

# FIRE PROTECTION

A STUDY OF FIRE  
STATION LOCATIONS  
FOR THE CITY OF  
RALEIGH · N · C ·



DEPT. OF PLANNING  
AUGUST 1956

FIRE PROTECTION

A STUDY OF FIRE STATION LOCATIONS AND EQUIPMENT

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## SUMMARY OF STUDY

1. Past studies have been made of fire station facilities. This publication compiles recommendations for easy reference.
2. Many improvements in fire protection have taken place in the past few years. Further improvements must take place to meet the demands of Raleigh's growth. (Page 1)
3. A comprehensive plan of fire station locations is a necessary prerequisite in assuring a reasonable and progressive expansion of fire coverage to areas of new growth. This plan must be based on reasonable standards assuring adequate coverage to both high intensity areas and to residential areas, at a minimum cost. (Pages 2-4)
4. The proposed plan for station locations recommends continued use and maintenance of four of the city's existing stations, relocation of Station # 2 and Station # 4 and construction of ten new stations before 1970. A development priority schedule is included in the recommendations. (Pages 5-8)
5. The plan also includes recommendations concerning special fire department facilities. It is recommended that aerial ladder trucks be located at several of the proposed stations, that major repair facilities be developed in the building now occupied by Station # 2 (Municipal Auditorium) after relocation of the station, and that classroom training facilities be developed near the site of the fire department training tower.
6. An inventory of existing fire stations and equipment is summarized in the latter part of the study.

## FIRE STATION LOCATION STUDY

### Introduction

Various studies of fire station locations and facilities have been prepared during the past few years. This publication is an attempt to compile and expand this information into a useable form which should aid in planning adequate fire protection facilities.

### The Situation and Scope

Many improvements have been made in fire department facilities during the past ten years. Three of the present six stations were built and equipped, and another station is to be completed within a year. In order to keep up with the growing Raleigh community, plans for additional facilities must be made in advance of development so that good locations may be acquired at reasonable costs.

A high level of fire protection is dependent upon programs of fire prevention and training as well as physical facilities. These programs have been initiated by the fire department and are being expanded as manpower and facilities become available. This study includes only physical facilities, not these administrative programs.

## PLANNING STATION LOCATIONS

Major Considerations Planning fire station locations is different from the planning of other public improvements in at least one important respect: the best number of stations to serve a city is the minimum number which will adequately serve the area. Unlike parks or streets, the original cost of the fire station site and building is a relatively small part of the total cost of operating the facility throughout the years. Therefore, selection of the best location to adequately serve the largest area possible is of great importance. The choice of a second best site because of lower land costs is, in the long run, a false economy.

The location and construction programming of the fire stations is dependent upon the rate of population growth, the expected direction of residential development, major thoroughfare plans, and present and planned location of commercial and industrial areas in the city. Each of these factors must be taken into consideration in planning for station location.

Determination of Service Areas The area of the city which one fire station can adequately serve varies with the pattern and intensity of land use, the density of residential development, the quality of structure, the frequency of fire loss, and thoroughfare pattern of the area in which the station is located.

In general, all high value areas of the city and all places where a major fire would be of special danger should be within  $\frac{3}{4}$  of a mile, street running distance, from a fire station. The areas which need this intensive protection include industrial districts, major commercial areas, high density apartment areas, hospitals and dormitories. Any of these high value or danger areas in which buildings of over two stories in height are built should also be within one mile of a ladder company.

In medium and low density residential areas, fire stations can cover an area of  $1\frac{1}{2}$  miles running distance.

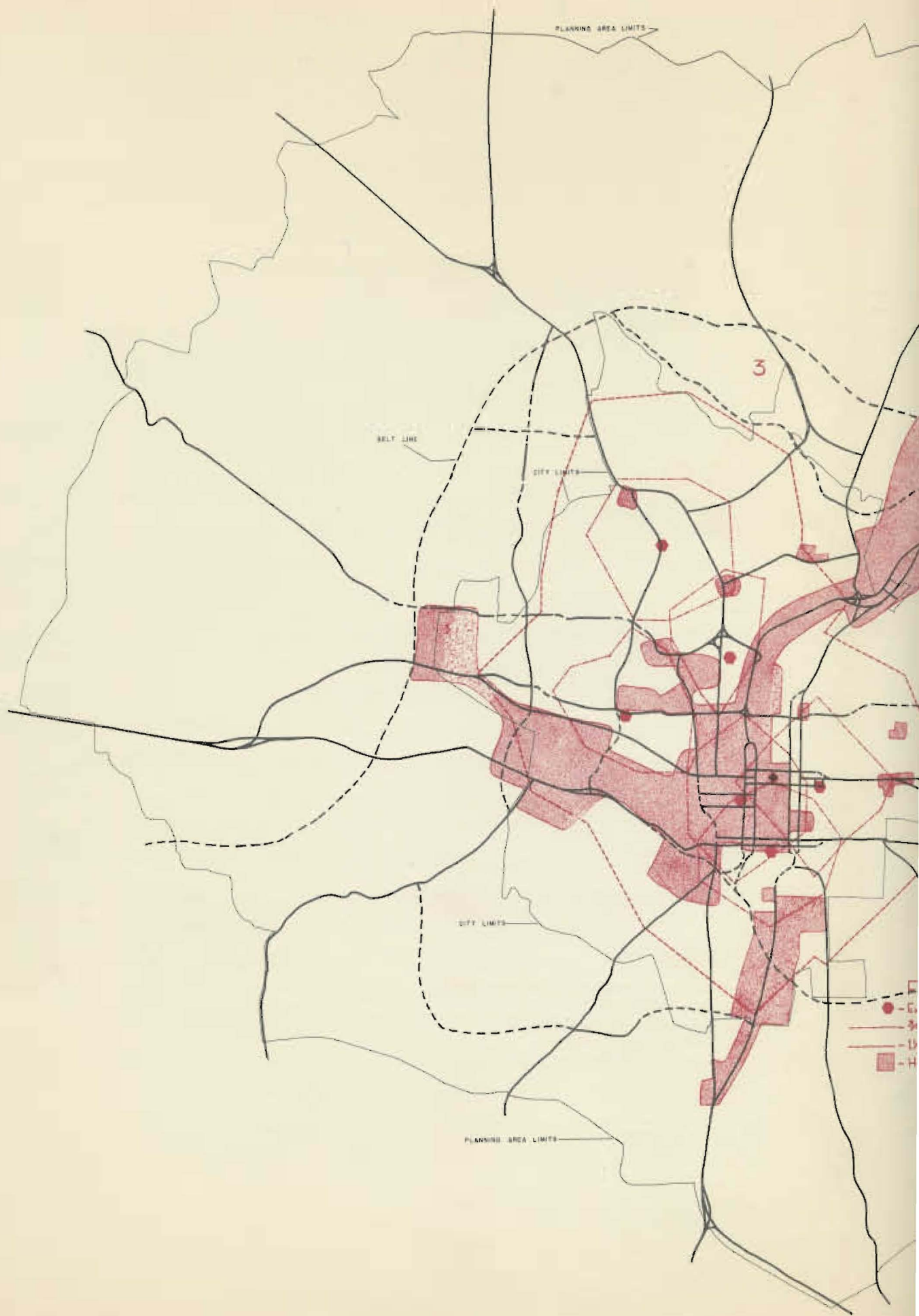






Illustration 1 shows the location of areas in Raleigh which need intensive fire protection and the  $\frac{3}{4}$  and  $1\frac{1}{2}$  mile service areas of existing fire stations.

