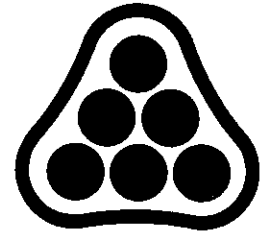
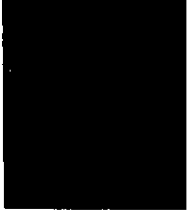


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**FAIRFIELD TRAFFIC STUDY**

**32 - 84610 - 1540**

**JULY , 1985**

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I. INTRODUCTION

This traffic study represents an analysis of the impact of developing the southwest quadrant of the intersection of 13th Street North and Rock Road. The proposed development contains approximately 161.3 acres which will be developed into commercial, office, multi-family, and single-family residential uses.

II. SCOPE

This report contains trip generation computations based upon the size and type of the proposed development. Also included is a trip distribution analysis based upon existing traffic desire lines. Capacity analysis of the major entrances and for the intersection of 13th and Rock Road are presented for the P.M. peak period.

III. TRIP GENERATION

Tables 1A and 1B show the number of trip ends to be expected due to this various types of development. The generation rates were obtained from the Institute of Transportation Engineers' publication "Trip Generation," 19th Edition.

IV. TRIP DISTRIBUTION

Tables 2A and 2B show the predicted entrance volumes for the A.M. and P.M. peak periods respectively. These volumes were used to predict the impact at 13th and Rock by adding them to existing volumes obtained in 1982. Figure 1 illustrates the existing volumes, the increase, and the projected volumes. It is of note that these

predicted volumes closely correlate to those predicted for the 13th Street and Rock Road improvement.

V. CAPACITY ANALYSIS

The capacity analysis shows the anticipated levels of service during the P.M. peak for the major entrances and for 13th and Rock. Table 3 is a summary of the predicted levels of service.

The analysis indicates the right-turn deceleration lanes at the major entrances would improve the overall level of service and operating characteristics of selected movements. Also indicated is the potential benefit of a right-turn lane in the southwest quadrant of 13th and Rock. Although this would enhance the operation of the intersection, it would cause additional delays to traffic exiting the site onto Rock Road as well as those entering the site from the south. This would occur as a result of the large right-turn volume "filling" the gaps created by the signal. In other words, there would be no phase in the signal cycle when traffic from the north is prohibited.

VI. CONCLUSIONS

The projected traffic volumes due to development closely correlate to those predicted in the design of the 13th Street and Rock Road improvement. The latter was designed to provide a level of Service A.

The entrance operating levels of service indicate no significant congestion except for the left-out movements. This condition is somewhat improved by the signal at 13th and Rock.

TABLE 1A

A.M. PEAK HOUR  
TRIP GENERATION ANALYSIS - HARTMOOR FARMS

| PARCEL | LAND USE      | SIZE    |        | AVE. A.M. PEAK HOUR<br>TRIP GENERATION RATES |      | TRIP/HR |     |
|--------|---------------|---------|--------|--|------|---------|-----|
|        |               |         |        | IN   | OUT  | IN      | OUT |
| 1      | APARTMENTS    | 324     | D.U.   | 0.1  | 0.4  | 32      | 130 |
| 2      | APARTMENTS    | 294     | D.U.   | 0.1  | 0.4  | 29      | 118 |
| 3      | LIGHT COMM.   | 304,400 | G.S.F. | N/A  | N/A  | 0       | 0   |
| 4      | OFFICE        | 155,000 | G.S.F. | 1.86   | 0.35 | 288     | 54  |
| 5      | APARTMENTS    | 247     | D.U.   | 0.1  | 0.4  | 25      | 99  |
| 6      | TOWNHOUSES    | 64      | D.U.   | 0.1  | 0.5  | 6       | 32  |
| 7A     | SINGLE FAMILY | 101     | D.U.   | 0.3  | 0.6  | 30      | 61  |
| 7B     | SINGLE FAMILY | 91      | D.U.   | 0.3  | 0.6  | 27      | 55  |

