

# RELOCATION STUDY

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*Mt Pleasant*

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Relocation Study

of

U.S. 218

Mt Pleasant, Iowa

September 1960

Prepared by the

Traffic and Highway Planning Department

Division of Planning

Iowa State Highway Commission

In Cooperation With The

Bureau of Public Roads

Relocation Study of

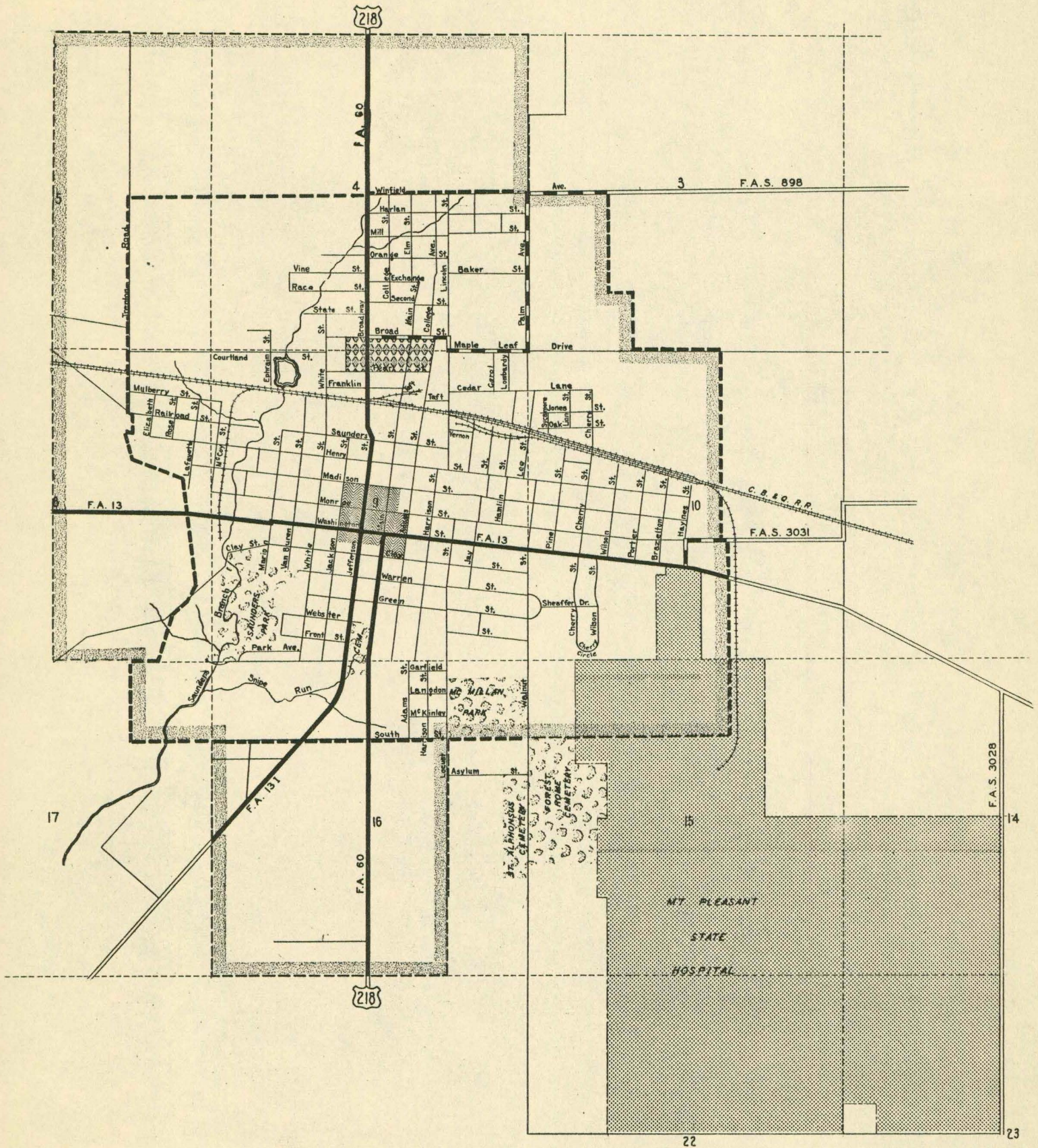
US 218

Mt Pleasant, Iowa

In recent years, with the increased demands being placed on the various highway facilities by all types of vehicles, there has been much effort placed on the modernization of the Primary Highway System and its many city extensions. In practically all cases the contemplated relocation must satisfy two basic requirements. On one hand all traffic with through movement desires must be served by an adequate facility capable of carrying the anticipated volumes at a reasonable amount of speed around the congested or built up area. On the other hand this same relocated facility must be close enough to the built up area and placed in the proper location so as to serve most economically the road users residing within the community. To fulfill both of these stipulations a thorough study must be made of the entire area to be effected by the improvement. All economic aspects must be considered; travel patterns and characteristics must be analyzed; and above all, it must be shown that the improvement will be of unquestioned benefit to the community.

Under the present circumstances it is considered a necessity that various proposals be studied for the rerouting of US 218 in Mt Pleasant, Iowa. As can be seen in Figure I, US 218 approaches Mt Pleasant from the north, enters the corporate area, proceeds southerly on Broadway, thus splitting the Iowa Wesleyan College campus, thence continuing south across the three track protected grade crossing of the CB & Q Railroad, thence angling southeast so as to follow Jefferson Street instead of Broadway to its intersection with Washington Street and US 34 