ENGINEERING REPORT 1879

A LOCATION-DESIGN STUDY REPORT FOR THE

I-94 AIRPORT ROAD INTERCHANGE

BLACKMAN TOWNSHIP

JACKSON COUNTY

MICHIGAN DEPARTMENT OF TRANSPORTATION

DESIGN DIVISION

MICHIGAN DEPARTMENT OF TRANSPORTATION

Engineering Report 1879
A Location-Design Study Report For
the I-94/Airport Road Interchange
Blackman Township, Jackson County
Control Section: 38101
Job Number: 10971

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JOHN P. WOODFORD, DIRECTOR

June, 1980

TO: G. J. McCarthy
Deputy Director - Highways

RE: Engineering Report 1879
A Location-Design Study Report
for the I-94/Airport Road Interchange
Blackman Township, Jackson County
Control Section: 38101
Job Number: 10971

In accordance with your directive, submitted herewith is Engineering Report 1879 which is a resume of location-design studies for the reconstruction of the I-94/Airport Road Interchange.

The construction of this project will remove a serious "bottleneck" to the flow of traffic on Airport Road and will upgrade the existing interchange to current standards.

These studies were conducted by David G. Vaughn, Route Location Engineer, under the supervision of Lawrence Sorenson (retired) and Gerald W. VanValkenburg, Unit Supervisors.

Respectfully submitted,

WILLIAM J. MACCREERY
ENGINEER OF DESIGN

M. Tarik Ataman

M. Tarik Ataman
Engineer - Route Location
DESIGN DIVISION

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ACKNOWLEDGEMENTS

This report was prepared in accordance with the State of Michigan Action Plan. This involved the cooperative efforts of the various divisions of the Michigan Department of Transportation, the Federal Highway Administration, the Jackson County Road Commission, and Wilbur Smith and Associates.

Task Group members and other contributors to this report are as follows:

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Gerald VanValkenburg	Task Group Leader - Route Location
David G. Vaughn	Project Engineer - Route Location
A. Ross Heath	Supervising Engineer of Route Location
Gerald H. Martin	Route Location
Suheil M. Ajluni	Bridge Design
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Tim Monaghan	District Soils & Materials Engineer
Joseph Meszaros	Traffic and Safety
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Walter J. Roth	Assistant District Traffic & Safety Engineer
Wendell Proudfoot	Bureau of Aeronautics
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Robert Krol	Multi-Regional Planning
David Babcock	Multi-Regional Planning

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Larry Leonard	Jackson County Road Commission
Orvis Nichols	Jackson County Road Commission
Welton Bohne	Jackson County Road Commission
David Gibbs	Federal Highway Administration
Ron Hatcher	Federal Highway Administration
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Robert Henry, Jr.	Wilbur Smith & Associates

SUMMARY

This report is a resume of design studies and recommendations for the upgrading of the Airport Road/I-94 Interchange in Blackman Township of Jackson County.

The recommendations of this study are as follows:

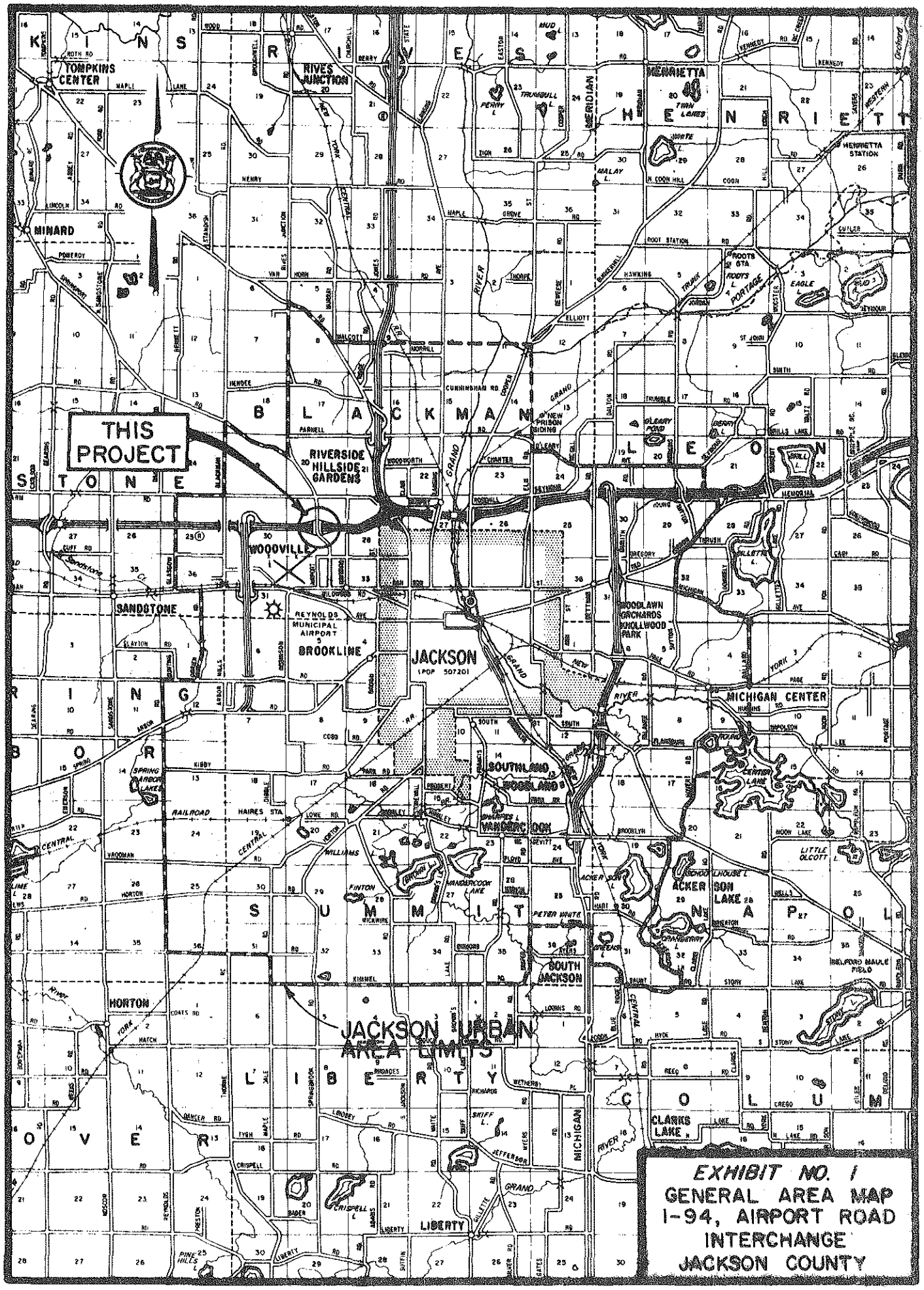
1. Widen the Airport Road Bridge over I-94 to provide six lanes, three on each side of a raised median. Provide a full depth abutment when widening the south tail span to accommodate a future ramp.
2. Reconstruct and widen the Airport Road approaches to provide a left-turn lane from northbound Airport Road to westbound I-94; and a double left-turn lane for southbound Airport Road to eastbound I-94.
3. Widen the ramp terminals at Airport Road to accommodate the anticipated traffic volumes and reconstruct all four ramps to meet current standards.
4. Signalize the ramp terminals south of I-94 at Airport Road.
5. Provide an 8-foot wide facility for nonmotorized traffic along the east side of Airport Road through the interchange.