TABLE 1B:

P.M. PEAK HOUR  
TRIP GENERATION ANALYSIS - HARTMOOR FARMS

| PARCEL | LAND USE      | SIZE    |        | AVE. P.M. PEAK HOUR<br>TRIP GENERATION RATES |      | TRIP/HR |     |
|--------|---------------|---------|--------|--|------|---------|-----|
|        |               |         |        | IN   | OUT  | IN      | OUT |
| 1      | APARTMENTS    | 324     | D.U.   | 0.4  | 0.2  | 130     | 65  |
| 2      | APARTMENTS    | 294     | D.U.   | 0.4  | 0.2  | 118     | 59  |
| 3      | LIGHT COMM.   | 304,400 | G.S.F. | 2.1  | 2.3  | 639     | 700 |
| 4      | OFFICE        | 155,000 | G.S.F. | 0.27   | 1.36 | 42      | 211 |
| 5      | APARTMENTS    | 247     | D.U.   | 0.4  | 0.2  | 99      | 49  |
| 6      | TOWNHOUSES    | 64      | D.U.   | 0.4  | 0.2  | 26      | 13  |
| 7A     | SINGLE FAMILY | 101     | D.U.   | 0.7  | 0.4  | 71      | 40  |
| 7B     | SINGLE FAMILY | 91      | D.U.   | 0.7  | 0.4  | 64      | 36  |

TABLE 2A

A.M. PEAK HOUR  
TRIP DISTRIBUTION ANALYSIS - HARTMOOR FARMS

| ENTRANCE  | PARCEL   | %   | SPLIT | TRIPS |     | VOLUMES |       |        |        |
|-----------|----------|-----|-------|-------|-----|---------|-------|--------|--------|
|           |          |     |       | IN    | OUT | IN-LT   | IN-RT | OUT-LT | OUT-RT |
| 1-1       | 1        | 25  | 70 30 | 32    | 130 | 2       | 6     | 23     | 10     |
| 1-2       | 1        | 75  | 70 30 |       |     | 17      | 7     | 29     | 68     |
| 2-1       | 2        | 25  | 70 30 | 29    | 118 | 2       | 5     | 21     | 9      |
| 2-2       | 2        | 75  | 30 70 |       |     | 7       | 15    | 62     | 26     |
| 3-1       | 3        | 20  | 70 30 | 0     | 0   | 0       | 0     | 0      | 0      |
| 3-2       | 3        | 20  | 70 30 |       |     | 0       | 0     | 0      | 0      |
| 3-3       | 3        | 40  | 20 80 |       |     | 0       | 0     | 0      | 0      |
| 3-4       | 3        | 20  | 20 80 |       |     | 0       | 0     | 0      | 0      |
| 4-1       | 4        | 50  | 30 70 | 288   | 54  | 101     | 43    | 8      | 19     |
| 4-2       | 4        | 50  | 70 30 |       |     | 101     | 43    | 8      | 19     |
| 5-1       | 5        | 100 | 30 70 | 25    | 99  | 17      | 7     | 30     | 69     |
| 6-1       | 6        | 100 | 30 70 | 6     | 32  | 4       | 2     | 10     | 22     |
| TALLYRAND | 7A       | 80  | 70 30 | 30    | 61  | 7       | 17    | 34     | 15     |
| TENTH     | 7A       | 5   | N/A   |       |     | 2       | 0     | 3      | 0      |
| FOSTER    | 7A       | 10  | N/A   |       |     | 3       | 0     | 6      | 0      |
| BEACHY    | 7A       | 5   | N/A   |       |     | 2       | 0     | 3      | 0      |
| ONEIDA    | 7B       | 33  | 10 90 | 27    | 55  | 8       | 1     | 2      | 16     |
| MAGILL    | 7B       | 67  | 50 50 |       |     | 9       | 9     | 18     | 18     |
| BROADMOOR | 1,2,4,7B | N/A | 70 30 | 124   | 93  | 37      | 87    | 65     | 28     |
| FAIRFIELD | 1,2,4,7B | N/A | 30 70 | 85    | 117 | 59      | 25    | 35     | 82     |

