TEXAS
EXPRESSWAYS

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Prepared

by

The Texas Highway Department

Austin, Texas

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REPRODUCED BY
OPERATIONS DIVISION
TEXAS HIGHWAY DEPARTMENT
AUSTIN, TEXAS

FOREWORD

The volume of motor vehicles on the highways of Texas has doubled since 1940. The increase in number of motor vehicles, together with the accelerated use of the individual vehicle, have created mass movements of traffic between and inside large urban areas of the State. Accidents, delays and inconvenience have been the direct result of such concentration of traffic.

The engineering staff of the Texas Highway Department has made exhaustive studies of this important highway problem. Some of the data compiled over a period of years include traffic volumes and behavior, truck loads and their effect on the highway structure, and comparisons of land values as related to highway types.

The studies emphasize: (1) The need for a limited system of EXPRESSWAYS, (2) A necessity that truck transportation be recognized in the formulation of EXPRESSWAY routes and design, (3) The fact that land values along an EXPRESSWAY increase at a much faster rate than values along an ordinary highway.

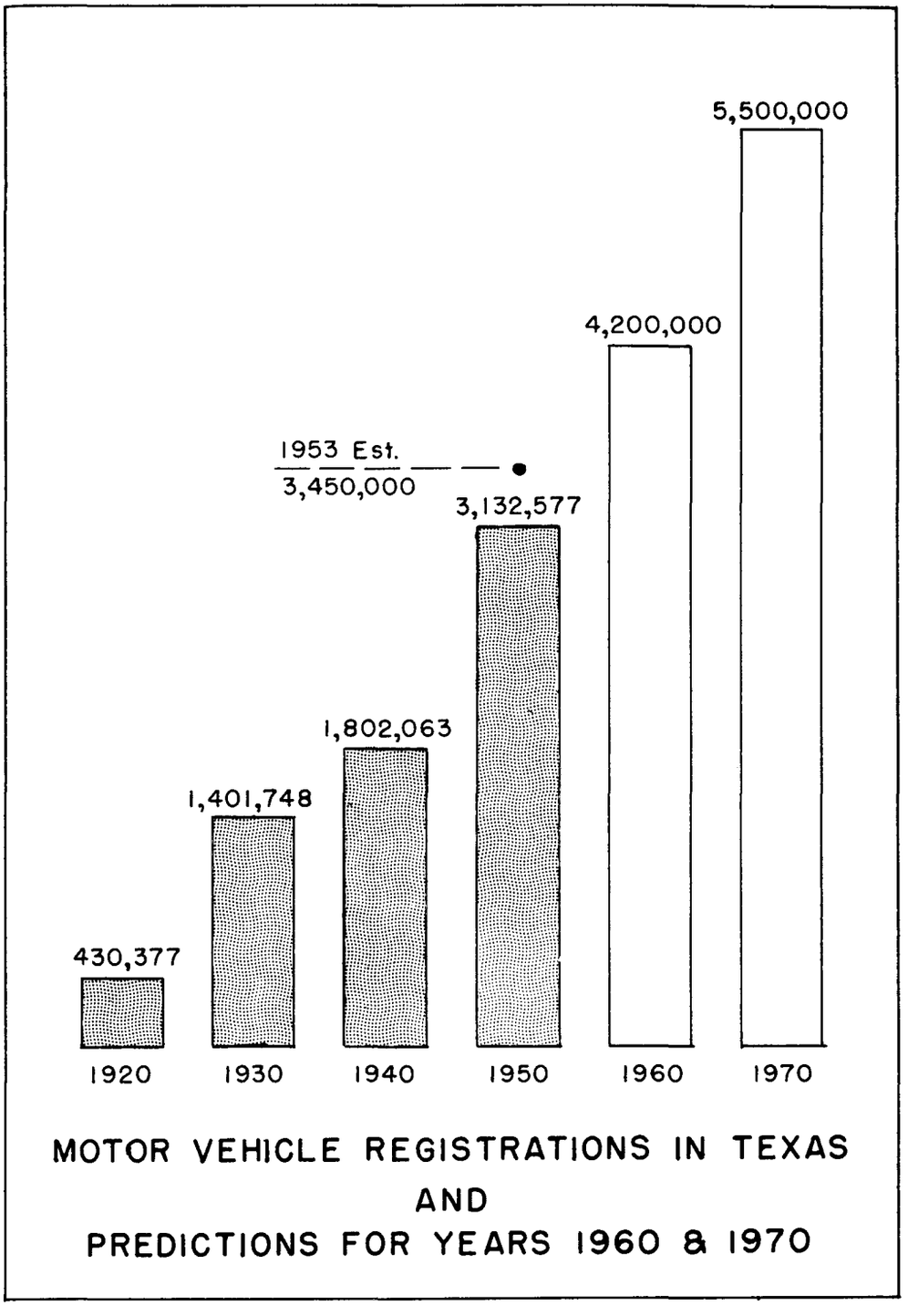
It is the expressed intent of the State Highway Commission to develop EXPRESSWAYS which will provide complete protection to traffic and at the same time maintain adequate access accommodations without loss of land and property values to the abutting land owners. The TEXAS EXPRESSWAY is designed for the Texas traffic pattern and completely adheres to the Texas conception of land use as related to public highways.