This project is concerned with upgrading the Airport Road/I-94 Interchange in Blackman Township of Jackson County (See Exhibit No. 1).

This interchange serves a growing industrial park located in the northwest quadrant of the interchange and numerous commercial establishments, including a Meijer's shopping center, north of I-94. It is especially important to residents north and west of the interchange because the nearest interchange west of Airport Road is at Dearing Road - a distance of over four miles. The Reynolds Municipal Airport serving Jackson County is situated south of the interchange.

Increased traffic on Airport Road can be related to the growth of the area. This growth is emphasized by the fact that between June, 1974, and April, 1976, over 1200 additional living units were developed or were being developed in the immediate area.

The portion of Airport Road north of I-94 was widened to four lanes in 1972 and the portion south of I-94 was widened to four lanes in 1979. Since the existing structure over I-94 has a 26-foot opening adequate for only two lanes of traffic between the ramp terminals, peak hour traffic congestion is a daily occurrence. The elimination of this bottleneck is a vital concern to local motorists, residents, and businesses.


THIS PROJECT
TOMPKINS CENTER
RIVES JUNCTION
HENRIETTA
MINARD
BLACKMAN
LEONI
STONE
RIVERSIDE
HILLSIDE
GARDENS
WOODVILLE
SANDSTONE
REYNOLDS MUNICIPAL AIRPORT
BROOKLINE
JACKSON
(POP 50720)
WOODLAWN ORCHARDS
KNOLLWOOD PARK
MICHIGAN CENTER
SPRING ARBOR
SOUTHLAND
WOODLAND
HAIRES STA.
MANDRACOOK
ACKERSON LAKE
SUMMIT
SOUTH JACKSON
HORTON
JACKSON URBAN AREA LIMITS
LIBERTY
COLUMBIA
CLARKS LAKE
GRAND RIVER
MICHIGAN
CENTRAL RAILROAD
NEW YORK CENTRAL
EXHIBIT NO. 1
GENERAL AREA MAP
I-94, AIRPORT ROAD
INTERCHANGE
JACKSON COUNTY

A. Existing Inventory

The existing interchange was built in 1958 as a tight diamond and is characterized by short ramps lying close to the freeway and terminating on Airport Road near the structure.

Airport Road through this area was originally two lanes wide with shoulders. The section north of I-94 was widened to four lanes in 1972 and the section south of I-94 was widened to four lanes in 1979. Both widening projects included curb and gutter and enclosed drainage. The south section includes a four-foot paved strip in back of the curb on both sides of the road for bicycles and pedestrians. These two sections of Airport Road are connected through the interchange by a 24-foot pavement.

The horiziontal alignment of Airport Road north of I-94 is straight. South of I-94 the alignment has a reverse curve consisting of ten degree curves separated by a 1000-foot tangent.

The vertical alignment of Airport Road is moderate except through the interchange where a 600-foot vertical curve joins two 4 percent grades. Minimum stopping sight distance on the bridge is adequate for about 45 mph speeds.

The structure was built in 1958 and has a 26-foot clear roadway opening. It is 159 feet long and has four spans; the middle two are each 48.5 feet in length and the end two are 30 feet in length. The structural condition according to the 1978 Structure Inventory and Appraisal rating is "Condition meeting minimum tolerable limits to be left in place as is" and the safe loading capacity rating for this structure is "practical maximum legal load".

The Annual Bridge Inspection Report for 1979 notes numerous transverse cracks in the deck, all joints leak, and the joints over the north and south piers are badly spalled. However, the District Construction Engineer has inspected the structure and reports that the bridge is basically in good structural condition. Joint repairs are included for all alternates that retain the existing structure.

Existing I-94 consists of two 12-foot lanes in both directions separated by a 26-foot median. On the outside of the pavement there is a 10-foot paved shoulder and the inside is paved to the median barrier in the center so that the inside shoulders are 12 feet wide except where there are center bridge piers. At this point, the shoulders narrow to about ten feet.

Horizontal and vertical alignment on I-94 are both moderate and neither places any restrictions upon traffic operation through the interchange area.

The four "tee" ramps are 16-foot wide with paved shoulders. The ramps show signs of deterioration and the shoulders are completely broken up in spots.

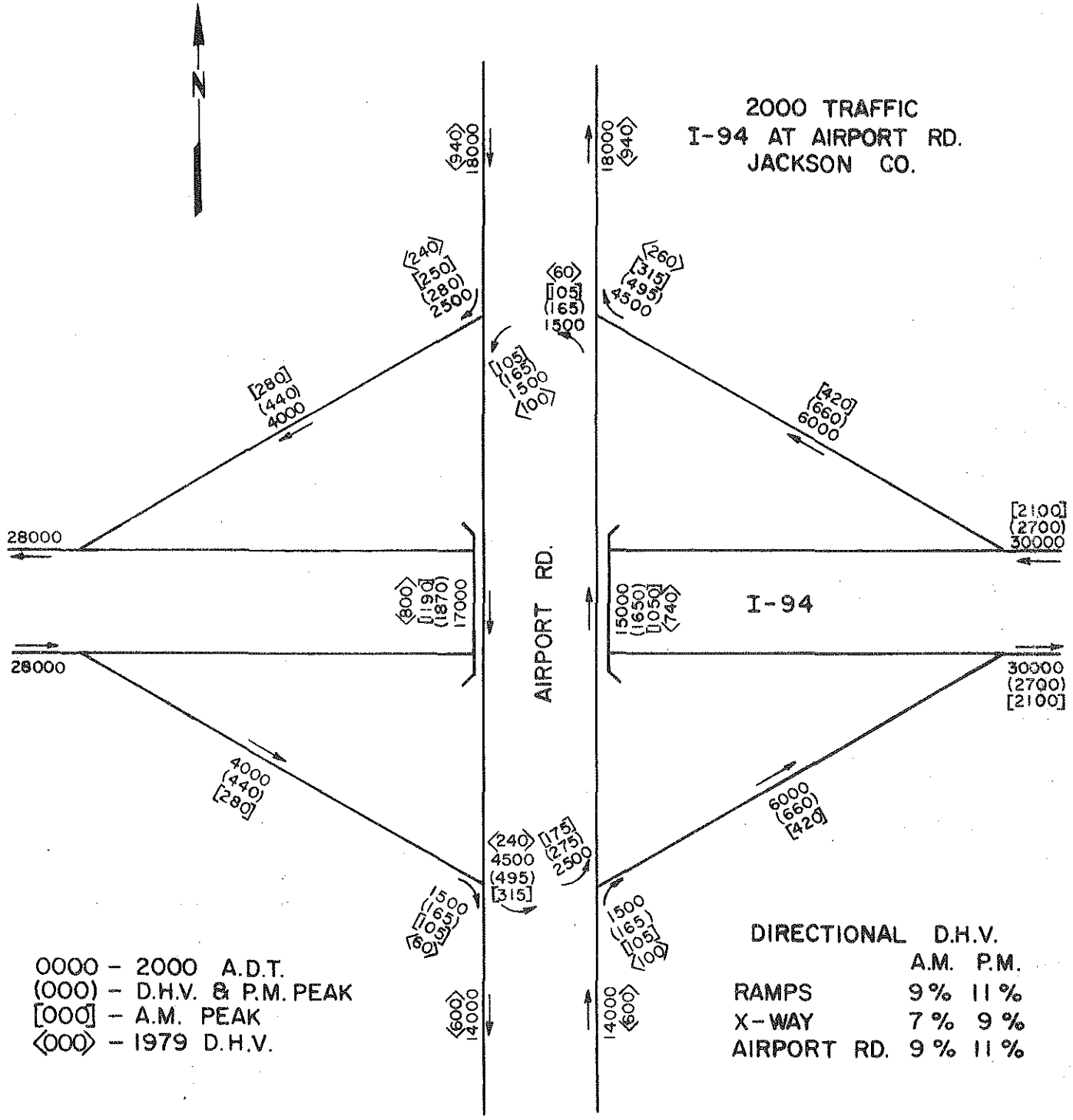
The ramps range in length from 1000 to 1500 feet including short acceleration and deceleration lanes. Curves on the ramps vary up to a maximum of eight degrees and grades range from 0 to 3.4 percent.

