway is to be constructed along the alignment shown in Figure 27. As part of this alternative, railroad trackage of the Chicago, Rock Island and Pacific Railroad and the Chicago and North Western Transportation Company is to be relocated and/or combined with the Illinois Central Gulf Railroad (see Appendix Volume II).

The alignment of the I-380 extension begins at the interchange of proposed Freeway 520 and Interstate 380, and generally follows the present railroad right-of-way through Waterloo to near the Waterloo-Cedar Falls city limits. The alignment passes to the north of Hartman Reserve, then crosses the Cedar River and overpasses a narrow portion of George Wyth State Park, terminating at

an interchange with proposed Freeway 518 in the vicinity of U.S. Highway 20. Interchanges will be provided at the extension of Iowa Highway 412, Eleventh Street, Sixth Street, Fifth Street, Mullan Avenue, Ansborough Avenue, Rainbow Drive, and the proposed Hackett Road Bypass, as shown in Figure 27, with other major streets and railroads being overpassed or underpassed. The remaining railroad right-of-way will be used for part of the proposed interstate, and additional right-of-way will be required along the majority of the route. Figures 31 through 34 include photographs of existing conditions along the alignment of Alternative A. Figure 34a includes an aerial view of Alternative A northwesterly of West Eleventh Street.

In addition to the proposed I-380 extension, System 3 includes the existing and committed street networks, "Basic Street Widening", and "Additional Widening" as shown in Figure 27.

System 4 (I-380 Alternative B)

This alternative is similar to Alternative A, with the exception that the existing railroad trackage will remain in place. A wide median will accommodate the railroad tracks through most of Waterloo, although the entire roadway will be located to the south of the tracks in the Black Hawk Creek vicinity to avoid an industrial complex in that area. Right-of-way requirements for this alternative are generally greater than for Alternative A.

The accompanying street system and additional street widening for this alternative are similar to those of Alternative A (see Figure 27).

System 5 (I-380 Alternative C(RRX))

The alignment of the I-380 extension in this system (see Figure 28) is identical to that of Alternative A from the southeasterly terminus to near the proposed Hackett Road Bypass. Railroad relocation again will be integral to this system, as discussed under System 3.

Beginning at a point near the Hackett Road Bypass, the alignment of I-380 curves northerly across the Cedar River and its floodplain, passes approximately one-half mile to the east of George Wyth State Park, and interchanges with U.S. Highway 20 near Airport Boulevard. Westerly of this interchange, U.S. Highway 20 will be widened to six lanes and upgraded to interstate design standards, with the project terminating at its interchange with proposed Freeway 518. Figures 35 and 36 show photographs of existing land uses along this alignment north of the Hackett Road Bypass interchange.

The remainder of System 5 includes the existing and committed street network, "Basic Street Widening" and "Additional Widening" as shown in Figure 28. As indicated, the "Additional Widening" includes a segment of the Hackett Road Bypass north of Rainbow Drive to interchange with the proposed I-380 extension.

System 6 (I-380 Alternative C(RR))

The alignment of the I-380 extension in System 6 approximates that of the previous alternative, with the exception that the railroads are to remain in place. From the southerly terminus to the vicinity of the Hackett Road Bypass interchange this alignment is equivalent to Alternative B, while the portion of the alignment north of the Hackett Road Bypass is described under System 5. Additional street widening to be included in System 6 is similar to that in System 5 (see Figure 28).

System 7 (I-380 Alternative D(RRX))

The proposed I-380 alignment in this system is identical to Alternative A beginning at the southerly terminus to the vicinity of Ansborough Avenue (see Figure 29). As in Alternative A, relocation of railroads will be included in System 7.

Photo No. 1. Beginning of Project.

Photo No. 2. Beginning of Project.

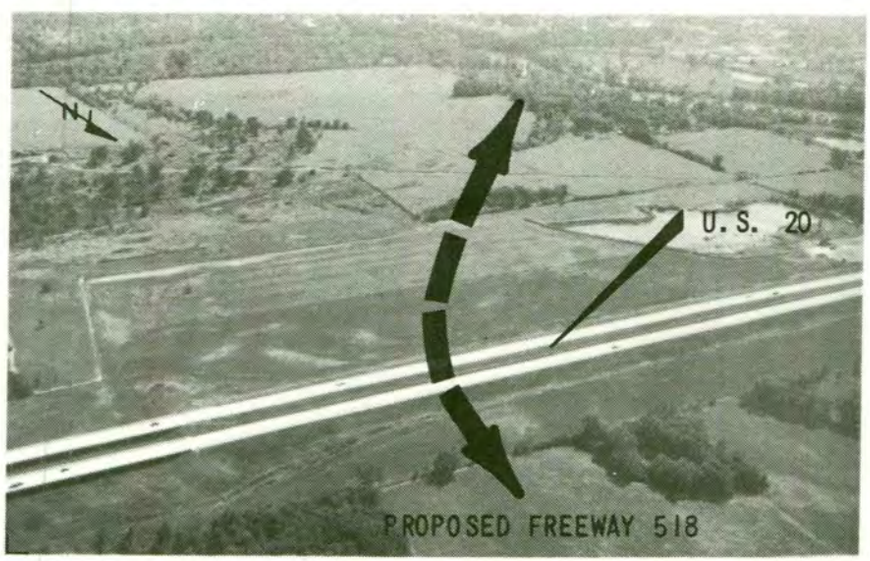


Photo No. 3. End of Project

Photo No. 4. End of Project

Fig. 31. Proposed I-380 Location (All Alternatives).

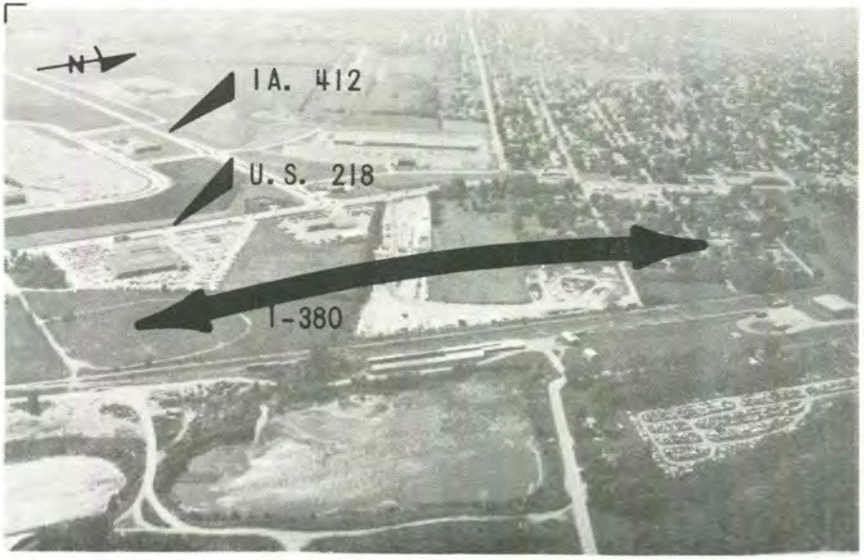


Photo No. 5. Location of Iowa Highway 412 Interchange.

Photo No. 6. Location of Iowa Highway 412 Interchange.

Photo No. 7. C.R.I.&P. Railroad at Eighteenth Street.

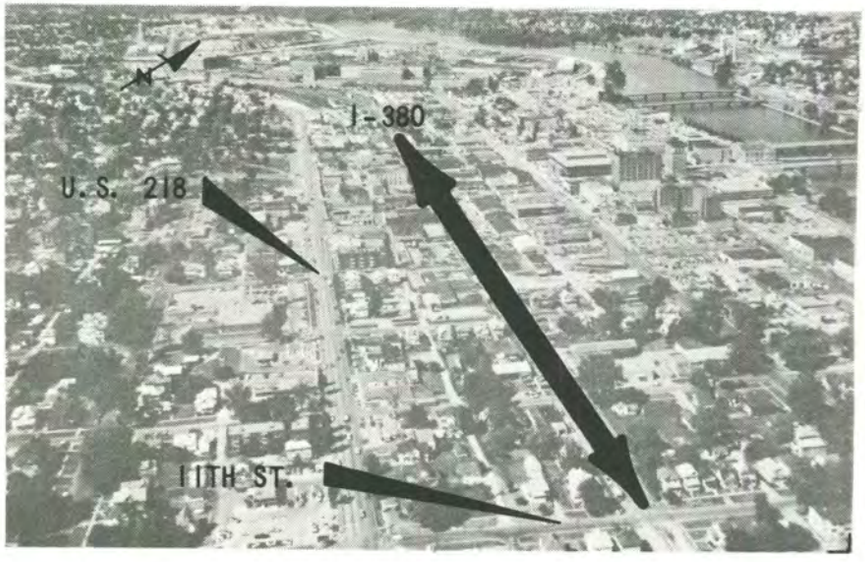


Photo No. 8. Downtown Waterloo.

Fig. 32. Proposed I-380 Location (All Alternatives).

Photo No. 9. Downtown Waterloo.

Photo No. 10. C.R.I.&P. Railroad at Mullan Avenue.

Photo No. 11. Location Near John Deere Waterloo Tractor Works.

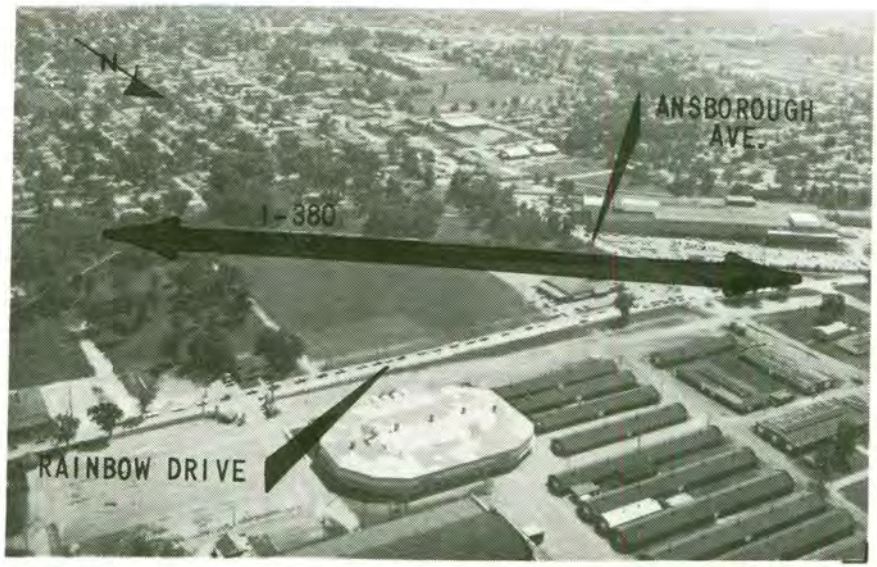


Photo No. 12. Location Near Ansborough Avenue-Rainbow Drive Interchange.

Fig. 33. Proposed I-380 Location (All Alternatives).

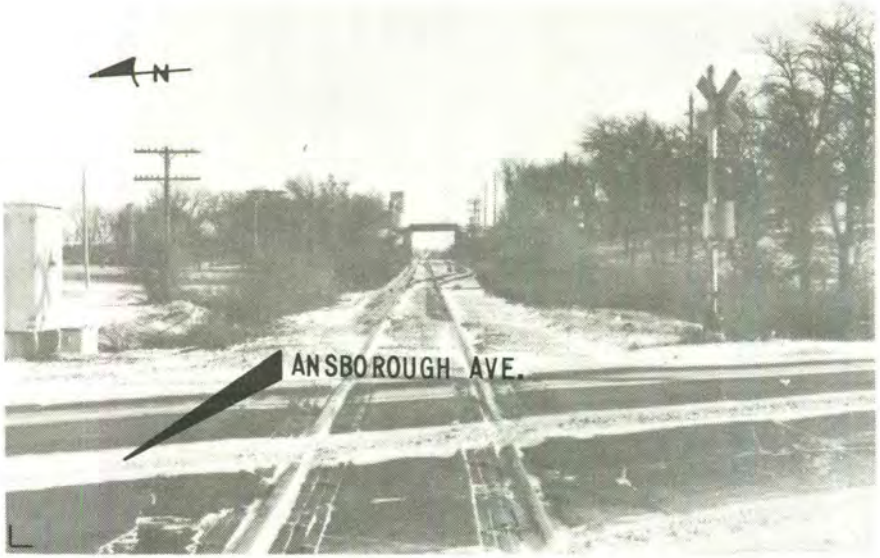


Photo No. 13. C.R.I.&P. Railroad at Ansborough Avenue.

Photo No. 14. C.R.I.&P. Railroad at Rainbow Drive.

Photo No. 15. Location Near Park Drive, Alternatives A and B.

Photo No. 16. Location Near Hartman Reserve, Alternatives A and B.

Fig. 34. Proposed I-380 Location (All Alternatives).

Fig. 34a. Alternate "A" in Vicinity of Waterloo C.B.D. - General Landscape Plan.

N

ALTERNATE "A"
IN VICINITY OF WATERLOO C.B.D.

GENERAL LANDSCAPE PLAN

NOTE:
FOR DETERMINATION OF AFFECTED PROPERTIES, SEE VOLUME V.

Beginning at a point near Ansborough Avenue the alignment of Alternative D(RRX) curves northerly, crosses the Cedar River and traverses an undeveloped island in the floodplain. The alignment then crosses the northerly overflow channel of the Cedar River and parallels a portion of the flood control levee west of Wagner Road. Alternative D(RRX) then curves westerly across No Name Creek and interchanges with U.S. Highway 20 near Airport Boulevard. Westerly of Airport Boulevard to the project terminus at proposed Freeway 518, existing U.S. Highway 20 will be widened to six lanes and upgraded to interstate design standards. Existing land uses along the proposed alignment are shown in the photographs in Figures 35 and 36.

Additional street widening to be included in System 7 is indicated in Figure 29. As shown, the proposed Hackett Road Bypass is not directly connected to the extension of I-380 in this alternative. Linkage of the two facilities is provided through an upgrading of Rainbow Drive between the respective roadways.

"Basic Street Widening" and the existing and committed street system, as previously described, form the remaining elements of System 7.

System 8 (I-380 Alternative D(RR))

The alignment of I-380 in this system is similar to Alternative B from the southerly terminus to the vicinity of Ansborough Avenue, with existing railroads to remain. The remainder of the alignment is similar to that described under System 7, with minor changes in the interchange layout at Rainbow Drive to accommodate the required railroad overpass.

"Basic Street Widening", "Additional Street Widening", and existing and committed streets in System 8 are equivalent to those described under System 7 (see Figure 29).

Other Alternatives Considered

The map in Figure 37 on page 128 serves as a graphical summary of the various alternatives that were considered as part of this study, but which were not evaluated in detail. A more detailed discussion of each alternative is presented in Appendix Volume II. A brief summary of the alternatives follows.

1. University Avenue as a Portion of the Extension of I-380.

   This alternative follows the route of existing University Avenue (U.S. Highway 218), beginning at proposed Freeway 518 in Cedar Falls, and proceeding easterly and southeasterly to its junction with U.S. Highway 63; then proceeding to follow Bluff Street east of West Mullan Avenue to La Porte Road; then proceeding more southerly to its terminus.

   This alternative would connect major traffic generators along the corridor and partially utilize existing rights-of-way. The upgrading of University Avenue to interstate highway design standards would require additional right-of-way and would require frontage roads to serve existing developments. Such construction would necessitate removal of most existing commercial development along University Avenue between Freeway 518 and Ansborough Avenue, as well as all residences along this street. Acquisition of these commercial areas would seriously reduce the economic feasibility of the I-380

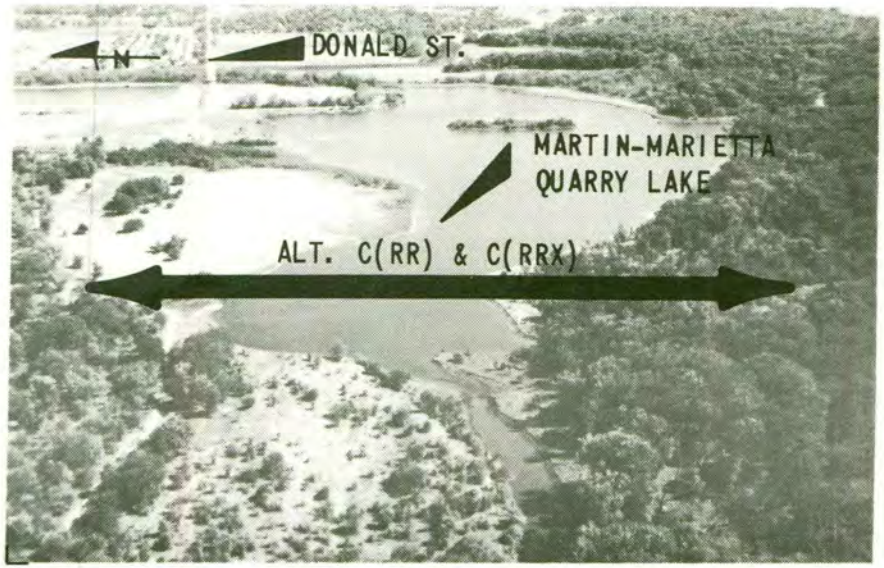


Photo No. 17. Location of Alternatives C(RR) and C(RRX) Near Martin-Marietta Quarry Lake.

Photo No. 18. Location of U.S. Highway 20 Interchange, Alternatives C(RR) and C(RRX).

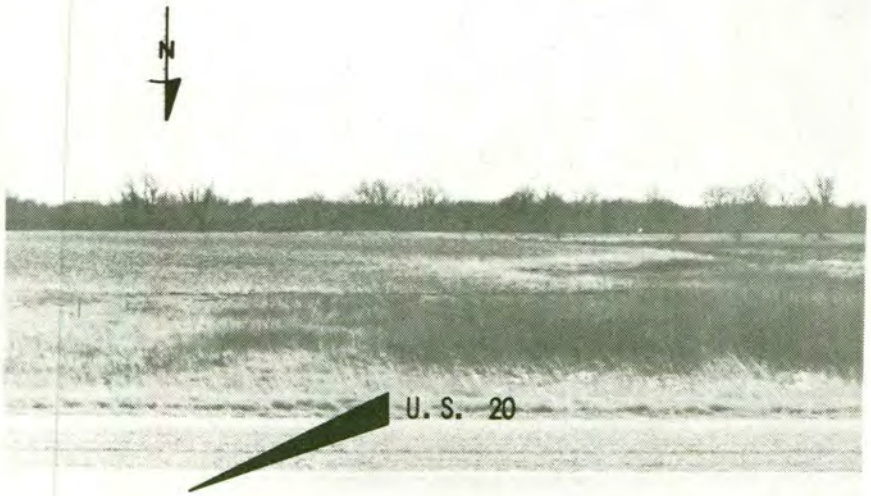


Photo No. 19. Location of U.S. Highway 20 Interchange, Alternatives C(RR) and C(RRX).

Photo No. 20. Location of Freeway 518 Interchange, Alternatives C(RR), C(RRX), D(RR), and D(RRX).

Fig. 35. Location of Alternatives C(RRX), C(RR), D(RRX), and D(RR).

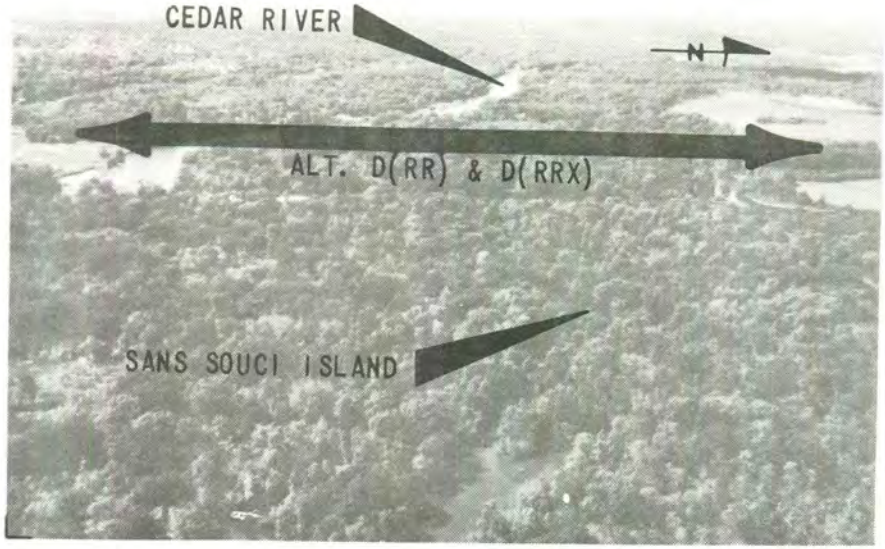


Photo No. 21. Location Near Cedar River Crossing, Alternatives D(RR) and D(RRX).

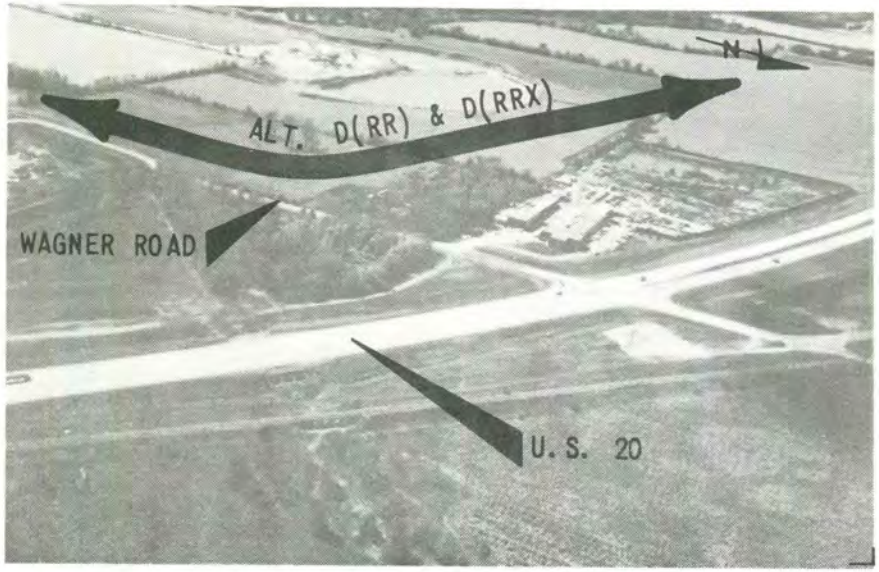


Photo No. 22. Location Near Wagner Road, Alternatives D(RR) and D(RRX).

Photo No. 23. Location Near U.S. Highway 20 Interchange, Alternatives D(RR) and D(RRX).

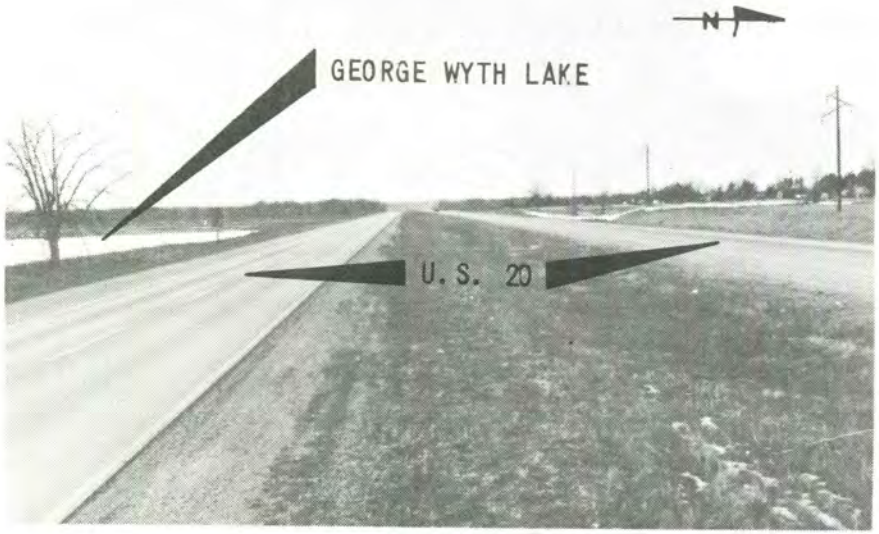


Photo No. 24. Location Near George Wyth State Park, Alternatives C(RR), C(RRX), D(RR), and D(RRX).