D. C. Greer
State Highway Engineer

MOTOR VEHICLE TRENDS

Since 1940 the average yearly increase in motor vehicle registrations in Texas has been 125,000 units. If this trend continues there will be about 5,500,000 units registered in 1970. This volume may well be exceeded because the ratio of population to motor vehicles is constantly decreasing.

These increases in motor vehicle volumes are creating mass traffic movements which were unknown in Texas prior to 1940. The EXPRESSWAY is believed to be the most practical means for safely and efficiently handling such high traffic volumes.

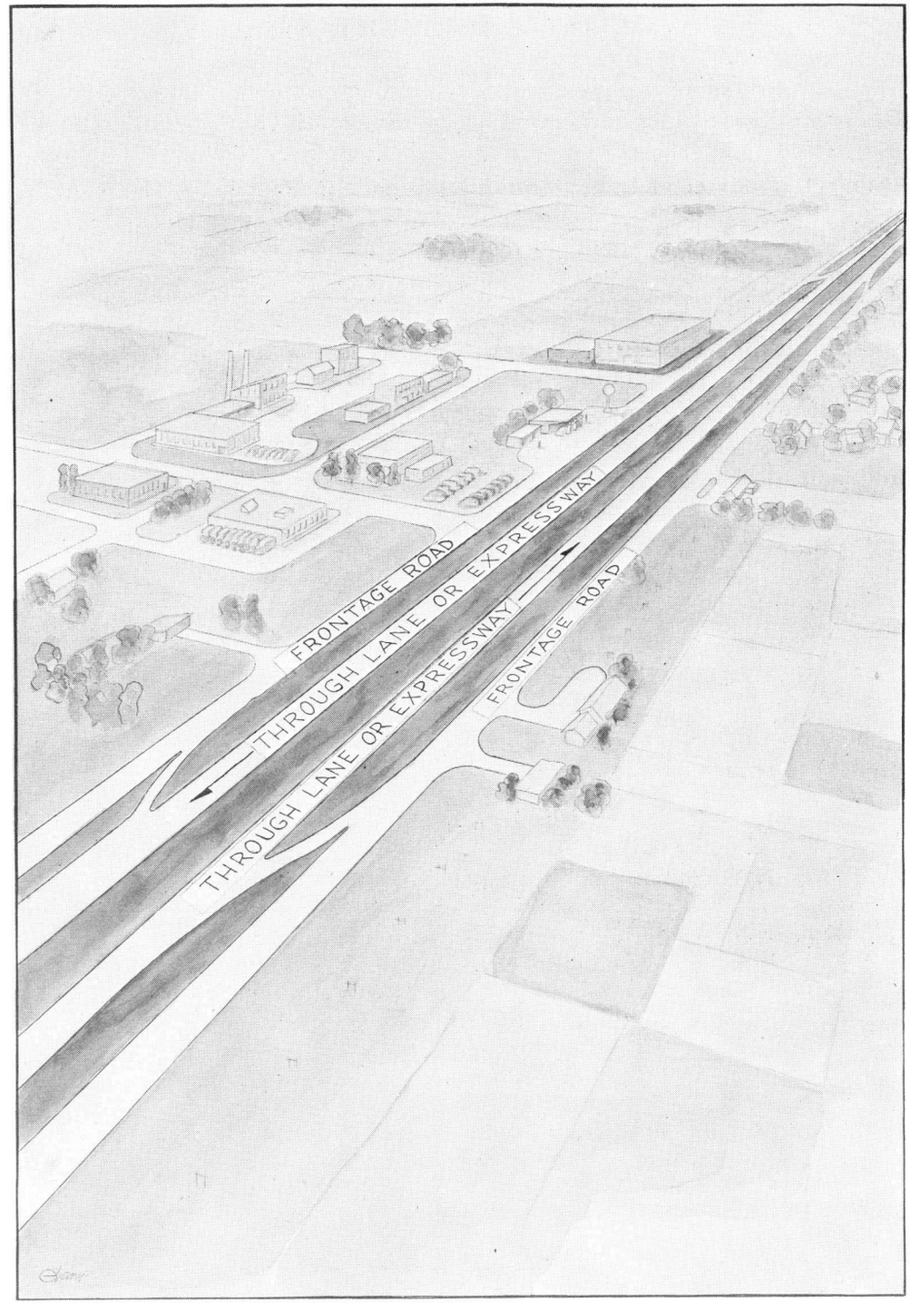


MOTOR VEHICLE REGISTRATIONS IN TEXAS
AND
PREDICTIONS FOR YEARS 1960 & 1970

WHAT IS AN EXPRESSWAY?

In Texas the term "EXPRESSWAY" or "FREEWAY" means that the "THROUGH LANES" of a State Highway or city street have been protected from side or cross traffic originating along the abutting property and cross roads or streets. The entrance and exit of traffic to and from the "THROUGH LANES" are partially or wholly controlled.