Standards of site selection After review of existing station locations and their present service areas and determination of the parts of the city which now need or will soon need coverage, locations for new stations can be chosen. The choice must be based on certain specifications.

General Specifications:

1. Determination of area to be served
2. Location of station and delineation of service area with a minimum overlapping of service areas of other stations
3. Choice of site which will provide full coverage to the entire service area when fully developed, but will initially provide intensive protection to the part of the area developed when the station is built
4. Location near, but not necessarily in, any high value or danger area within the overall area to be covered

Thoroughfare Considerations:

1. Close to or on major thoroughfares, but not located directly at a potential congested area
2. Easy access to arterial streets with no topographical barriers or necessary detours to hinder rapid coverage of service area
3. Located adjacent to high density or commercial areas where normal street activity is greater than that occurring in low density residential areas
4. Located on a wide, two-way street
5. Not on the near side of a traffic light unless access from two directions

Lot Requirements:

1. Sufficient in size to allow adequate space for building, parking, and recreational space: approximately 150' by 150' for a two company station, with 25' width added for a three company station
2. Good sight distance on street or streets where engine will enter
3. Location where building can be placed on lot so that equipment can be driven through front or back
4. Located, if possible, on a site which can be partially developed as park area for both the surrounding neighborhood and use by the firemen living at the station.

PLAN FOR STATION LOCATIONS IN THE RALEIGH AREA

Proposed fire station locations are shown in the following illustrations. Illustration 2 shows the location of high value or danger areas in the city and the 3/4 mile or intensive coverage areas of the proposed fire station plan. Illustration 3 shows the 1 1/2 mile service areas or residential coverage provided in the plan.

The plan is based on the assumption that Raleigh's present annexation policy will be implemented and adjacent, outlying areas will be annexed to the city as they develop.

The twelve new and relocated stations proposed should be built by 1970 to provide adequate protection to the city. The two proposed station relocations and the first two stations on the priority list should be begun by 1960 in order to provide standard coverage to existing development. The remaining stations should be scheduled for completion between 1960 and 1970. All sites should be purchased as soon as possible (within the next two years) to reserve desirable station locations.

Continued Use

Raleigh now has six fire stations. Four of these stations are well located and the buildings, with sound maintenance and protection, should be adequate for at least 25 years' service. Several of these stations presently need renovation or expansion; specific recommendations for improvements are included in the Appendix.

The following stations are recommended for continued use and maintenance:

Station # 1 - 220 South Dawson

Station # 5 - Oberlin and Park Drive

Station # 3 - Morgan and East Streets

Station # 6 - Oberlin and Fairview

Relocation

Relocation of two stations is recommended because growth patterns have caused an overlapping of service areas and changes in design trends have made the existing facilities outmoded and changes uneconomical.

Station # 2, now at the Municipal Auditorium, could be better located for service to the Industrial area on South Wilmington and much of its service area duplicates the areas of Station # 1 and # 3. Also, the site does not offer desirable recreation space for firemen living at the station. The South Wilmington industrial area and large residential areas, including Hertford Village and Carolina Pines which will inevitably require fire protection, would be better served by a relocated station. It is recommended that Station

# 2 be relocated to a site on the West side of South Wilmington, South of Walnut Creek. After completion of the belt line, the station would have good access to other parts of the city.

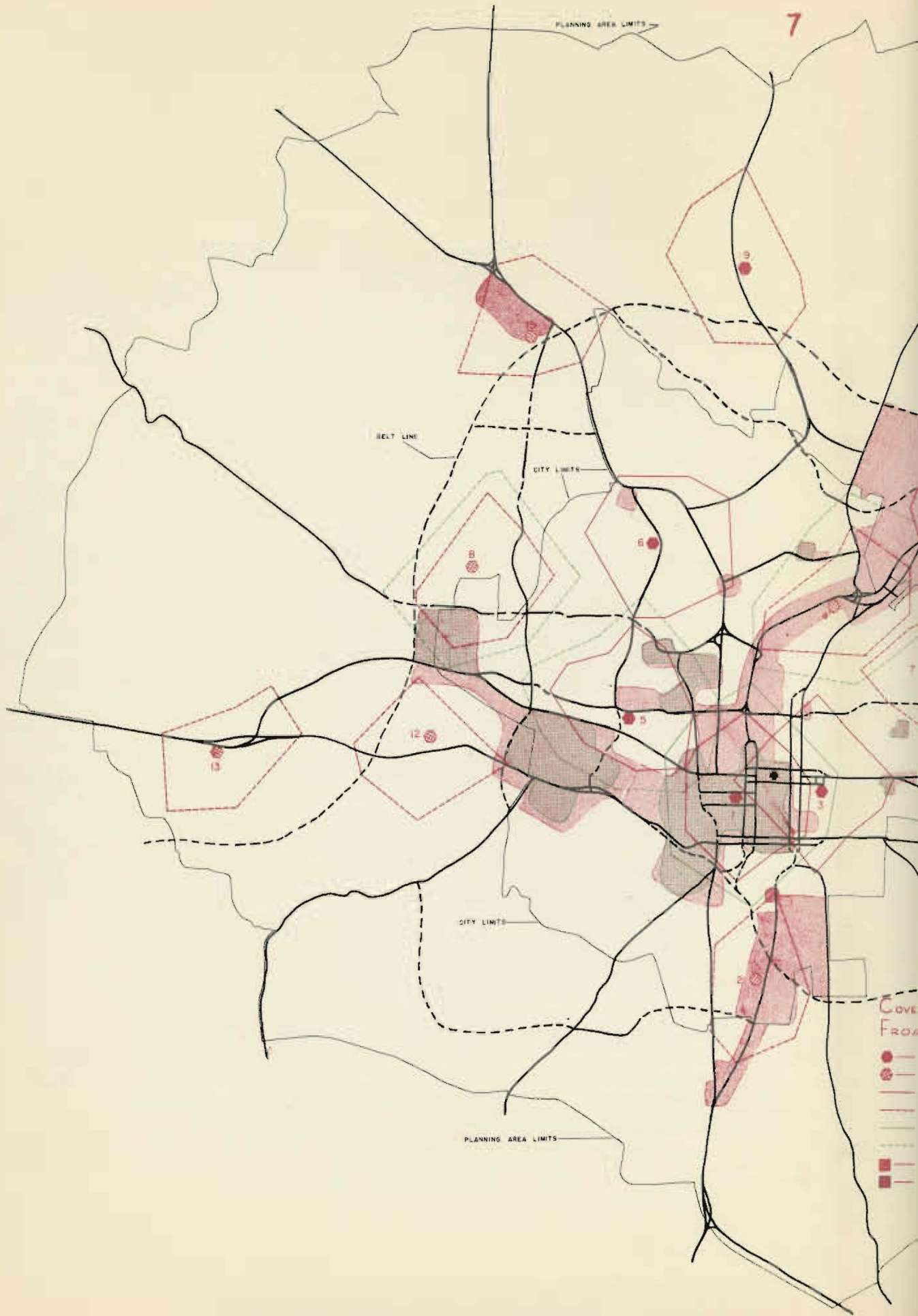
Station # 4, now at Jefferson and Filmore could be better located on the now completed Downtown Boulevard. Due to the opening of this new traffic artery, new high-value areas have been created and access from the present location is inconvenient. Better coverage is now needed for this Boulevard industrial area and for residential areas north of the service area of present Station # 4.