Fig. 36. Location of Alternatives C(RR), C(RRX), D(RR), and D(RRX).

extension, and could induce new traffic and service problems in areas where they relocate. Facilities which could be affected by this alternative include Nazareth Lutheran Church, Peet Junior High School, the University Avenue Preserve, and other parks adjacent to University Avenue.

It was concluded that this alternative does not merit additional consideration as an extension of I-380; however, University Avenue is considered as a lesser facility in the "Widening of Existing Streets" alternative.

2. Rainbow Drive (Westerly of Hanna Boulevard) as a Portion of the Extension of I-380.

This alternative follows Eighteenth Street east from its junction with proposed Freeway 518 in Cedar Falls to Waterloo Road; then follows Rainbow Drive to near Hanna Boulevard; then curves southeasterly to generally follow the alignment of the right-of-way of the Chicago, Rock Island and Pacific Railroad and Bluff Street to La Porte Road; and then proceeds more southerly to its terminus.

This alternative would connect major traffic generators along the corridor, and would attract some traffic that would otherwise travel University Avenue. Existing development along Rainbow Drive would be seriously affected by the alternative, including three churches, one elementary school, one or two parks, and most commercial and residential development along the street. The unique character of Rainbow Drive as one of the most scenic roads of the

community will be altered or destroyed by this alternative. Frontage roads would likely be required along the I-380 extension to serve local traffic. This alternative was not further considered as an extension of I-380.

3. Extension of River Road as a Portion of the Extension of I-380. This alternative would extend the River Road northwesterly from east of Westfield Avenue, along the Cedar River to the vicinity of North Hackett Road; then curve westerly to follow the existing Chicago, Rock Island and Pacific Railroad right-of-way; then cross the Cedar River on a northwesterly extension of the aforementioned railroad, interchanging with proposed Freeway 518. In addition, this alternative would extend the River Road southeasterly to follow the Cedar River; then proceed more southerly at a point east of Eighteenth Street in Waterloo, remaining east of La Porte Road to the southerly terminus.

   This alternative again connects major traffic generators and would attract some traffic that would otherwise use University Avenue. Reconstruction of River Road (a facility recently built in 1975) would be required, including widening of River Road and removal of access to John Deere Waterloo Tractor Works. This alternative would also necessitate reconstruction of the Cedar River flood control works and extensive acquisition of commercial and industrial properties along its route. The proximity of the alignment to the river will result in additional design problems near interchanges, as well as affecting riverfront beautification

projects and recent street construction and building improvements. This alternative was therefore removed from further consideration.

4. A variation of the previous alternative was considered, whereby River Road was extended northwesterly from east of Westfield Avenue to westerly of the National Dairy Cattle Congress grounds and then proceeded westerly to follow the right-of-way of the Chicago, Rock Island and Pacific Railroad. This alternative thus joined said railroad southeasterly of that alternative previously described and was similar to such when extended southeasterly of West Mullan Avenue.

   This alternative follows the railroad right-of-way for a longer distance than Alternative No. 3, and will result in somewhat less extensive social and environmental impacts. Since the major problems listed above (No. 3) still exist with this alternative, it was thereby dropped from further consideration.

5. South Street Corridor as a Portion of the Extension of I-380.
   This alternative considers a portion of the extension of I-380 being within a corridor between Washington and Wellington Streets. An alignment within the corridor could connect westerly to University Avenue in the vicinity of U.S. Highway 63 and then proceed northwesterly along University Avenue as described in No. 1 previously discussed (University Avenue). Another variation of this alternative northwesterly of West Mullan Avenue includes an alignment crossing University Avenue, and then following the

right-of-way of the Chicago, Rock Island and Pacific Railroad to the Cedar River, then proceeding northwesterly along an extension of the aforementioned railroad to a junction with proposed Freeway 518.

Southeasterly of West Eleventh Street, an alignment within the South Street corridor would proceed easterly, crossing Washington Street and then proceeding along the Chicago, Rock Island and Pacific Railroad right-of-way to La Porte Road; then proceeding more southerly along and east of La Porte Road to its terminus.

In addition to connecting major traffic generators, this alternative would bypass the Waterloo Central Business District. Properties which would be affected by any alignment within the above corridor would include several churches along West Fourth Street and Wellington Street, a park, a museum, sites of potential historical value, a library, and various residential and commercial developments. This corridor was therefore not considered a feasible location for the I-380 extension.

6. Williston Avenue as a Portion of the Extension of I-380.
This alternative is a variation of the aforementioned Alternative No. 1 (University Avenue) whereby this alternative departs from University Avenue southeasterly of Sager Avenue and crosses U.S. Highway 63 between Fletcher Avenue and West Third Street; then curves easterly to follow Williston Avenue to the vicinity of

West Eleventh Street; then curves to a more southerly direction, crossing La Porte Road and proceeding to its terminus.

This alternative would provide a route of shorter length than those previously described, in addition to connecting some major traffic generators. Ready access would not be provided to John Deere Waterloo Tractor Works, nor to the Waterloo Central Business District area, however, and other local streets may require reconstruction to accommodate this demand. Critical properties affected by this alternative include the fire station at the southwest corner of the University Avenue-Ansborough Avenue intersection, Leonard Katoski Greenbelt, Lowell Elementary School on the north side of Williston Avenue, and two churches at Kimball Avenue and Minnesota Street. Commercial developments along La Porte Road and residential areas would also be affected. Based on the above factors, this alternative was not further considered.

7. Alternative Corridor Located Between Rainbow Drive and University Avenue as a Portion of the Extension of I-380.

The alternative begins at the junction of proposed Freeway 518 and Eighteenth Street in Cedar Falls and proceeds east to the intersection of Waterloo Road. Southeasterly of Waterloo Road to Hackett Road, the extension of I-380 is located within a corridor between Rainbow Drive and University Avenue. Easterly of Hackett Road it proceeds more easterly until reaching the right-of-way of the existing Chicago, Rock Island and Pacific

Railroad in the vicinity of Cleveland Street; then proceeds southeasterly along said railroad right-of-way to La Porte Road; then curves to proceed more southerly to its terminus.

Similar to Alternative Nos. 1 and 2, this alternative will connect major traffic generators and will attract traffic otherwise using University Avenue. Land use in this corridor is predominantly residential, but also includes three parks (Kuehn's Park, Valley View Park, and Galloway Park), three schools (Castle Hill, Blessed Sacrament, and Edison), five churches (Log Cabin Church of God, St. Paul Evangelical Lutheran Church, St. Timothy's United Methodist Church, Christ Lutheran Church, and Grace Reformed Church).

Due to the adverse impact of this alternative on properties such as those listed above, the alternative was not further evaluated.

8. U.S. Highway 20 West of U.S. Highway 63 as a Portion of the Extension of I-380.

This alternative begins at the junction of proposed Freeway 518 and U.S. Highway 20, then proceeds easterly to follow said U.S. Highway 20 to its intersection with Park Road; then continues generally south to the vicinity of the intersection of West Mullan Avenue and Bluff Street; then curves to proceed southeasterly along the Chicago, Rock Island and Pacific Railroad to La Porte Road; then curves generally south to its terminus.

This alternative will utilize a portion of existing U.S. Highway 20 right-of-way and will serve some major traffic generators along its route. Properties to be affected by this alternative would include a commercial strip along Broadway Street, the Rose Hill Church of God, commercial areas along Mullan Avenue, a minority concentration near Broadway Street, and property near Iowa Public Service Company where extensive utility adjustments would be required. In addition, the proximity of the railroad to the alignment of U.S. Highway 20 will result in design difficulties at interchange locations and horizontal curves. This alternative will require frontage roads and other street improvements to serve existing developments and to provide access to John Deere Waterloo Tractor Works. In consideration of the above factors, this alternative was not further considered.

9. U.S. Highway 20 West of Eleventh Street as a Portion of the Extension of I-380.

This alternative is similar to No. 8 previously described, beginning at the junction of proposed Freeway 518 and U.S. Highway 20; then proceeding easterly to follow said U.S. Highway 20 to the vicinity of its intersection with East Eleventh Street in Waterloo; then continuing southeasterly to East Eighteenth Street; then curving southerly, crossing the Cedar River, remaining east of La Porte Road to its terminus.

As in No. 8, this alternative uses a portion of existing U.S. Highway 20 right-of-way for its location, and will connect major traffic generators along its route. A larger number of critical properties are affected by this alternative, including three churches, one school, two parks, Fire Headquarters Station No. 1, concentrated commercial developments between Mullan Avenue and Eleventh Street, and low-income and minority neighborhoods. Access to John Deere Waterloo Tractor Works again is poor, and design difficulties similar to those in No. 8 will occur near certain interchanges. No further consideration was given to this alternative.

10. Railroad Alignment Below Bluff as a Portion of the Extension of I-380.

This alternative is a variation of the aforementioned No. 3 whereby the extension of I-380, west of North Hackett Road, follows the right-of-way of the Chicago, Rock Island and Pacific Railroad, curving along the southerly side of the Cedar River, and tying into the easterly extensions of Thirteenth and Fourteenth Streets in Cedar Falls.

This alignment connects the same major traffic generators as would No. 3, and is likewise expected to improve traffic conditions on University Avenue. The existing railroad right-of-way is insufficient in width for the proposed construction, and additional right-of-way acquisition and embankment construction would cause extensive damage to the bluff region bordering the

railroad. This alignment would also affect two parks in Cedar Falls and major facilities belonging to Cedar Falls Utilities. An interchange with Freeway 518 on this alignment would be extremely difficult and costly to design and construct, being near Dry Run Creek, the Cedar River, and Cedar Falls Utilities. This alternative was deleted from further consideration.

11. Alternative East of George Wyth State Park as a Portion of the Extension of I-380.

This alternative is a variation of aforementioned Alternative Nos. 4, 8, and 9, beginning at the junction of proposed Freeway 518 and U.S. Highway 20; then proceeding east to the vicinity of the east edge of George Wyth State Park; then curving southerly, remaining approximately one-fourth of a mile east of said park; then crossing the Cedar River and curving southeasterly to tie into Alternative No. 4 along the right-of-way of the Chicago, Rock Island and Pacific Railroad.

This alternative serves major traffic generators along its route, uses a portion of existing U.S. Highway 20 right-of-way and remains outside the limits of George Wyth State Park. Due to the effect of this alternative on vegetation and timbered areas near George Wyth State Park, and due to its proximity to the park, this alternative was not further considered. A similar alternative located further to the east, however, was selected for detailed study and is included in this report as Alternatives C(RRX) and C(RR).

Alternative Nos. 12, 13, and 14

The following three alternatives were considered, partially evaluated, and then deleted from further consideration for the reasons stated.

12. Ramp-Connections to Cedar Falls from Proposed Freeway 518. The above ramps, located at Seventh and Eighth Streets in Cedar Falls, were originally included in the Waterloo Metropolitan Area Transportation Study and the Preliminary Design for the Waterloo-Cedar Falls Freeway. These ramps were designed as extensions of Seventh and Eighth Streets across Washington Park, connecting with the Freeway 518-Interstate 380 Interchange.

    A traffic analysis was conducted to determine the effects of deleting the ramp connections. It was concluded (see Appendix Volume II) that the deletion of the ramps would have a relatively minimal effect on required street widenings in Cedar Falls. The deletion of these ramp connections to Cedar Falls, which pass through Washington Park, was suggested to the Transportation Technical Committee and the Policy Board of the Iowa Northland Regional Council of Governments (INRCOG), as a possible revision of the Waterloo Metropolitan Area Transportation Plan. The City Council of Cedar Falls was also asked to take action on said revision. The Transportation Technical Committee and the Policy Board of INRCOG subsequently approved the revision, as

did the Cedar Falls City Council. The Seventh and Eighth Street ramps were thereby dropped from further analysis relative to this study.

13. Wagner Road Extension as a Portion of the Extension of I-380.

This alternative is a north-south connection between existing U.S. Highway 20 and the Chicago, Rock Island and Pacific Railroad right-of-way alignment. This alternative, after proceeding east along existing U.S. Highway 20 from its junction with proposed Freeway 518, curves southerly to follow along and west of the flood control levee west of Candlewick Road, curves somewhat westerly to be located on an island upstream of Sans Souci Island in the Cedar River, then recurves southeasterly to follow the aforementioned railroad right-of-way. As part of this alternative, the proposed Hackett Road Bypass is extended and interchanges with the I-380 extension on the aforementioned island.

The Hackett Road Bypass-Interstate 380 interchange in this alternative would destroy the majority of vegetation and animal life on the island, and would require an additional crossing of the Cedar River. The proposed interchanges of I-380 with Hackett Road Bypass and Rainbow Drive in this alternative would not be separated sufficiently to assure adequate traffic safety and flow. This alternative was therefore dropped from further consideration.

14. Hackett Road Bypass Alternative Alignment as a Portion of the Extension of I-380.

This alternative is a variation of the previous alternative whereby it departs from the aforementioned Alternative No. 13 south of West

Donald Street, curves southwesterly along the alignment of proposed Hackett Road Bypass, curves southeasterly and proceeds along the right-of-way of the Chicago, Rock Island and Pacific Railroad. As part of this alternative, proposed Hackett Road Bypass is continued northeasterly of Rainbow Drive to interchange with the I-380 extension.

Preliminary geometric design was conducted for this alternative. It was determined that insufficient space exists between the Rainbow Drive interchange and the Cedar River to accommodate the required horizontal curvature. The resultant curve would extend into the Rainbow Drive interchange, and would require inordinately long ramps at the Hackett Road Bypass interchange.

This alternative was deleted from further consideration. Alternate alignments for the I-380 extension, as variations of Nos. 13 and 14 above, without the Hackett Road Bypass interchange, have been studied in detail in this report as Alternatives D(RRX) and D(RR).

Probable Beneficial and Adverse Effects of Alternatives

Effects on Natural, Ecological or Scenic Resources

Vegetation

The general impact on vegetation has been described in previous sections. Alternates differ considerably in the quantity and quality of vegetation that each affects. Table 9 summarizes this information. Alternatives. D(RRX) and D(RR) would require the removal of considerably less natural

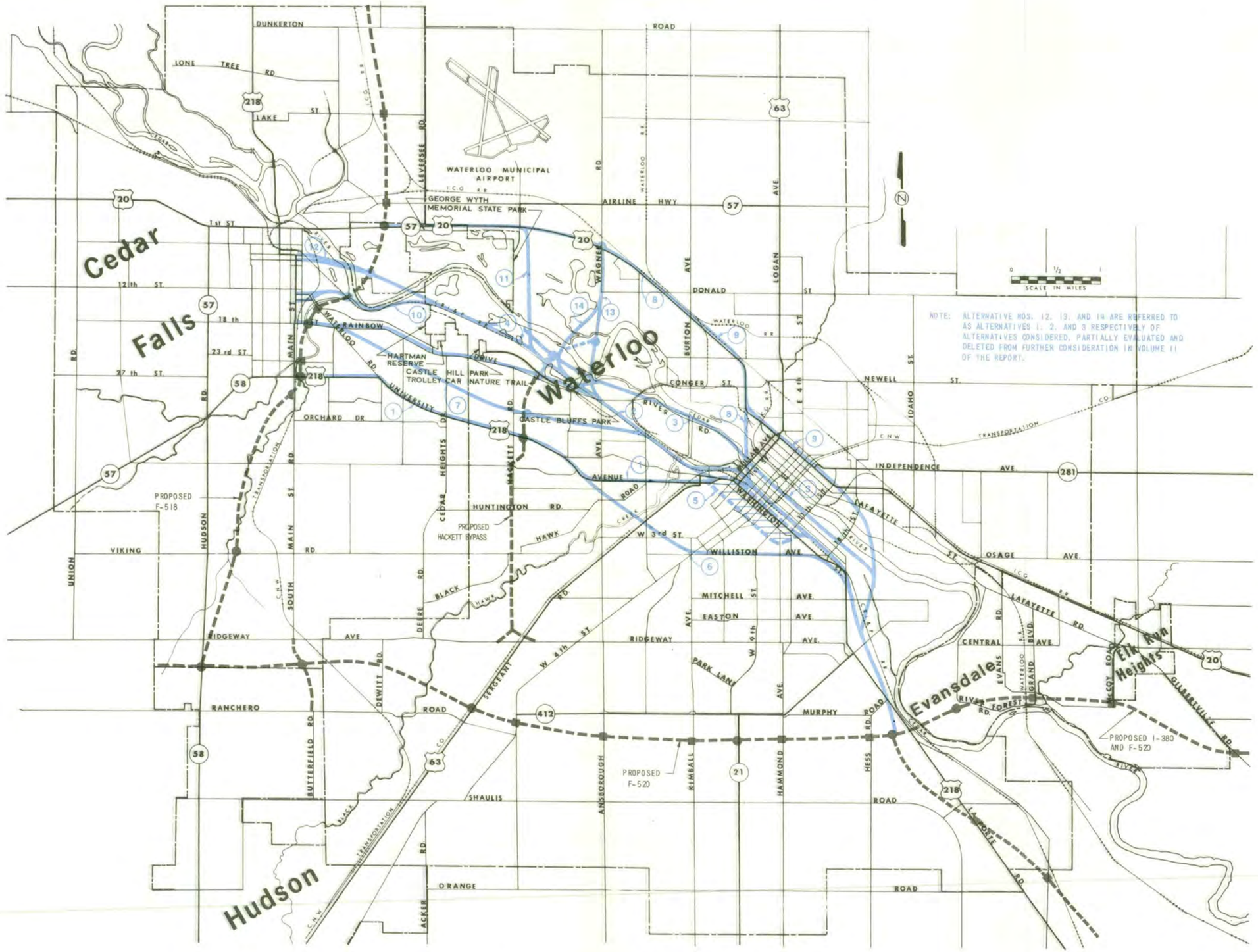


FIG. 37. OTHER ALTERNATIVES CONSIDERED FOR I-380 EXTENSION.

TABLE 9

ESTIMATED ACRES OF EACH VEGETATION TYPE THAT WILL BE REMOVED OR DIRECTLY AFFECTED BY EACH ALTERNATIVE

Vegetation Type	Alternative							
	Do Nothing	Widening Of Existing Streets	A	B	C(RRX)	C(RR)	D(RRX)	D(RR)
Upland forest	. .	0.4	7.2	9.9	6.6	10.5	0.4	0.4
Good quality second terrace forest	. .	..	24.6	32.8	3.0	9.2	. .	. .
Poor quality second terrace forest	. .	..	. .	. .	15.1	14.5	9.3	9.3
Good quality flood-plain forest	. .	..	11.0	9.4	. .	. .	. .	. .
Poor quality flood-plain forest	. .	..	33.9	42.8	46.3	47.3	17.0	17.0
Railroad right-of-way	. .	..	12.5	0.1	2.8	0.7	. .	. .
Old field	. .	..	10.1	7.0	. .	. .	. .	. .
Totals	. .	0.4	99.3	102.0	73.8	82.2	26.7	26.7

vegetation (as well as vegetation of relatively low quality) than would all other alternate systems with the exception of "Do Nothing" and "Widening of Existing Streets". Alternatives C(RRX) and C(RR) pass through relatively low quality vegetation, but these systems would involve removal of larger amounts of vegetation than do Alternatives D(RRX) and D(RR). Alternatives A and B remove considerably more natural vegetation, especially good quality second terrace forest, than do the remaining I-380 alternatives. "Do Nothing", "Widening of Existing Streets", and Alternatives D(RRX) and D(RR) remove considerably less upland forest than do the others.

Impacts to soil that would adversely affect plant life, such as soil erosion and introduction of fill material, will be particularly significant at a site common to Alternates A, B, C(RRX), and C(RR). Effects of operation phase impacts to vegetation, including surface runoff pollutants, air pollutants, and vehicular spray pollutants, would be proportional to the amount of native vegetation and water systems crossed by each alternate. Thus, Alternates D(RRX) and D(RR) would have the least impact on vegetation.

Animal Life

The types and amounts of animal life habitat directly affected by each alternate is presented in Table 10. Alternates A and B will affect the greatest amount of animal life habitat, while Alternates D(RR) and D(RRX) will affect the least amounts. Alternates B and C(RR) will affect the greatest amount of upland forest; Alternate B will affect the greatest amount of second terrace forest; and Alternates A, B, C(RR), and C(RRX) will affect significant amounts of floodplain forest and marshy areas. Alternate A will affect the greatest amount of railroad right-of-way

TABLE 10

ESTIMATED ACRES OF WILDLIFE HABITAT TYPE THAT WILL BE REMOVED OR DIRECTLY AFFECTED BY EACH ALTERNATIVE

Habitat Type	Alternative							
	Do Nothing	Widening Of Existing Streets	A	B	C(RRX)	C(RR)	D(RRX)	D(RR)
Terrestrial								
Upland Deciduous Forest	. .	0.4	7.2	9.9	6.6	10.5	0.4	0.4
Second Terrace Deciduous Forest	. .	..	24.6	32.8	18.1	23.7	9.3	9.3
Floodplain Deciduous Forest	. .	..	44.9	52.2	46.3	47.3	17.0	17.0
Old Fields	. .	..	10.1	7.0	. .	. .	. .	. .
Railroad Right-Of-Way	. .	..	12.5	0.1	2.8	0.7	. .	. .
Aquatic								
Marshy Areas	. .	..	26.7	26.7	28.2	28.2	. .	. .
Small Ponds	. .	..	7.4	7.4	2.9	2.9	. .	. .
River Backwaters	. .	..	. .	. .	2.6	2.6	3.1	3.1
Total Acres	0	0.4	133.4	135.8	107.5	115.9	29.8	29.8
Number of Cedar River Crossings			1	1	1	1	1	1
Number of Reservoir Crossings					1	1		

and old field habitat. All alternates involve one crossing of the Cedar River, and Alternates C(RR), C(RRX), D(RR), and D(RRX) also cross backwater areas of the Cedar River. Because of their relative scarcity in the region, the upland forest and marshy areas are particularly valuable animal habitat in the corridor.

It may be predicted that those alternates passing through the greatest amount of animal habitat will have the greatest number of animal road kills. Thus Alternates A and B would have the greatest number, while Alternates D(RR) and D(RRX) would have the least. Several sites would probably have the greatest animal movement: the area where Hackett Road Bypass intersects with I-380 (Alternates A, B, C(RR), and C(RRX)), where upland populations would have to cross the highway to reach a water source; the stretch of Alternates A and B between Hackett Road Bypass and the Cedar River crossing, particularly where the highway passes below Hartman Reserve, this stretch passes between upland areas and water sources; and the stretch of Alternates C(RR) and C(RRX) that passes through lowland forest north of the Cedar River.

The blocking of animal travel lanes, such as the routes of lowland species traveling to the upland, results in another impact on animal life. During periods of flooding, lowland animals often find refuge in upland areas. Alternates A and B, and to a lesser extent, Alternates C(RR) and C(RRX), would have the potential for this type of impact. Restriction of animals to isolated segments of habitat, especially woodland, may lead to a deterioration of habitat and, in turn, a reduction in the animal populations. The area where this appears most likely would be at the intersection of Hackett Road Bypass and I-380, where roadbeds would isolate small segments of

the upland forest, which has a good animal population, including deer. This area is common to Alternates A, B, C(RR), and C(RRX).

Noise impact on animal life would occur along each of the proposed alignments, having the most total impact along those alternates (A and B) that pass through the most animal habitat. A particularly sensitive area for this impact would be in the floodplain forest occurring adjacent to and underneath the George Wyth State Park bridge crossing for Alternatives A and B.