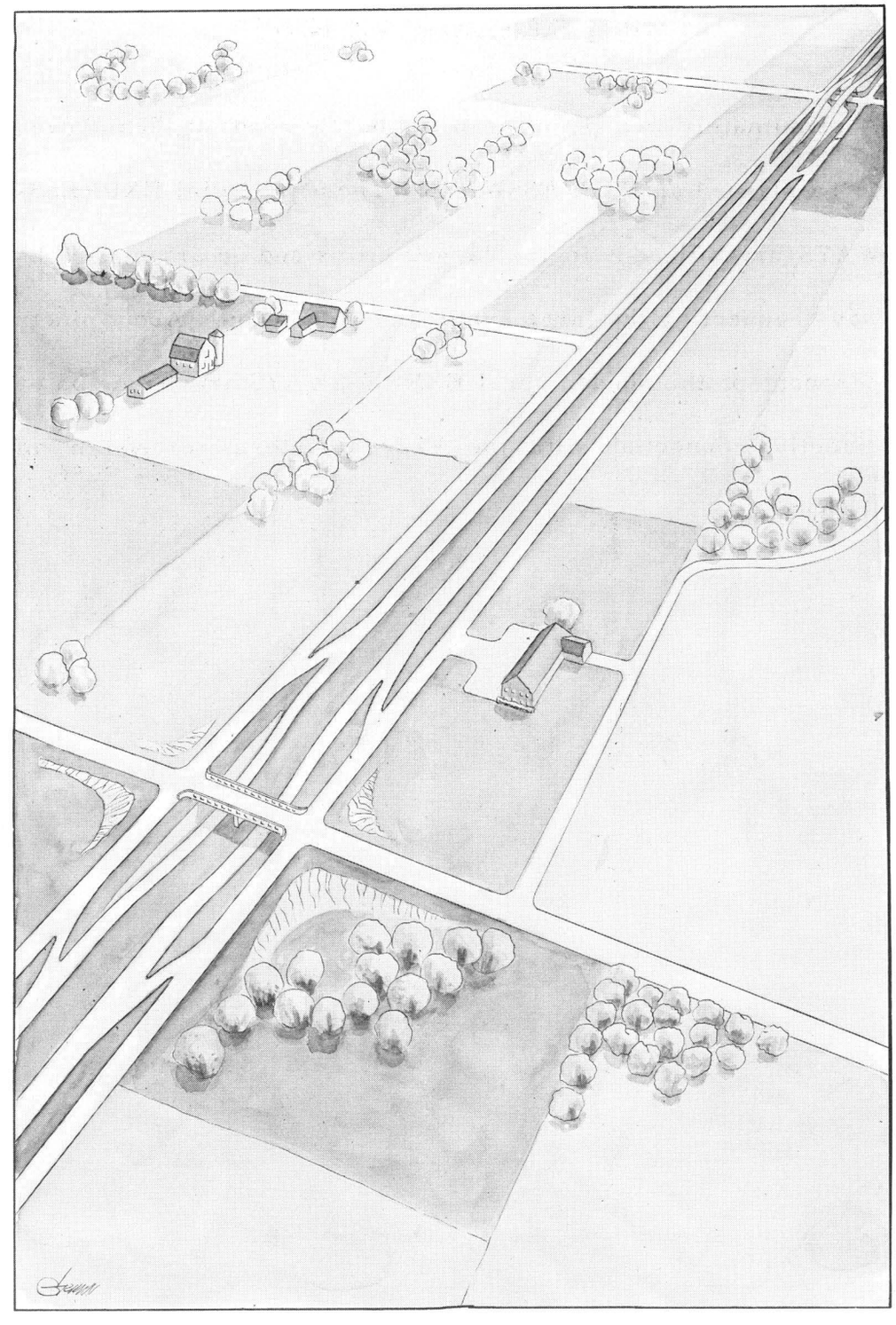
EXPRESSWAYS are provided with FRONTAGE ROADS. The right of access to the abutting lands and the FRONTAGE ROADS is unrestricted, just as on any ordinary highway or city street.