in the center of Mt Pleasant on the southwest corner of the city square. From this intersection US 218 proceeds easterly for one block on Washington Street to the east junction of US 218 and US 34, thence southerly along Main Street and on out of the corporate limits. US 34 enters Mt Pleasant from the west, travels entirely along Washington

# FIGURE I MT PLEASANT, IOWA URBAN AREA



Street, passes on the south side of the city square, proceeds easterly to the corporation line and thence on out of the city limits. Iowa 133 presently enters Mt Pleasant from the southwest, travels northerly along Jefferson Street to its junction with Washington Street, US 34 and US 218, at the south-west corner of the city square, where Iowa 133 terminates.

In 1956 US 34 through the city of Mt Pleasant, from the west corporation line east, was widened to the following extent:

1. 0.48 miles widened to 44 feet
2. 0.07 miles widened to 48 feet
3. 0.03 miles widened to 52 feet

The above tabulation is complete to the west junction of US 218. The block between the east and west junction of US 218 and US 34 is 74 feet wide with a five inch barrier curb constructed for the protection of parked cars on the north side leaving 49 foot of roadway south of the barrier curb. From the east junction of US 218 eastward US 34 was modernized in 1956 as follows:

1. 0.07 miles widened to 52 feet
2. 0.85 miles widened to 44 feet
3. 0.01 miles widened to 34 feet
4. 0.17 miles widened to 24 feet

This completes the widening of US 34 to the east corporation line of the city of Mt Pleasant.

North of the north corporation line of Mt Pleasant US 218 was originally paved with 18' pavement in 1929. In 1957, except for three areas where the vertical and horizontal alignments were below modern standards, the existing 18' pavement was widened to 24' to the Washington County line. Later, in 1958, these above-mentioned below standard spots, only two of which are involved in any way with these proposals, were modernized and 24' pavement was placed, bringing this entire section