Aesthetics

Impact on aesthetic values will occur with each of the construction alternatives. In the "Widening of Existing Streets" alternative, visual problems will result from extensive street widening and the proximity of such streets to nearby residences, commercial establishments, schools and parks. The destruction of street plantings and increased paving will cause some widened streets to become aesthetically void, and opportunities for new landscaping will be limited.

Each of the I-380 construction alternatives will result in a visual impact on surrounding land uses. Alternatives which involve relocation of railroads (Alternatives A, C(RRX), and D(RRX)) generally show a lesser visual impact because of lower roadway profiles and wider landscaped areas.

The barrier effect of a freeway-type facility will be an impact of all I-380 alternatives. In many areas the proposed alignments parallel the Chicago, Rock Island and Pacific Railroad, although the scale of this existing barrier would be increased by the highway improvement. Along much of the proposed routes, different land uses, such as residential and industrial, will be

separated by the I-380 extension. Portions of Alternatives C(RR), C(RRX), D(RR), and D(RRX) follow existing U.S. Highway 20.

Each of the I-380 alternatives will cause a visual change to the Cedar River Valley. Alternatives A and B will cause a visual disruption to the wooded valley near the proposed Cedar River crossings. Alternatives C(RRX) and C(RR) also disrupt the visual qualities of the area, although the crossings in these alternatives are located to the east of such critical areas as George Wyth State Park, Hartman Reserve, and residential areas along the bluff north of Rainbow Drive. Alternatives D(RRX) and D(RR) are located farther from the above parks and residential areas, and will result in less overall disruption to the adjacent woodlands.

The extension of Hackett Road Bypass in Alternatives A, B, and "Widening of Existing Streets" will result in additional visual disruption to the Cedar River Valley. Such impacts will be considered in the Environmental Impact Statement for the Hackett Road Bypass project. The aesthetic impact of each alternative on parks has been further discussed in previous sections.

Geology

None of the alternatives under consideration will have an appreciable impact on the geology of the area. No unique or unusual geological formations or land forms are known to exist in the project corridor.

Agricultural Productivity

Each of the construction alternatives will cause an impact on agricultural productivity by the removal of agricultural land from production. The majority of land required for right-of-way purposes is regarded as fair to poor

agricultural land (corn suitability rating of 35 or less), although each construction alternative requires some good agricultural land.

Alternatives D(RR) and D(RRX) result in the greatest requirements, using 98.7 acres of good agricultural land. Alternatives A, B, C(RR), and C(RRX) each require approximately 69 acres, while "Widening of Existing Streets" will require 59.9 acres of good agricultural land.

Parks and Recreation Areas

Each of the alternate systems under study will affect parklands within the metropolitan area, except for System 1 ("Do Nothing"). Several parks are affected by elements of the "Basic Street Widening" network or by "Additional Street Widening", which are included in the respective systems.

A map of all publicly-owned parks within the metropolitan area has previously been shown in Figure 13. With the exception of these parks, all land within the project corridor is publicly or privately-owned non-park land. A large area of natural, undeveloped land exists within the Cedar River floodplain, although significant portions of this land have recently been cleared for sand and gravel quarry operations by its owner, a privately-owned corporation.

Parks affected by "Basic Street Widening" include Civic Park, William Reed Park, and Riverfront Park, all to be affected by the widening of West Mullan Avenue and West First Street in Waterloo. Sullivan Park will also be affected, in varying degrees, by all Systems 2 through 8 by the widening of Logan Avenue. The total encroachment on these parks will be greatest for System 2, "Widening of Existing Streets", because of additional widening

requirements of the respective streets. The above parks include such features as picnic areas, playgrounds, baseball and basketball areas, ice skating, and riverfront beautification.

Hope Martin Park will be affected in System 2 by the widening of Fletcher Avenue. This park includes "Injun Country" and "Pioneer Village" theme areas, camping, picnicking and playgrounds, nature trails, a mini-lake, and an archery range. None of these facilities would be removed by the widening of Fletcher Avenue.

The widening of Washington Street (U.S. Highway 218) in System 2 may require land from Washington Park, depending upon the method of widening. The majority of the needed widening will be possible to the north of the existing street, and the area of parkland to be disturbed is relatively small. This widening would not affect any of the park facilities, including the picnic area or the "Japanese Garden" theme area.

Castle Bluffs Park will be affected in System 2 by the widening of Rainbow Drive. This park is not presently developed, although the area of the park near Rainbow Drive is programmed for development into a picnicking and parking area by the Waterloo Board of Park Commissioners. The effect of the proposed I-380 alternatives on Castle Bluffs Park is discussed in later sections of this report.

The extension of Hackett Road Bypass to the north of Rainbow Drive will encroach on a portion of the Trolley Car Trail, while the construction of Freeway 518 will affect other parklands. The reader is directed to the Environmental Impact Statement for Freeway 518 for a discussion of its effects

on parks. A draft impact statement is currently being prepared for Hackett Road Bypass, and will address impacts to the Trolley Car Trail and other affected parks. Impacts of the various street widening projects will be considered in their respective environmental impact statements. The remainder of this discussion will relate to impacts of the proposed I-380 alignments.

Parks located near one or more alignments of the proposed I-380 extension include Castle Bluffs Park, Hartman Reserve, and George Wyth State Park. These parks are shown in Figure 12 (see "Natural Environment of Project Area" section of this report).

Hartman Reserve consists of approximately 80 acres of natural wooded area, formerly used as a day camp and summer camping facility by the YMCA. Sixty-nine acres of the reserve are presently owned by the Black Hawk County Conservation Commission. The Waterloo Industrial Development Association (WIDA) has an option for the acquisition of the remaining 11 acres, generally consisting of a 200-foot strip parallel to the railroad. This 11-acre parcel is not presently a 4(f) land. WIDA is acquiring this land for resale for highway right-of-way purposes if an alternate is located in this strip. Hartman Reserve is used primarily for hiking and nature study, and future plans call for its use as an educational area.

None of the alternatives in this study will include 4(f) involvement of Hartman Reserve. Under Alternatives A and B, noise levels in areas of the reserve nearest the interstate are expected to exceed the L_{10} design level of 70 dBA. The use of parapets to limit tire/roadway noise will be recommended for this portion of the interstate; however, this measure would not be

expected to reduce the design year noise levels (L_{10}) to below 70 dBA. Noise walls of sufficient height are considered economically and aesthetically undesirable in the Hartman Reserve area (see "Noise Assessment", Appendix Volume VIII).

Discussion of 4(f) Involvement

Two parks within the corridor will be affected by one or more of the I-380 alignments: Castle Bluffs Park and George Wyth State Park.

Castle Bluffs Park

Castle Bluffs Park, located north of Rainbow Drive and west of Ansborough Avenue, consists of 8 acres with access onto Rainbow Drive (Figure 38). The park is presently undeveloped and the former owner currently resides on the property. Except for a portion of the Trolley Car Trail, this property is not used by the public as a park and includes no park facilities. Future plans include the development of the higher ground near Rainbow Drive into a park, including picnicking facilities, parking areas and providing access to the Trolley Car Trail. (The Trolley Car Trail is an abandoned right-of-way now used for hiking and bicycling.) Development or improvement of the lower ground near the proposed I-380 alignments is not included in future plans for the park. No unusual characteristics exist in the park, and similar park uses are available in Castle Hill Park and other parks in the area. Castle Bluffs Park is owned by the Waterloo Board of Park Commissioners.

The right-of-way of the Chicago, Rock Island and Pacific Railroad abuts on the Castle Bluffs Park property. The majority of the park property is to the south of the railroad, although a small section (approximately 0.01

acre) is to the north of the railroad right-of-way. Due to the design of the proposed I-380 extension in Alternatives B and C(RR), with the railroad remaining in the median, acquisition of a portion of the parkland will be required.

In Alternatives A and C(RRX), where the railroad is relocated, the alignment of I-380 is proposed to be shifted to the north so that a smaller area of parkland will be required. All of Castle Bluffs Park, except for the small 0.01 acre area north of the railroad, may be avoided in these alternatives by the construction of retaining walls. Such retaining walls will be considered in the final design of the facility.

To avoid the 0.01-acre portion of Castle Bluffs Park in Alternatives A and C(RRX), it would be necessary to move the interstate alignment still farther north. Such would require reconstruction of the recently built flood control works (relocation of the Forrester Avenue roadway and closure), the acquisition of additional land from the National Dairy Cattle Congress grounds, and the possible removal of additional buildings. In addition, such a shift will locate the alignment in the floodway of the Cedar River and affect the elevation of future floods. As the 0.01-acre of parkland is small, has no public access and is of very limited use, the above alignment shift to avoid the park was not considered a prudent alternative.

Alternatives D(RR) and D(RRX) do not involve any land acquisition from Castle Bluffs Park. (For detailed drawings of right-of-way requirements for each alternative, refer to Appendix Volume V).

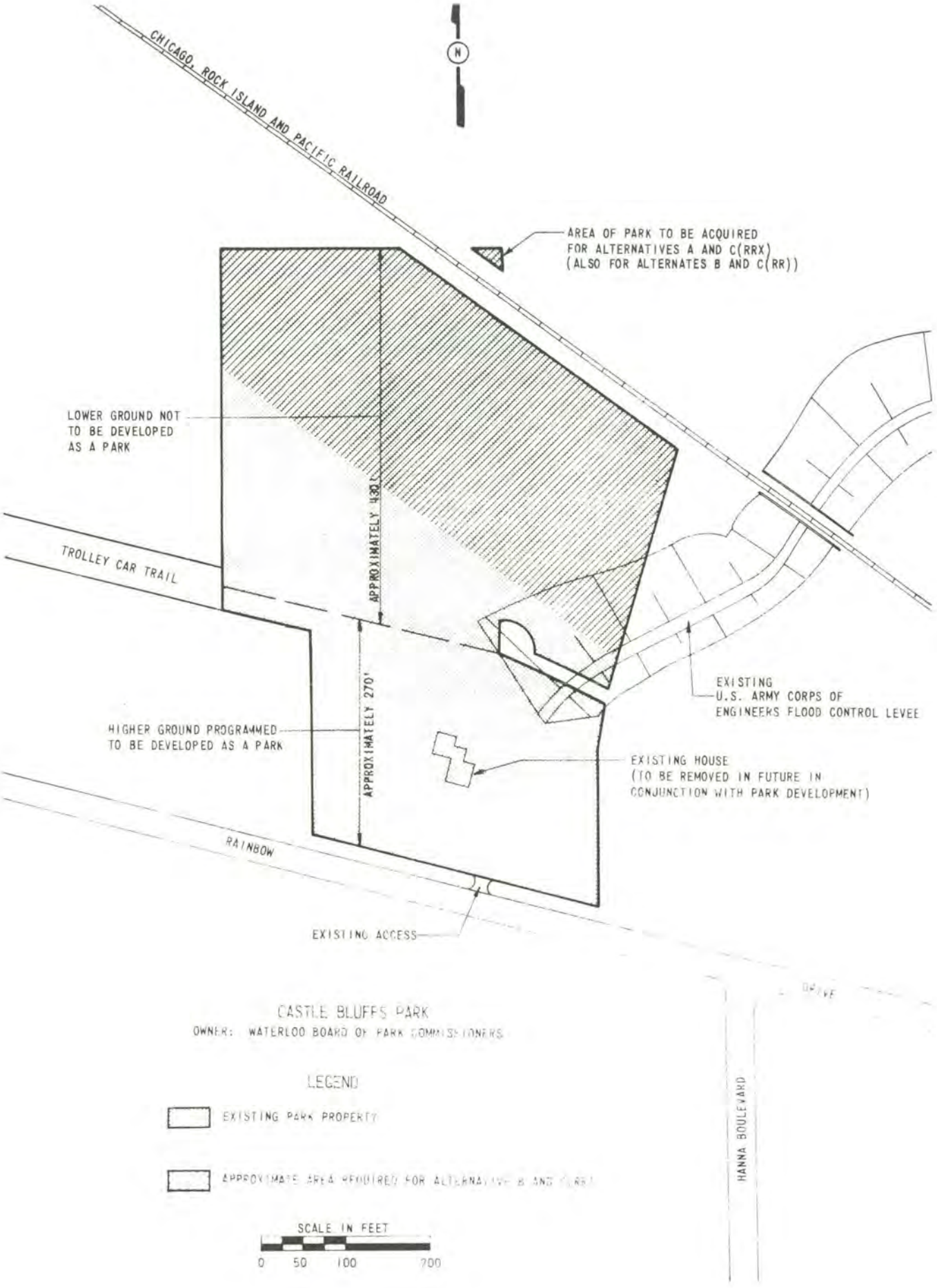


Fig. 38. Location, Development and Encroachment of Castle Bluffs Park.

The area of the park affected by Alternatives A, B, C(RR), and C(RRX) is of low elevation, parts of which are often covered by standing water. This park has recently been encroached upon by construction of the flood control works. A condition in the acquisition of the park was that the Waterloo Board of Park Commissioners will only develop the high ground of the park, and the low land will mostly be set aside for highway right-of-way and flood control works. A portion of the park was donated by the present owner (see letter from Mr. Leonard Katoski, dated May 1, 1972). Table 11 summarizes the 4(f) involvement of the various alternatives.

The remaining land in Castle Bluffs Park will be affected mainly by the visual impact and increased noise levels of the proposed I-380 facility. Noise levels (L_{10}) projected for the park under "Do Nothing" or "Widening of Existing Streets" alternatives are 66 dBA, while noise levels will increase to 74 dBA for Alternative A or Alternative B, and to 73 dBA for Alternative C(RRX) or Alternative C(RR). Noise barriers such as walls or berms are not practical in this area, as a major portion of the park is located on a bluff approximately 20 feet higher than the proposed interstate facility. Noise barriers of sufficient height would require additional parkland and would be aesthetically undesirable. Likewise, because of the higher elevation of the park, the proposed interstate will remain visible from some areas of the park. A typical cross-section of Castle Bluffs Park is shown in Figure 39.

Early coordination between the I-380 project and the development of Castle Bluffs Park is documented in the above-referenced letter from the Waterloo Board of Park Commissioners.

TABLE 11

4(f) INVOLVEMENT OF CASTLE BLUFFS PARK

Alternative	Area Affected	Area Remaining	Uses, Access, and Facilities Affected
A	0.01 Acre*	8.0 Acres	None
B	3.3 Acres	4.7 Acres	None
C(RRX)	0.01 Acre*	8.0 Acres	None
C(RR)	3.3 Acres	4.7 Acres	None

*0.75 Acres Without Retaining Walls.

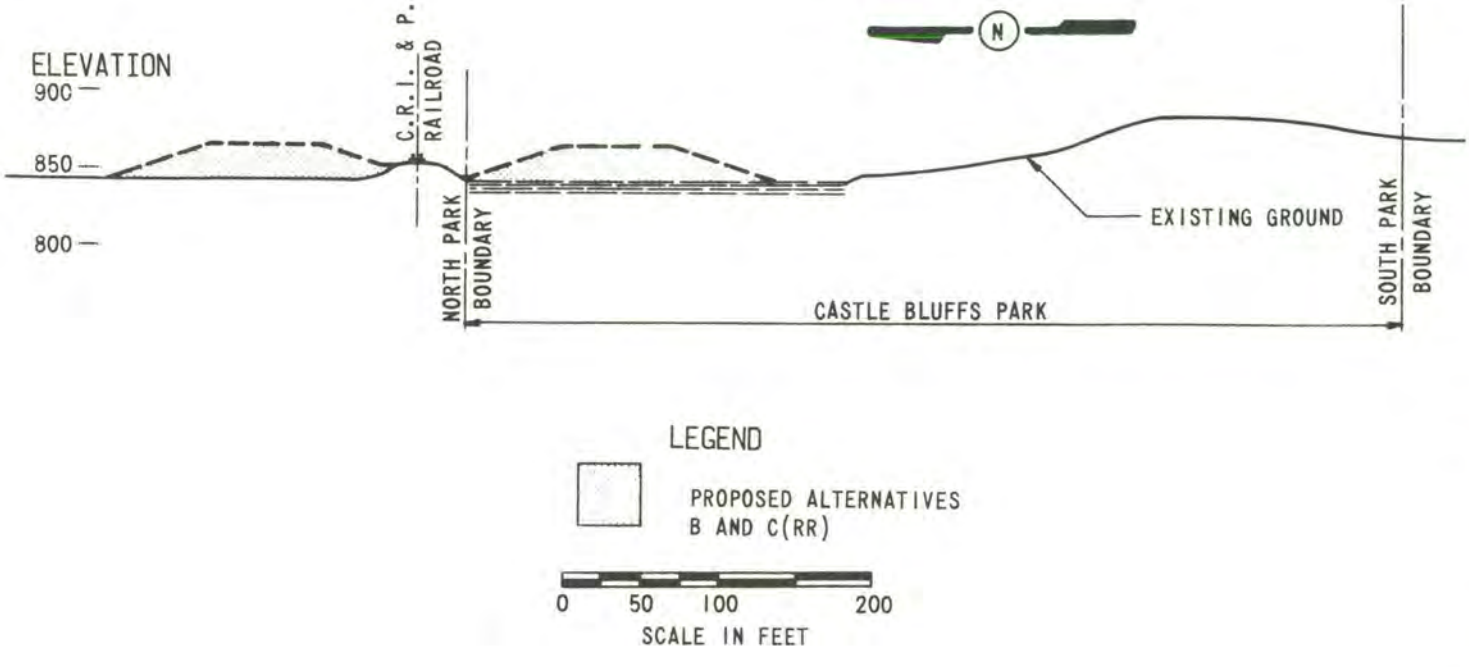


Fig. 39. Typical Cross-Section of Castle Bluffs Park and Proposed I-380 Extension.

George Wyth State Park

George Wyth Memorial State Park, with an area of approximately 420 acres, is located between the Cedar River and U.S. Highway 20, as shown in Figure 40. The park is largely left undeveloped and contains open and wooded areas with many species of wildlife and vegetation. George Wyth Lake is an artificial lake of approximately 36 acres surface area which originated as a borrow site during the construction of U.S. Highway 20. This lake is presently a part of George Wyth State Park. Ownership of the park rests with the State of Iowa.

A variety of outdoor activities are common to George Wyth State Park, including picnicking, camping, sports activities, hiking, and related activities such as bird watching and nature studies. The lake provides such activities as swimming, fishing, sailing, ice skating, and ice fishing. The park is closed each day at 10:30 P.M., and hunting is specifically prohibited at all times.

The entrance to the park is located to the north on U.S. Highway 20, and park roads and trails provide access to the majority of the park's area. During the winter months, portions of these roads (including the areas affected by I-380 Alternatives A and B) are chained off and utilized as snowmobile trails.

According to the George Wyth State Park Development Phase Master Plan Study, (Iowa Conservation Commission, 1974), the following existing facilities are located in the park: Park officer residence and maintenance area; 1,200-

foot access road to landlocked Black Hawk County Conservation Board archery range; 20-acre camping site for 75 to 100 units; picnic facilities, including several scattered sites for picnicking and fishing; old shelter area; new shelter area; boat ramp picnic area and west picnic area; approximately three miles of nature trails; Cedar River frontage of 11,800 lineal feet; George Wyth Lake (approximately 36 acres); and Fisher Lake (approximately 25 acres). The map in Figure 40 shows the location of existing facilities as well as the location of proposed I-380 Alternatives A and B.

Due to its location within the floodplain, large portions of George Wyth State Park are frequently flooded by the Cedar River.

George Wyth Lake is the only public lake in the metropolitan area, and the only existing place where sailing is practiced. Other activities common to George Wyth State Park are also available at various parks within the city. For example, Hartman Reserve and Leonard Katoski Greenbelt together contain approximately 670 acres of mostly undeveloped, wooded areas. Outdoor sports and picnicking facilities are available at numerous locations throughout the metropolitan area. No interrelationships exist between these parks and George Wyth State Park, as they are separated from each other and are administered by separate governmental jurisdictions.

Due to the location of the proposed interchange of I-380 and Freeway 518, Alternatives A and B will cross a narrow portion of George Wyth State Park. Because of physical design constraints, it was considered impractical to avoid George Wyth State Park in these alternatives, as avoidance of the park would place portions of the Freeway 518 - I-380 interchange in the

channel of the Cedar River. It was also not possible to shift the interchange south of the Cedar River because of insufficient space between the river and the proposed interchange of Freeway 518 and Eighteenth Street.

No Section 4(f) involvement of George Wyth State Park is included in the remaining I-380 alternatives (C(RRX), C(RR), D(RRX), or D(RR)) or in the "Do Nothing" or "Widening of Existing Streets" alternatives.

The crossing of the park by Alternatives A and B is located at the narrowest portion of the park, as shown in Figure 40, where the park is approximately 300 feet wide. Approximately 1.52 acres would be required for the crossing in Alternative A, and approximately 3.13 acres in Alternative B. The crossing in either case will consist of an elevated bridge structure, allowing the park road to remain in use as well as allowing continued circulation of animals. Road kills of animals from the proposed I-380 project will not be significant within the park. Some vegetation would be removed during construction, although no man-made park facilities will be displaced by either alternative. Although the construction of the I-380 extension would require the above-stated land areas from the park, this land would essentially revert to park-type usage upon completion of the construction operations (see Figure 41). For detailed drawings of right-of-way requirements of the I-380 alternatives, the reader is referred to Appendix Volume V.

Long-range impacts of the proposed I-380 extension on George Wyth State Park include increased noise levels and the visual impact of the facility. Noise levels (L_{10}) are expected to increase from an existing 35 dBA to 70 dBA for projected year 2000 traffic volumes. Projected

noise levels, while higher than existing, are within federally prescribed requirements for design noise levels in parklands. In the final design stage, the interstate bridge structure may be designed with lexan side panels to further reduce highway noise levels within the park.

No design features have been included to eliminate the visual impact of the proposed I-380 alignments within the park. The existing wooded character of this portion of the park, as well as the winding alignment of George Wyth Park Road, will help to limit the visual impact to the area immediately surrounding the I-380 crossing (see Volume VIII).

Construction operations of the I-380 extension would be phased to minimize the adverse impacts to the park and its users. The extent of construction within the park is relatively small. It is expected that

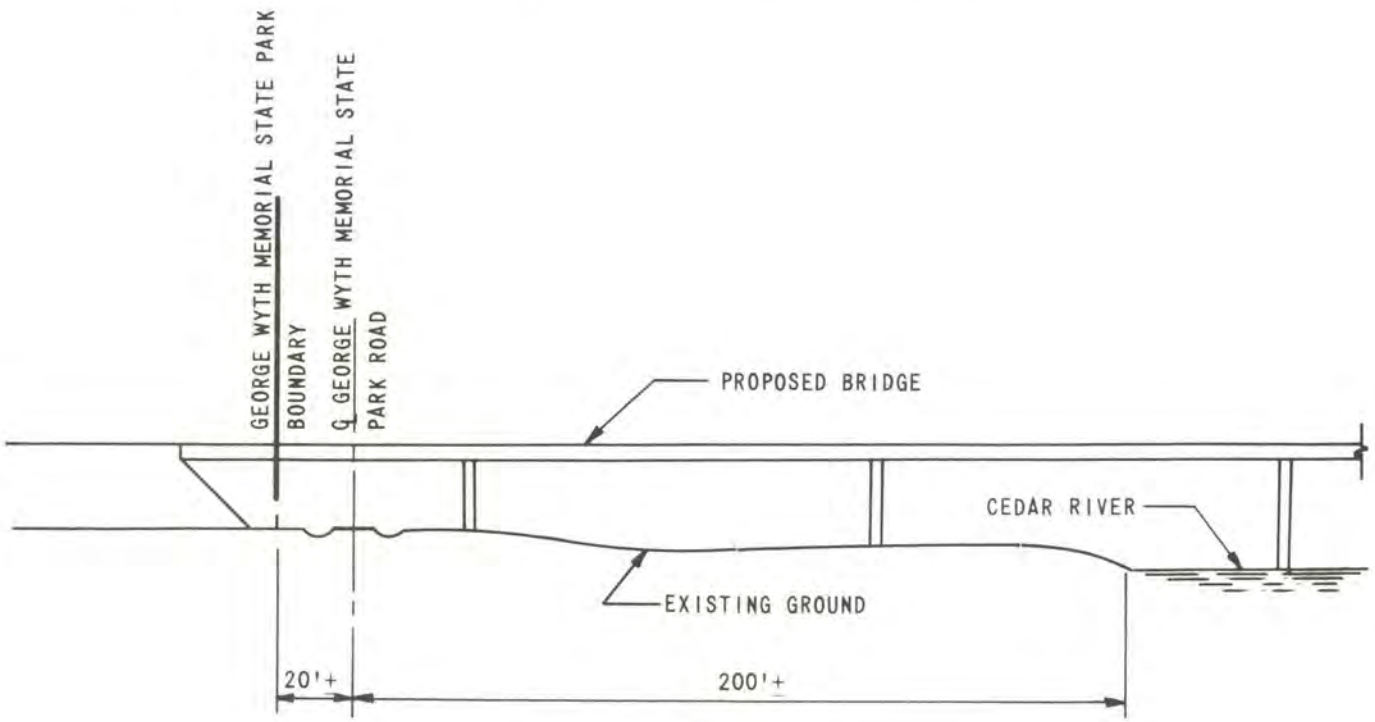


Fig. 41. Typical Cross-Section of George Wyth State Park and I-380 Extension.