Existing right-of-way south of I-94 along Airport Road is 80 feet wide. Immediately north of I-94, right-of-way along Airport Road is 150 feet and further north it is 135 feet. Existing right-of-way along I-94 is 220 feet and the right-of-way for ramps extends parallel to the ramp 75 feet from the outside pavement edge.

B. Traffic Volumes

As noted in the introduction, traffic volumes on Airport Road are increasing and much of this increase can be attributed to the growth of the area. At the present time, Airport Road over the structure is congested during rush hours.

Traffic projections for the year 2000 indicate an even greater increase in traffic and are portrayed on Exhibit No. 2. Of particular concern are the anticipated heavy turn movements from westbound I-94 to northbound Airport Road and the return movement, southbound Airport Road to eastbound I-94.



DIRECTIONAL D.H.V.

	A.M.	P.M.
RAMPS	9 %	11 %
X-WAY	7 %	9 %
AIRPORT RD.	9 %	11 %

EXHIBIT NO. 2
PROJECTED TRAFFIC

C. Alternates

1. Do Nothing Alternate

This alternate assumes nothing would be done and Airport Road over I-94 would remain as a two-lane bridge. This alternate can be dismissed as not feasible for reasons of capacity, safety, and general inefficiency.

2. Remove the Interchange

This alternate has the advantage that it would allow the airport more space to expand because the ramps would be gone.

The disadvantage of this concept is that elimination of the interchange severely limits access to I-94. The M-60/I-94 interchange west of Airport Road is a freeway to freeway connection with no local access and the US-127/I-94 interchange is not easily accessible from the Airport Road area.

In addition it is unlikely that the owners of commercial properties along Airport Road north of I-94 or the industries in the industrial park in the northwest quadrant, would allow the interchange to be closed. Therefore, this alternate was dropped from further consideration.

3. Move the Interchange to the East

This alternate has the advantage that with the interchange moved, the existing runway could be extended.

The disadvantage to this alternate is that it would remove easy access to the industrial park and to commercial properties along Airport Road and it would route a heavy volume of traffic onto a narrow residential street. In addition, it would force traffic to use a circuitous route.

For these reasons, this alternate was dropped from further consideration.

4. Lower the Freeway

This alternate was investigated as an attempt to lower the Airport Road grade south of I-94 four feet as suggested by Wilbur Smith and Associates in their report Jackson Airport/Road Needs Study. This four feet is specifically referred to on a preliminary sketch dated March 15, 1979.

Lowering I-94 would leave the existing footings on the Airport Road structure without adequate frost protection and therefore the bridge would have to be removed and replaced. A temporary structure or part width construction would be necessary to maintain traffic on Airport Road.

Also lowering I-94 would require a large cut to accommodate not only the four feet for lowering Airport Road but also for attaining the standard 16' 3" underclearance for Interstate Highways.

Traffic on I-94 would have to be shifted from side to side or part width construction would have to be used in order to maintain traffic during construction.

It was estimated that the lowering of I-94 alone would cost over 1½ million dollars in addition to other improvements to the interchange.

This concept was dropped from further consideration because it was not considered justifiable to spend the additional money to accommodate a "possible" future airport improvement.

5. Raise the Freeway

By raising the freeway and lowering Airport Road the four foot lowering of Airport Road as suggested by Wilbur Smith and Associates, could be accomplished. However, the cost to both raise the freeway and its approaches and to lower Airport Road were considered too great to commit to a project on the basis of a "possible" future development. Therefore this alternate was dropped from further consideration.

6. Five Lanes with a Loop in the Southwest Quadrant

a. New Structure

It is essential that the new configuration be capable of handling the left turns from southbound Airport Road to eastbound I-94. Analysis indicated that the distance between the two sets of ramp terminals would not be adequate in length to store vehicles desiring to make this turn if the structure were widened to four or five lanes. Therefore a loop in the southwest quadrant was suggested to handle this move (See Exhibit No. 3).

A study of this scheme revealed that since there are only 10 feet of clearance between the existing pavement and bridge pier, there wouldn't be sufficient space to add the necessary acceleration lane. As a result, the structure would have to be rebuilt.

Additional problems with this scheme include the cost of right-of-way and the possibility that the loop would conflict with the new runway proposed in the report "Jackson Airport/Road Needs Study" by Wilbur Smith and Associates. This scheme would require the acquisition of the service station in the southwest quadrant and would landlock a number of parcels of private land along I-94.