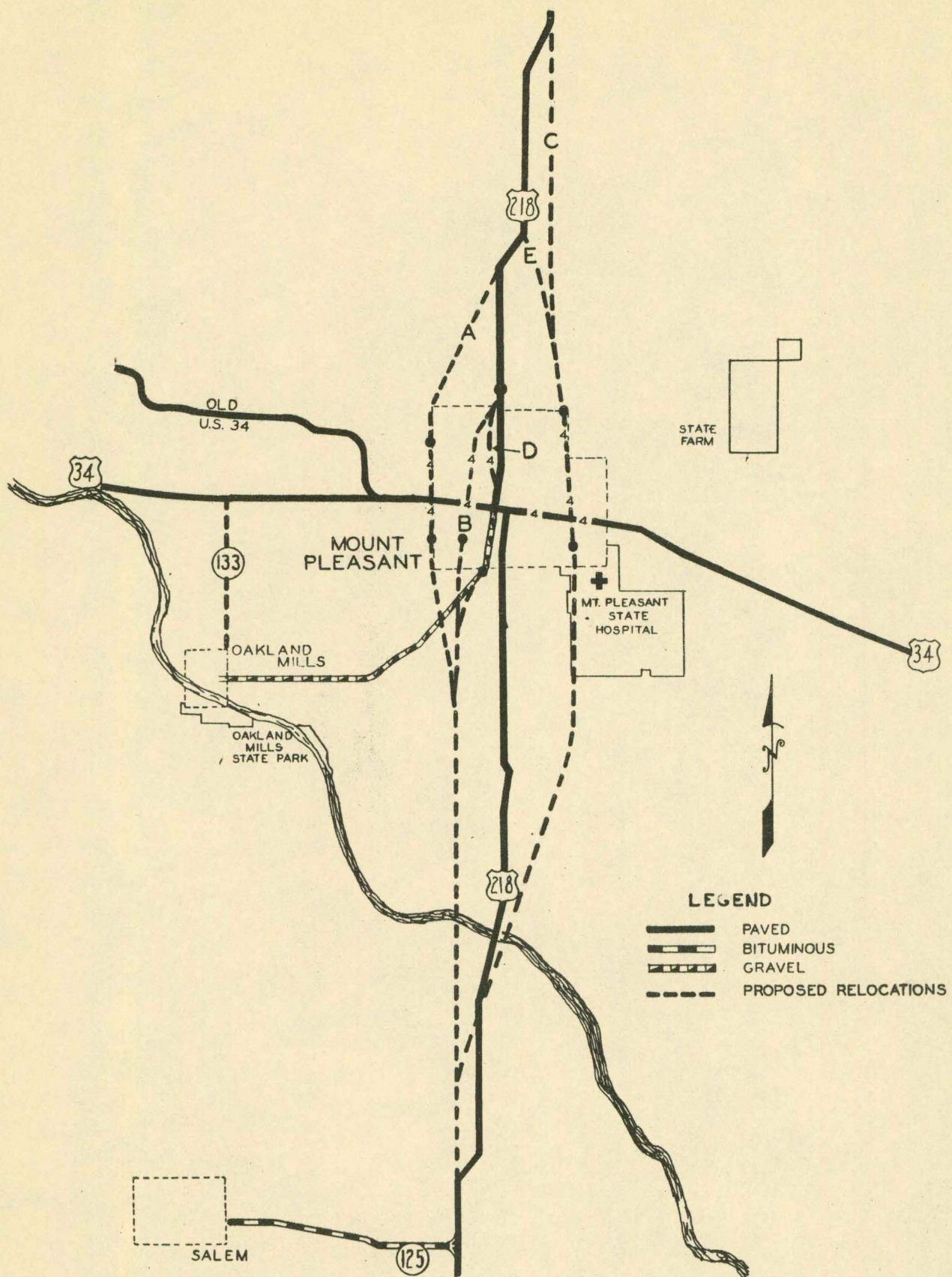
in Henry County up to present day requirements.

Figures II and III show the four proposed alternates and their relative locations in relationship to each other, to Mt Pleasant, and to the existing facilities. As can be seen, Alternates A, B, C, and E all have relative merit in as much as they tend to relieve the downtown congestion by skirting the outside fringes of the built up area. However Alternate D only tends to increase the city congestion by bringing the junction of US 218 and US 34 into the downtown area at the southwest corner of the city square. This not only brings all of the US 34 and US 218 turning movements to one downtown key intersection, but in addition aggravates the city parking problems which already exist around the city square, and which are especially critical in the vicinity of the intersections. In addition to this it is easy to see that Alternate D presents a very "chopped-up" horizontal alignment which does not blend in well with the over all city street pattern. Concurrently with this, it should be noted that the relocation of Iowa 133 is being effected. Presently this route enters Mt Pleasant as is shown on Figure I and terminates at the congested southwest corner of the city square. However, this route is presently being reconstructed on the location as shown on Figure II. In the road user analysis the majority of trips presently using Iowa 133 were brought in on US 34 west, with only a small portion of the present Iowa 133 traffic remaining on the existing gravel location. This will help to partially alleviate some of the downtown congestion.

| Table I<br>Construction and Road User Costs on US 218 Alternates<br>Mt Pleasant |        |         |            |              |           |                   |
|---|--------|---------|------------|--------------|-----------|-------------------|
| Alternate   | Length | R.O.W.  | Structures | Construction | Total     | Annual Road Users |
| A   | 13.82  | 260,500 | 562,801    | 1,358,633    | 2,181,934 | 2,928,399         |
| B   | 13.71  | 322,000 | 781,479    | 1,206,768    | 2,310,247 | 2,882,869         |
| C   | 13.88  | 327,000 | 819,537    | 1,568,296    | 2,714,833 | 2,896,414         |
| D   | 13.81  | 330,500 | 721,515    | 1,215,820    | 2,267,835 | 2,924,066         |
| E   | 14.00  | 311,150 | 764,382    | 1,415,126    | 2,490,658 | 2,832,597         |