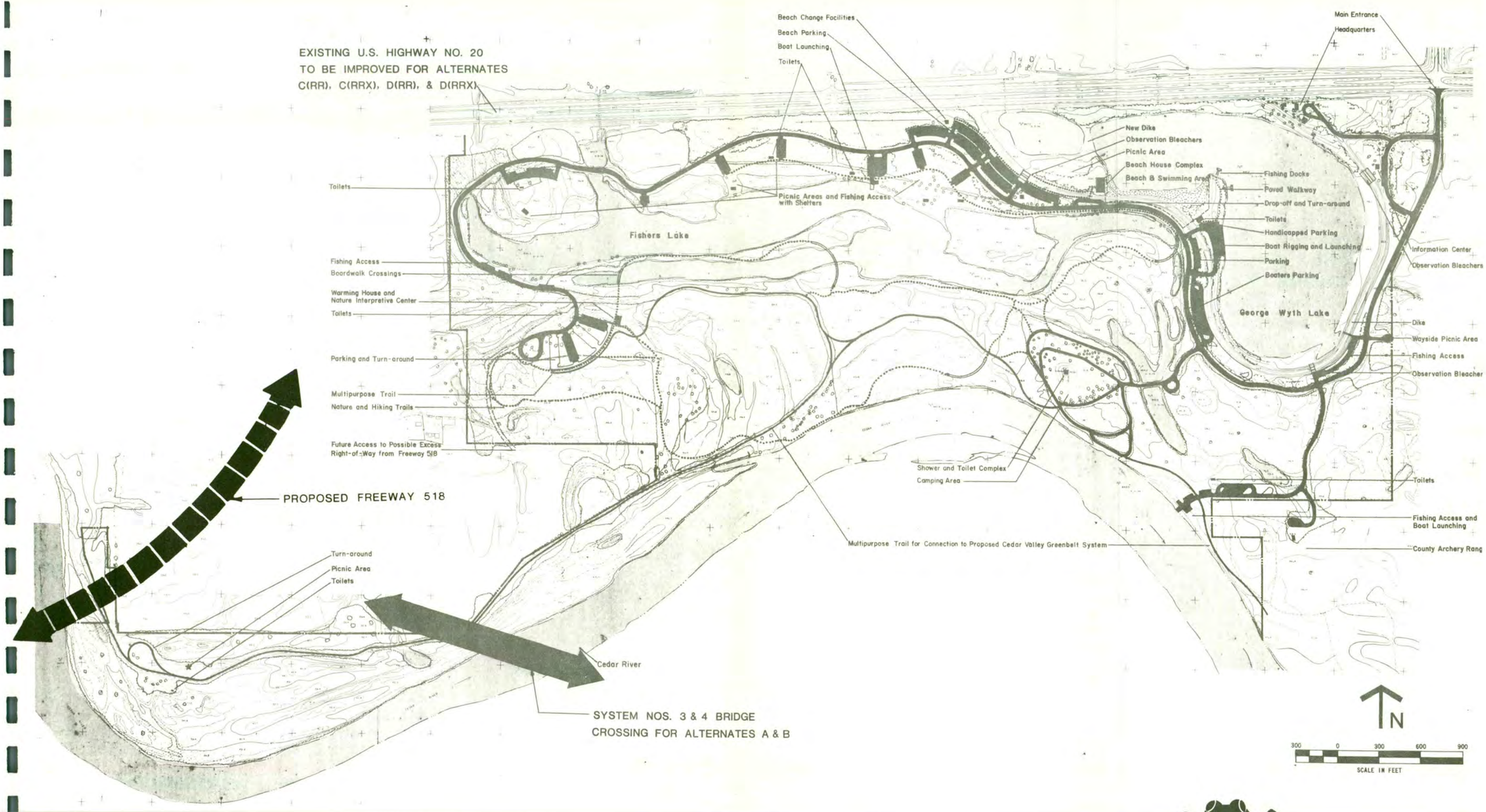


FIG. 40. MASTER PLAN OF GEORGE WYTH MEMORIAL STATE PARK SHOWING LOCATION OF BRIDGE CROSSING FOR ALTERNATE ALIGNMENTS A AND B.

GEORGE WYTH STATE PARK
MASTER PLAN

construction of the required piers may be accomplished within one month, and the bridge superstructure may be set in two weeks time. All remaining construction will then take place on the elevated structure, with minimum interference to normal park activities.

Effects of Relocation

Table 12 summarizes the number of households and businesses to be displaced by each of the proposed I-380 alignments. A breakdown of the individuals to be relocated according to various characteristics is shown in Table 13. The impact of relocation has previously been discussed under "Relocation Impact" and "Economic Impact".

The impact of various street widening projects ("Basic Widening" or "Additional Widening") on relocation has not been detailed in this document. Such impact will be addressed in the respective impact statements of each project when the projects are authorized. For informational purposes, the following estimates of relocation are included for the "Widening of Existing Streets" alternative (excluding "Basic Widening"):

Owner-Occupants:	236 Units Displaced
Residential Tenants:	152 Units Displaced
Commercial Businesses:	141 Businesses Displaced

TABLE 12

SUMMARY OF RELOCATIONS

	Number of Units Displaced			
Alternative	Residential (Home-Owner Occupied)	Residential (Tenant)	Business (Commercial)	Business (Industrial)
A	197	191	111	7
B	239	224	157	7
C(RRX)	196	191	111	7
C(RR)	242	225	157	7
D(RRX)	193	187	110	7
D(RR)	234	222	155	7

TABLE 13

CHARACTERISTICS OF RELOCATEES

Alternative	Percentage of Y-R H.U.* Displaced	No. of Low Income Relocations**	Number of Persons Displaced			
			Total	Under 18 Yrs.	62 Yrs. & Older	Black
A	1.6	65	1,050	336	176	3
B	1.9	78	1,275	413	211	3
C(RRX)	1.6	76	1,046	334	175	3
C(RR)	1.6	92	1,283	416	211	3
D(RRX)	1.6	74	1,021	324	174	3
D(RR)	1.6	89	1,244	400	210	3

*Y-R H.U. = Year-Round Housing Units.
**Number of Households with Income Below Poverty Level.

Effects on Economic Factors

The economic impact on property values, tax base and employment varies considerably among the I-380 alternatives. As indicated in previous sections, properties located near the I-380 alignments, both abutting and non-abutting, will experience an increase in land value due to the I-380 construction. Table 14 shows the projected number of residential properties affected by each alternative, and the total increase in residential property value resulting from the I-380 construction. These figures represent the expected net change in property value, considering both benefits such as improved accessibility and adverse effects such as increased noise or air pollution. Such property value increases are expected to occur soon after completion of the I-380 construction.

TABLE 14

AGGREGATE INCREASE IN RESIDENTIAL LAND VALUES
BY ALTERNATE ALIGNMENT

Alternative	Units Affected	Average Increase In Property Value	Total Increase In Residential Property Value
A	2,328	1,200.00	2,793,600.00
B	2,778	1,200.00	3,333,600.00
C(RRX)	2,327	1,200.00	2,792,400.00
C(RR)	2,802	1,200.00	3,362,400.00
D(RRX)	2,280	1,200.00	2,736,000.00
D(RR)	2,736	1,200.00	3,283,200.00

Construction of the various I-380 alternatives will require different properties to be purchased for right-of-way, thus reducing the tax base of the cities involved. Table 15 shows the annual amount of taxes which will be lost by right-of-way acquisition, based on current (1976) tax rates. As previously discussed, most residents and businesses are expected to relocate within the metropolitan area, and tax base losses from the I-380 extension will be a short-range effect.

Due to the extent of construction involved, the effect of each alternative on employment will vary. An increase in construction jobs will cause an accompanying increase in service jobs, due to the "employment multiplier" effect previously described. For each construction job, an additional 1.96 jobs will be created elsewhere in the economy.

For the purpose of assessing the impact on employment, the following estimate ratios were accepted for the breakdown of construction costs:

1) 60% of construction for materials, 40% for labor; and 2) 30% of materials expenditure will be spent locally, 75% of wages will be paid within the metropolitan area. The number of jobs created by construction have been calculated based on the assumption of wages of $45/day/worker over a four-year (240-day) period. Table 16 provides an assessment of job opportunities.

Economic impacts of residential and business relocation, as well as related secondary impacts, have been discussed in other sections of this report.

TABLE 15

TAXES LOST TO RIGHT-OF-WAY ACQUISITION FOR VARIOUS ALTERNATIVES CONSIDERED

Alternative	Taxes Lost
A	$304,800.00
B	407,400.00
C(RRX)	305,200.00
C(RR)	406,600.00
D(RRX)	302,400.00
D(RR)	403,100.00

Table 17 presents a summary of the economic analysis of the project, comparing construction costs to road user savings (i.e., savings to the driving public resulting from lesser motor vehicle operating costs, lower accident rates, time savings and changes in highway maintenance costs).

The "Equivalent Uniform Annual Net Return" indicates the amount by which the annual construction cost (initial cost spread over the expected life of the highway) exceeds the annual road user savings. The

"Benefit/Cost Ratio" is equal to the road user savings divided by the annual construction cost. The "Annual Rate of Return" indicates the interest rate at which annual construction costs equal the road user savings. Accordingly, the alternative with the greatest economy is represented by the highest "Annual Rate of Return".

Results of the above analyses show that any of the alternatives considered will result in road user savings which exceed construction costs, so that any of the alternatives is more desirable than "Do Nothing" from an economic standpoint.

A complete economic feasibility analysis is included in Appendix Volume VI of this report.

TABLE 16

CONSTRUCTION IMPACT ON EMPLOYMENT

Designation of Alternate	Local Share of Wages for the Construction of I-380 (In Thousands)	Annual Construction Employment Generation (Each)	Total jobs Generated Metropolitan Employment Multiplier 2.96 (each)	*Direct Economic Impact of Highway Construction funds to number of people living in metropolitan area
Widening of Existing Streets	13,850	320	947	1,794
A	41,428	959	2,839	5,380
B	34,581	800	2,368	4,487
C(RRX)	45,982	1,064	3,149	5,967
C(RR)	39,658	918	2,717	5,149
D(RRX)	43,965	1,018	3,013	5,710
D(RR)	37,357	865	2,560	4,851

*Based on 50% married, 0.79 children per family (1.895 multiplier). Indicates total number of people directly benefitted by highway construction employment.

TABLE 17

TABULATION OF EQUIVALENT UNIFORM ANNUAL NET RETURN, COST-BENEFIT RATIO AND RATE OF RETURN FOR A 20-YEAR AMORTIZATION PERIOD AT 4%, 6% AND 8% INTEREST RATES (COMPARED TO SYSTEM 1 "STATUS QUO")

System	Alternate	Railroad Relocation Solution No.	Initial Investment	Equivalent Uniform Annual Net Return, Interest Rate 4%	Equivalent Uniform Annual Net Return, Interest Rate 6%	Equivalent Uniform Annual Net Return, Interest Rate 8%	Benefit/Cost Ratio, Interest Rate 4%	Benefit/Cost Ratio, Interest Rate 6%	Benefit/Cost Ratio, Interest Rate 8%	Annual Rate of Return, %
2	. .	..	$165,627,117	$18,187,175	$16,681,300	$14,252,047	2.55	2.16	1.84	18.11
3	A	1	279,850,473	32,944,142	29,137,337	25,032,770	2.60	2.19	1.88	18.48
		2	284,940,033	32,569,642	28,693,603	24,514,388	2.55	2.16	1.84	18.11
4	B	..	258,569,446	34,510,043	30,992,723	27,200,285	2.81	2.37	2.03	20.38
5	C(RRX)	1	283,836,194	30,705,065	26,844,041	22,681,016	2.47	2.08	1.78	17.44
		2	288,925,754	30,330,565	26,400,308	22,162,634	2.43	2.05	1.75	17.09
6	C(RR)	..	264,425,814	32,133,320	28,536,335	24,658,002	2.65	2.24	1.92	18.89
7	D(RRX)	1	275,330,294	28,392,946	24,647,628	20,609,359	2.40	2.03	1.73	16.89
		2	280,419,854	28,018,446	24,203,895	20,090,977	2.36	1.99	1.70	16.53
8	D(RR)	..	254,621,132	29,916,768	26,453,157	22,718,628	2.60	2.19	1.88	18.45

Effects on Air Quality

Air quality impact of the "Do Nothing" alternate would be confined to land uses adjacent to existing streets where highest pollutant concentrations now exist. With predicted yearly increases in traffic volumes on the existing street network under the "Do Nothing" alternate, air quality is expected to deteriorate in areas near heavily traveled streets. Such traffic volume increases and resulting traffic congestion make this alternative very undesirable with respect to air quality. The predicted carbon monoxide concentrations of 5.6 parts per million (PPM) are higher for the "Do Nothing" alternate than for any other alternative under study.

Under the "Widening of Existing Streets" alternative, streets would be widened to relieve traffic congestion, resulting on a positive effect on carbon monoxide emission rates. At the same time, however, the traffic is moved closer to adjacent land use which would tend to counteract the beneficial effects of more efficient vehicle operation. This alternative is again undesirable relative to air quality, resulting in carbon monoxide concentrations (5.4 PPM) nearly as high as the "Do Nothing" alternative.

Because of the spatial separation afforded by each of the I-380 construction alternatives, no significantly adverse impacts upon air quality at the nearest receptor locations can be predicted. Due to the location of the highway with respect to adjacent land use and the enhanced efficiency of vehicle operation on the freeway facility, the construction alternatives are predicted to be most beneficial relative to air quality. Maximum carbon monoxide concentrations for any of the construction alternatives are predicted at 2.0 to 2.1 PPM.

Further information on air quality can be found in Appendix Volume VIII of this report.

Effects on Noise

For the "Do Nothing" alternative, noise impact will be limited to areas adjacent to existing streets. As traffic volumes increase, with attendant increases in congestion and stop-and-go operation, noise levels near heavily traveled streets are projected to rise. The portion of the noise study, which weighted certain land uses according to sensitivity to traffic noise, determined that the "Do Nothing" alternative will be experiencing the highest predicted noise level of the eight alternatives under study (L_{10} = 88 dBA). Because of the proximity of adjacent development and the frequency of access points, noise abatement methods could not be successfully applied in most instances under "Do Nothing" conditions.

Under the "Widening of Existing Streets" alternative, noise impact again affects only those land uses adjacent to existing streets. Lesser traffic congestion in this alternative, due to the additional traffic lanes provided, will result in a positive effect on traffic noise. The widened streets will move traffic closer to adjacent land use, however, tending to counteract the beneficial effects of more efficient vehicle operation. From the standpoint of noise, the street widening concept is an undesirable alternative.

Significant noise impact is predicted to occur in three portions of the I-380 Alternate A corridor. The first is the heavily traveled area

nearest the Waterloo Central Business District which would be expected to affect nearby residences; the affected residential area in this case is scheduled to be removed in future years with changing land use. Thus, the noise sensitive land use is not expected to remain adjacent to the I-380 alignment.

The second area of significant impact is located between Cleveland Street and Ansborough Avenue where the I-380 corridor skirts a residential development. Features to mitigate the noise impact in this area will be made a part of the final design plans for I-380. It appears at this juncture that a noise wall of sufficient height to reduce the noise to acceptable levels will be provided if such a structure can be incorporated consistent with aesthetic and traffic safety considerations.

The third area of impact under this alternative is the area of the Cedar River crossing. Existing noise levels in this vicinity are very low so that the I-380 traffic noise expected to be experienced by the residents of the nearby homes and users of George Wyth State Park in this area represents a severe increase from existing levels. No cost effective means of noise reduction can be recommended for this area.

Noise impact of I-380 under Alternative B would be lessened as a result of the more extensive right-of-way requirements of this alternate. In the heavily traveled portion of the I-380 alignment near the Waterloo Central Business District much of the land use that would be severely affected under Alternative A would be included in the right-of-way required for the construction of Alternative B. At the residential area between

Cleveland Street and Ansborough Avenue, fewer homes would be severely affected due to the separation of the I-380 roadways. Noise mitigation methods would be required, however, to attain acceptable noise levels at the nearest homes adjacent to this section of the freeway.

Noise impact for Alternatives C(RRX) and C(RR) is the same as that described for Alternatives A and B from the southern project terminus to the proposed interchange with the Hackett Road Bypass. As Alternatives C(RRX) and C(RR) extend north from this point, no noise sensitive land use is affected. This alignment will exert some noise impact upon the northern boundary of George Wyth State Park and the residences located to the north of existing U.S. Highway 20. These impacts are not expected to be critical in that the affected portion of the park is not a high use area and the affected homes are not predicted to experience noise in excess of the design noise levels.

Only one noise sensitive area differentiates Alternatives D(RRX) and D(RR) from Alternatives C(RRX) and C(RR). The residential development east of Wagner Road and south of U.S. Highway 20 will be severely affected by Alternatives D(RRX) and D(RR). Approximately 25 homes would be expected to be seriously affected by I-380 traffic noise. A noise wall of sufficient height to reduce the noise experienced at these homes to acceptable levels will be recommended if this alternate is selected for construction of I-380.

A comprehensive noise analysis is presented in Appendix Volume VIII of this report.

Effects on Water Quality

Groundwater in the project area is located in extensive limestone and sand aquifers, and provides the water supply for Waterloo and Cedar Falls. Deep limestone cuts were avoided in all the construction alternates, and none of the alternatives will cause an appreciable impact on groundwater supply or quality. Additional runoff of de-icing salts will result in an insignificant impact on private well points and water supplies in the Cedar River area.

Impact on surface waters, as previously discussed, is minimal for all alternatives in this study. Water quality impact of proposed borrow sites is included in previous sections on "Earth Borrow" (see Appendix Volume VIII for further details).

Effects on Flood Hazards

The impact of the proposed alternatives on the Cedar River is nearly equal for each of the I-380 construction alternates and has been previously discussed. The Cedar River may also be affected by other related projects including the Hackett Road Bypass and Freeway 518. Flood hazard evaluations of those projects will be addressed in their respective Environmental Impact Statements.

The impact on No Name Creek just southwest of Wagner Road is limited to Alternatives D(RRX) and D(RR), the only alternatives which cross the creek. Flood data from Comprehensive Drainage Study of Creeks in the Waterloo Area, Brice, Petrides & Associates, Inc., 1974, were used in the preliminary design of the I-380 extension in this area. Bridges for the No Name Creek crossing were sized for the 100-year frequency flood without

causing appreciable backwater, and no significant impact relative to flood hazards is expected. The channel and floodway of No Name Creek must be relocated to accommodate Alternatives D(RR) and D(RRX) in this area.

Other minor drainageways which cross the alignments of I-380 will be accommodated by adequate culverts to discharge the 100-year frequency flood, whenever developed land upstream is affected. Again, no significant impact is expected for any of the alternatives under study (for further information see Appendix Volume VIII).

Effects on Transportation Factors

Generalized results of each transportation factor are presented in this section of the report. For more detailed findings the reader is referred to Appendix Volume VII. The results presented in this section are indicative of areawide transportation conditions, and reflect the impacts of I-380 in conjunction with the overall transportation network. All factors in this section are representative of projected 1990 traffic volumes unless otherwise noted.

Fast Transportation

The impact of each alternative on fast transportation is measured by the average network travel speed of the alternative. Average network travel speeds represent the average number of miles of roadway that can be traveled within one hour, including periods when traffic is moving and periods of stopped delays. It is also the average of all vehicles traveling all streets within the metropolitan area.

Alternatives A and B provide the highest average network speed of 27.35 miles per hour. Alternatives C(RRX) and C(RR) resulted in speeds of 27.22 m.p.h., while Alternatives D(RRX) and D(RR) show an average speed of 27.08 m.p.h. "Widening of Existing Streets" provides a somewhat lower average speed of 25.60 m.p.h., and "Do Nothing" will result in the lowest average network speed of 20.55 m.p.h.

Due to the projected increases in traffic volumes, future traffic congestion will cause reduced speeds and lengthy delays on many streets in the "Do Nothing" alternative. Figure 42 indicates the projected design hour operating speeds on such streets, which will occur during peak-hour traffic for the year 2000. Normal operating speeds are projected for all streets in the remaining seven alternatives.

Safe Transportation

The impact of the alternatives on safe transportation includes reductions in the occurrence of accidents, injuries and fatalities on the street system. Table 18 is a summary of the impact, showing that Alternatives A and B are the safest systems. "Do Nothing" ranked most dangerous among the eight alternatives, due to increased travel on the more accident-prone local streets. Accident cost savings for each of the I-380 alternatives compared to "Do Nothing" are in the range of $2,800,000 per year, while "Widening of Existing Streets" results in an accident cost savings of approximately $800,000 per year.

Efficient Transportation

The relative efficiency of each alternative transportation system was based on the overall travel time costs associated with the alternative.

The impact on efficient transportation is summarized in Table 19, indicating that Alternatives A and B result in the greatest travel time cost. Projected time costs are highest for the "Do Nothing" alternative.

Traffic Diversion from Local Streets

Each of the construction alternatives will divert certain traffic volumes from the local street system, resulting in less congestion on such streets and a more orderly movement of traffic. Traffic projections indicate that travel on local streets will be reduced by 25.1 to 26.3 percent under the construction alternatives compared to "Do Nothing". (Alternatives A and B showed slightly greater reductions in local street travel). The "Widening of Existing Streets" alternative showed a reduction of 7.6 percent in local street usage.

Driving Comfort

The analysis of driving comfort was based on the levels of service provided on roadways within each alternative system. Levels of service characteristics were previously discussed under "Need". Improvements of various streets as described under "Alternatives" will result in a Level of Service "C" or better for each alternative except "Do Nothing". Levels of service under this alternative are shown in Figure 6, "Need", page 18.

Results of the driving comfort analysis indicate that Alternatives A and B provide the most comfortable driving conditions, followed by Alternatives C(RR), C(RRX), D(RR), D(RRX), and "Widening of Existing Streets". The impact due to reduced driving comfort is more severe for the "Do Nothing" alternative.