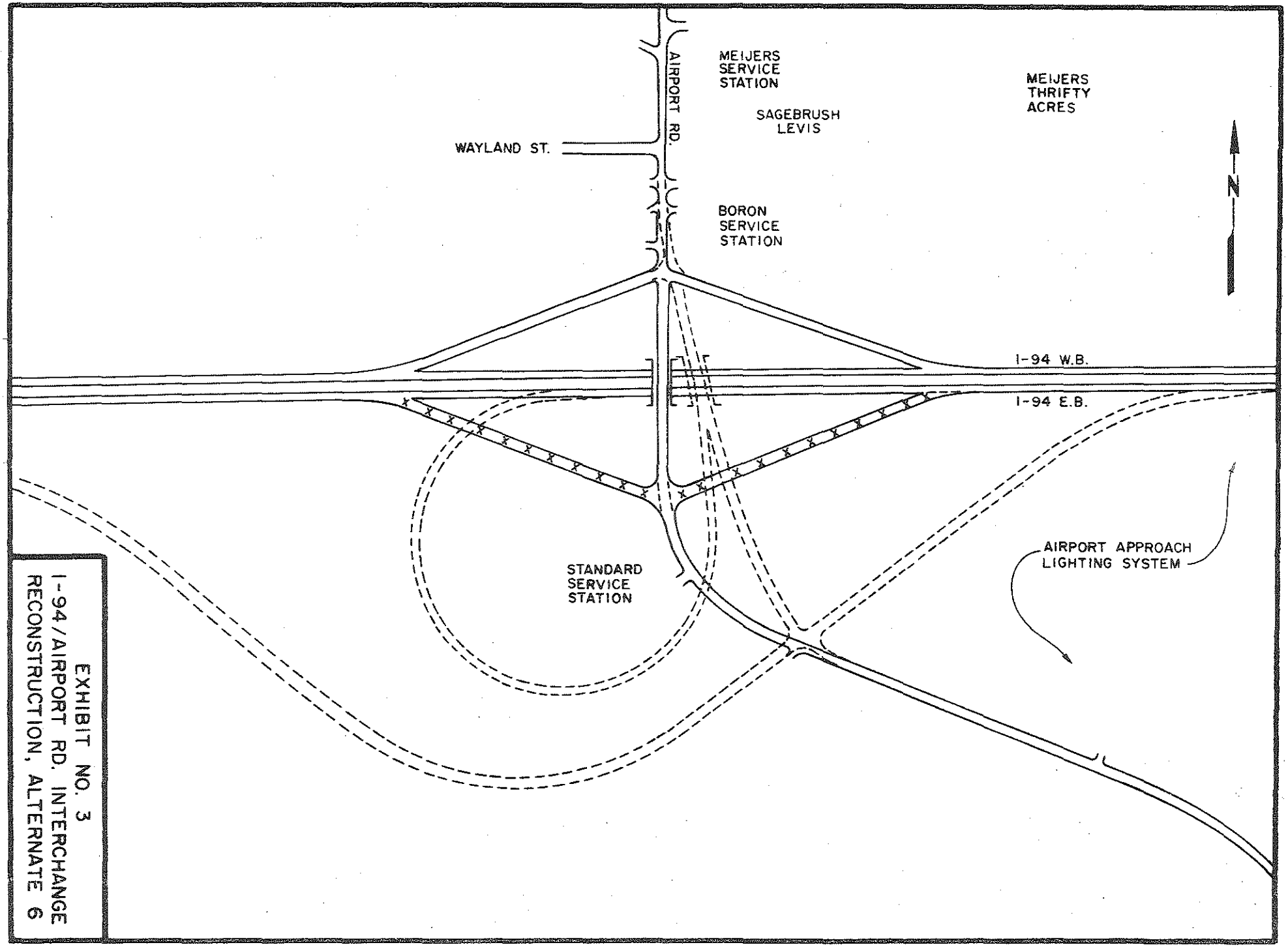


EXHIBIT NO. 3
I-94/AIRPORT RD. INTERCHANGE
RECONSTRUCTION, ALTERNATE 6

Due to these problems, this scheme was dropped from further consideration.

The estimated cost for this alternate was $3,686,000.

b. Loop through the Tail Span

One option to replacing the structure is the possibility of running the loop ramp between the south pier and abutment. The existing end span is only 30 feet but a ramp could be squeezed through.

Further study revealed that the widening could be done using a full depth abutment. Then traffic could be diverted onto the widening while the tail span of the existing is removed and the existing abutment is replaced with a full depth one. This would provide adequate room to run the loop through the tain span.

Again this alternate would conflict with the proposed runway and would require the acquisition of right-of-way in the southwest quadrant. It was therefore dropped from further consideration.

The estimated cost for this alternate was $2,508,000.

c. Elongated Loop

This alternate was studied simultaneously with the loop through the tail span alternate (6b). Instead of being a circle this alternate would have a long tangent section parallel to I-94 and would resemble an oval race track. This has the advantage that the loop would merge into I-94 west of the bridge and therefore no adjustments would have to be made to the structure.

Since this alternate would require even more right-of-way and because it was considered less desirable than Alternates 6a and 6b, it was dropped from further consideration.

7. Divided Section with a Relocated Ramp

This scheme consists of a divided section with a relocated ramp in the southeast quadrant (See Figure No. 4). The existing structure and existing Airport Road would carry southbound traffic and the new structure and roadway would carry northbound traffic. Relocating the ramp in the southeast quadrant further south would allow another lane to be added south of the bridge on Airport Road and to provide a left-turn storage lane for the southbound to eastbound movement. This concept has the additional advantage that since the existing road and structure would remain untouched, traffic could be maintained easily during construction.