Table I above, presents the construction and road user costs on the alternate

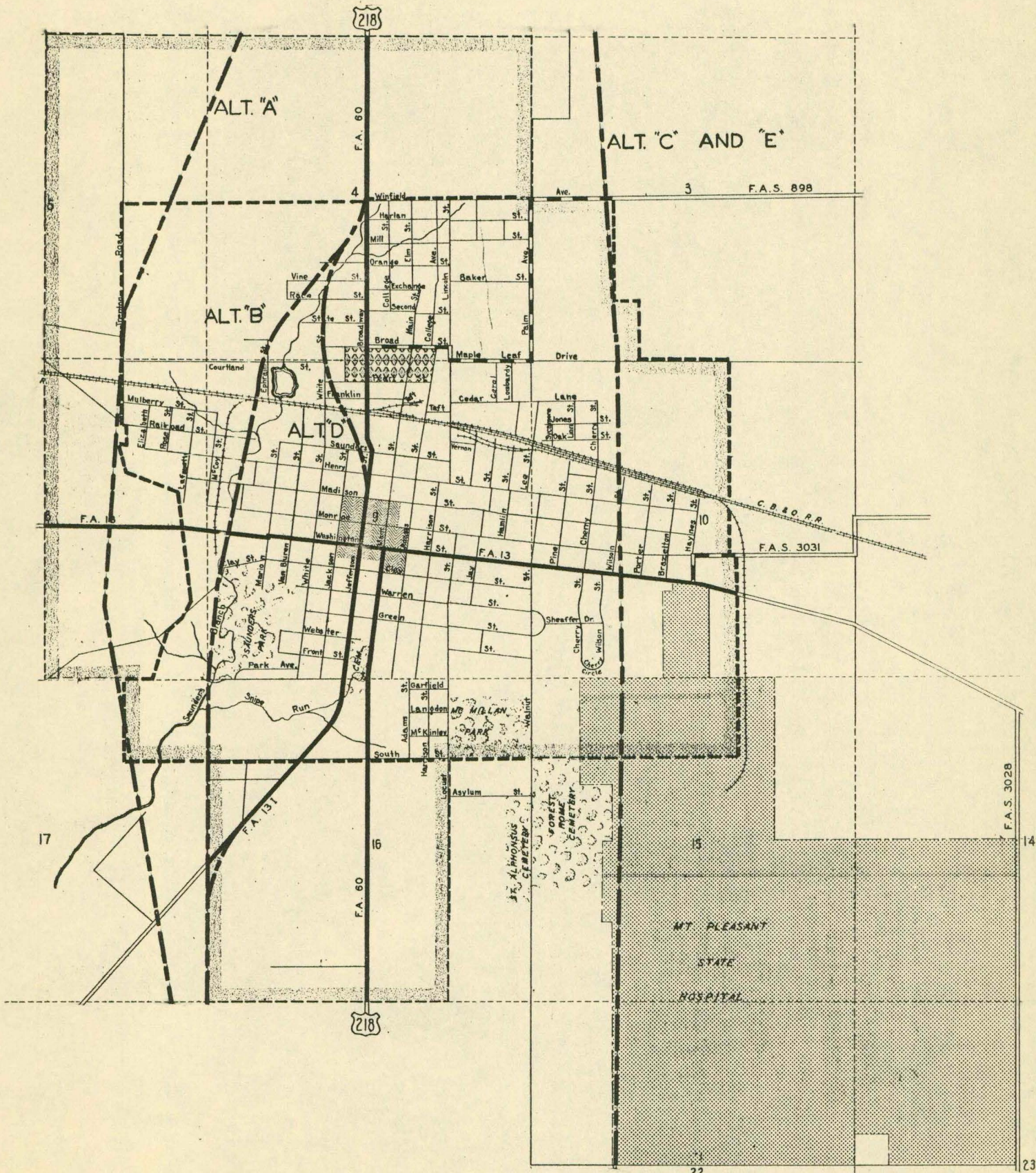
FIGURE II



PROPOSED ALTERNATES  
U.S. 218  
MT PLEASANT, IOWA



**FIGURE III**  
**MT PLEASANT, IOWA**  
**URBAN AREA**  
**PROPOSED ALTERNATES**



locations of US 218 in and around Mt Pleasant. All alternates are to be of modern design, four lane 49 foot back to back construction within the built up areas of Mt Pleasant, the locations of which are shown on Figure II. From the above Table it is seen that Alternate E represents the lowest road user costs of all of the five alternates presented, and more than adequately aides in justifying the total construction cost figure of \$2,490,658, which is approximately \$308,000 more than the construction cost for Alternate A, the cheapest of the five alternates to build. However, Alternate A, even with the lowest construction cost of all alternates has a horizontal alignment such that it does not attract a sufficient number of road users, and many of the ones which are attracted are taken out of their way, thus accounting for Alternate A having the highest annual road user cost of the various alternates. This additional expense to the road users of Alternate A, when compared to the road user costs of Alternate E, amounts to over \$95,000 per year which would more than pay for the additional construction costs of Alternate E in slightly more than three years. These above facts very clearly preclude the idea of Alternate A being more favorable than Alternate E.