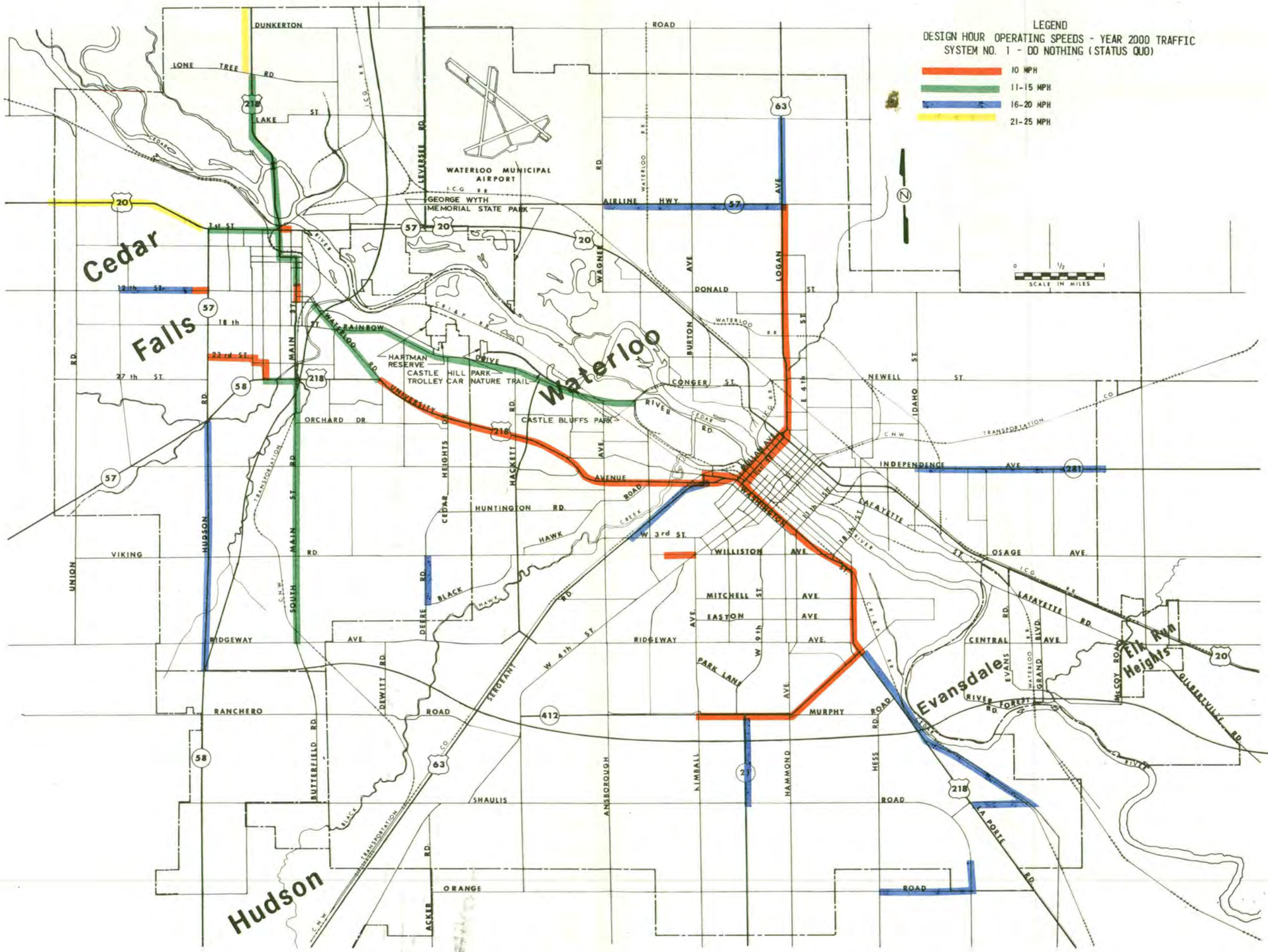


FIG. 42 DESIGN HOUR OPERATING SPEEDS SYSTEM NO. 1

TABLE 18

TOTAL ACCIDENTS PER YEAR BY TYPE (1990)

Alternative	System	No. of Fatal Accidents Per Year	No. of Injury Accidents Per Year	No. of Property Damage Accidents Per Year	No. of Total Accidents Per Year	No. of Fatalities Per Year	No. of Injury Accidents Per Year Prevented (Comparted to Do Nothing)	No. of Lives Per Year Saved (Compared to Do Nothing)
Do Nothing	1	16.49	1537	5243	6796	18.05	. .	. .
Widening of Existing Streets	2	15.85	1452	4970	6438	17.52	85	0.53
A & B	3&4	14.53	1223	4156	5394	16.48	314	1.57
C(RRX) & C(RR)	5&6	14.79	1224	4141	5380	16.83	313	1.22
D(RRX) & D(RR)	7&8	14.70	1233	4204	5452	16.70	304	1.35

TABLE 19

TRAVEL TIME COSTS (1990)

Alternatives	System	Total Time Cost Per Year*
Do Nothing	1	$149,812,000.00
Widening of Existing Streets	2	121,541,000.00
A	3	113,757,000.00
B	4	113,757,000.00
C(RRX) & C(RR)	5&6	114,586,000.00
D(RRX) & D(RR)	7&8	115,246,000.00

*Based on $3.43 per vehicle-hour of travel.
Source: Iowa Department of Transportation.

Fuel Consumption

Reductions in fuel consumption are a beneficial impact of freeway travel. Elimination of delays, speed change cycles and stop-and-go driving which are normally present on city streets results in greater overall fuel economy.

Projections of fuel consumption indicate that the construction alternatives of the extension of I-380 will cause the greatest reduction in fuel usage. Savings are estimated at 1.2 million gallons per year for Alternatives A and B, compared to "Do Nothing". Alternatives D(RRX) and D(RR) will save approximately 1.0 million gallons per year, while Alternatives C(RRX) and C(RR) show a savings of 0.5 million gallons per year. The smallest benefit is associated with "Widening of Existing Streets", which will save an estimated 0.26 million gallons per year over "Do Nothing".

Accessibility

Areas which can be reached quickly and easily by vehicle will become more attractive places to work, shop, or otherwise visit. The impact of a transportation system on community accessibility is related to the travel time required to reach such areas of employment, shopping, or other centers of attraction.

Travel times between various points of origin and all major centers of attraction were calculated and averaged for each alternative. Such average travel times were nearly equal for each of the I-380 construction alternatives. Travel times to centers of attraction under the "Widening of Existing Streets" alternative will average about ten percent greater

than under the I-380 alternatives. "Do Nothing" will result in travel times approximately 21 percent greater than those under the I-380 alternatives.

The I-380 construction alternatives also provide a long-range impact on accessibility by improving access to presently undeveloped land in addition to providing continued access to existing development.

Effects on Community Planning Factors

In this section, community-wide impacts of each alternative are established. Background information, evaluation procedures and detailed findings in each area are presented in Appendix Volume VII of this report. General impacts of the alternatives are outlined below.

Emergency Services

Travel time projections were made to determine the response times to fire, police, and ambulance emergency calls. Alternatives A, B, C(RRX), C(RR), D(RRX), D(RR), and "Widening of Existing Streets" results in nearly equal travel times for fire department vehicles traveling within their respective fire districts. For police and ambulance calls, the I-380 construction alternatives provided the shortest travel times, while "Widening of Existing Streets" resulted in somewhat longer travel times. Traffic congestion and inadequate roadway widths under "Do Nothing" will cause response times for each emergency service to increase. The projected response time for fire calls will be approximately nineteen percent longer for "Do Nothing" than for the remaining alternatives.

Public Utilities

Each of the construction alternatives will cause an impact on public utilities. Electric, gas, telephone, water and sewer services will be temporarily disrupted during most construction activities, resulting in a short-range impact for all alternatives except "Do Nothing".

Long-range impact on public utilities will result from alternatives which provide major utility corridors. Presently the City of Waterloo is under order from the Environmental Protection Agency and the Iowa Department of Environmental Quality to conduct a facilities plan which will require a new major outfall sewer line and separation of sewers. A recent study (Areawide Comprehensive Sanitary Sewer Study for the Metropolitan Area of Black Hawk County, Iowa; Brice, Petrides & Associates, Inc., 1973) has shown that the alignment of a major interceptor sewer line, to be included in the future areawide sewer system, will generally follow the proposed I-380 alignments. Each of the I-380 alternatives will have a long-range impact on public utilities by providing right-of-way for required storm and sanitary sewer improvements.

Solid Waste Collection and Transport

The impact of Alternatives A, B, C(RR), C(RRX), D(RR), D(RRX), and "Widening of Existing Streets" on solid waste collection and transport is approximately equal, based on projected travel times between the areas of solid waste generation and the sanitary landfill south of Waterloo. The "Do Nothing" alternative will increase such travel times by approximately thirty-five percent because of traffic congestion and reduced travel speeds on many streets.

Land Use

The impact of each alternative on land use development is related to the degree of accessibility provided to areas of future development. Under each alternative, projections were made relative to areas where future development is most likely to occur (see Appendix Volume VII). According to such projections, each of the I-380 alternatives will spread and divert the existing development, providing a more uniform growth pattern for the metropolitan area. The "Widening of Existing Streets" alternative will lower the pressure for development in the southeastern part of Waterloo and in Evansdale, thus hindering this area's growth potential. "Do Nothing" will result in reduced accessibility in areas near congested streets, causing lesser future development in those areas.

Projected impacts relative to changing existing or future land uses are not severe. In the vicinity of Iowa Highway 412 several large parcels of light industrial land are divided by each of the I-380 alignments, but the remaining areas are of sufficient size to remain useful as light industrial areas. Residential areas traversed by the proposed alignments are designed with landscaped separations and noise barriers where possible, so that nearby residential land uses are not expected to change. Parking areas will be included under the proposed viaduct in Waterloo's Central Business District to preserve its current land use. Each of the I-380 alternatives will accelerate development in the vicinity of Roosevelt Street, Iowa Highway 57, and U.S. Highway 20, a change which has been programmed in the future land use plan of Cedar Falls.

The impacts of the alternatives on land use due to noise, air quality, and aesthetic changes have been discussed in other sections of this report.

Multiple Land Use

Each of the I-380 construction alternatives will include provisions for multiple land use, with such features as parking areas, landscaping, noise barriers and plantings, park-like developments, provisions for utilities, and possible animal life refuge and recreation areas. Alternatives in which the railroads remain (Alternatives B, C(RR), and D(RR)) additionally provide an intermodal transportation corridor serving both rail and motor vehicle traffic. Alternatives in which the railroads are relocated (Alternatives A, C(RRX), and D(RRX)) incorporate wider landscaped areas in some locations, without increasing total right-of-way width. A portion of Alternatives D(RR) and D(RRX) will include multiple land use with the flood control works near Wagner Road.

"Do Nothing" and "Widening of Existing Streets" offer virtually no possibilities for increased multiple land use. Under "Widening of Existing Streets" some areas of existing multiple land use will be lost for street widening purposes.

Additional data on multiple land use is included in Appendix Volumes III, VII, and VIII.

Effects of Railroad Relocation

Railroad Relocation Alternatives

The subject of railroad relocation was discussed with representatives of the four affected railroad companies, the Railway Division of the Iowa Department of Transportation, and the Highway Division of the Iowa Department of Transportation. As a result of such meetings, which included on-site investigations, several alternatives were formulated and mailed to the respective railroad companies for their comments relative to feasibility, acceptability, and other considerations. Six alternative solutions were suggested for review. One alternative was found to be acceptable, in principle, by all of the various railroad companies. The acceptable alternative and another alternative solution, that was developed subsequent to input from the respective railroad companies, were further studied and evaluated. It should be noted that railroad relocation is considered relative to only Systems 3, 5, and 7 in this report.

Solution No. 1

This solution provides for the removal and/or relocation of the existing trackage of the C.R.I.&P.R.R. Company from Dry Run Creek in Cedar Falls to near Mitchell Avenue in Waterloo, and of the C.N.W.T. Company trackage from Falls Avenue to near Mobile Street in Waterloo.

The relocation of the C.R.I.&P.R.R. trackage is as follows (see Figure 43):

1. Along southerly extension of W.R.R. Company trackage through Evansdale, crossing the Cedar River, and tying into existing C.R.I.&P.R.R. trackage southerly of Shaulis Road.

2. Along W.R.R. Company trackage northerly through Evansdale, curving northwesterly to the vicinity of the I.C.G.R.R. trackage.

3. Existing yards and shops of I.C.G.R.R., in the vicinity of East Fourth Street in Waterloo, to be relocated easterly of Evans Road and north of existing I.C.G.R.R. trackage.

4. C.R.I.&P.R.R. to be located over existing trackage of the I.C.G.R.R. from west of Evans Road, proceeding northwesterly along trackage of the I.C.G.R.R., then curving southwesterly, crossing the Cedar River, then curving northwesterly to tie into existing C.R.I.&P.R.R. trackage in northwest Cedar Falls.

5. This solution includes provision of a small railroad yard in the vicinity of the southern junction with existing C.R.I.&P.R.R. trackage, to serve for switching of cars destined for portions of the existing trackage that remains south of Byron Avenue and easterly of Alternates A, C(BRX), and D(BRX) in Systems 3, 5, and 7, respectively, of the extension of I-380.

The relocation of the C.N.W.T. Company trackage in this solution is as follows (see Figure 43):

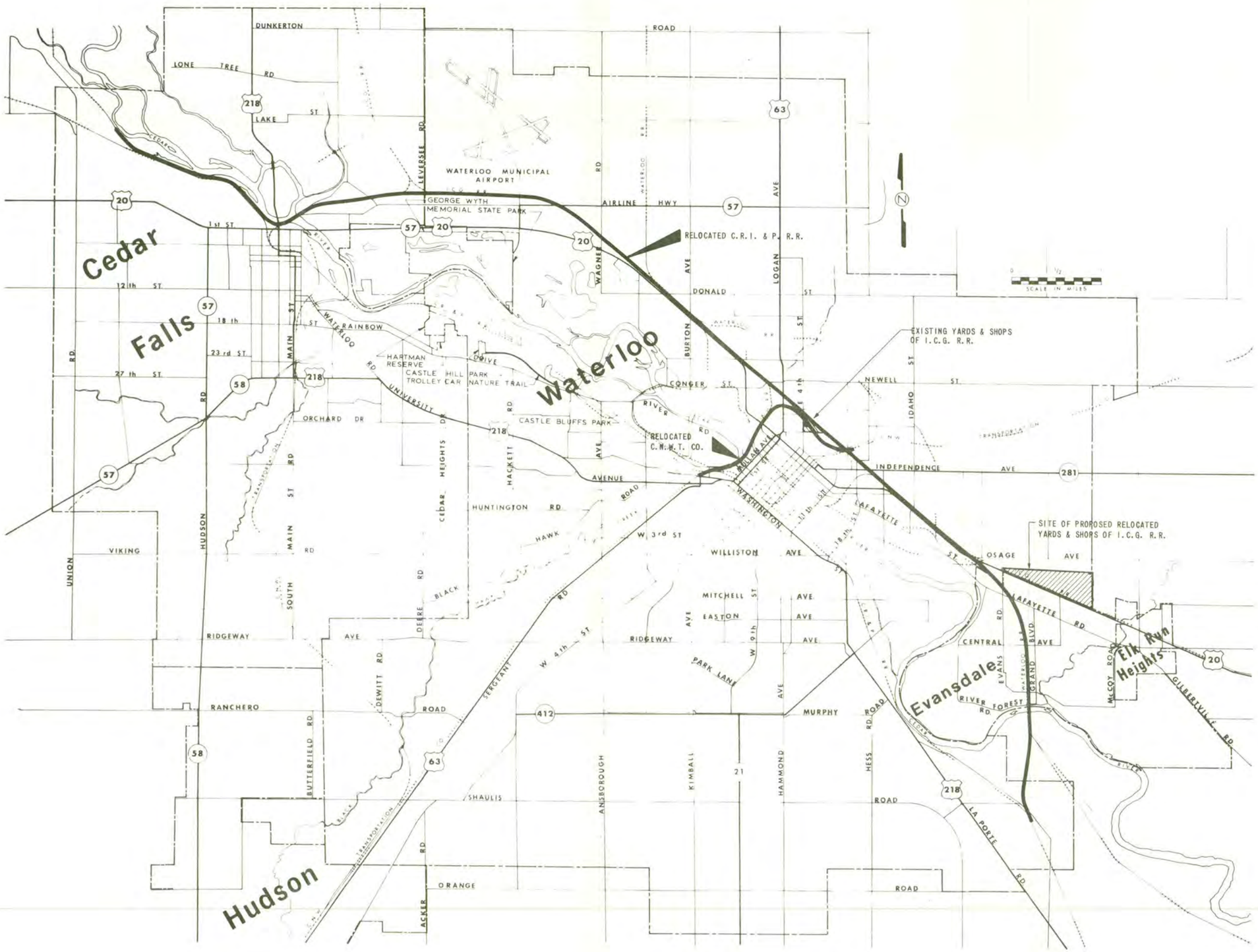


FIG. 43 ALTERNATIVE SOLUTION 1 - RAILROAD RELOCATION

1. Beginning at Falls Avenue in Waterloo, proceed northeasterly, crossing the Cedar River upstream of Mullan Avenue.

2. Follow rights-of-way of Utica Street and the existing I.C.G.R.R. to Lincoln Street.

3. Curve easterly and then southeasterly, remaining southerly of the main tracks of the I.C.G.R.R. Company to East Fourth Street.

4. Curving more southerly through the area of the existing yards of the I.C.G.R.R., thence curving northeasterly to join the existing trackage of the C.N.W.T. Company, overpassing the existing I.C.G.R.R. and relocated C.R.I.&P.R.R. trackage near Mobile Street.

This alternative solution was preliminarily found to be acceptable to all of the railroad companies upon their individual analyses. It was selected for further preliminary design and assessment of impact.

Solution No. 2

This solution was developed subsequent to the review of other preliminary solutions by the respective railroad companies and was provided as an alternative to relocating the C.R.I.&P.R.R. trackage through Evansdale. This solution, like Solution No. 1, involves the relocation of the existing yards and shops of the I.C.G.R.R. Company to east of Evans Road and north of the I.C.G.R.R. trackage. In addition, the relocation of the C.N.W.T. Company trackage is identical to that of Solution No. 1 (see Figure 44). It is emphasized that Solution No. 2, like the other alternative solutions for railroad relocation, is only studied or applicable to Systems 3 and 7 of this report.

Proceeding southeasterly from west of Evans Road, the C.R.I.&P.R.R. Company is relocated along the existing trackage of the I.C.G.R.R. Company to near South Elk Run Road, and is described further as follows (see Figures 44 and 45).

1. Beginning west of South Elk Run Road, the alignment of the relocated C.R.I.&P.R.R. trackage curves easterly on an added track, descends in grade and then curves southerly to underpass the existing track of the I.C.G.R.R. Company approximately one mile southeasterly of South Elk Run Road.

2. Proceeding generally south, the relocated C.R.I.&P.R.R. trackage crosses the Cedar River and curves southeasterly to join the route of the existing W.R.R. Company trackage easterly of Girsch Road.

3. The relocated C.R.I.&P.R.R. thereon follows the route of the W.R.R. Company trackage southerly, tying into the existing trackage of the C.R.I.&P.R.R. in the vicinity of an easterly extension of East Quarry Road east of U.S. Highway 218 (see Figure 45).

4. This solution includes the provision of a small railroad yard in the vicinity of the aforementioned junction of existing and relocated C.R.I.&P.R.R. trackage, to serve as a switching area for cars destined toward Washburn and Waterloo.

Design considerations for both railroad alternatives are included in Volume II of this report.

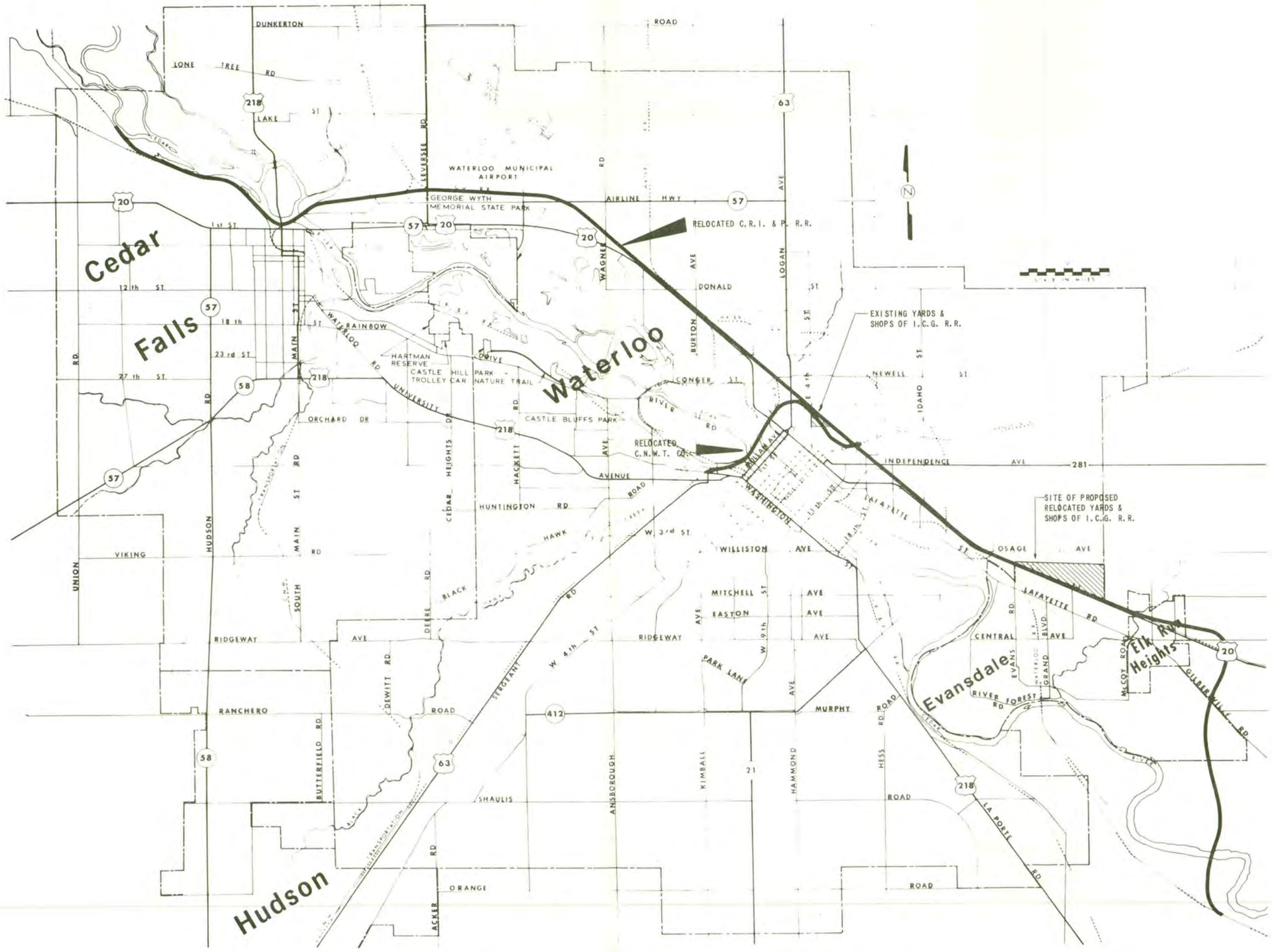


FIG. 44 ALTERNATIVE SOLUTION 2 - RAILROAD RELOCATION

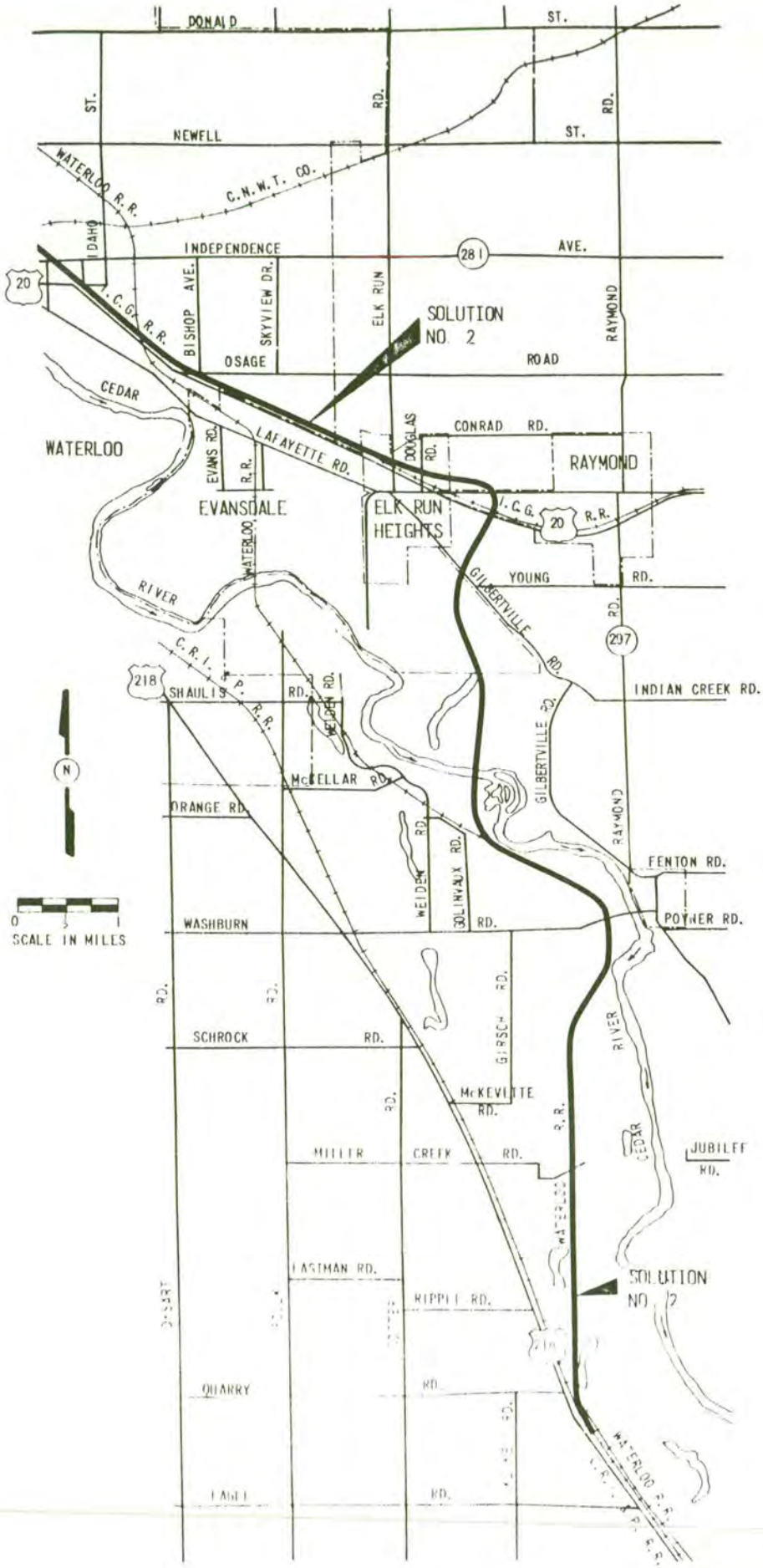


Fig. 45. Portion of Relocation of C.R.I.&P.R.R. Company-Solution No. 2.