TABLE 2B ;

P.M. PEAK HOUR  
TRIP DISTRIBUTION ANALYSIS - HARTMOOR FARMS

| ENTRANCE  | PARCEL   | %   | SPLIT | TRIPS |     | VOLUMES |       |        |        |
|-----------|----------|-----|-------|-------|-----|---------|-------|--------|--------|
|           |          |     |       | IN    | OUT | IN-LT   | IN-RT | OUT-LT | OUT-RT |
| 1-1       | 1        | 25  | 70 30 | 130   | 65  | 10      | 23    | 11     | 5      |
| 1-2       | 1        | 75  | 70 30 |       |     | 68      | 29    | 15     | 34     |
| 2-1       | 2        | 25  | 70 30 | 118   | 59  | 9       | 21    | 10     | 4      |
| 2-2       | 2        | 75  | 30 70 |       |     | 26      | 62    | 31     | 13     |
| 3-1       | 3        | 20  | 70 30 | 639   | 700 | 38      | 89    | 98     | 42     |
| 3-2       | 3        | 20  | 70 30 |       |     | 38      | 89    | 98     | 42     |
| 3-3       | 3        | 40  | 20 80 |       |     | 205     | 51    | 56     | 224    |
| 3-4       | 3        | 20  | 20 80 |       |     | 102     | 26    | 28     | 112    |
| 4-1       | 4        | 50  | 30 70 | 42    | 211 | 15      | 6     | 32     | 74     |
| 4-2       | 4        | 50  | 70 30 |       |     | 15      | 6     | 32     | 74     |
| 5-1       | 5        | 100 | 30 70 | 99    | 49  | 69      | 30    | 15     | 35     |
| 6-1       | 6        | 100 | 30 70 | 26    | 13  | 18      | 8     | 4      | 9      |
| TALLYRAND | 7A       | 80  | 70 30 | 71    | 40  | 17      | 40    | 23     | 10     |
| TENTH     | 7A       | 5   | N/A   |       |     | 4       | 0     | 2      | 0      |
| FOSTER    | 7A       | 10  | N/A   |       |     | 7       | 0     | 4      | 0      |
| BEACHY    | 7A       | 5   | N/A   |       |     | 4       | 0     | 2      | 0      |
| ONEIDA    | 7B       | 33  | 10 90 | 64    | 36  | 19      | 2     | 1      | 11     |
| MAGILL    | 7B       | 67  | 50 50 |       |     | 21      | 21    | 12     | 12     |
| BROADMOOR | 1,2,4,7B | N/A | 70 30 | 92    | 114 | 27      | 64    | 80     | 34     |
| FAIRFIELD | 1,2,4,7B | N/A | 30 70 | 157   | 89  | 110     | 47    | 27     | 62     |