It is recommended that Station # 4 be relocated to the East Side of Downtown Boulevard, south of the Wake Forest Road Interchange.

#### New Stations

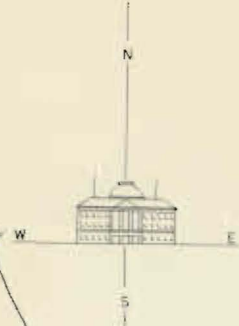
Ten new stations are recommended for construction before 1970. They are listed below in order of priority. The site for Station # 7 in Lockwood is owned by the city and construction of the station is scheduled for fall, 1958.

- Station # 7 - Raleigh Boulevard (proposed) and Glascock
- Station # 8 - Ridge Road at Churchill Road
- Station # 9 - Six Forks Road, north of Farrior Hills
- Station #10 - Highway 1 and Beltline
- Station #11 - Highway 64 and Beltline
- Station #12 - Western Boulevard and Method Road
- Station #13 - Western Boulevard and Asbury Drive
- Station #14 - Poole Road at Worthdale Subdivision
- Station #15 - Blue Ridge Road south of Highway 70
- Station #16 - Wake Forest Road south of Millbrook



PLANNING AREA LIMITS

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CITY LIMITS

CITY LIMITS

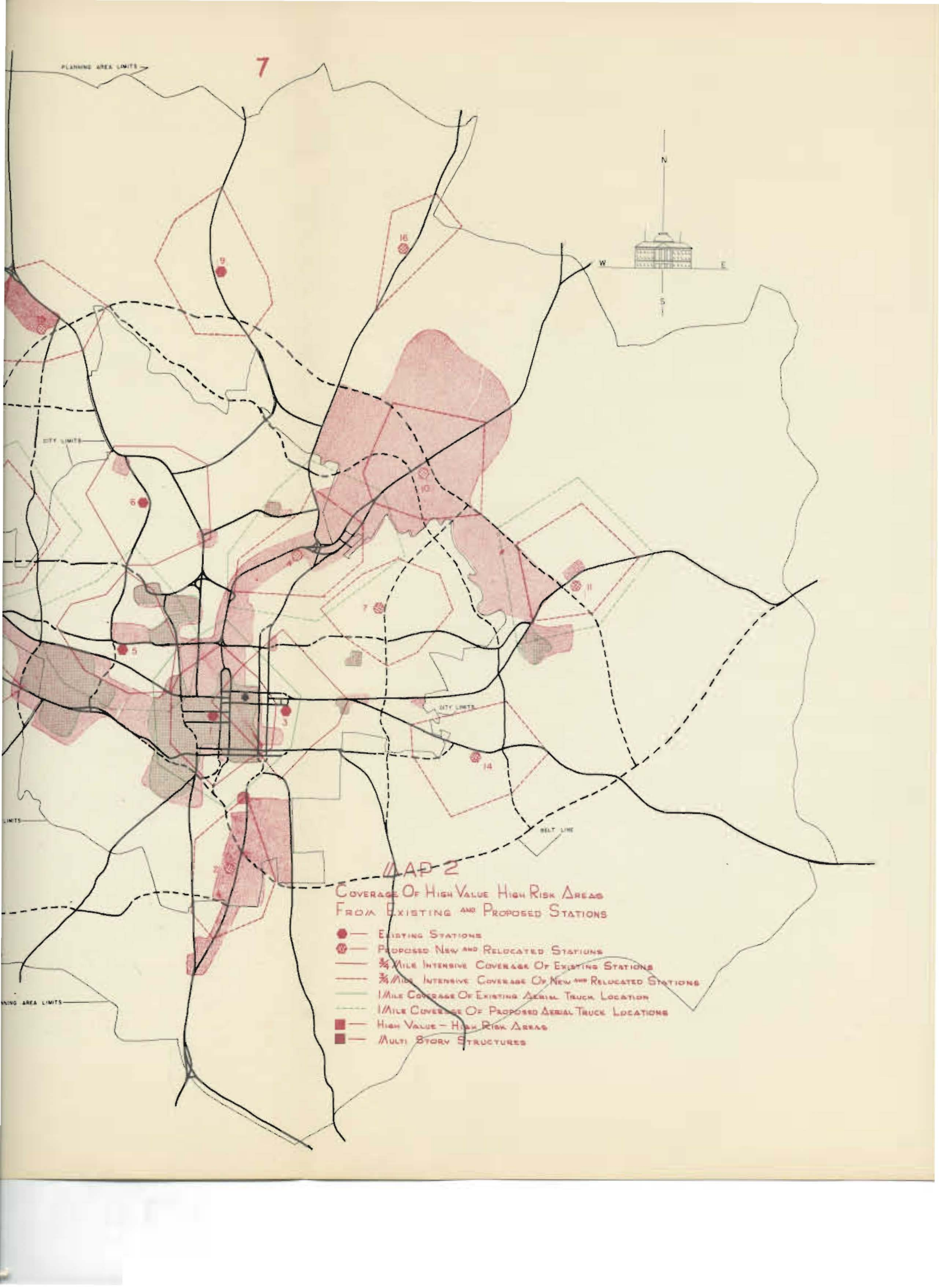
BELT LINE

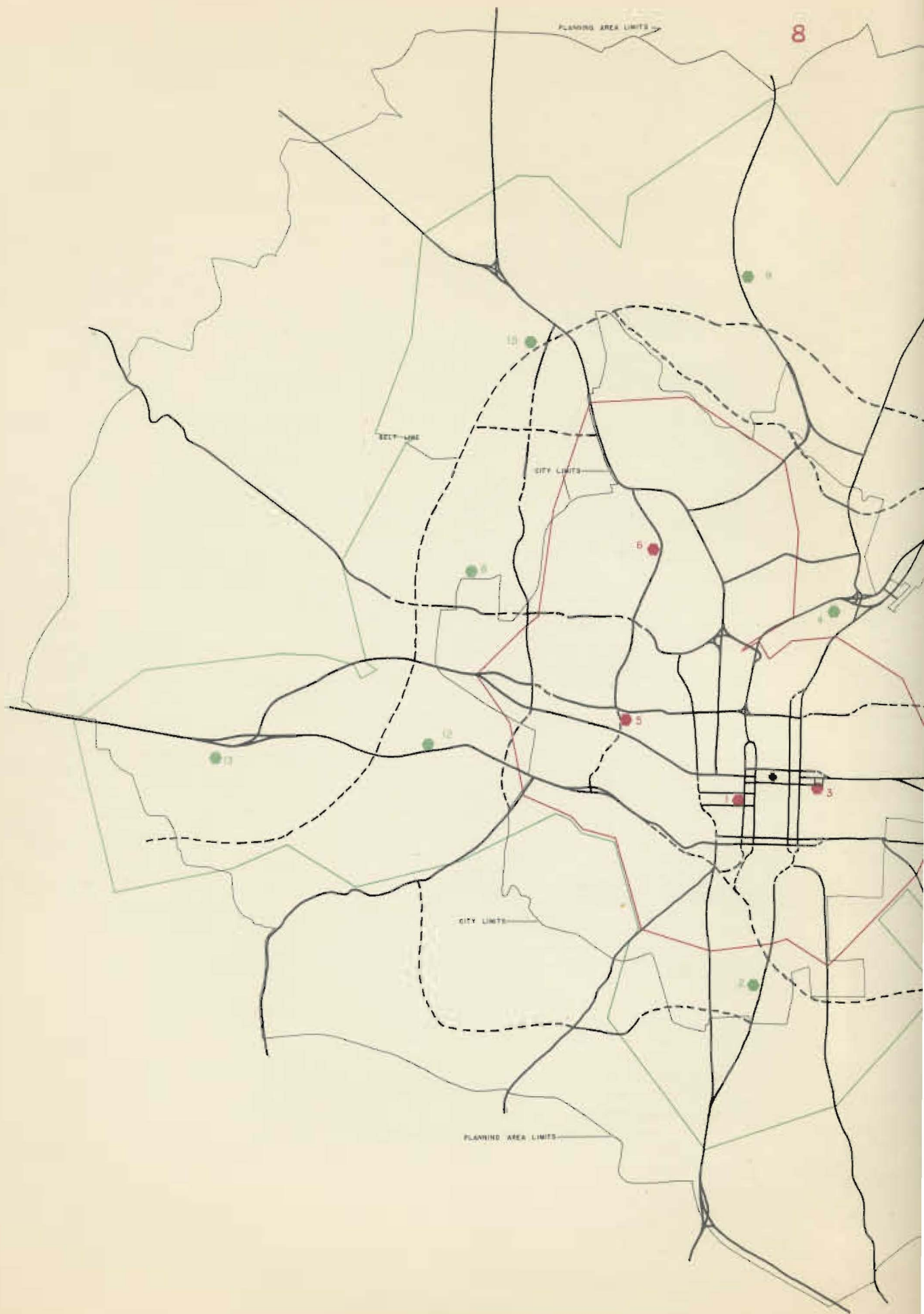
### MAP 2

#### COVERAGE OF HIGH VALUE HIGH RISK AREAS FROM EXISTING AND PROPOSED STATIONS

- EXISTING STATIONS
- ⊙ PROPOSED NEW AND RELOCATED STATIONS
- 3/4 MILE INTENSIVE COVERAGE OF EXISTING STATIONS
- 3/4 MILE INTENSIVE COVERAGE OF NEW AND RELOCATED STATIONS
- 1 MILE COVERAGE OF EXISTING AERIAL TRUCK LOCATIONS
- 1 MILE COVERAGE OF PROPOSED AERIAL TRUCK LOCATIONS
- HIGH VALUE - HIGH RISK AREAS
- MULTI STORY STRUCTURES

PLANNING AREA LIMITS