ACCESS TO THROUGH LANES

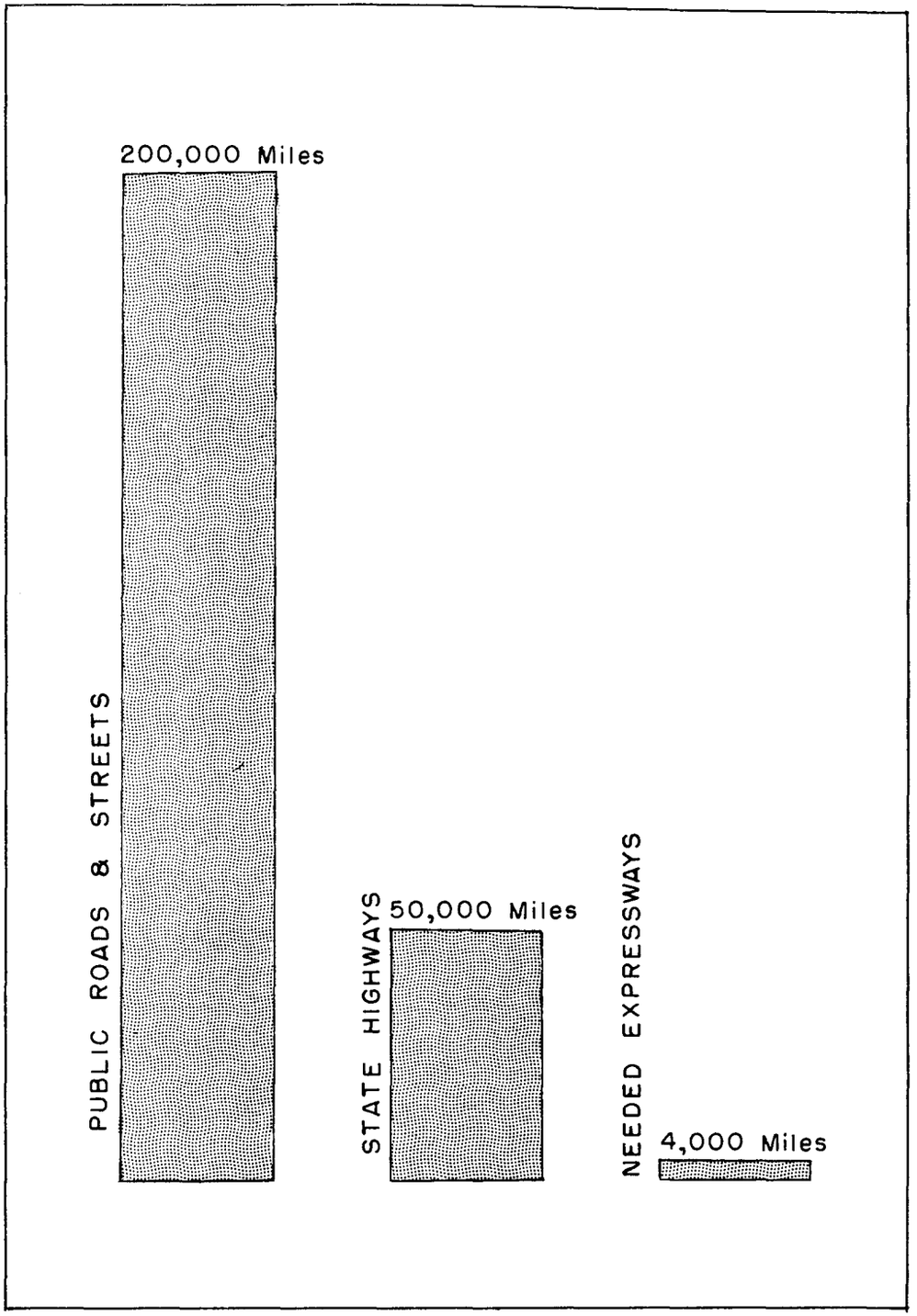
For the safe and efficient movement of large volumes of through traffic, connections between the FRONTAGE ROADS and THROUGH LANES are limited to selected points.

The spacing and design of the connections or ramps between the THROUGH LANES and FRONTAGE ROADS must take into account the possible damage and inconvenience to the abutting land holders.