In considering Alternate B it is necessary to note that its construction costs and the road user costs are both closer to the figures of Alternate E than any of the other alternates. The road user realizes the most substantial savings when traveling over either of these routes as compared to the other alternates or the present route. However, when traveling on Alternate E the road user would save an additional \$50,000 annually over traveling on Alternate B. These additional savings, in slightly more than three and one-half years, would pay for the increased cost of \$180,000 of Alternate E over Alternate B. Of all the alternates, B compares the most favorably with Alternate E, but as is shown above the road users would definitely accrue the greatest number of benefits through the use of Alternate E. Just assuming a facility life expectancy of 20 years, the road users of Alternate E

would save over \$800,000 after subtracting its additional construction cost paid for by the first three and one-half years savings. These figures very much substantiate the construction of Alternate E instead of the second closest choice, Alternate B.

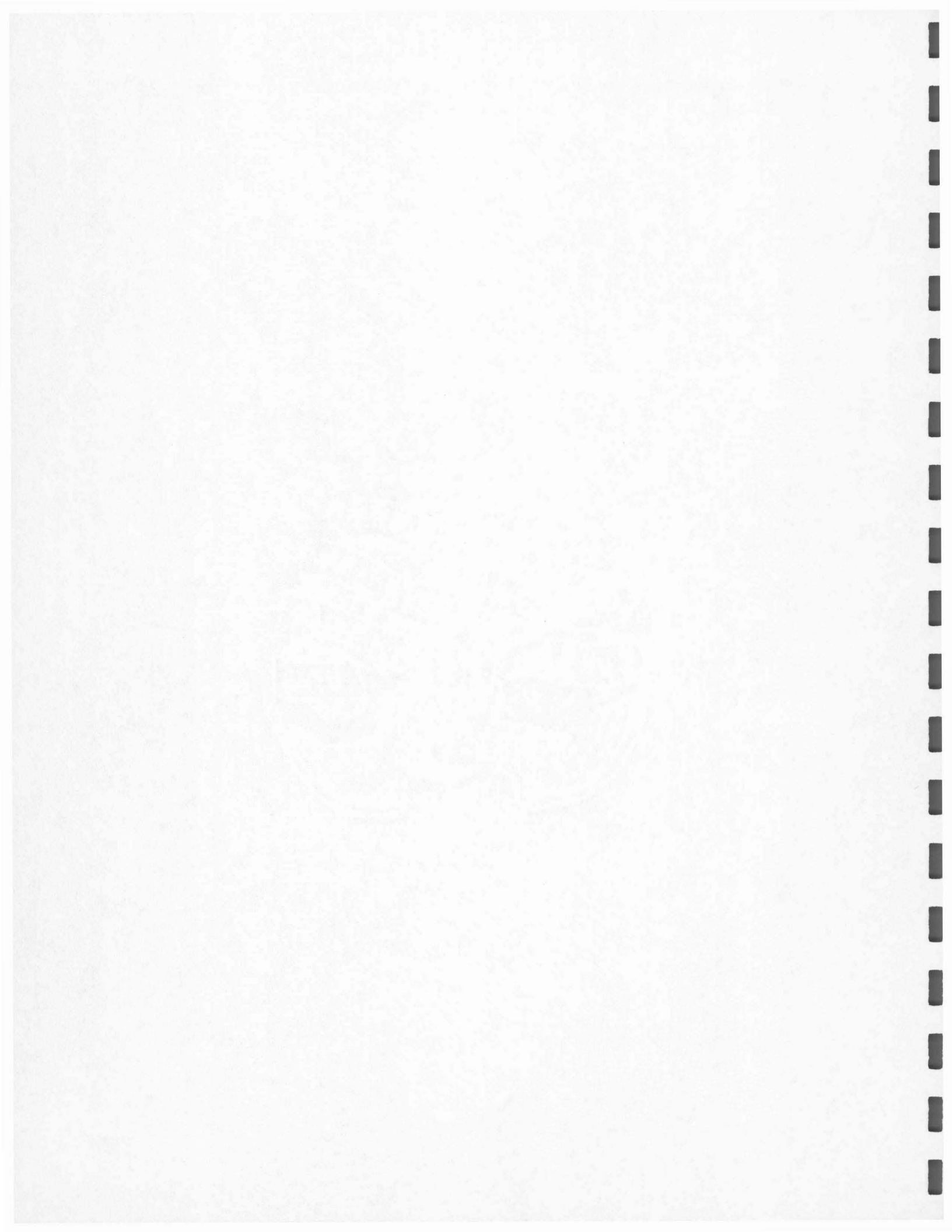
Referring back to Figure II it can be seen that the alignment of Alternates C and E are identical up to the north three miles of the relocation. In just this short distance the construction cost of Alternate C exceeds that of Alternate E by \$224,000, and due to the diversion of traffic even the road user costs of Alternate C exceed the road user costs of Alternate E by over \$63,000 per year. Just by straight comparison it is plain to see that Alternate C is not as favorable as Alternate E as shown by its additional road user and construction costs.