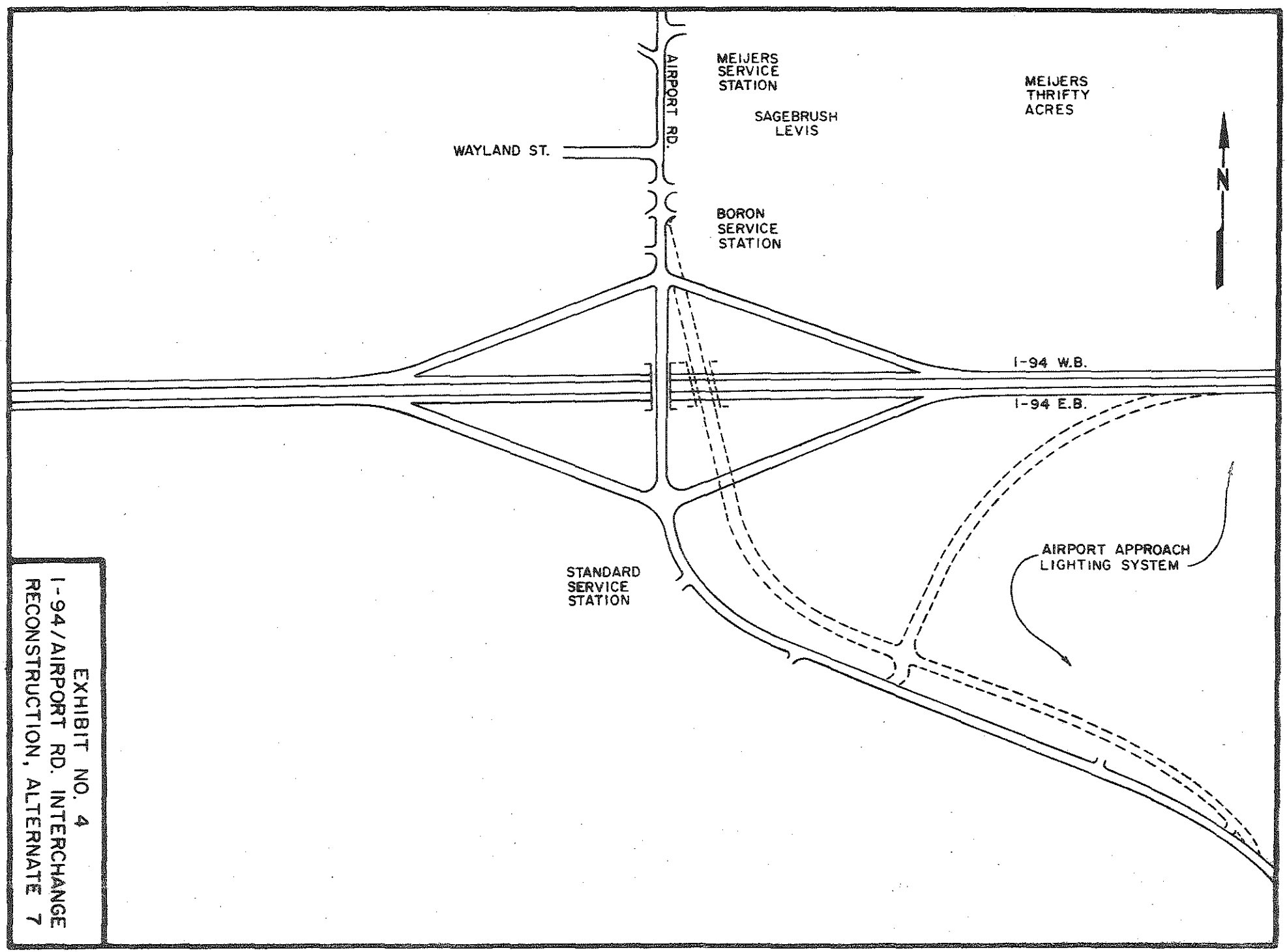


EXHIBIT NO. 4
I-94/AIRPORT RD. INTERCHANGE
RECONSTRUCTION, ALTERNATE 7

The new structure would need to have a 16-foot 3 inch clearance over I-94, according to interstate standards. Also the relocated ramp might interfere or cause confusion for the users of the proposed runway. It is possible that vehicle lights could be confused with the approach lighting of the proposed runway.

Finally, the relocated ramp would infringe on a wetland and could involve environmental concerns.

This scheme was dropped from further consideration because of the problems noted above.

8. Five Lanes with a Relocated Ramp

This alternate includes widening the existing structure to five lanes and relocating the ramp in the southeast quadrant similar to the scheme above (See Exhibit No. 5). The major advantage of widening the structure is that it would not be necessary to provide a 16-foot 3 inch clearance but only to maintain the existing clearance. The eastbound off-ramp would require a traffic signal at the junction with Airport Road to regulate the northbound left-turn movement.

This scheme was dropped from further consideration because of the problems that might be caused by the relocated ramp.

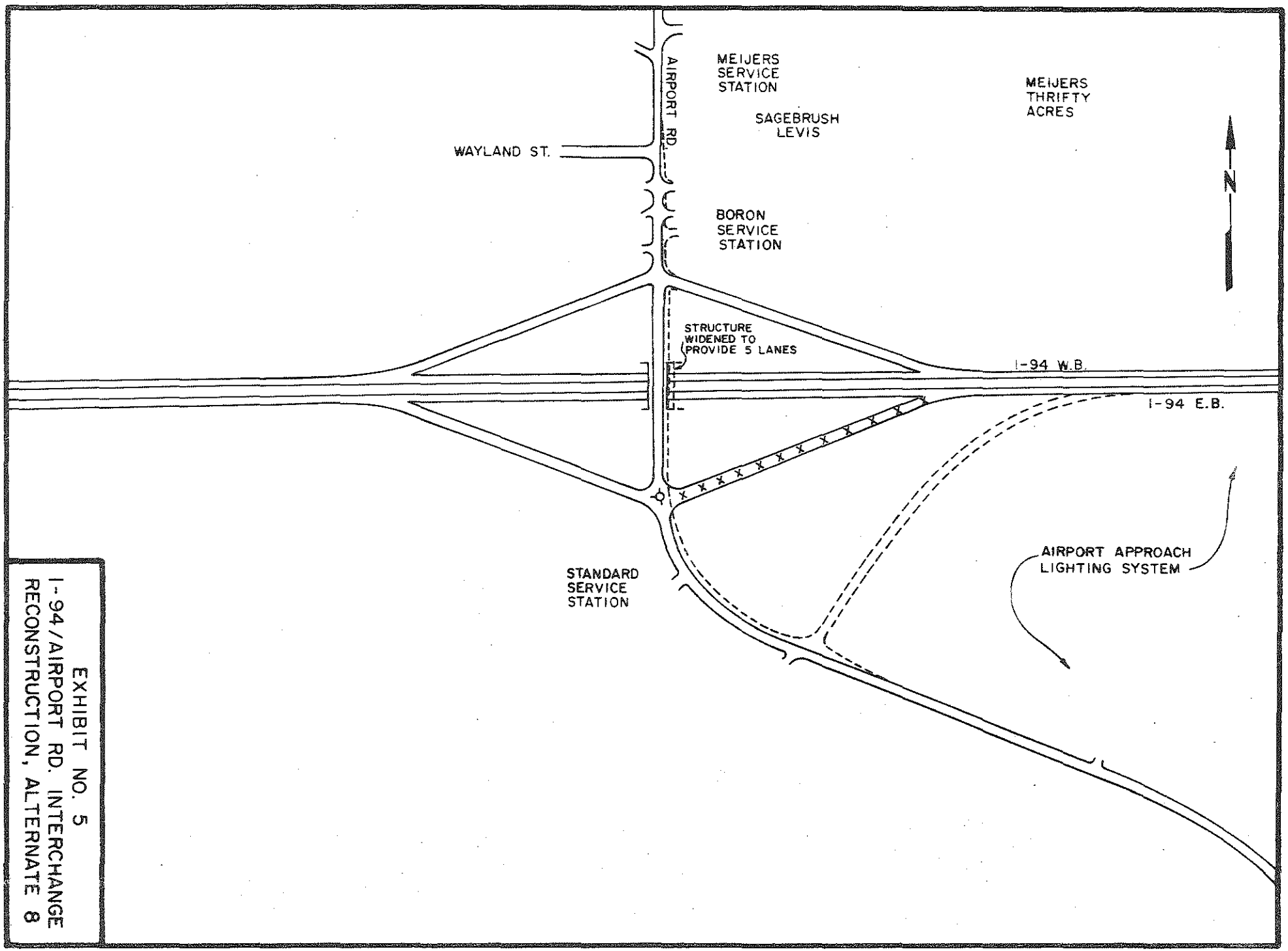


EXHIBIT NO. 5
I-94/AIRPORT RD. INTERCHANGE
RECONSTRUCTION, ALTERNATE 8

9. Widen to Six Lanes with a Double Left Turn (Recommended)

This alternate includes widening the Airport Road structure to six lanes to facilitate a double left-turn lane for southbound Airport Road traffic turning east on to I-94. This double left turn would provide sufficient capacity to allow the ramps of the existing diamond interchange to remain in the same location. This scheme is shown in Exhibit No. 6.