MAP 3

RESIDENTIAL COVERAGE FROM  
EXISTING - PROPOSED AND RELOCATED STATIONS

- EXISTING STATIONS
- 1/2 MILE RESIDENTIAL COVERAGE OF EXISTING STATIONS
- PROPOSED AND RELOCATED STATIONS
- 1/2 MILE RESIDENTIAL COVERAGE OF PROPOSED AND RELOCATED STATIONS

### OTHER FIRE DEPARTMENT FACILITIES

Three additional facilities important to the protection of the Raleigh area demand special attention in the plan: aerial ladder equipment, repair facilities, and training facilities.

Aerial Ladder Equipment: An aerial ladder truck should be located within a mile of all areas where there are multi-story buildings. Ladder trucks are now located at Station #1 (220 S. Dawson) and Station #6 (Oberlin and Fairview). The truck at Station #1 is an aerial ladder truck; and the one at Station #6 is a city service truck, a smaller ladder truck. The Fire Department is planning to place an aerial ladder truck (old one) at Station #5 (Oberlin and Park) within the next few months. By 1970, the study period, an additional three ladder trucks will probably be needed. These should be located at Station #4 (Downtown Boulevard and Wake Forest Road), Station #8 (Ridge Road and Churchill Rd.), and Station #11 (Highway 64 and Beltline). Ladder truck equipment should be purchased for these stations at the time of station construction.

Repair Facilities: The Fire Department now does only limited repair work on trucks and equipment. As the size of the department and number of trucks increases, major savings will be realized if repair facilities are available for most repair jobs.