WHERE EXPRESSWAYS ARE NEEDED

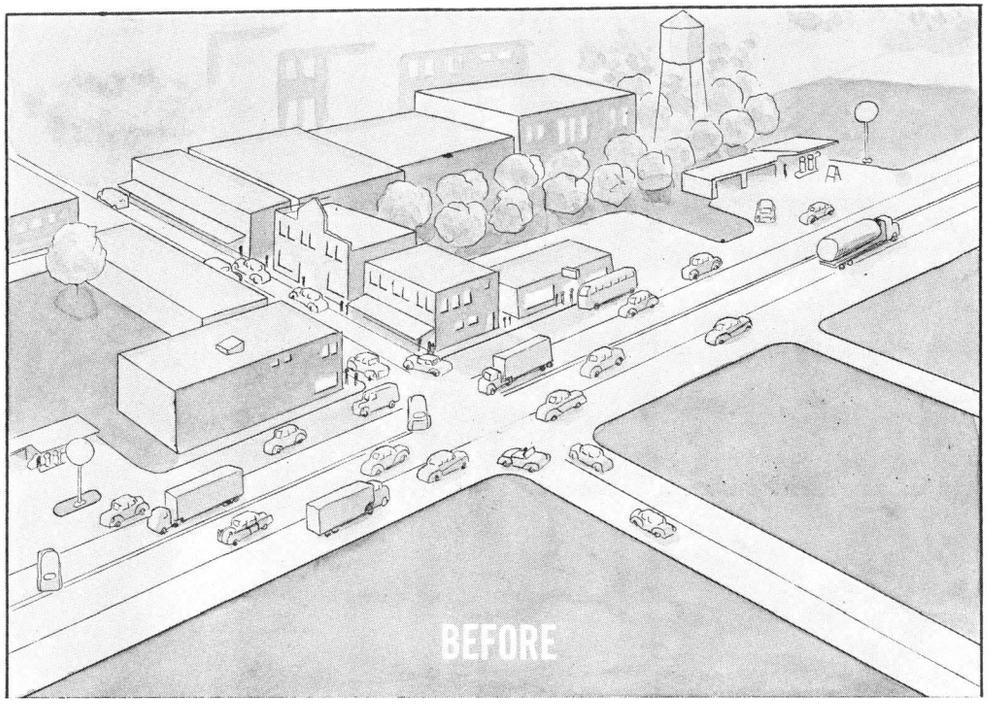
Approximately two per cent of the public roads in Texas need to be planned as EXPRESSWAYS. These potential EXPRESSWAYS are adjacent to the larger cities and on arterial highways connecting the large centers of population. About ninety per cent of the needed rural EXPRESSWAYS are either on or directly connected with the Federal Interstate System of Highways.