Impact of Railroad Relocation

Highway users, particularly in the vicinity of the Waterloo Central Business District, will benefit from the relocation of the Chicago and North Western Transportation Company and the Chicago, Rock Island and Pacific Railroad Company tracks. The potential savings to highway users include those costs and time costs associated with accidents; delays caused by having to decelerate, stop, and accelerate at railroad crossings; and maintenance costs of vehicles due to roughness of crossings, in addition to those intangible values of comfort and convenience.

Railroad Operations Impact

It appears that the reduction in the number of at-grade railroad crossings, for both Solution Nos. 1 and 2, will provide a positive impact on railroad operations, and that curvature and grade conditions along the relocated C.N.W.T. Company trackage will be similar to existing conditions. It is difficult, within the scope of this highway route location study, to assess all impact relative to railroads without involving the respective rail transportation companies. If railroad relocation is required by the selection of an appropriate metropolitan highway transportation system (3,5, or 7), further operational impact may be outlined during the negotiation stage.

Community Impact

The community impact of the various solutions for relocation of railroads includes the effect of such on fire and police protection, service to public health centers, and land use.

Fire Protection

Accessibility relative to fire protection services in Cedar Falls, Waterloo and Evansdale are analyzed in detail in Volume VII of this report. As is noted therein, two fire stations are currently located in the vicinity of the central business district of Waterloo, one being north and west of the C.N.W.T. and the C.R.I.&P.R.R. Company trackages, and the other being south of said trackage. Headquarters Station No. 1 is located at 425 East Third Street and Station No. 2 is located at 1906 Randolph Street (see Figures 12 and 13, Volume VII). Both of these stations are currently needed due to the closure of railroad crossings during the passage of trains. If the railroads were removed from the central business district, the Waterloo Fire Department may close Fire Station No. 2 and transfer its equipment and personnel to adjacent fire districts, with fire protection being extended from Headquarters Station No. 1.

Fire protection should also be improved by the relocation of the yards and shops area of the I.C.G.R.R. Company from the vicinity of East Fourth Street, thereby permitting increased usage of East Fourth Street.

Cedar Falls currently maintains two fire stations with Headquarters Station No. 1 being located at 1718 Main Street and Station No. 2 located at 722 Lone Tree Road. These fire stations are located to provide service to both sides of the Cedar River and the Illinois Central Gulf Railroad tracks. Three additional fire stations are being planned, due to the size of the fire district presently served by Station No. 1. The relocation of the C.R.I.&P.R.R. along existing tracks of the I.C.G.R.R. will improve fire protection service to the area north and east of the present C.R.I.&P.R.R. trackage.

One fire station is located in Evansdale, such being located at 125 North Evans Road, southwesterly of the existing Waterloo Railroad Company tracks. For Solution No. 1 of the relocation of the C.R.I.&P.R.R., an underpass at Lafayette Road would be most beneficial relative to fire protection, as compared with a potential underpass at the extension of Trail Avenue. Fire vehicles could thereby proceed either west or east of the relocated C.R.I.&P.R.R. from the fire station, which is located within a short distance of the proposed grade separation. Relative to Solution No. 2 of the relocation of the C.R.I.&P.R.R., that area southeasterly of Solution No. 2 via Gilbertville Road may be affected during periods of time that such crossing is closed.

Police Protection

Police protection should be improved by the relocation of railroads in Waterloo due to the better accessibility provided those police vehicles dispatched from the Police Department Headquarters at 715 Mulberry Street. Likewise, some improvement may be possible relative to police vehicles operating from cruising positions in various locations within the community.

Service relative to those vehicles dispatched from the Police Department Headquarters in Cedar Falls, located at 220 Clay Street, may likewise be improved by the relocation of the C.R.I.&P.R.R. Such improvement is comparable with that of fire protection in relation to Fire Station No. 1.

The Police Department in Evansdale is located at the same address as the Fire Department. The comments made previously, relative to fire protection apply also to police protection for Solution Nos. 1 and 2.

In conclusion, railroad relocation is expected to improve police protection in the metropolitan area. Additional comments relative to police protection are included in Volume VII.

Service to Public Health Centers

Ambulance service is provided by the respective Fire Departments of Cedar Falls, Waterloo, and Evansdale, as is described in Volume VII. The impact of railroad relocation will be similar to that described under "Fire Protection", and such impact is expected to be favorable to such services to health centers.

Land Use and Multiple Land Use

The removal or abandonment of the C.R.I.&P.R.R. from Dry Run Creek to Park Drive in Cedar Falls will provide a pathway that can serve as an extension of Pfeiffer Park and which can be used as a walking trail.

Land use along the relocated C.N.W.T. Company trackage, from Falls Avenue to the Cedar River, is expected to remain industrially and commercially oriented. Therefore, the impact of such railroad relocation will be minimal, although the railroad south of Jefferson Street may have a noise impact on the motel between the railroad and West Mullan Avenue.

North of the Cedar River to Lincoln Street, the relocated C.N.W.T. Company trackage essentially replaces a section of a spur track of the I.C.G.R.R. Company. The embankment of the relocated railroad will serve as a visual barrier between the industrial area to the west and the residential area to the east between the river and Mulberry Street. North of

Mulberry Street, additional trains on the relocated track will produce an additional impact on adjoining land uses.

The area north and westerly of the relocated railroad and Logan Avenue has potential for redevelopment as an open space. Virden Creek is enclosed in a large underground conduit in a portion of this area.

The area south of the I.C.G.R.R. trackage from Logan Avenue to East Fourth Street is expected to remain commercial in nature, although some properties will have to be acquired. The existing yards and shops of the I.C.G.R.R. Company, east of East Fourth Street, are to be relocated. Upon their removal, the future use of the remaining railroad property is unknown. Depending upon the results of future negotiations with the railroads, this area may be redeveloped as offices by such railroads or for other uses. Existing land use along remaining segments of the I.C.G.R.R. trackage will be affected by an additional two, or occasionally three, trains per day, which impact is considered to be minimal.

Pedestrian Movements

Pedestrian movements in the vicinity of the central business districts of Waterloo and Cedar Falls will be favorably affected by the relocation of the respective railroads. The results will include increased safety and accessibility.

Furthermore, proposed pedestrian overpasses at Idaho Street and Parker Street and modifications of the existing pedestrian overpass at

In conclusion, railroad relocation is expected to improve police protection in the metropolitan area. Additional comments relative to police protection are included in Volume VII.

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Land use along the relocated C.N.W.T. Company trackage, from Falls Avenue to the Cedar River, is expected to remain industrially and commercially oriented. Therefore, the impact of such railroad relocation will be minimal, although the railroad south of Jefferson Street may have a noise impact on the motel between the railroad and West Mullan Avenue.

North of the Cedar River to Lincoln Street, the relocated C.N.W.T. Company trackage essentially replaces a section of a spur track of the I.C.G.R.R. Company. The embankment of the relocated railroad will serve as a visual barrier between the industrial area to the west and the residential area to the east between the river and Mulberry Street. North of

Mulberry Street, additional trains on the relocated track will produce an additional impact on adjoining land uses.

The area north and westerly of the relocated railroad and Logan Avenue has potential for redevelopment as an open space. Virden Creek is enclosed in a large underground conduit in a portion of this area.

The area south of the I.C.G.R.R. trackage from Logan Avenue to East Fourth Street is expected to remain commercial in nature, although some properties will have to be acquired. The existing yards and shops of the I.C.G.R.R. Company, east of East Fourth Street, are to be relocated. Upon their removal, the future use of the remaining railroad property is unknown. Depending upon the results of future negotiations with the railroads, this area may be redeveloped as offices by such railroads or for other uses. Existing land use along remaining segments of the I.C.G.R.R. trackage will be affected by an additional two, or occasionally three, trains per day, which impact is considered to be minimal.

Pedestrian Movements

Pedestrian movements in the vicinity of the central business districts of Waterloo and Cedar Falls will be favorably affected by the relocation of the respective railroads. The results will include increased safety and accessibility.

Furthermore, proposed pedestrian overpasses at Idaho Street and Parker Street and modifications of the existing pedestrian overpass at

Mobile Street, all being relative to the I.C.G.R.R. and the relocated C.R.I.&P.R.R. tracks (see Design Considerations, Volume II), will improve pedestrian safety and accessibility.

Pedestrian movements in the vicinity of the relocated C.N.W.T. Company from Lafayette Street to Lincoln Street will be subjected to five additional train movements per day. Longfellow Elementary School, located northwesterly of the Lincoln Street crossing, serves residential areas south and east of the said relocated railroad.

Similarly, in Evansdale, pedestrian movements associated with Jewett Elementary School and Bunger Junior High School will be subjected to two, or occasionally three, additional trains per day relative to Solution No. 1.

Measures may therefore have to be taken to reduce the impact of railroad relocation on such pedestrian movements in Waterloo and Evansdale should an alternative be selected involving railroad relocation.

Economic Impact

The economic impact of the relocation of the railroads is included in the analyses of the various transportation systems in this report. Likewise, the financial feasibility analysis is accomplished on a system-basis and not relative to railroad relocation by itself.

Noise Assessment

The noise assessment for railroad relocation is included in the alternatives to which railroad relocation applies (see Volume VIII for complete noise report).

Water Quality

Railroad relocation alternate solutions will have little or no impact on water quality, except as previously discussed under "Construction Impact".

Relocation

Solution No. 1 will result in the relocation of 17 housing units and 8 businesses, while Solution No. 2 will cause relocation of 13 housing units and 8 businesses. Impacts of such relocations has previously been discussed in other sections of this report.

Land

Solution Nos. 1 and 2 for the relocation of the C.R.I.&P.R.R. Company trackage south of Evansdale and east of Elk Run Heights, respectively, have varying effects on the land. System 2 crosses approximately 1.6 miles of agricultural land, beginning at U.S. Highway 20 and terminating at its junction with the existing Waterloo Railroad trackage, whereas System 1 crosses approximately one mile of agricultural land south of the Cedar River to Shaulis Road. That land crossed by Solution No. 2 is of generally lower quality relative to productivity than that crossed by Solution No. 1. Based on soil groups, the productivity of the soil in Solution No. 1 is considered to be approximately 1.3 times better than that in Solution No. 2. Taking into account their relative lengths and potential widths, Solution No. 2 appears to be at least 1.2 times more detrimental to the land than Solution No. 1.

Solution No. 2 will involve a new crossing of the Cedar River, while Solution No. 1 will cross at an existing corridor. Therefore, Solution No. 2 will have a greater impact relative to its crossing of the Cedar River floodplain and floodway.

Vegetation

Vegetation is more affected by Solution No. 2 than Solution No. 1 relative to the aforementioned segments of the relocation of the C.R.I.&P.R.R. trackage, due to a new crossing of the Cedar River floodplain.

Wildlife

The effect of the various railroad relocations on animal life is likewise affected by those segments of Solution Nos. 1 and 2 of the C.R.I.&P.R.R. south of Evansdale and east of Elk Run Heights, as described relative to "Land" and "Vegetation". As animal life is highly dependent upon vegetation, the impact of railroad relocation on wildlife is anticipated to be in direct proportion to the impact on vegetation.

Parks and Recreation Areas

The relocation of the C.R.I.&P.R.R. in Cedar Falls will decrease the usage of the existing trackage in the vicinity of Washington Park and will there lessen the impact of the said railroad on usage of and access to this park.

The alignment of Solution No. 1 in the vicinity of Shaulis Road in southeastern Waterloo was designed to curve to the west to avoid direct conflict with Triangle Terrace Park. As such relocated C.R.I.&P.R.R. joins the existing trackage of the same railroad immediately south of Shaulis Road, no additional impact is anticipated on this park.

Although additional through trains of the C.R.I.&P.R.R., as relocated over the existing trackage of the I.C.G.R.R. Company, will be adjacent to Sullivan Park (located northerly of the I.C.G.R.R. and between U.S. Highway 63 and East Fourth Street in Waterloo), a reduced impact of railroads on the park will result. This reduced impact is due to the removal of switching operations in the area, with the relocation of the yards and shops of the I.C.G.R.R. to another area.

Aesthetic Considerations

The visual impact of the relocation of the C.R.I.&P.R.R. from northwestern Cedar Falls and easterly over the existing trackages of the I.C.G.R.R. and the Waterloo Railroad Company, will remain unchanged. Other portions of railroad relocation, however, will have varying impacts relative to view of the railroad from adjoining or adjacent areas.

The relocation of the C.N.W.T. Company trackage is proposed to be constructed on embankments, of varying heights, from north of Falls Avenue to the vicinity of the existing C.N.W.T. Company tracks and Mobile Street (see Plates 34 and 35 of Volume III, and Figures 38 through 41 of Volume II). Although the widths of the railroad embankments indicated in the noted plates and figures do not include additional fill material for aesthetic treatments such as mounds, berms, or terraces, it is proposed that such be provided for those portions south of Jefferson Street and between Lafayette Street and U.S. Highway 63.

The relocated C.N.W.T. Company trackage in the vicinity of Jefferson Street will form a visual barrier between an industrial area to the west and a commercial area to the east. This effect is complementary to the two distinct types of usage. Similarly, the embankment between the Cedar

River and Mulberry Street serves as a partial barrier between industrial and residential areas. Northeasterly from Lincoln Street to U.S. Highway 63, however, the railroad embankment, physically and visually, divides residential areas. In the latter region, the embankment may appear out of scale or visually intimidating to its current surroundings.

Due to the nature of depressing Logan Avenue under the relocated C.N.W.T. Company trackage, access to adjoining land will be difficult. Additionally, based on the shapes of resulting parcels of land adjacent to the relocated railroad, redevelopment as open space areas may lessen the impact of said railroad on adjacent land uses.

PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Short-range adverse effects of construction will be unavoidable if any transportation system improvements are to be realized. Temporary disruptions to traffic service and utilities will occur, as well as temporary adverse affects on air quality, water quality and noise levels.

The introduction of highway related noise and air pollution into areas that are presently free from such influences is an unavoidable impact of all the construction alternates. There would be instances under all the alternatives where the design noise level for residential land use will be exceeded at individual homes. Such conditions would occur throughout the main thoroughfares under the "Do Nothing" and "Widening of Existing Streets" alternatives. Similar isolated instances would occur under all the I-380 construction alternates as well. Similarly, air quality deterioration due to motor vehicle exhaust, although minor in significance, cannot be eliminated; the impacts upon air quality are much greater under conditions of the "Do Nothing" and "Widening of Existing Streets" alternates than under those of the interstate construction alternates.

The construction of any of the I-380 extension alternatives across the Cedar River Valley floodplain will include removal of vegetation and wildlife. Long-range impacts of the proposed highway in this area on vegetation and wildlife also cannot be avoided. Such impacts include loss

and change of wildlife habitat, road kills, noise impact on wildlife and effects of highway pollutants on vegetation.

The aesthetic and scenic value of the Cedar River Valley will be changed by any of the I-380 construction alternatives.

Each of the I-380 construction alternatives will displace people and businesses. It is estimated that between 380 and 467 residential units and between 117 and 164 businesses will be relocated by the various I-380 alternatives.

Right-of-way requirements will result in temporary loss of tax base to the cities involved. It is expected that this effect will be short-range, as the majority of persons and businesses displaced will relocate within the metropolitan area. Some unusual or unique businesses will be displaced by the I-380 extension, resulting in their temporary or permanent loss to the community.

Parks will be affected by Alternatives A, B, C(RRX) and C(RR) of the I-380 extension. An encroachment on Castle Bluffs Park will be required for Alternatives A and C(RRX), while the encroachment on this park is somewhat larger in Alternatives B and C(RR). No existing or planned facilities or uses of this park are affected by any I-380 alternative. Alternatives A and B additionally include a crossing of George Wyth State Park.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The purpose of community planning is to assure that long-term goals can be identified and that short-term uses of the environment do not conflict with such goals.

In a project such as the I-380 extension, short-term losses to the environment will be experienced during construction. These losses will include adverse noise, air quality and water quality impacts, as previously described, as well as loss of resources, fuel, and materials used in the construction process. In addition, impacts to vegetation and wildlife will be most severe during the short-term construction process. Other short-term effects to the environment include temporary disruptions of traffic patterns and utility services and temporary loss of tax revenue.

The proposed I-380 extension will result in long-term gains in several areas. This facility will reduce traffic congestion on many local streets and will increase overall traffic safety within the metropolitan area. Accessibility to many areas will be improved, resulting in better fire, police, and ambulance service, as well as reducing travel time for all motorists using the facility. Long-term savings in road user costs will also be realized if the I-380 extension is constructed, including reductions in fuel consumption. Compliance with long-term community planning in the metropolitan area will be enhanced by the I-380 extension, as discussed under "Need For Project" and "Land Use Planning".

The above-mentioned gains of the I-380 extension will be accompanied by potential long-term losses. Relocation of persons and businesses will cause some long-term impacts on an individual basis. The character of the land near the I-380 extension will be changed by its construction, and in some areas will result in a long-term environmental loss. This is especially true near the open areas of the Cedar River floodplain and near residential areas of the corridor. Homes, businesses, farmland, and open space to be acquired for the I-380 extension will thus be lost to their existing uses or to any other potential uses in the future (also see following section).

Noise and air quality along portions of the alignments will deteriorate if the I-380 extension is constructed. However, noise and air quality in other areas will be improved due to the resultant lesser traffic congestion on many streets.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

During the construction process, various construction materials such as earth fill, aggregates, cements, and structural materials will be irreversibly expended. Construction fuels and labor likewise will be lost during the construction of the project.

Right-of-way required for the I-380 extension will in most cases be an irreversible commitment of resources. Portions of this right-of-way will immediately or potentially be used for other purposes, such as parking, landscaping or other multiple use of space. Remaining portions of the required right-of-way will likely be permanently lost to highway purposes. Included in the required right-of-way are approximately 69 acres of good agricultural land for any of the I-380 alternatives.

Land to be acquired within the Cedar River floodplain area will result in a loss of native vegetation and wildlife habitat that will not be retrievable in its present form. Roadside plantings and landscaping will restore these losses to the extent practical, although the existing natural environment will remain altered. The scenic and aesthetic qualities of the floodplain area would also be permanently changed by the I-380 construction. It should be noted that large portions of the Cedar River Valley floodplain within the project corridor are presently being cleared and used for quarry operations by their current owner.

The construction of the I-380 extension will involve irretrievable economic losses, including cost of construction, cost of right-of-way, and loss of taxes. However, in the long-range, road user savings and taxes from new developments will more than balance these initial losses.

IMPACT ON PROPERTIES AND SITES OF HISTORIC AND CULTURAL SIGNIFICANCE

Historical Sites

For purposes of this study, a historical site is defined as:

> "any site, district, structure, object or other evidence of human activity that represents facets of the history of nation, state or locality; places where significant historical or unusual events occurred even though no evidence of the event remains; or places associated with a personality important in history." (Wright, 1974, p. xi.)

The process of locating, delineating, and evaluating historical sites in the I-380 extension corridor was carried out jointly by members of the Planning Team, the Cedar Valley Historical Society, and the Division of Historic Preservation of the State Historical Department of Iowa.

A building-by-building architectural survey was conducted within the right-of-way of the various alternate alignments. The findings of this survey are reported below. (Note.--Only those sites which, through age, quality of workmanship and design, and which were found to exhibit the unique, visual sense of historic places necessary for possible inclusion in the National Register of Historic Places, are identified in the following summary.) The following seven sites were identified as having possible historical significance:

Site 1 - Chicago, Rock Island and Pacific Railroad Depot (West Fourth and Bluff Streets). This building is a Romanesque Revival train station constructed of red brick and red granite, which is now partially covered with flaking white paint. Cursory examination of the exterior indicated a basically sound structural condition.

Rating: High local significance.

Site 2 - Commercial Block (318 West Fourth Street; Dewey's Lounge, Stephen's TV and Arthur Murray Dance Studio). This Mid-Victorian site is a good example of downtown, small-town 19th century America, although significant street level alterations have been made to the original building.

Rating: Local significance.

Site 3 - Commercial Block (West corner of West Fourth and Jefferson Streets). This red brick corner, constructed in 1891, remains a good example of promotional downtown U.S.A., although street level alterations have been made. (Note.--None of the proposed I-380 alternates affect the half-block where this site is located).

Rating: High local significance.

Site 4 - Warehouse Complex (John Rude Van and Storage; southeast corner of Bluff Street and Park Avenue). The corner cube of this complex is a large, two-story warehouse of pale yellow to salmon colored brick. The original foundation was flat,

rubble limestone with sandy mortar. The warehouse immediately to the south adjoining the corner cube is something of a curiosity. The stark elevation on Bluff, with the exception of the boarded window openings, is entirely covered with rubble stone. Although it may pre-date its neighbor to the north, it is of modest architectural interest.

Rating: Corner cube: Local significance.
Adjoining rubble-stone: Low local significance.