Interference with existing or proposed runway improvements would be avoided by keeping the ramps in the same location and by widening Airport Road along the existing alignment. Also, damage to the natural environment would be minimized.

The double left turn would require the installation of a traffic signal at the southern ramp terminus on Airport Road. Based on the projected year 2000 traffic estimates, this interchange would operate at Level of Service C. The installation of pole supports for the traffic signals would not interfere with the clear zone requirements of either the existing runway or the possible future runway.

Interstate 94 through this area was constructed in 1958 when the standard bridge underclearance was 14 feet 6 inches. All of the bridges through this area were constructed to this standard. Interstate freeway standards now call for an underclearance of 16 feet 3 inches.

Jackson Container Co.
North American Van Lines
L & L Industries
Keywood Products
Colonial Printers
WAYLAND ST.
AIRPORT RD.
Meijers Service Station
Sagebrush Levis
Meijers Thrifty Acres Store
PAINTED ISLANDS
Manufacturer
Warehouse
Boron Service Station
Vacant Service Station
Covered Pumps
RAISED ISLAND
GMC Truck Sales
U & I Supply Co.
Scale: 1"=200'
WIDEN EXISTING STRUCTURE
I-94 WB
I-94 EB
FACILITY FOR NON-MOTORIZED TRAFFIC
RAISED ISLAND
Standard Service Station
PAINTED ISLAND
PROP. R.O.W.
Airport Approach Lighting System

EXHIBIT NO. 6

PROPOSED
I-94 / AIRPORT ROAD
INTERCHANGE RECONSTRUCTION
JACKSON COUNTY

To provide this additional underclearance would cause problems along Airport Road. The existing profile already incorporates four percent grades on the bridge approaches (See Figure No. 7). The vertical curve connecting these grades has the minimum length required to provide minimum stopping sight distance for a design speed of 45 mph. If the underclearance were increased to 16 feet 3 inches, the grade of Airport Road would need to be raised affecting 1000 feet of existing road south of the structure and about 600 feet north of the structure. Raising the grade of Airport Road by nearly two feet may restrict the future development of the Jackson Airport facilities and would interfere with the access to existing development along Airport Road.

It is proposed with this scheme to widen the existing structure keeping the underclearance as it is now. In the distant future when this and other structures along I-94 need to be replaced, consideration can be given to increasing the underclearance at that time. It appears that the best solution would be to lower I-94 at this location. In the meantime, the existing tight diamond interchange ramps of this scheme would provide an easy detour of the structure for vehicles which require clearance of more than 14 feet 3 inches.

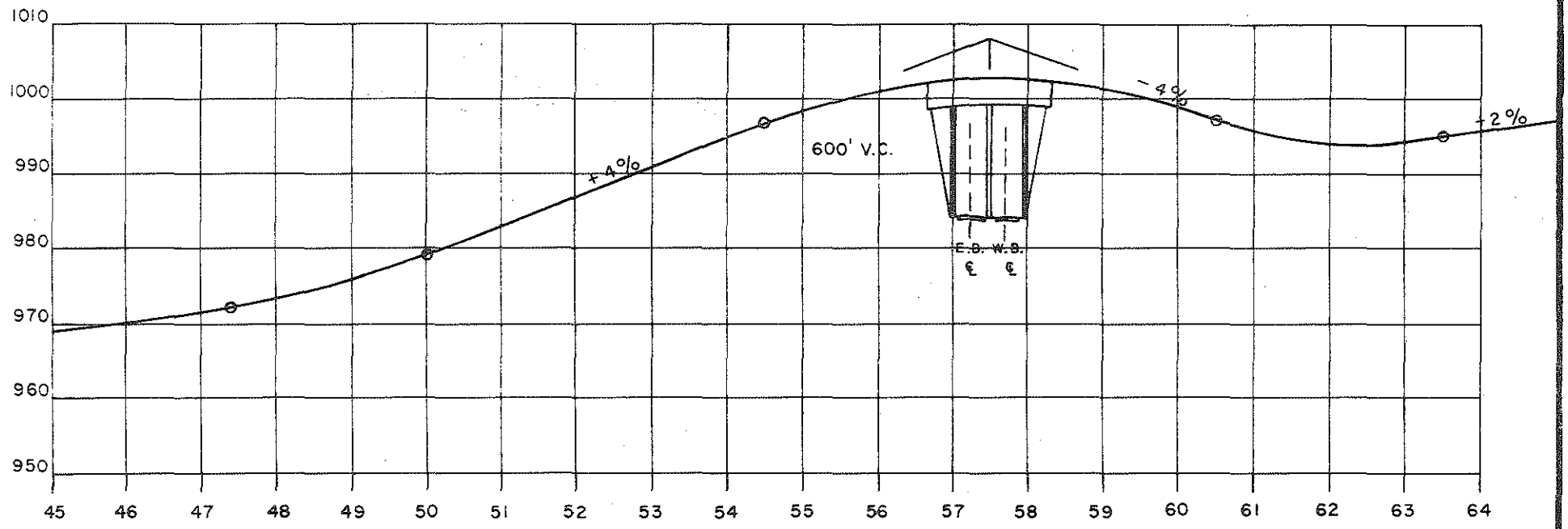


EXHIBIT NO. 7
I-94/AIRPORT RD. INTERCHANGE
EXISTING PROFILE, AIRPORT RD.

Based on the preceding discussion of the alternates, it is recommended that Alternate 9, a six-lane structure with a dual left turn, be designed and constructed. This alternate, as discussed earlier, will function effectively and it is mutually acceptable to all concerned parties.

A. Alignment

1. Horizontal Alignment

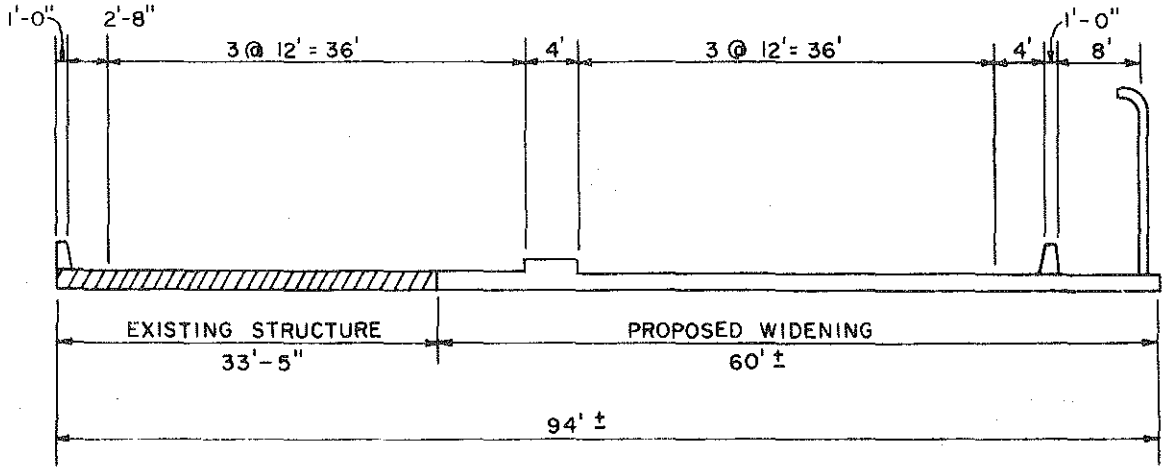
Horizontal alignment would not change but the widening would be done entirely on the east side and then tapered back into the four lanes north and south of the interchange.