The building which now houses Station #2 at the Municipal Auditorium is used as a repair shop, and when Station #2 is relocated, the building will be adequate for a complete repair garage. The site has the advantage of location near the downtown area so that trucks in the garage could quickly answer a general fire alarm in the downtown area.

A disadvantage of the site would be the nuisance of garage noise and activity when the stage of the auditorium above the garage is in use. The garage would not interfere with the major night performances in the auditorium, however.

It is recommended that when Station #2 is relocated south of the beltline, the fire station building at the back of the auditorium be converted to a repair shop and garage.

Training Facilities: The Fire Department needs a small building for classroom training use. This training building should be built near the fire training tower on S. Wilmington, separate from any fire station.



Although this classroom space is presently needed, the two fire station relocations and two new stations scheduled for development before 1960 should precede development of the training facility. The classroom building should be scheduled for construction around 1960.

FIRE HOUSES AND FIRE EQUIPMENT  
INVENTORY OF EXISTING FACILITIES

Fire station number or name: 1 (Central Offices)  
Location: Dawson Street, between Hargett and Martin  
Date built: 1953  
Type construction: 2 stories - brick  
Condition: Excellent  
Estimated remaining life: 50 years  
Apparatus capacity: 5 pieces  
Adequacy of apparatus space: ample  
Number of men accommodated: 40  
Adequacy of living quarters: good  
Number of companies located at station: 3 regular companies and  
rescue company

Equipment located at station:

75 ft. aerial truck  
1000 gal. pumper  
750 gal. pumper  
2 rescue trucks  
1 1000 gal. reserve pumper

Additional information: Central offices must be expanded. Two or three  
more offices are now needed and more will be  
needed as department expands.

Disposition in Plan: Continued use and maintenance - expansion of office  
space.

FIRE HOUSES AND FIRE EQUIPMENT

INVENTORY OF EXISTING FACILITIES

Fire station number or name: 2

Location: Municipal Auditorium

Date built: 1933

Type construction: 1 story - concrete and brick

Condition: fair

Estimated remaining life: 40 years

Apparatus capacity: 2 trucks

Adequacy of apparatus space: adequate

Number of men accommodated: 12

Adequacy of living quarters: fair - no recreation facilities

Number of companies located at station: 1

Equipment located at station:

one 750 gallon pumper

Additional information: Station badly needs repairs. It is now used as both station and repair garage. Fire Chief recommends that at some time in the future the station be relocated and the building be converted to repair garage alone.

Disposition in Plan: Relocation to South Wilmington, south of Belt-line.

FIRE HOUSES AND FIRE EQUIPMENT

INVENTORY OF EXISTING FACILITIES

Fire station number or name: 3

Location: Morgan and East

Date built: 1951

Type construction: 2 stories - brick

Condition: good

Estimated remaining life: 40 years

Apparatus capacity: 2 trucks

Adequacy of apparatus space: adequate

Number of men accommodated: 14

Adequacy of living quarters: fair - needs dormitory expansion and  
addition of recreation rooms

Number of companies located at station: 2

Equipment located at station:

one 750 gal. pumper

one 200 gal. pumper

Disposition in Plan: Continued use and maintenance - expansion of  
living and recreation area.

FIRE HOUSES AND FIRE EQUIPMENT  
INVENTORY OF EXISTING FACILITIES

Fire station number or name: 4  
Location: Jefferson, between Glenwood and Filmore  
Date Built: 1925  
Type construction: 1 story - brick veneer  
Condition: fair  
Estimated remaining life: 25 years  
Apparatus capacity: 1 truck  
Adequacy of apparatus space: adequate  
Number of men accommodated: 10  
Adequacy of living quarters: fair - has no recreation facilities, living  
quarters very poorly designed and  
arranged.  
Number of companies located at station: 1  
Equipment located at station:  
One 750 gallon pumper  
Disposition in Plan: Relocation to Downtown Boulevard immediately south  
of Wake Forest Road interchange.

FIRE HOUSES AND FIRE EQUIPMENT  
INVENTORY OF EXISTING FACILITIES

Fire station number or name: 5

Location: Oberlin, between Clark and Park

Date built: 1925

Type construction: 2 stories, brick veneer

Condition: fair

Estimated remaining life: 25 years

Apparatus capacity: 1 truck

Adequacy of apparatus space: inadequate

Number of men accommodated: 10

Adequacy of living quarters: inadequate - no recreation facilities

Number of companies located at station: 1

Equipment located at station:

one 750 gallon pumper

Additional information: Currently planning to add 60'x30' space to present building to be used as apparatus room for two trucks, one a ladder truck. Present apparatus room would then be converted to recreation room. Staff would be doubled.

Disposition in Plan: Continued use and maintenance - expansion for new equipment and expansion of living and recreation areas.

FIRE HOUSES AND FIRE EQUIPMENT  
INVENTORY OF EXISTING FACILITIES

Fire station number or name: 6  
Location: Oberlin and Fairview  
Date built: 1949  
Type construction: 2 stories - brick  
Condition: good  
Estimated remaining life: 50 years  
Apparatus capacity: 2 trucks  
Adequacy of apparatus space: good  
Number of men accommodated: 20  
Adequacy of living quarters: fair  
Number of companies located at station: 2  
Equipment located at station:

one 750 gallon pumper  
one city service truck - ladder truck

Additional information: Station is in need of rather extensive re-  
conditioning. Floor tiling must be replaced.  
Heating plant is inadequate.

Disposition in Plan: Continued use and maintenance - rehabilitation.