Site 5 - Brick and Stone Warehouse (501 Bluff Street; Waterloo Warehouse). This building is a red brick warehouse with such Late Victorian design details as elaborate multi-paned second story windows, massing of brick at the cornice line and an arched entrance trimmed with carved stone. High quality face brick is used only on the Bluff Street side.

Rating: Local significance.

Site 6 - Brick and Stone Warehouse (Southwesterly corner west of Park Avenue and Bluff Street; Young Plumbing and Heating). This building is a Late Victorian warehouse constructed predominantly of red brick. A massive arch entrance is a high point of the structure.

Rating: Local significance.

Site 7 - Kistners (Northerly of Bluff Street on the westerly side of West Third Street). Stained glass windows along the alley indicate the original use. Once a funeral home, Kistners breaks with the Victorian and adapts motifs of the early 20th century "modern architecture" of the Midwest-Prairie School.

Rating: Local significance.

Each of the I-380 alternatives will displace six of the seven sites listed above, with Site 3 being unaffected by the proposed alternatives. Of the six sites, only Site 1 (Railroad Depot) is of possible Register significance.

In October, 1975, the Cedar Valley Historical Society met to consider Site 1. The following is an excerpt from a letter from Robert L. Lewis representing the views of the Historical Society:

> The only building that we feel has any particular historical merit is the Chicago, Rock Island & Pacific RR depot at W. 4th and Bluff Streets in Waterloo. This building is approximately 75 years old and the last of the old-time "classic" RR depots left in Waterloo. However, we don't feel it has any great significance that should cause any plans to be altered on account of it. We also must admit that we would not be in any position as a group to do anything in regard to moving the building or otherwise preserving it.

In response to this position, Adrian D. Anderson, State Historical Department of Iowa, rendered the following judgement:

> The only structure identified as having National Register potential is the Chicago, Rock Island and Pacific railroad depot located at west 4th and Bluff Streets in Waterloo. The local Historical Society has indicated it could not undertake the preservation of the building if it was moved to a new location. Public meetings held in relation to the depot indicate that there is no evidence of public support for preservation.
>
> In this instance, it is suggested that the building be offered to groups or individuals interested in preserving it once it has been acquired by right-of-way. Failing this alternative, it is our judgement that the public interest will be served if the project is authorized to proceed and our office provided with a Historical American Buildings Survey level study of the structure and complete historical documentation and a photographic record.

A full text of letters of coordination regarding historical sites is attached to this report.

Archaeological Sites

An archaeological site is defined as " . . . a site in any location of former human activity of which some trace survives" (Chard, 1975, p. 19). Included in this definition would be such things as settlements, camps, workshops, burial places, as well as any artifacts such as tools, pottery, art objects, and so forth.

Regarding archaeological sites, the Planning Team was advised by John Hotopp, Assistant State Archaeologist for Iowa, that a survey of the I-380 extension corridor "did not yield any archaeological sites". Hotopp also noted that:

> The potential for locating archaeological sites has been lowered considerably throughout much of the project by housing and railroad construction. The southernmost interchange area (station 435-450) has at least a moderate potential for archaeology due to more open land and the proximity to the river. The western end of the project on both sides of the river has a moderate archaeological potential as well.
>
> Phase I survey will not be effective in locating sites in these areas due to the relatively permanent nature of the ground cover. It is most probable that if sites are located, they will represent temporary hunting camps rather than more permanent villages in this area.

The State Archaeologist will be notified in advance of any clearing and grubbing on this project, and archaeological and paleontological salvage will be accomplished if necessary in the construction area. A complete text of correspondence with the State Archaeologist is attached to this report.

Cultural Sites

Cultural and social sites are defined as any site, structure or place where significant community, social or cultural activities take place. Two major cultural centers are located in downtown Waterloo within the project corridor: Conway Civic Center and Waterloo Recreation and Arts Center. Other cultural and social sites include such places as libraries, museums, and sports arenas.

No cultural or social sites are displaced by any of the proposed I-380 alternatives. Accessibility to such sites, especially those near the proposed I-380 extension, will be improved by its construction.

COMMENTS AND COORDINATION

In order to insure widespread participation in this project, a "Community Action Plan" was initiated to establish rapport between citizens of the Waterloo-Cedar Falls metropolitan area and those people directly responsible for the planning of the project. The following coordination was obtained through the "Community Action Plan":

1. Two community surveys were conducted within the metropolitan area to assess general goals and attitudes of the residents. These included the Community Survey (346 persons) and the Community Leaders' Survey (206 representatives).

2. A Citizens' Advisory Council was formed to establish a liaison between various community groups and the planners. This group has met approximately once each month since late 1975.

3. Public Informational Meetings were held in July of 1975, and again in April of 1976, with meetings being held in both Waterloo and Cedar Falls on both occasions. During these meetings, residents were informed of the progress of the study and the methodology being used, and were solicited for input and ideas. Oral and written comments pertaining to the I-380 extension were received at these meetings.

4. A Route Preference Survey was conducted at the first series of informational meetings. The results of the 196 responses to the survey were used in determining alternatives to be further evaluated.

5. An "I-380 Newsletter" was mailed to approximately 5,000 households located in the I-380 extension corridor on three occasions to inform residents on progress, results and meetings related to the project.

6. During the duration of this project, hundreds of meetings and communications were received from private citizens, interest groups, and national, state and local officials relating to the I-380 project. Attached to this report is the text of letters from various agencies pertaining to the I-380 extension.

7. Shortly after the publication of this report, a final series of Public Informational Meetings will be held. Approximately 30 days following the dissemination of this report, the Iowa Department of Transportation will hold an official Corridor Public Hearing on the I-380 extension.

APPENDIX A

(TRAFFIC VOLUMES)

APPENDIX A

TRAFFIC VOLUMES

Traffic volumes for the various streets shown in Figure A-1 have been tabulated for each of the eight alternatives studied in detail. These traffic volumes, listed in Table A-1, represent the projected average daily traffic volumes for the year 2000, and include the total number of vehicles traveling in both directions on the indicated streets.

The aforementioned traffic volumes take into consideration all elements of the respective transportation systems, including all committed new streets, street extensions, and street widenings as previously discussed under "Alternatives".

TABLE A-1

AVERAGE DAILY TRAFFIC VOLUMES (YEAR 2000)

Location		Alternative				
No. *	Street	A,B	C(RR) C(RRX)	D(RR) D(RRX)	Widening of Existing Streets	Do Nothing
1	I-380	48,300	52,080	52,350	. .	. .
2	I-380	57,100	55,610	55,830	. .	. .
3	I-380	48,200	46,750	46,960	. .	. .
4	I-380	54,730	39,370	44,220	. .	. .
5	I-380	43,200	. .	. .	. .	. .
6	I-380	. .	35,140	. .	. .	. .
7	I-380	. .	. .	22,111	. .	. .
8	U.S. Hwy. 20	15,600	49,210	47,210	25,580	23,230
9	U.S. Hwy. 218	12,700	18,730	18,800	20,810	23,470
10	U.S. Hwy. 218	23,260	29,460	31,570	39,690	44,510
11	U.S. Hwy. 218	28,200	34,620	36,580	45,280	49,790
12	U.S. Hwy 218	29,000	36,870	40,070	46,710	48,210
13	U.S. Hwy. 218	27,300	35,300	37,870	46,540	51,610
14	U.S. Hwy 218	21,000	27,790	30,290	39,260	43,880
15	U.S. Hwy. 218	46,300	54,250	57,320	63,910	65,450
16	U.S. Hwy. 218	24,800	27,610	27,540	51,880	53,160
17	U.S. Hwy. 218	12,030	11,790	11,930	51,680	52,810
18	U.S. Hwy. 218	11,200	10,950	11,070	34,120	34,980
19	U.S. Hwy. 218	11,800	11,970	11,930	36,930	37,540
20	Rainbow Drive	6,150	7,010	6,870	13,390	12,820
21	Rainbow Drive	7,600	7,570	6,800	11,900	11,860
22	Rainbow Drive	8,550	8,550	7,460	11,730	12,190
23	Rainbow Drive	2,460	4,720	11,570	12,860	13,380
24	Mullan Avenue	36,100	35,910	38,110	38,500	40,350
25	West First Street	30,300	30,630	31,850	29,010	30,360
26	Franklin Street	14,700	15,450	14,580	19,360	19,670
27	Logan Avenue	38,200	39,480	40,040	37,580	38,020
28	Logan Avenue	32,300	33,670	34,470	31,800	31,980
29	Logan Avenue	20,400	21,490	22,420	19,880	20,060
30	Logan Avenue	21,000	20,620	21,090	21,080	21,250
31	Airline Highway	12,100	11,055	11,330	12,210	12,040
32	Airline Highway	7,500	2,650	7,930	7,500	5,390
33	U.S. Hwy, 218 North	8,640	8,720	8,590	10,060	23,120
34	Main Street	22,030	20,500	20,380	28,750	35,700
35	Main Street	5,020	5,170	8,600	5,270	18,930
36	South Main Street Road	4,200	4,280	4,510	8,820	22,160
37	Hudson Road	9,080	10,600	10,400	14,110	20,270
38	Hudson Road	17,200	17,680	17,650	18,650	25,920
39	U.S. Hwy. 20 West	16,400	19,710	19,400	14,980	23,420
40	Iowa Hwy. 412	14,720	15,130	15,090	23,960	20,870

TABLE A-1 (continued)

AVERAGE DAILY TRAFFIC VOLUMES (YEAR 2000)

Location		Alternative				
No.	Street	A,B	C(RR) C(RRX)	D(RR) D(RRX)	Widening of Existing Streets	Do Nothing
41	Iowa Hwy. 21	23,400	23,480	23,630	22,330	22,260
42	U.S. Hwy. 63 South	17,000	17,960	18,500	17,170	15,560
43	West Fourth Street	1,070	1,068	1,070	1,050	1,050
44	Ridgeway Avenue	5,970	5,980	6,000	6,130	5,820
45	Ridgeway Avenue	12,100	12,060	11,960	12,130	12,250
46	Ridgeway Avenue	13,500	13,480	13,380	13,400	13,360
47	Viking Road	11,900	13,090	13,290	12,770	12,880
48	Viking Road	14,900	16,230	16,370	14,940	16,380
49	Orchard Drive	1,050	1,050	1,050	1,050	920
50	Newell Street	11,370	12,010	11,310	12,070	11,810
51	Newell Street	5,890	6,040	5,650	6,440	6,320
52	Independence Avenue	17,000	16,830	17,050	14,070	14,180
53	Independence Avenue	11,400	11,230	11,490	11,410	11,490

*See Figure A-1 for location of traffic volumes.

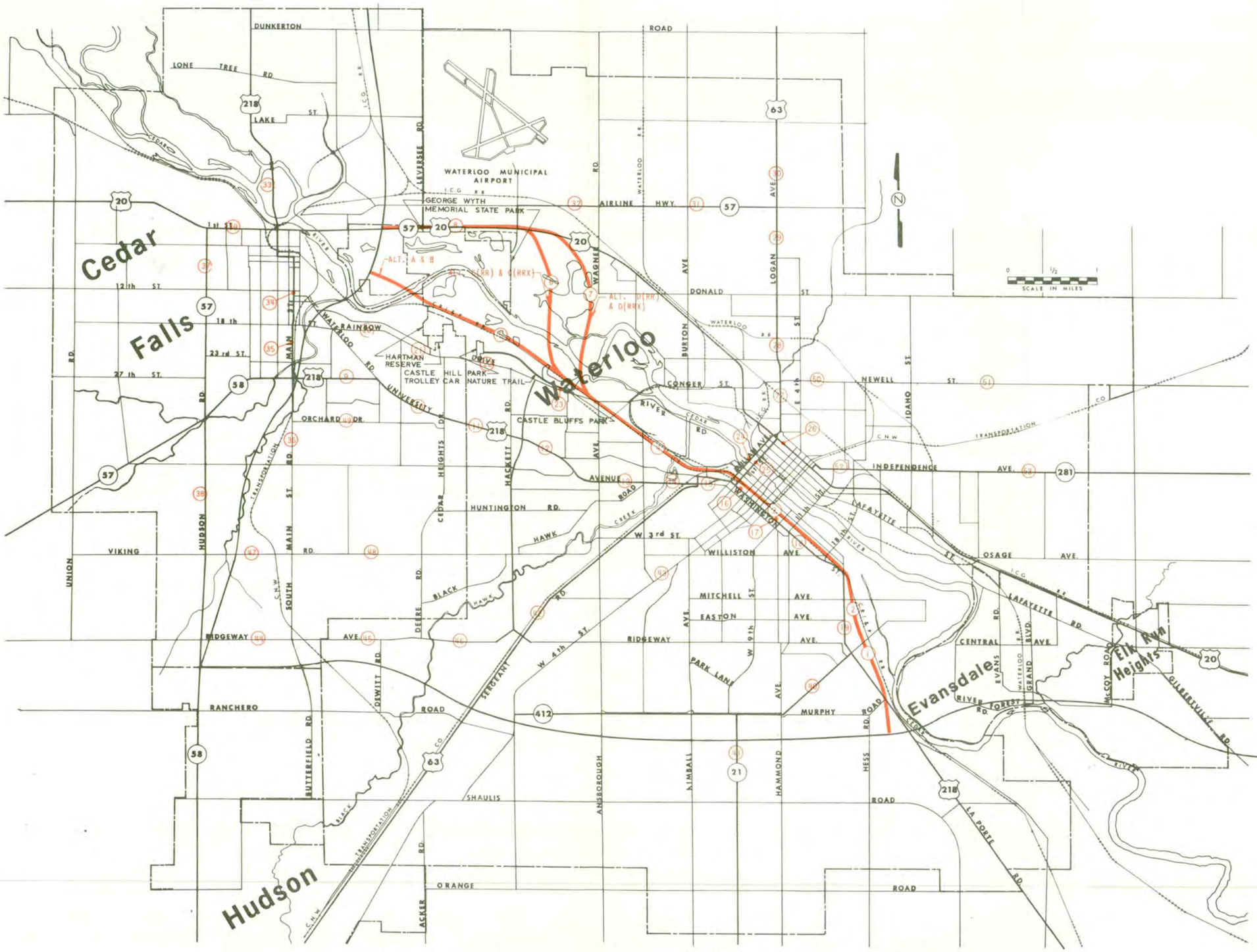

FIG A-1. LOCATION OF TRAFFIC VOLUMES TABULATED IN TABLE A-1.

APPENDIX B

(LETTERS)

iowa department of environmental quality

June 10, 1976

Robert L. Humphrey
Project Planning Engineer
Iowa Department of Transportation
826 Lincoln Way
Ames, IA
L O C A L

RE: 700.010
Air Quality
I-380 Black Hawk
Intercity Freeway

Dear Mr. Humphrey:

The letter is to acknowledge receipt of preliminary information as regards I-380 in Cedar Falls and Waterloo. The air quality impact of a major freeway in the downtown area of a city is always of concern to this agency and we appreciate the opportunity to particpate at an early stage.

There is presently no carbon monoxide monitor in the affected area, hence little is known about present CO levels there. In general, we feel that a well-designed, new road which tends to alleviate traffic congestion on existing streets will also improve the air quality.

We will have a continuing interest in this project, however, the APRAC-1A output supplied with the Waterloo-Cedar Falls Transportation Plan will be sufficient for our purposes until a draft Environmental Impact Statement (EIS) is received. We do not anticipate the need for actual carbon monoxide monitoring data at this time.

Sincerely,

AIR QUALITY MANAGEMENT DIVISION

Douglas K. True, Chief
Permit Section

DKT:sg

NO	INITIAL	DATE
1	[illegible]	6/17
2		
3	[illegible]	6/16
4	[illegible]	6/16
5		
6		
7	[illegible]	6/16
8	[illegible]	[illegible]
9		
10		

copy

copy

RETURN FOR FILE

6-30-

3920 Delaware Ave., P.O. Box 3326, Des Moines, Iowa 50316 • 515/265-8134

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Federal Building - Room 1748
601 East 12th Street
Kansas City, Missouri 64106

September 14, 1976

Mr. Robert L. Humphrey
Project Planning Engineer
Iowa Department of Transportation
Highway Division
826 Lincoln Way
Ames, IA 50010

Dear Mr. Humphrey:

This responds to your letter of April 29, 1976 in which you requested our comments concerning the proposed extension of Interstate 380, Waterloo/ Cedar Falls. Our response is in compliance with P.L. 85-624, Fish and Wildlife Coordination Act of 1958.

The following comments are for your consideration.

Description of Area Traversed

The I-380 corridor is generally urban and suburban in nature. With the exceptions of George Wyth Park and Hartman Reserve, few undeveloped areas remain along the proposed route. The Park and Reserve are maintained as natural areas.

One segment of the corridor either super-imposes or parallels the CRI&P railroad tracks, from approximately the intersection of Highway 218 and Mitchell Avenue, west to the northwest corner of Hartman Reserve.

All alternatives under consideration necessitate crossing the Cedar River.

George Wyth Park, Hartman Reserve, the CRI&P railroad right-of-way, and the Cedar River crossing represent areas of significant environmental concern.

Vegetation

The oak-hickory association dominates the area under consideration with the silver maple complex sub-dominating within the riparian community along the Cedar River.

Preliminary Analysis of Impacts on Areas with Significant Wildlife Value

A. CRI&P Railroad Right-of-Way

1. Alternative A will necessitate the removal of vegetation strips found along the right-of-way. Annual grasses and forbs, in addition to low-growing upland shrubs create a valuable habitat component when bordering mature timbered areas. This "edge" provides travel lanes for white-tailed deer across and along the tracks, food and cover for small mammals, and is an important food source (i.e. annual weed seeds) for mourning doves and bobwhite quail (See Species List).

   The impact on wildlife would be significant.

2. Alternative B - I-380 would parallel the railroad right-of-way, allowing the tracks to remain in place and, consequently, would reduce the negative effect on wildlife.

   Auto traffic would disrupt behavioral patterns of resident species.

   Travel lanes bisecting the RR right-of-way would be impeded, especially for highly mobile species such as white-tailed deer. Road kills would become increasingly more frequent.

   The indirect effect would be significant.

3. Alternative C would lessen the impacts inherent in Alternatives A and B. I-380 would follow the railroad right-of-way a much shorter distance, relative to A&B, avoiding much of the suitable habitat provided by the right-of-way.

   The impact on wildlife would be significant but greatly reduced.

B. George Wyth Park/Hartman Reserve - Includes extensive wooded areas of upland and riparian timber.

1. Alternatives A and B - Resident species of wildlife occurring in upland areas of the park and reserve would be seriously impacted, as would bottomland species in those areas of George Wyth Park which lie adjacent to the Cedar River.

   The traffic corridor would severely impede travel lanes for white-tailed deer as well as small mammals. The narrow neck of riparian bottomland joining the northeast and southwest portions of George Wyth Park is suspected to be heavily used by both upland and bottomland mammals as a travel lane between feeding and bedding grounds. As the highway is envisioned to bisect this narrow strip of timber, road kills could be expected to increase in this area, as well as along the north side of Hartman Reserve. In addition to the impact which the physical presence of the freeway would have on the wildlife resource, the impact on large and small mammals, songbirds, and to an extent, on game birds, would be proportional to the amount of timber and undergrowth removed during construction. Timber removal would impact upland mammals and game birds by reducing winter cover and denning/nesting sites. Upland mammals and many Avian species would be affected by the removal of mast and berry-producing trees. Cavity nesters would be impacted by the removal of den trees (See Species List).

   on structure

2. Alternative C - Would not significantly impact George Wyth Park. This alignment utilizes the existing Highway 20 right-of-way north of the park. An increased traffic load and accelerated driving speeds due to improved highway conditions may contribute to an increased number of road kills.

   Hartman Reserve would not be affected by this alternative.

C. Cedar River Crossing

1. Alternatives A, B and C - Furbearing mammals associated with water areas would be affected. Impacted species would include mink, muskrat, raccoon, opossum, beaver, and fox (See Species List).

   Woodducks may suffer damage to nesting areas at or near crossing points.

Aquatic communities would be disrupted during, and possibly after, construction by increased siltation, turbidity, physical disturbance of riverine floral communities, and associated changes in bottom composition and vegetation.

In summary, Alternatives A and B would have a profound adverse effect upon the fish and wildlife resource within the environs of Waterloo/Cedar Falls.

The impact of Alternative C would be significant, although not as environmentally serious as A or B.

Although we understand that Alternative D, proposed by the Citizens for Parks and Open Space (CPOS), is not considered by the Highway Department to be a viable engineering alternative at the present time, we urge the Highway Department to exhaust the potentialities of this alternative before discarding it.

We regret the inordinate amount of time that has elapsed since our comments on I-380 were first solicited. Although we do not foresee delays such as this in the future, we intend to do our utmost toward preventing similar situations from developing.

Sincerely yours,

Tom A. Saunders
Area Manager

cc: Iowa DEQ, Des Moines
RD, Denver, CO (ENV)

Fish and Wildlife Summary

Common Mammals

3 spp. of squirrel, most common is fox squirrel
Eastern chipmunk
Eastern mole
5 spp. of shrews, most common is short-tailed shrew
13+ spp. of mice and voles, most common is white-footed mouse
Pocket gopher
Woodchuck
Muskrat
Beaver
Raccoon
Opossum
Badger
Striped skunk
Mink
Eastern cottontail
7 spp. of bats, most common are big and little brown bats
Coyote
Red fox
White-tailed deer

Common Birds

6 spp. of hawks
Golden eagle
Bald eagle
3 spp. of owls
Various riverine birds, i.e. belted kingfisher, great blue heron

Waterfowl

Woodduck
Green-winged teal
Blue-winged teal
Mallard
Lesser scaup
Shoveler
Gadwall
Widgeon
Pintail
Redhead
Goldeneye
Canada goose
Snow goose

Game Birds

Ring-necked pheasant
Bobwhite quail
Mourning dove
Woodcock

Songbirds

Fish

Gizzard shad
Northern pike
Bigmouth buffalo
Carpsucker
Silver redhorse
Northern hogsucker
White sucker
Carp
Shiners (Notropis spp.)
Golden shiner (Notemigonus spp.)
Chubs (Hybopsis spp.)
Creek shub (Semotilus spp.)
Southern red-bellied dace
Minnows
Stonerollers
Black bullheads
Channel catfish
Tadpole madtoms
American eel
Brook silversides
White bass
Smallmouth bass
Largemouth bass
Green sunfish
Pumpkinseed
Bluegill
Orange spotted sunfish
Northern rockbass
White crappie
Black crappie
Walleye
Yellow perch
Darters (Percina spp.)
Darters (Etheostoma spp.)

Various Reptiles and Amphibians

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Federal Building - Room 1748
601 East 12th Street
Kansas City, Missouri 64106

December 2, 1976

Mr. Robert L. Humphrey
Project Planning Engineer
Iowa Department of Transportation
Highway Division
826 Lincoln Way
Ames, Iowa 50010

Dear Mr. Humphrey:

In regard to our I-380 coordination letter of September 14, 1976, please amend as follows:

A 2 under "Preliminary Analysis of Impacts on Areas with Significant Wildlife Value." "Alternate B - I-380 would parallel the railroad right-of-way, allowing the tracks to remain in place and consequently, would reduce the negative effect on wildlife." (Compared to Alternate A.)

We have been made aware that, although the railroad tracks would indeed remain in place should this alternate be implemented, they would be incorporated into the design of the traffic corridor in such a way that the net effect on wildlife would be more severe than that associated with Alternate A.

You have expressed aversion to the use of the word "significant" when referring to the relative degree of impact on fish and wildlife. Although this is generally considered to be acceptable terminology for comparative purposes, we can appreciate the difficulty. Therefore, where we have made reference to the gross project effect on wildlife, "significant" may be interpreted as a level of impact which would noticably alter the population structure and/or physical condition of wildlife.

Of the alterntaives currently under serious consideration, we maintain support for Alternate C for the reasons previously described both through correspondence and verbally.