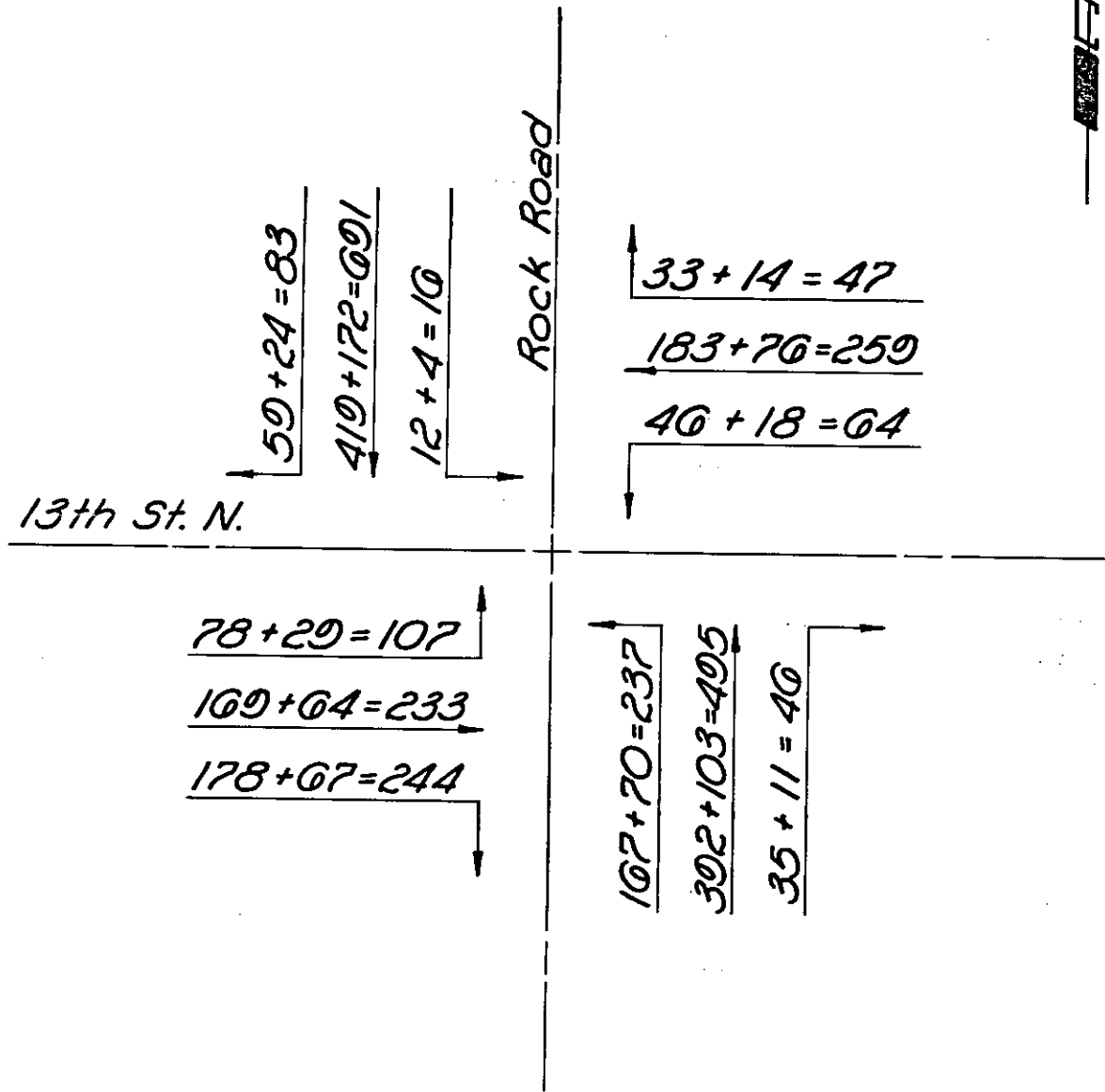


FIGURE I - EXISTING P.M. PEAK PLUS  
P.M. PEAK FROM DEVELOPMENT

TABLE 3  
CAPACITY ANALYSIS SUMMARY

| LOCATION    | LEVEL OF SERVICE MOVEMENTS |     |    | REMARKS  |
|-------------|----------------------------|-----|----|--|
|             | Cr                         | B1  | C1 |  |
| Ent. 3-1    | A                          | A   | E* | * Assumes no benefit from signal at 13th & Rock  |
| Ent. 3-2    | A                          | A   | E* | * Assumes no benefit from signal at 13th & Rock  |
| Ent. 3-3    | D                          | C   | E# | # Assumes no right turn decel. lane  |
| Fairfield   | B                          | A   | E* | * Assumes no benefit from signal at 13th & Rock  |
| Braodmoor   | A                          | A   | D# | # Assumes no right turn decel. lane  |
| 13th & Rock | -                          | A11 | -  | - An overall level of service A is expected with a right turn lane provided for the west to south movement. Level of service A or B is expected with no turn lane. See text for additional comments. |