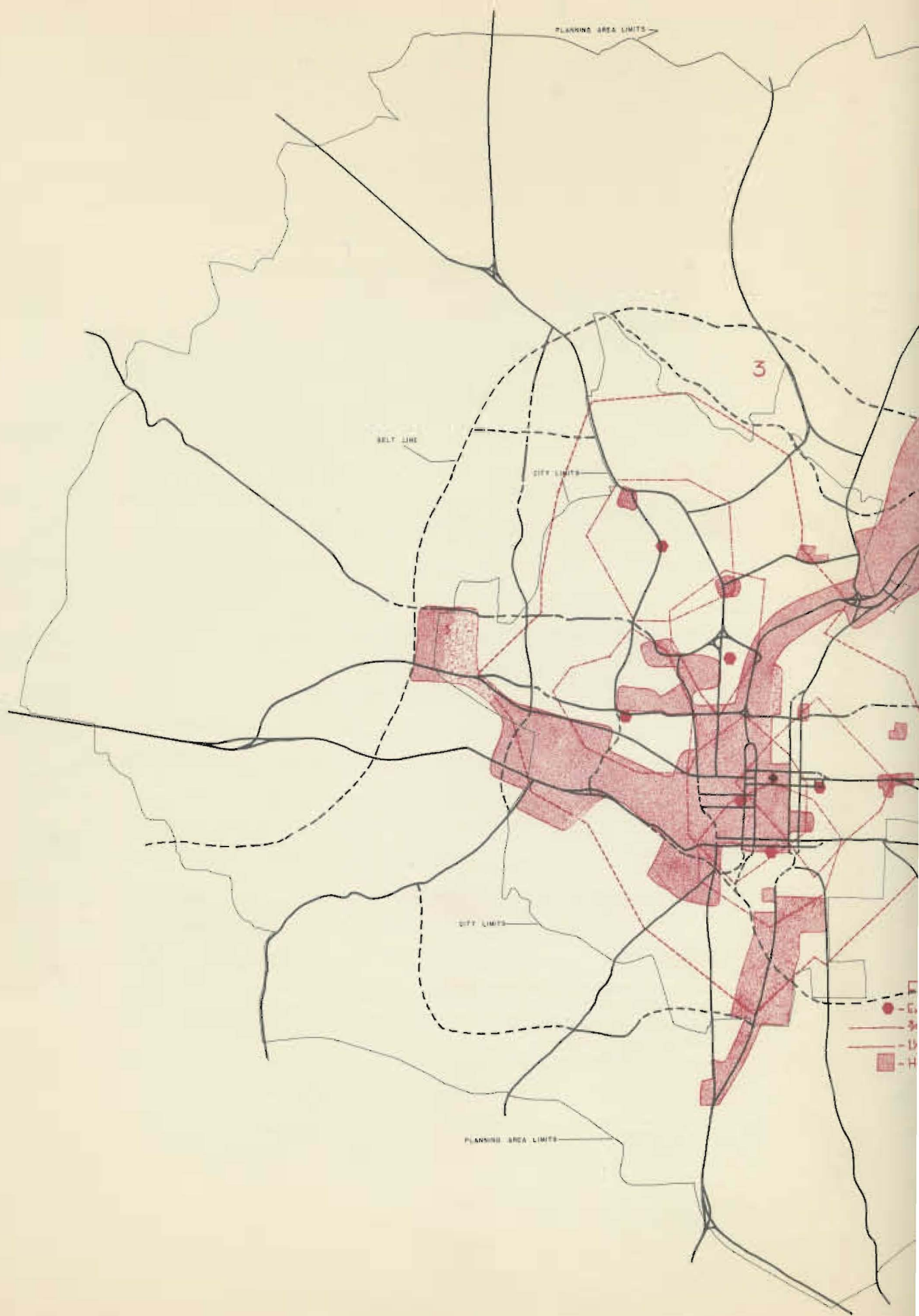
FIRE HOUSES AND FIRE EQUIPMENT  
INVENTORY OF EXISTING FACILITIES

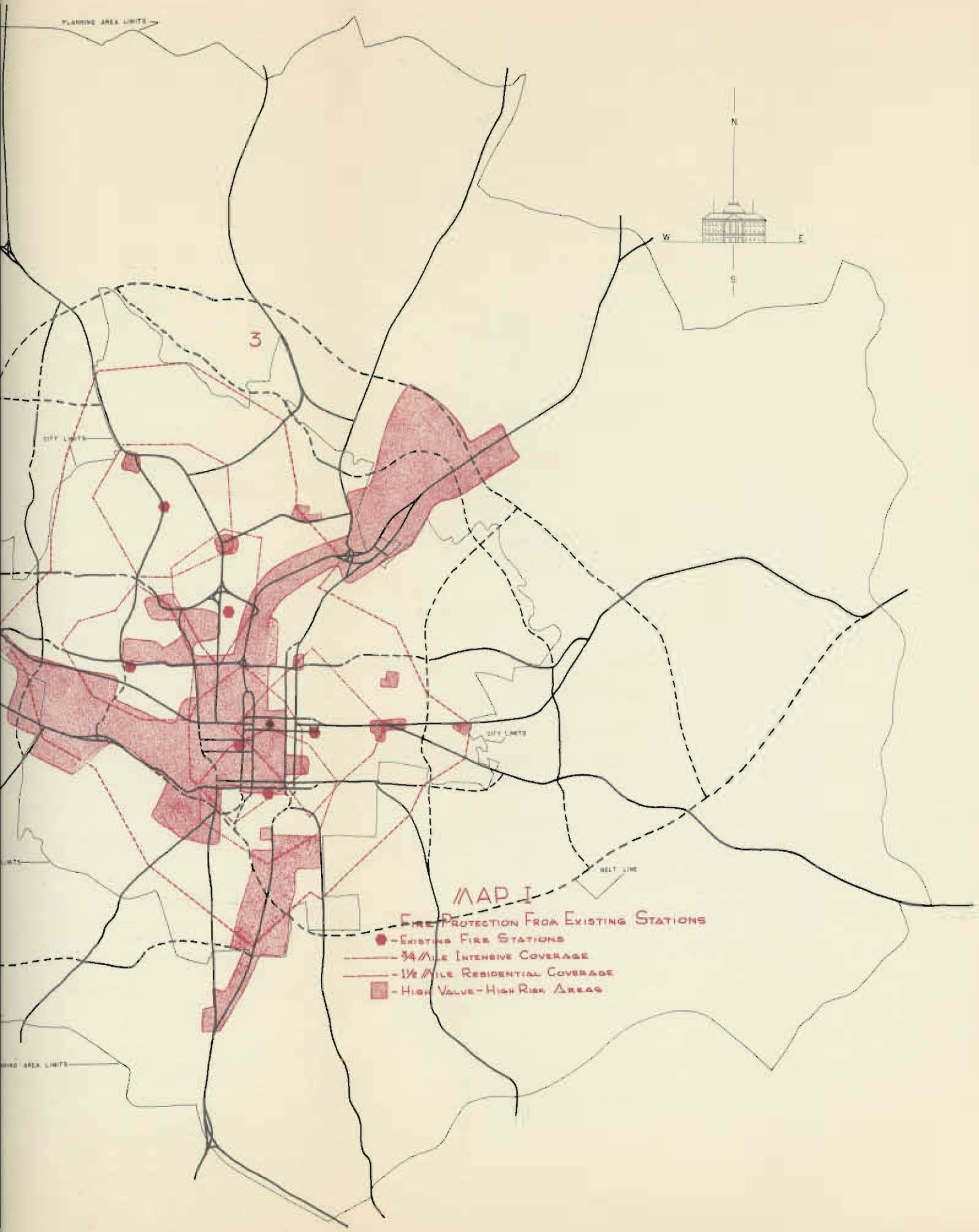
Fire station number or name: 7  
Location: Raleigh Boulevard and Glascock  
Date built: planned for completion in 1958  
Type construction: 1 story and full basement - brick  
Estimated remaining life: 50 years  
Apparatus capacity: 2 trucks  
Adequacy of apparatus space: ample  
Number of men accommodated: 20  
Adequacy of living quarters: adequate  
Number of companies located at station: 2  
Equipment located at station:

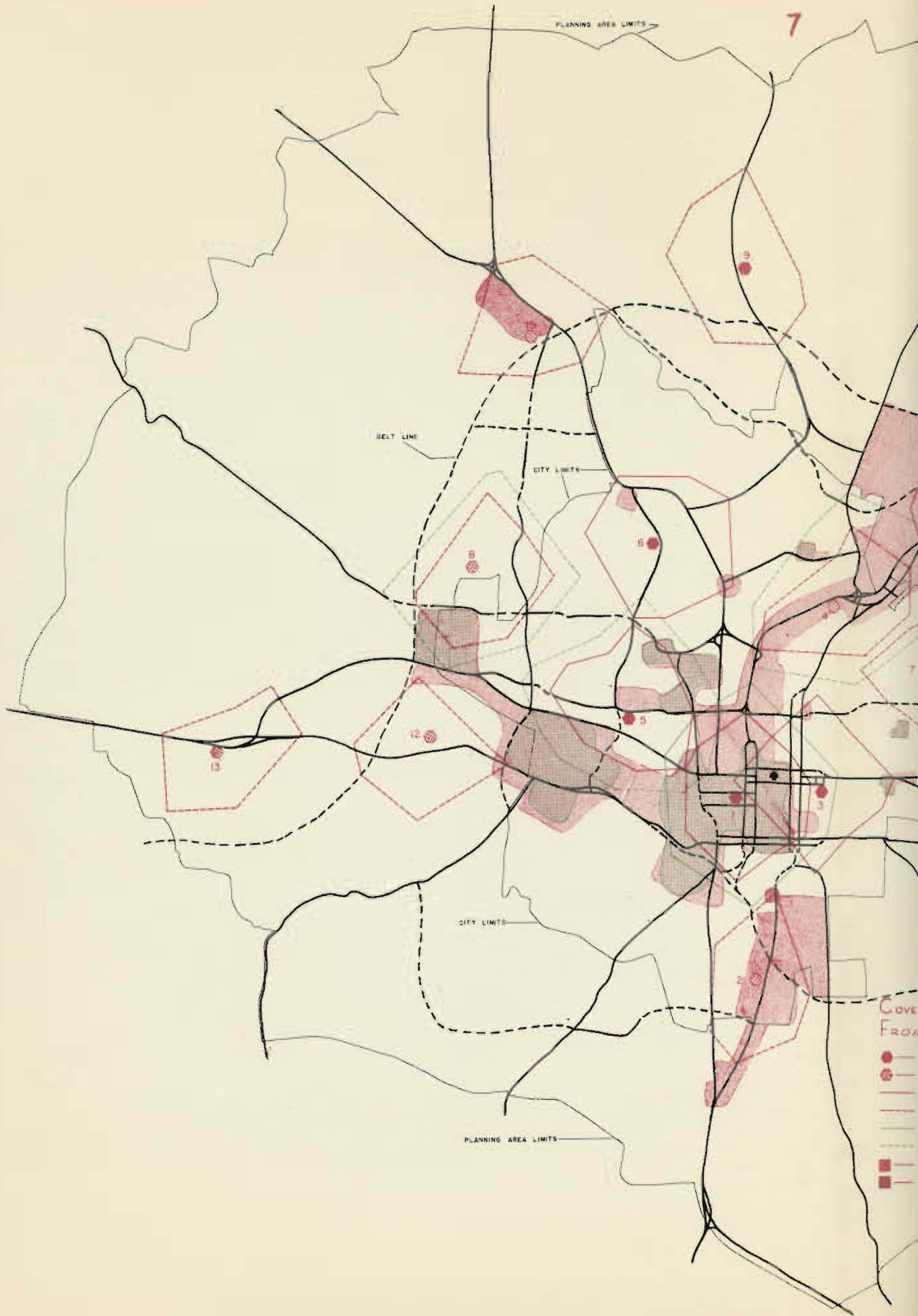
750 gallon pumper

Disposition in Plan: Immediate construction.