In considering the costs in Table I it is well to note that on Alternate D a high portion of the road user costs are due to the restrictive speeds through the city area and the numerous stops caused by the signalized intersections. These increased road user costs are reflected by the lower construction costs of this alternate and the fact that some of the downtown route would remain just as it is today. This accounts for the road user costs of Alternate D being \$91,000 per year higher than the road user costs for Alternate E. This savings pays for the additional construction cost of Alternate E over D in less than two and one-half years. This fact in addition to the numerous above explained problems encountered with Alternate D reject it from further examination.

The previous qualifications logically eliminate all alternates from consideration with the exception of Alternate E. This routing will provide the quickest and most economical path of travel for the greatest number of people. It will provide a four lane facility for all trips with through desires and definitely benefits the high north to east through trip turning movement. In addition to this, it serves more adequately than any of the other alternates the internal trips, the majority of which are destined for the central and east central parts of the city. Out of

a total of 4,770 trips with origins or destinations in Mt Pleasant 1,654 are in the central business district, 994 are west of present US 218 and 2,122 are east of present US 218. These above facts serve to satisfy the basic requirements of an adequate facility in its proper location, which is an accurate description of Alternate E.

In conclusion, it is beyond question that an improvement of US 218 is a very prime necessity. Alternate A presents one solution to the problem but has a tendency to pull all traffic out of its way, with the exception of those vehicles making north or south turns to or from the west. Alternate B approaches the solution much closer than Alternate A, but still does not serve properly the road users having destinations in Mt Pleasant, the majority of who are destined for the central or easterly portion of the city. Alternate D, as has already been pointed out, only adds to the congestion already existing in the central business district by maintaining all traffic on its through city course. In addition to this, when any city route construction is done consideration should be given to the city traffic and the city streets which will be disrupted by detour traffic. These facts, even though they are not included in this report on a dollars and cents basis are very important facets when considering reconstruction on city streets. This leaves Alternates C and E, both which adequately satisfy the two basic requirements. Either alternate will serve the existing and anticipated volumes very well and both cases lend themselves easily to stage construction south of Mt Pleasant. This is definitely another positive point for an east relocation when considering the immediate elimination of the two hazardous curves and the narrow 18 foot paving on present US 218 just south of the Skunk River. However, Alternate E has a lower construction cost and a lower road user cost than Alternate C, both of which indicate that Alternate E would be the better location of the two for the rerouting of US 218.