2. Vertical Alignment

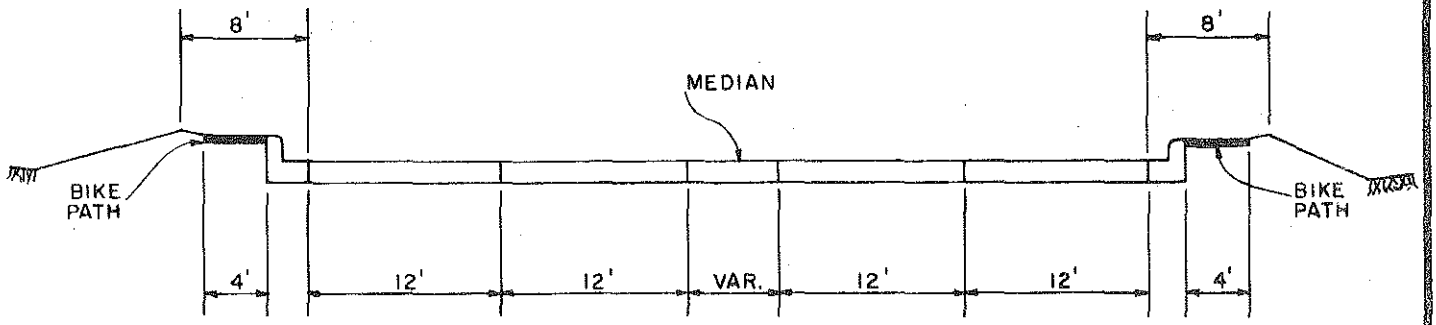
The vertical alignment would follow the existing alignment due to the severe clearance restraints under the airport runway clear zone and over I-94.

B. Cross Section

The proposed typical cross sections of the structure and Airport Road are shown in Exhibit No. 8.



PROPOSED BRIDGE SECTION



PROPOSED ROAD SECTION

EXHIBIT NO. 8
I-94/AIRPORT RD. INTERCHANGE
TYPICAL CROSS SECTIONS

1. Traffic Lanes

There will be six 12-foot traffic lanes, three on each side of a 4-foot barrier. Two lanes on each side of the barrier will be for through traffic and the other lanes will be for left turns.

The use of a raised barrier allows the widening on the east side of the barrier to be independent of the crown of the old road. This is necessary because extension of the existing crown would further restrict the underclearance of the structure.

2. Barrier Railing

The old parapet railing and brush curb on the west side of the structure will be removed and replaced with new barrier railing. The old railing and curb on the east side will be removed and the deck widened. The barrier railing on the east side will separate vehicular and pedestrian traffic.

3. Nonmotorized Facility

Existing Airport Road south of the structure includes a paved strip four feet wide in back of the curb for nonmotorized traffic. A path for nonmotorized traffic is proposed to provide continuity of this path through the interchange. The path will be eight feet wide to carry two-way traffic on the

structure and will be separated from vehicular traffic by a barrier railing. A safety screen will be provided on the outside edge of the bridge.

4. Special Details

It is recommended that when the structure is widened, the tail span on the south side be constructed with a full depth abutment. This detail is recommended in case the Airport Master Plan indicates that the loop concept would not interfere with the airport operation and traffic volumes increase so much that a loop ramp would be desireable. Then by reconstructing the existing south tail span with a full depth abutment, a loop could be placed between the south pier and south abutment. The eastbound I-94 off ramp would be reconstructed outside the loop.

C. Ramps

It is recommended that all four ramps be reconstructed to current design standards due to age, general deterioration, and obsolete geometric standards.

The two ramps east of the structure will require some grade adjustment of the approaches to the intersections with Airport Road because of the widening of Airport Road. In addition, both ramps will be

widened near Airport Road: the ramp in the southeast quadrant widened to two lanes to accommodate the double left turn off of southbound Airport Road; and the ramp in the northeast quadrant widened to three lanes to accommodate a double right turn onto northbound Airport Road and a left turn onto southbound Airport Road.

The ramp in the northwest quadrant will not require widening but the ramp in the southwest quadrant will be widened to two lanes at the intersection with Airport Road.

D. Right-of-Way

Additional right-of-way would be needed in the southeast quadrant. This right-of-way is owned by Jackson County as part of Reynolds Municipal Airport.

A small triangular area of right-of-way and possibly a grading permit will be necessary in the northeast quadrant. This right-of-way is privately owned.

E. Drainage

Drainage in the interchange should pose no problem. Water can be channeled into the county's enclosed system either side of the interchange or into the open ditch system along I-94.

F. Soils

Soils in the area should present no unusual problems.

G. Traffic Operations

Traffic signals are recommended at the southern intersection of the ramps at Airport Road because of the dual left-turn movement from southbound Airport Road to eastbound I-94.

Traffic signals are not recommended at the northern intersection of the ramp at Airport Road. Local authorities are considering the installation of traffic signals at the intersection of Wayland Drive and a relocated driveway to Meijer Thrifty Acres at Airport Road. It would be highly undesireable to place traffic signals at both the ramp intersection and the Wayland Drive intersection because of the short distance (450 feet) between them. The taper, median, and driveway locations of the Airport Road plan in the vicinity of Wayland Drive will need to be adjusted to accommodate the intersection treatment, if the above mentioned changes materialize.

H. Stage Construction

This plan will require some stage construction but exact details will not be known until design plans are completed. Traffic will be maintained across the Airport Road structure throughout the project.

I. Estimated Cost

The estimated costs for the recommended plan are as follows:

Preliminary Engineering	$ 58,000
Right-of-Way	$ 40,000
Road Construction	$ 658,000
Structures	$ 500,000
Const., Engineering & Cont.	$ 116,000
TOTAL	$1,372,000

PUBLIC INVOLVEMENT

Since this project was classified as Non Major, no public hearing was held. Upon completion of the preliminary report, the Public Involvement Unit of the Transportation Planning Services Division of the Bureau of Transportation Planning published notices in the Jackson Citizen Patriot on April 17, 1980, and April 24, 1980, informing all interested persons about the proposal. It was also indicated in the notice that any interested citizen affected by the proposal might request that a public hearing be held by sending a written request to the Manager of the Public Involvement Section on or before May 9, 1980.

The above date elapsed without receipt of a written request that a public hearing be held on the proposed project; therefore, the hearing requirements for this project were met, and this project was certified to be in compliance with Section 128 of Title 23, U. S. Code and FHPM 7-7-5.