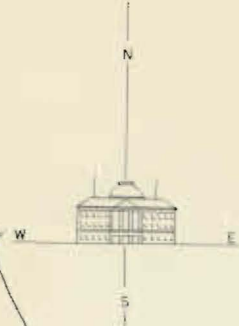






PLANNING AREA LIMITS

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CITY LIMITS

CITY LIMITS

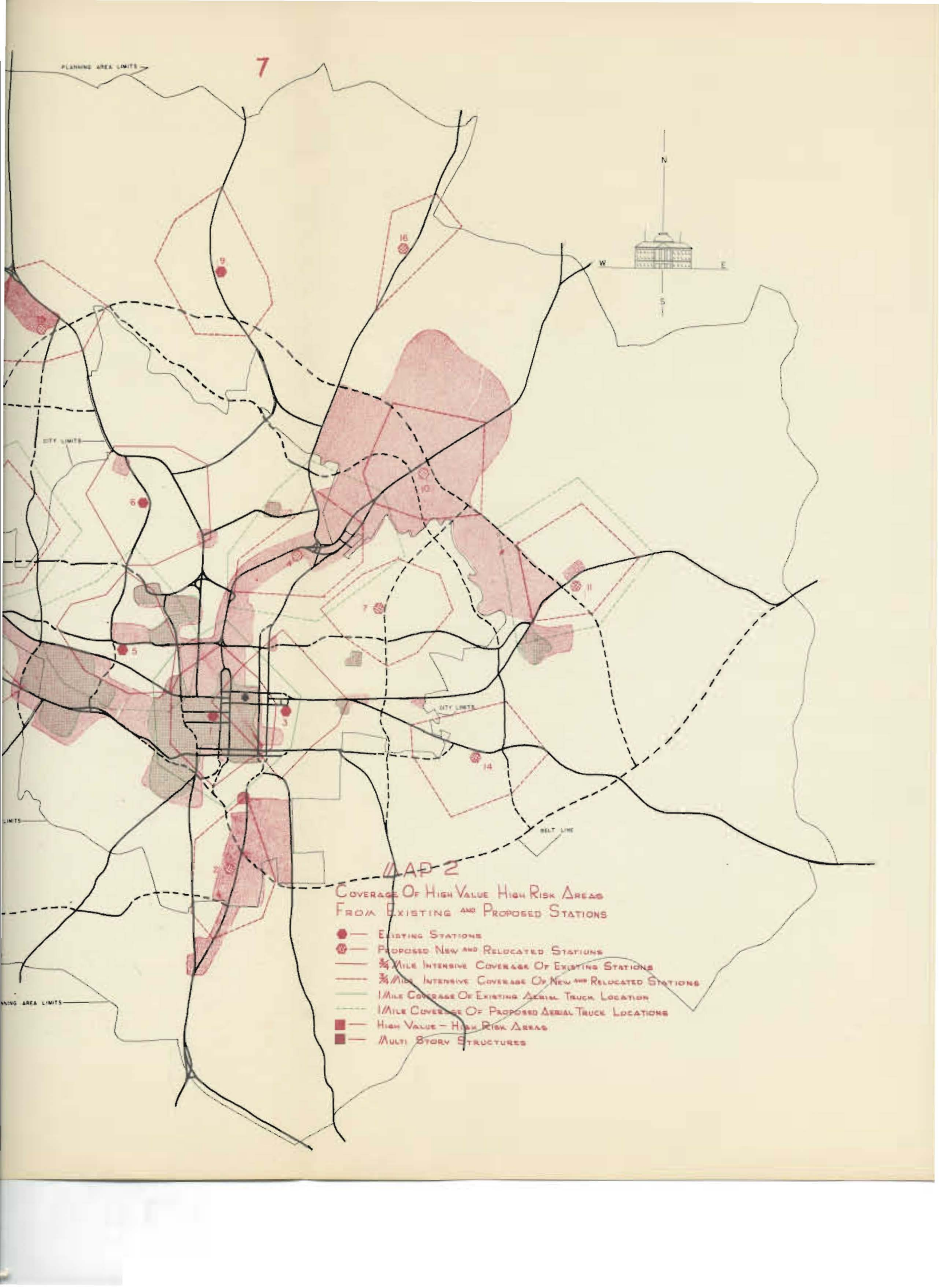
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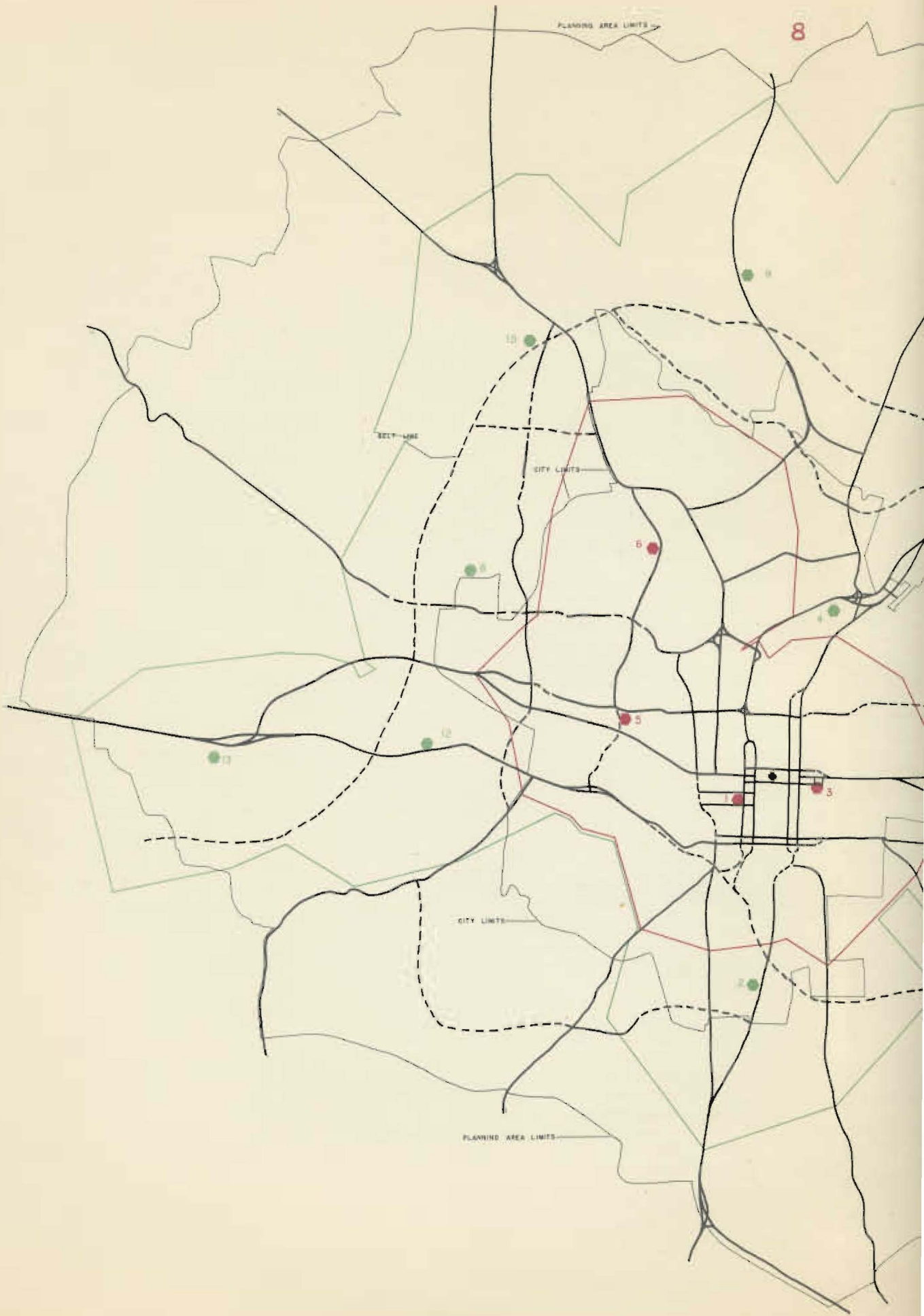
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- MULTI STORY STRUCTURES

PLANNING AREA LIMITS







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PLANNING AREA LIMITS

CITY LIMITS

CITY LIMITS

BELT LINE

MAP 3

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EXISTING - PROPOSED AND RELOCATED STATIONS

- — EXISTING STATIONS
- 1/2 MILE RESIDENTIAL COVERAGE OF EXISTING STATIONS
- — PROPOSED AND RELOCATED STATIONS
- 1/2 MILE RESIDENTIAL COVERAGE OF PROPOSED AND RELOCATED STATIONS

PLANNING AREA LIMITS