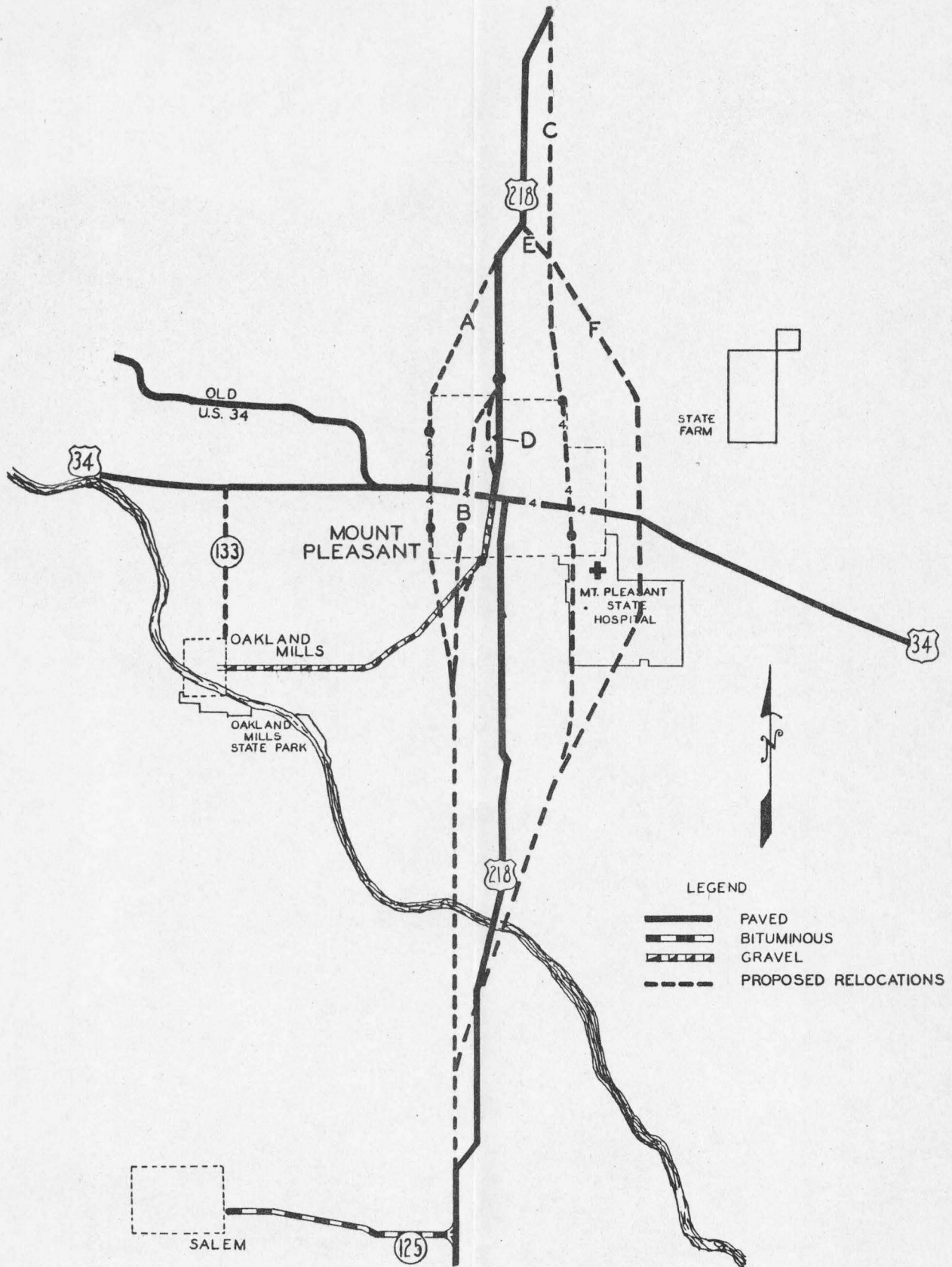
ANNUAL ROAD USER COSTS

MT PLEASANT, IOWA

SEPT. 1960

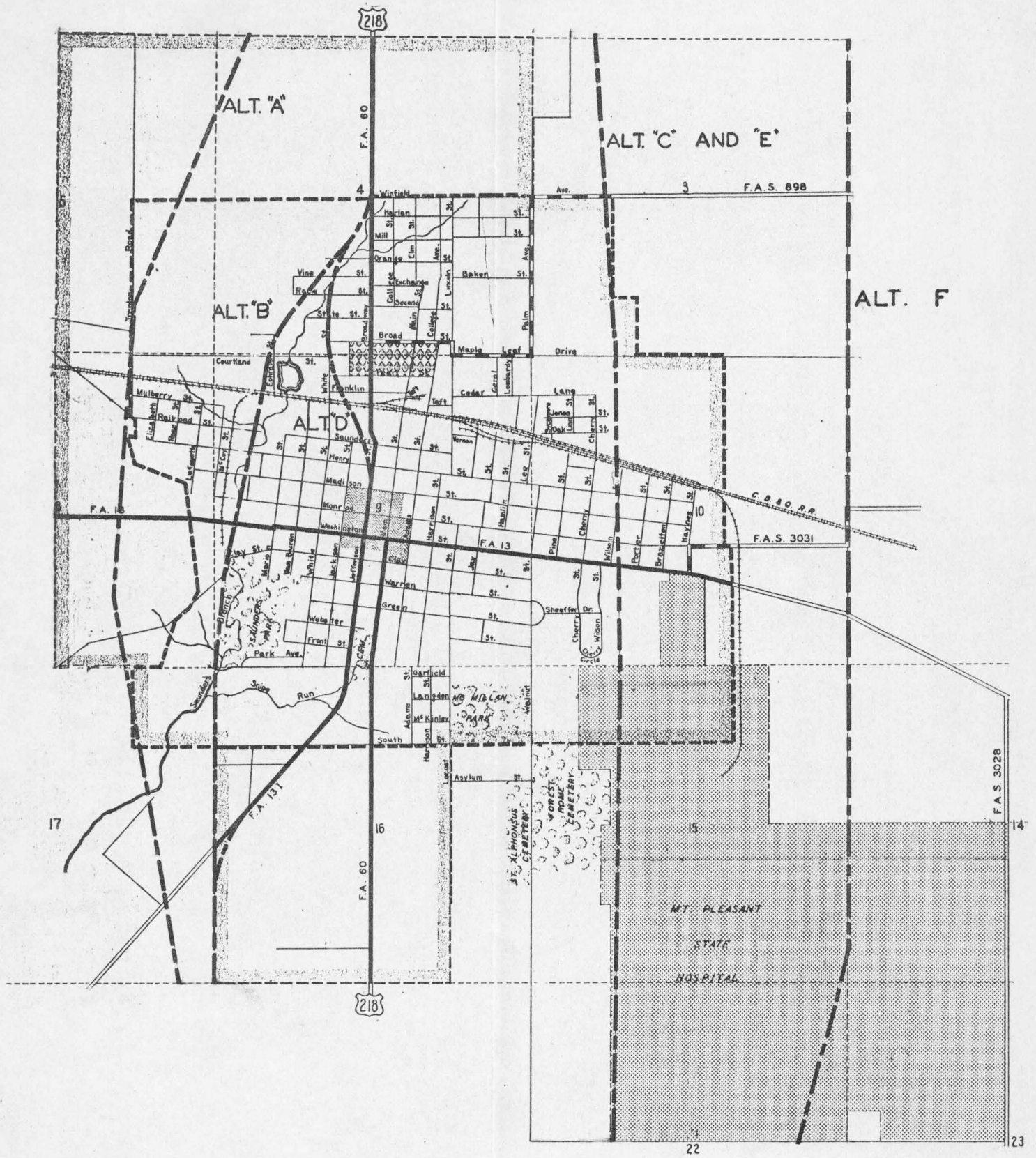
|                         |                          |
|-------------------------|--------------------------|
| Present Route . . . . . | .\$3,061,372             |
| Alt A . . . . .         | .\$2,928,399             |
| Alt B . . . . .         | .\$2,882,869             |
| Alt C . . . . .         | .\$2,896,414             |
| Alt D . . . . .         | .\$2,924,066             |
| Alt E . . . . .         | .\$2,832,597             |
| Alt F . . . . .         | .\$2,938,549 (Nov. 1960) |

FIGURE II



PROPOSED ALTERNATES  
U.S. 218  
MT PLEASANT, IOWA

FIGURE III



MT PLEASANT, IOWA  
URBAN AREA  
PROPOSED ALTERNATES



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