APPROVALS

No formal approvals have been requested but the following organizations are aware of this project:

a. Jackson County

b. Federal Highway Administration

c. Federal Aviation Agency (through MDOT's Bureau of Aeronautics)

d. Jackson County Airport Board

e. Blackman Township Board

POSSIBLE CHANGES AND ADJUSTMENTS

This Engineering Report is prepared from the best information available at the time of the study and the recommendations contained herein have the general approval of local officials. Other divisions of the Michigan Department of Transportation may find it necessary to deviate from some of these recommendations. However, any significant changes or adjustments should be discussed with the Route Location Section of the Bureau of Highways, prior to altering the recommendations of this report, as they may necessitate securing revised agreements with the local governmental units and/or holding additional public hearings.

ENVIRONMENTAL REVIEW FOR THE UPGRADING OF THE
I-94 AT AIRPORT ROAD INTERCHANGE, JACKSON COUNTY
C.S. 38101 JOB NO. 10971

Description of Surroundings

The interchange at I-94 and Airport Road is of the tight diamond design. It services the Jackson County Airport to the south of I-94 and various commercial and industrial concerns to the north. Airport Road has been widened to four lanes both north and south of the bridge over I-94 while the bridge has remained a two lane structure.

The predominant vegetative cover in the area are perennial grasses and weeds common to an urban setting. Recently planted saplings have been placed throughout the interchange within the existing right-of-way.

The northwest quadrant is occupied by various light industries as well as two commercial establishments. Most of the industrial establishments are served by Wayland Street which intersects Airport Road approximately 450 north of the ramp terminals. The two commercial establishments, an auto dealer and a Denny's restaurant, front Airport Road and are located between the ramp terminals and Wayland Street. The establishments with frontage on Airport Road have been nicely landscaped. Older small trees as well as recently planted saplings are scattered throughout the right-of-way. Guard rail has been placed along the ramp due to the steep slopes. There are two southbound traffic lanes up to the ramp terminal. The right lane is used to enter the ramp while the other is designated as a through lane.

The major portion of the northeast quadrant is occupied by a Meijers Thrifty Acres Shopping Center. Approximately 250 feet north of the ramp terminals is a Boron Service Station. North of the shopping center is a McDonald's restaurant. Large stately oaks begin here and line Airport Road to the north.

There is a deep drainage ditch between the ramp and the right-of-way in the northeast quadrant. The right-of-way is dotted with newly planted saplings in this area. A mature oak, five large Austrian pines, a cherry tree as well as several small Austrian pines are located between the ramp and expressway. Guard rail has been placed along the ramp due to the steep fill slopes.

The southeast quadrant is comprised mainly of a vacant lowland containing the airport approach lighting system. This lowland area is a possible wetland containing cattails, grasses and other forms of vegetation common to various types of wetlands. Airport Road has been widened to four lanes south of the bridge by Jackson County. A four-foot wide bituminous path for non-motorized traffic has been placed behind each curb in conjunction with the widening.

As with the other quadrants, recent sapling plantings are evident. Due to the steepness of the north slope of the ramp, guardrail has been placed along this edge. Small hardwoods and Austrian pines are scattered between the ramp and the expressway.

Located within the southwest quadrant are the fenced-in county airport and a Standard Service Station. The recently widened Airport Road is depressed under the landing path. There is a non-motorized bituminous path at the back of curb. As with all the other quadrants newly planted saplings are present. Austrian pine trees of various size dot the gradual slopes in this quadrant.

Description of Project

The current Airport Road bridge is two lanes wide tying into four lanes both north and south of the bridge. The project would upgrade the interchange to handle the existing traffic by widening the bridge as well as two of the ramps. The bridge widening would provide for continuity with Airport Road as well as provide storage for turning vehicles.

The bridge would be widened exclusively on the east side to provide for six lanes. The six lanes would provide four through lanes of traffic and a double left turn for the southbound Airport Road to eastbound I-94 movement. In addition to the new traffic lanes on the east side, a bicycle path at least eight feet wide will be provided across to accommodate two way non-motorized traffic.

Two ramps will also require widening for vehicular channelization. The ramp in the northeast quadrant will be widened to three lanes. This will provide for two right turn lanes for traffic wishing to go north on Airport Road and a left turn lane for southbound Airport Road. The ramp in the southeast quadrant (the eastbound I-94 entrance ramp) would be widened to two lanes. The ramps would remain in their present locations with a traffic signal at the south intersection with Airport Road. Additional earth may be placed on the ramp slopes to reduce the steepness and eliminate guardrail.

Need for the Project

The current Airport Road bridge is two lanes wide while Airport Road is presently four lanes both north and south of the bridge. Currently traffic in the right lanes from either the north or south approach are channeled into the entrance ramps of I-94.

Traffic count data from 1978 reveals that 10,900 vehicles a day (ADT) use Airport Road. Traffic projections predict an ADT of 22,000 vehicles in the year 2000. Traffic flow experiences disruption at the bridge where two lanes of traffic are funneled into one. The ramps also experience traffic backups while vehicles waiting to complete turns onto Airport Road block other ramp traffic.

The widening of the bridge is required to provide for the efficient flow of traffic and storage for vehicles wishing to enter I-94. Safety would be enhanced by the two through lanes of traffic in each direction. The widening would enhance traffic flow and the continuity of Airport Road.

Impact Analysis

The widening of the structure exclusively on the east side to six lanes will require the removal of the large oak and the five large Austrian pines as well as various other trees in the northeast quadrant. To facilitate the widening of the ramps, some of the recently planted saplings will require removal in both the northeast and southeast quadrants. The removal of some of the small hardwoods and Austrian pines as well as some newly planted trees is anticipated for the ramp widening in the southeast quadrant. It is expected that roadside vegetation on the east side of Airport Road will be lost due to work area and equipment storage space requirements.

Two small pieces of new right-of-way will be required to provide for the proposed widening. A small triangular piece (30 feet by 60 feet) will be required in the northeast quadrant to allow for construction of the bike path. A 450 foot strip of vacant right-of-way varying in width from 20 to 45 feet will be required in the southeast quadrant to facilitate the widening. The area on the west side of Airport Road should not be disturbed because the work required is all on the east side.

The project will not involve any wetlands, floodplains, or watercourses. Building relocations and traffic detours will not be required for the widening. There are no 4(f) lands, parks or historical sites affected by the project. Air quality and noise impacts will be insignificant. Safety and traffic flow will be improved.

Mitigation

In addition to restoration of the roadside vegetation and providing the appropriate erosion and sedimentation items, other mitigation items will be used as necessary. The salvaging or replacing of recently planted saplings will be included in the project.

Traffic will be maintained on the existing alignment throughout the construction period by using part width construction techniques. Access to all adjacent properties will be maintained during construction as not to disrupt businesses.

Based on a field investigation of the area and the information in this document, it is concurred that the Non-Major Action classification still applies at this date.

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