We look forward to a continuing coordination effort on this, and other projects in the future.

Sincerely yours,

Paul P. Hamilton

Paul P. Hamilton
Area Supervisor
Ecological Services

cc: RD, Denver, CO (ENV)
ICC, Des MOines
ICC, Waverly, Jim Zohrer, Wildlife Mgt. Bio.
ICC, Manchester, Don Degan, Fishery Biologist

Cedar Valley Historical Society
503 South Street
Waterloo, Iowa 50702

November 4, 1975

NO	INITIAL	DATE
1	HRB	11/7
2	DDN	11/7
3	DBD	11/7
4	JWB	11/7
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8	Hector-Ltr	11-7-75
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10	[illegible]	[illegible]

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RETURN FOR FILE

Mr. Robert L. Humphrey
Project Planning Engineer
Dept. of Transportation, Highway Div.
Ames, Iowa 50010

Dear Mr. Humphrey:

On October 21, 1975 a meeting was held with the Officers and Directors of the Cedar Valley Historical Society to determine if there are any historic sites in the path of the Waterloo - Cedar Falls Freeway that should be taken into consideration as this project develops. In addition to the Officers and Directors of the CVHS others in attendance at the meeting were:

Mr. Fedon Petrides, Brice, Petrides & Associates, Inc.
Mr. Hector Hogue, Enviromental Analyst
Mr. Lee Collins, Highway Division (Dept. of Trans.)
Mr. John Hotopp, Assistant State Archaeologist

After examination of the materials presented our preliminary conclusion was that nothing of great historical importance was in the path of the Freeway. However, we did wish to bring the matter to the attention of our full membership at our next regular meeting so as to get a broader consensus of opinion. We did this at our meeting of October 28, 1975 and the postion of our organization is that we find nothing that would cause any alteration of the plans for this project as presented to us.

The only building that we feel has any particular historical merit is the Chicago, Rock Island & Pacific RR depot at W. 4th and Bluff Streets in Waterloo. This building is approximately 75 years old and the last of the old-time "classic" RR depots left in Waterloo. However, we don't feel it has any great significance that should cause any plans to be altered on account of it. We also must admit that we would not be in any position as a group to do anything in regard to moving the building or otherwise preserving it.

We appreciate being consulted on this matter and hope we might be of assistance to you in the future should the opportunity present itself.

Sincerely,

Robert J. Lewis

Robert J. Lewis
President, Cedar Valley
Historical Society

cc:

Mr. Fedon N. Petrides
Mr. John Hotopp

FORM 13 8-73
H-5174

IOWA STATE HIGHWAY COMMISSION

October 27, 1975

FILE 700.010

Hector M. Hogue

Project Planning

Meeting with the Cedar Valley Historical Society at Waterloo, Oct. 21st, 1975

The meeting was arranged by Mr. Fedon Petrides and scheduled for 7:00 p.m. at the offices of Brice, Petrides & Associates in Waterloo.

The purpose of the meeting was to discuss the structures that would be dislocated by the proposed project and to examine the pictures of structures for architectural value and therefore potential historic sites.

The Cedar Valley Historical Society was represented by Bob Levis, President and five members, two ladies and three men. Others attending were John Hotopp, Archaeologist, Hector Hogue and Lee Collins from the Environmental Section of the Highway Division and Fedon Petrides.

The meeting was pleasant with discussions favoring the proposed project. The only structure of potential historic value in their opinion is the Waterloo Railway Station located between 4th and 5th Street. The potential is evaluated on the basis that preserving a site is dependent on community interest that may reflect in funds available and a practical use for such a site. John Hotopp explained to the group that structures even though demolished are not completely lost as pictures and dimensions are taken before it is removed and in that way preserved.

The pictures of the structures including homes were numbered according to their location on the project map for easy examination. These were loaned to Bob Lewis for use at their scheduled meeting during the week of October 27th. He will then analyze their discussions and send a report to Robert Humphrey. It is not being too optimistic to say at this time that structures that would be dislocated by this alignment will not present a problem.

HH:db

cc: Bob Humphrey
Dave Drake

STATE HISTORICAL DEPARTMENT OF IOWA
DIVISION OF HISTORIC PRESERVATION

ADRIAN D. ANDERSON, DIRECTOR
HISTORIC PRESERVATION OFFICER

Mr. Robert L. Humphrey
Corridor Planning Engineer
Highway Division
Department of Transportation
Ames, Iowa 50010

11/11/75

Dear Mr. Humphrey:

The photographs of affected structures along I 380, the Waterloo/Cedar Falls Freeway, taken by Mr. Hector Hogue and Lee Collins of the Department of Transportation and Mr. John Hotopp of the Office of the State Archaeologist, constitute an adequate architectural inventory for this project as all affected structures were photographed.

The only structure identified as having National Register potential is the Chicago, Rock Island and Pacific railroad depot located at west 4th and Bluff Streets in Waterloo. The local Historical Society has indicated it could not undertake the preservation of the building if it was moved to a new location. Public meetings held in relation to the depot indicate that there is no evidence of public support for preservation.

In this instance, it is suggested that the building be offered to groups or individuals interested in preserving it once it has been acquired by right-of-way. Failing this alternative, it is our judgement that the public interest will be served if the project is authorized to proceed and our office provided with a Historical American Buildings Survey level study of the structure and complete historical documentation and a photographic record.

Sincerely;

Adrian D. Anderson

Adrian D. Anderson

Historic Preservation Officer

ADA:jah

NO	INITIAL	DATE
(1)	HPB	11/14
(2)	DJW	11/14 copy
(3)	DBD	11/14 copy
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7		
8		
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RETURN FOR FILE

B.13 MAC LEAN HALL . IOWA CITY. IOWA 52242
TELEPHONE 319.353.6949/319.353.4186

I-380 Black Hawk (Interstate)

Office of t. State Archaeologist

Eastlawn, The University of Iowa
Iowa City, Iowa 52242

319-353-5175, 353-5177

Duane C. Anderson
Director and
State Archaeologist

Lynn Alex, *Research and Education*
John Hotopp, *Highway Archaeologist*
Julianne Hoyer, *Publications Editor*
Marshall McKusick, *Research Archaeologist*
Richard Slattery, *Field Representative*
John Tandarich, *Laboratory Assistant*

September 8, 1975

Mr. Robert L. Humphrey
Corridor Planning Engineer
Department of Transportation
Highway Division
Ames, Iowa 50010

Dear Bob:

A survey of I380, the Waterloo-Cedar Falls freeway section, did not yield any archaeological sites. The potential for locating archaeological sites has been lowered considerably throughout much of the project by housing and railroad construction. The southernmost interchange area (station 435-450) has at least a moderate potential for archaeology due to more open land and the proximity to the river. The western end of the project on both sides of the river has a moderate archaeological potential as well.

Phase I survey will not be effective in locating sites in these areas due to the relatively permanent nature of the ground cover. It is most probable that if sites are located, they will represent temporary hunting camps rather than more permanent villages in this area.

Since the vegetal cover precludes an effective survey of the above mentioned areas and since the borrows are not as yet located, I would like notification of clearing and grubbing on this project to recheck survey results. Project length: 8.3 miles.

Sincerely,

John Hotopp
Assistant State Archaeologist

JH:eg

Copy

COPY

May 1, 1972

Mrs. Raymond W. Cross
1102 Rainbow Drive
Waterloo, Iowa 50701

Dear Mrs. Cross:

Our City Attorney, Len Lybbert, after visiting with the Mayor and Public Works Director, informs me that strict compliance with all of your conditions incorporated in your offer of sale of lots No. 10, 12, 13, 4 and section of railroad right-of-way would be most difficult, if not impossible.

It was pointed out by Mr. Lybbert and the Public Works Director, Jay Culver, that encroachment on some of the lower land and the "toe" of the bluff for flood control levee construction is inevitable. Also, future plans call for the construction of the Waterloo - Cedar Falls Freeway on the south side of and contiguous to the Chicago Great Western Railroad right-of-way in the low, swampy area.

Mr. Lybbert indicated that an arrangement is possible that would enable you to remain as a resident of the house and a portion of the land after your property is sold to the Park Commission.

Speaking for the Park Commission, we would, of course, be agreed that lot No. 10 (the high land) would remain as park land and that we would never be a party to rezoning for commercial or residential purposes. However, as our Attorney points out, it always is possible for a greater local, State or Federal governmental power than the Waterloo Park Commission to condemn land for some civic improvement project

Mrs. Raymond W. Cross - Continued

if they had good justification. This is a possibility, but somewhat improbable, as more and more "open space" land in the hands of Park Departments is being considered as inviolate.

Guaranteeing your absolute privacy while residing in your home under Park Commission ownership would most certainly be honored by the Park Commission. However, it cannot be absolutely guaranteed that we would not, at some time for one reason or another, be subject to some form of inspection. We will only have to rely on the understanding, cooperation and good judgment of the Inspection Department. I, personally, would do everything possible to see that your wishes were carried out in this regard.

Compliance with your request that certain items remain as your personal property will be no problem.

If there is general agreement by you to sell your property to the Park Board, we will have to sit down with our attorney to work out some of the fine points that relate to your living on the property as long as you are able. We will also have to work out an agreement as to areas of responsibility.

I, personally, as Director of Parks, am agreed that the purchase of your property is in the public interest and that under Park Commission ownership, the land will be preserved and protected for public benefit unless a greater governmental power supersedes us in the usage of this land.

Please let me know as to your continuing interest in this matter.

Sincerely,

BOARD OF PARK COMMISSIONERS

Leonard J. Katoski
Director of Parks

LJK:cm

January 13, 1977

Mr. Stephen G. Larson
Project Coordinator
Iowa Department of Transportation
Highway Division
Ames, Iowa 50010

Dear Mr. Larson:

As per our telephone conversation of January 13, 1977, we are attaching herewith the "Deed" and "Abstract of Title" for the former Cross property, presently known as the Castle Bluffs Park in Waterloo, Iowa.

Please review Page 2 of the Abstract which shows the layout of lots. Original discussion (see letter) states that Lot No. 10 (the high ground only) will be developed as a park. Presently, the total land is owned by the Waterloo Board of Park Commissioners which involves Section "4f".

In my conversation with Mr. Leonard Katoski, Director of Parks, it was stated that Mr. Katoski is well aware and does not have any objection to the taking of a northern strip for right-of-way purposes for I-380 Extension.

We are transmitting, also, copies of all documents in Mr. Katoski's file on this purchase.

Sincerely,

BRICE, PETRIDES & ASSOCIATES, INC.

Fedon N. Petrides

FNP:en

Enclosures

The Black Hawk County Conservation Board has adopted its formal policy position towards the development of an intercity freeway system within the metropolitan area of Black Hawk County.

The Board, first, recognizes the extreme necessity for highway construction within the community. The economic progress of the Cedar Falls-Waterloo area depends on fast, safe, and efficient transportation. The Board realizes that past failures to construct proper transportation routes to and from the communities involved have not aided our development.

The Board also recognizes, in its capacity as the regulator, manager and developer of the County's parks and open spaces, that if at all possible, highways should be built that are not destructive to parks and open areas within the County. Attractive recreational areas are also important to the quality of life for the community's inhabitants and serve as attractive features for industrial development.

After considerable discussion, the Board has decided the following:

(a) The necessity for the immediate construction of Highway 380 within Black Hawk County.

(b) The strong preference of the Board for Alternative Route C or D (Hackett Road By-Pass) to preserve the areas of Hartman's Reserve, George Wyth Park and the Cedar River lowland area.

The Board's decision was based upon the following factors:

(a) That once parks and river and timber land are destroyed, it takes many, many years to replace them. What has taken so long for nature to create should not, in the Board's judgment, be destroyed if a reasonable alternative exists.

(b) That the Board's responsibility, by statute and by inclination, is to take an advocacy role in attempting to preserve the parks and open spaces.

(c) That the alternatives proposed to the Alternative Routes C and D greatly diminish the present outdoor recreational facilities available at close range for the middle and low income members of our community, and restrict the potential for needed expansion of the facilities in the years to come.

(d) That while final cost figures have not been approved, it would appear that Alternative Routes A and B, in crossing the Cedar River twice, developing a highway within a flood plain and building a completely new highway instead of using Highway 20 as it already exists, appear to be far more expensive than the Alternative Route C or D.

APPENDIX C

(INDEX TO VOLUMES I-IX)

APPENDIX C

INDEX TO VOLUMES I - IX

Background information and technical and supporting data for this Environmental Impact Statement are contained in nine additional volumes. These Volumes I through IX are not part of the Impact Statement, but are references to it, and copies of any volume are available upon request.

The following index outlines the material contained in each of the nine volumes.

VOLUME I

HISTORY OF THE PROJECT

SETTING OF THE STUDY

COMMUNITY ACTION PLAN

TABLE OF CONTENTS

VOLUME II

GENERAL CONSIDERATIONS AND DESCRIPTIONS

TABLE OF CONTENTS

VOLUME III

DESIGN CONSIDERATIONS

PRELIMINARY PLAN AND PROFILE DRAWINGS
OF HIGHWAY ALTERNATES

TABLE OF CONTENTS

VOLUME IV

STRUCTURES
UTILITIES AND DRAINAGE

TABLE OF CONTENTS

VOLUME V

AFFECTED PROPERTIES

TABLE OF CONTENTS

VOLUME VI

FINANCIAL CONSIDERATIONS

ECONOMIC FACTORS

TABLE OF CONTENTS

VOLUME VII

TRANSPORTATION FACTORS

COMMUNITY PLANNING FACTORS

TABLE OF CONTENTS

VOLUME VIII

ENVIRONMENTAL FACTORS

TABLE OF CONTENTS

VOLUME IX

SOCIOLOGICAL FACTORS

HISTORICAL AND ARCHAEOLOGICAL FACTORS

TABLE OF CONTENTS

APPENDIX D

(U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT - INVENTORY FOR ENVIRONMENTAL ASSESSMENT)

APPENDIX D

U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT - INVENTORY FOR ENVIRONMENTAL ASSESSMENT

The following references are provided relative to the U.S. Army Corps of Engineers Section 404 Permit for construction in the Cedar River floodplain. The reader is directed to the indicated sections for detailed information on each of the respective topics.

TABLE D-1

REFERENCES FOR 404 PERMIT

Topic	Reference
1. Design Considerations.	Volume II, p. 61, pp. 92-99; Volume III, Plates 19-30, 48-62, 81-123.
2. Need and Purpose of Project.	EIS, pp. 5-19.
3. Environmental Impacts.	
a. Ecological Impacts.	
1) Air Quality and Noise Levels.	EIS, pp. 71-79, pp. 154-157; Volume VIII, pp. 1-54.
2) Water Quality and Supply.	EIS, pp. 80-81, pp. 86-91, p. 158, p. 182; Volume VIII, pp. 55-71, pp. 90-98.
3) Soil Erosion and Siltation.	EIS, pp. 84-85; Volume VIII, p. 69.
4) Fish and Wildlife Populations.	EIS, pp. 57-61, pp. 130-132, p. 183; Volume VIII, pp. 143-165.
5) Vegetative Habitat.	EIS, pp. 51-57, pp. 127-130, p. 183; Volume VIII, pp. 110-140.
6) Shellfish and Benthic Life.	Not Applicable.
7) Wetland Areas.	Volume VIII, pp. 76-89, pp. 127-128 Figure 15a, p. 114.

TABLE D-1

(Continued)

Topic	Reference
b. Economic Impacts.	
1) Land Use.	EIS, pp. 45-50, pp. 167, 168; Volume VII, pp. 81-91.
2) Employment.	EIS, p. 69, pp. 149-153; Volume VI, pp. 37-43, pp. 45-57.
3) Tax Base.	EIS, p. 70; Volume VI, pp. 71-74.
4) Public Services.	EIS, pp. 165-166, pp. 176-179; Volume VII, pp. 48-67.
c. Social Impacts.	
1) Historic and Archaeological Sites.	EIS, pp. 192-197; Volume IX, pp. 67-76.
2) Present and Potential Recreational Areas.	EIS, pp. 86-91, pp. 135-147; Volume VIII, pp. 90-98, pp. 167-180.
3) Flood Damage Prevention.	EIS, pp. 82-83, p. 158; Volume VIII, pp. 76-89.
4) Navigation.	Not Applicable.
5) Aesthetics.	EIS, p. 61, p. 133; Volume VIII, pp. 181-198, Appendix C.
4. Alternatives.	EIS, pp. 92-126; Volume II, pp. 1-89, pp. 102-127.

APPENDIX E

(SUMMARY AND CONCLUSIONS)

APPENDIX E

SUMMARY AND CONCLUSIONS

Summary

Table E-1 provides a summary of the Preference Indices for all major non-costable factors for the eight systems which were studied. These indices have been weighted in accordance with results of the "Community Survey" (see Volume I).

A second preference matrix (see Table E-2) was calculated based on weight factors assigned by the Planning Team. Since the Planning Team was commissioned to assess the factors from a professional point of view, whereas the community surveys represented the community's attitudes regarding the factors, it was the opinion of the Planning Team that both the community surveys and the Planning Team's Preference Indices should be presented. As the reader will note, a comparison of Tables E-1 and E-2 reveals that the Planning Team increased the weights assigned to the environmental, sociological and transportation factors and decreased the community planning and economic weight factors.

A summary of the selected costable factors is shown in Tables E-3 and E-4. (Volume VI provides detailed information regarding all costable factors.)

Conclusion

Table E-5 provides a ranking of the various I-380 extension systems. This table reflects the findings of this report based on: 1) non-costable factors; 2) costable factors; and 3) design considerations. The non-costable factors were based on Preference Indices for each evaluation item considered. Costable factors were based on an economic evaluation reflecting benefits and cost savings to users of the highway facility in relation to costs involved in implementing the various alternates. Design considerations were based on Engineers' and Planners' opinions as to which facility had the best overall design characteristics.

Recommendations regarding the selection of an alternate system will be made based on input received during the Corridor Public Hearing and this report.

TABLE E-1

PREFERENCE MATRIX RESULTS FOR NON-COSTABLE FACTORS
(BASED ON COMMUNITY SURVEY FACTORS)

Evaluation Summary	Community Survey Factor	Preference Indices For Systems							
		1	2	3	4	5	6	7	8
Transportation Factors	1.71	1.71	2.31	2.89	2.89	2.86	2.86	2.75	2.75
Community Planning Factors	1.40	1.40	1.60	2.03	2.07	2.07	2.09	2.02	2.02
Sociological Factors	1.00	1.22	1.00	1.46	1.42	1.40	1.29	1.32	1.31
Environmental Factors	1.50	1.74	1.62	1.52	1.50	1.67	1.64	1.71	1.70
Economic Factors	1.53	1.53	1.69	2.20	2.16	2.20	2.16	2.20	2.16
Totals		7.60	8.20	10.09	10.04	10.20	10.04	10.00	9.94
Preference Index		1.00	1.08	1.33	1.32	1.34	1.32	1.32	1.31

TABLE E-2

PREFERENCE MATRIX RESULTS FOR NON-COSTABLE FACTORS
(BASED ON PLANNING TEAM FACTORS)

EVALUATION SUMMARY	PLANNING TEAM FACTORS*	SYSTEM NO.								PREFERENCE INDEX SUMMARY FOR NONCOSTABLE FACTORS WEIGHTED IN ACCORDANCE WITH PLANNING TEAM FACTORS* SYSTEM NO.							
		1	2	3 A	4 B	5 C RRX	6 C RR	7 D RRX	8 D RR	1	2	3 A	4 B	5 C RRX	6 C RR	7 D RRX	8 D RR
TRANSPORTATION FACTORS	1.88	1.00	1.35	1.69	1.69	1.67	1.67	1.66	1.66	1.88	2.54	3.18	3.18	3.14	3.14	3.12	3.12
COMMUNITY PLANNING FACTORS	1.00	1.00	1.17	1.47	1.48	1.49	1.49	1.41	1.41	1.00	1.17	1.47	1.48	1.49	1.49	1.41	1.41
SOCIOLOGICAL FACTORS	1.42	1.22	1.00	1.45	1.42	1.40	1.29	1.32	1.31	1.73	1.42	2.06	2.02	1.99	1.83	1.87	1.86
ENVIRONMENTAL FACTORS	1.73	1.16	1.09	1.01	1.00	1.11	1.09	1.18	1.16	2.01	1.89	1.75	1.73	1.92	1.89	2.04	2.01
ECONOMIC FACTORS	1.35	1.00	1.11	1.44	1.41	1.44	1.41	1.44	1.41	1.35	1.50	1.94	1.90	1.94	1.90	1.94	1.90
		TOTALS								7.97	8.52	10.40	10.31	10.48	10.25	10.38	10.30
		PREFERENCE INDEX SUMMARY FOR NONCOSTABLE FACTORS (BASED ON PLANNING TEAM FACTORS)								1.00	1.07	1.30	1.29	1.31	1.29	1.30	1.29

*SEE TEXT FOR DEFINITION

TABLE E-3

SUMMARY OF SELECTED
COSTABLE FACTORS

Systems	Road User and Accident Costs $/Year	Equivalent Uniform Annual Net Return @ 6 percent
1	$344,212,900	. .
2	313,168,700	$19,301,130
3	291,026,100	34,424,000*
4	291,026,100	35,868,430
5	292,962,100	32,140,400*
6	292,962,100	33,459,900
7	295,890,700	29,762,300*
8	295,890,700	31,164,800

*Equivalent Uniform Annual Net Return values indicated are relative to included Railroad Relocation Solution No. 1. Corresponding values for Railroad Relocation Solution No. 2 are $330,500 lower than those indicated for Systems 3 and 5 and $330,600 lower for System 7.

TABLE E-4

COSTS OF VARIOUS SYSTEMS

System	Alternates Included In System	Length of I-380 Ext. (Miles)	Cost of I-380 Alternate	Cost of Street Widening	Cost of Railroad Relocation**	Total System Cost
1	Do Nothing	. .	$. .	$. .	$. .	$. .
2	Street Widening	. .	. .	165,627,117	. .	165,627,117
3	A	7.7*	156,383,460	87,529,143	35,937,870	279,850,473
4	B	7.7*	170,958,460	87,610,986	. .	258,569,446
5	C(RRX)	8.9	174,943,290	72,955,034	35,937,870	283,836,194
6	C(RR)	8.9	191,470,780	72,955,034	. .	264,425,814
7	D(RRX)	9.0	166,565,226	72,827,198	35,937,870	275,330,294
8	D(RR)	9.0	181,793,934	72,827,198	. .	254,621,132

*Excludes portion of proposed Freeway 518 between U.S. 20 and Extension I-380.

**Costs shown for railroad relocation are for Solution No. 1. Solution No. 2 would result in an additional $5,089,560 in the total project cost for Systems 3, 5, and 7.

TABLE E-5

RANKING OF ALTERNATE SYSTEMS

System	Description	Rank Order: Non-Costable Factors	Rank Order: Costable Factors	Rank Order: Design Considerations	Rank Order: Planning Team	Most Desirable Features	Least Desirable Features
1	Do Nothing	8		8	8	Least initial disturbance to the community	Overall long-range negative community effects
2	Street Widening	7	7	7	7	Low cost	Undesirable as a transportation facility, and least cost effective
3	A	2	2	1	2	Direct and best transportation service	Park intrusion
4	B	5	1	4	4	Direct transportation service	Park intrusion, relocation of people, and certain undesirable design limitations
5	C(RRX)	1	4	2	1	No major park disturbance and environmentally acceptable	Indirect transportation routing
6	C(RR)	5	3	5	3	No major park disturbance and environmentally acceptable	Indirect transportation routing, relocation of people, and undesirable design limitations
7	D(RRX)	3	6	3	5	Least environmental change	Indirect transportation routing, and impact to Rainbow Drive
8	D(RR)	5	5	6	6	Least environmental change	Indirect transportation routing, impact to Rainbow Drive, relocation of people, and poor design features