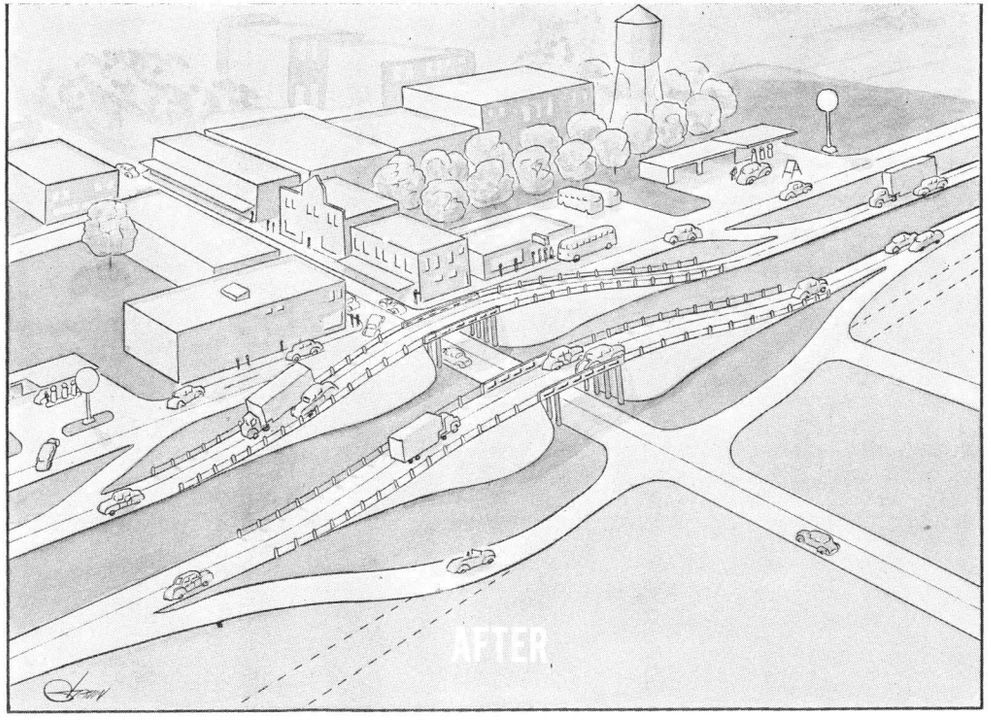


THE EXPRESSWAY OBJECTIVE

The objective of the EXPRESSWAY is to insulate through traffic from the several groups of conflicting traffic, namely:

1. Cross traffic
2. Turning traffic
3. Parking traffic
4. Pedestrians





BENEFITS OF INSULATING CONFLICTING TRAFFIC

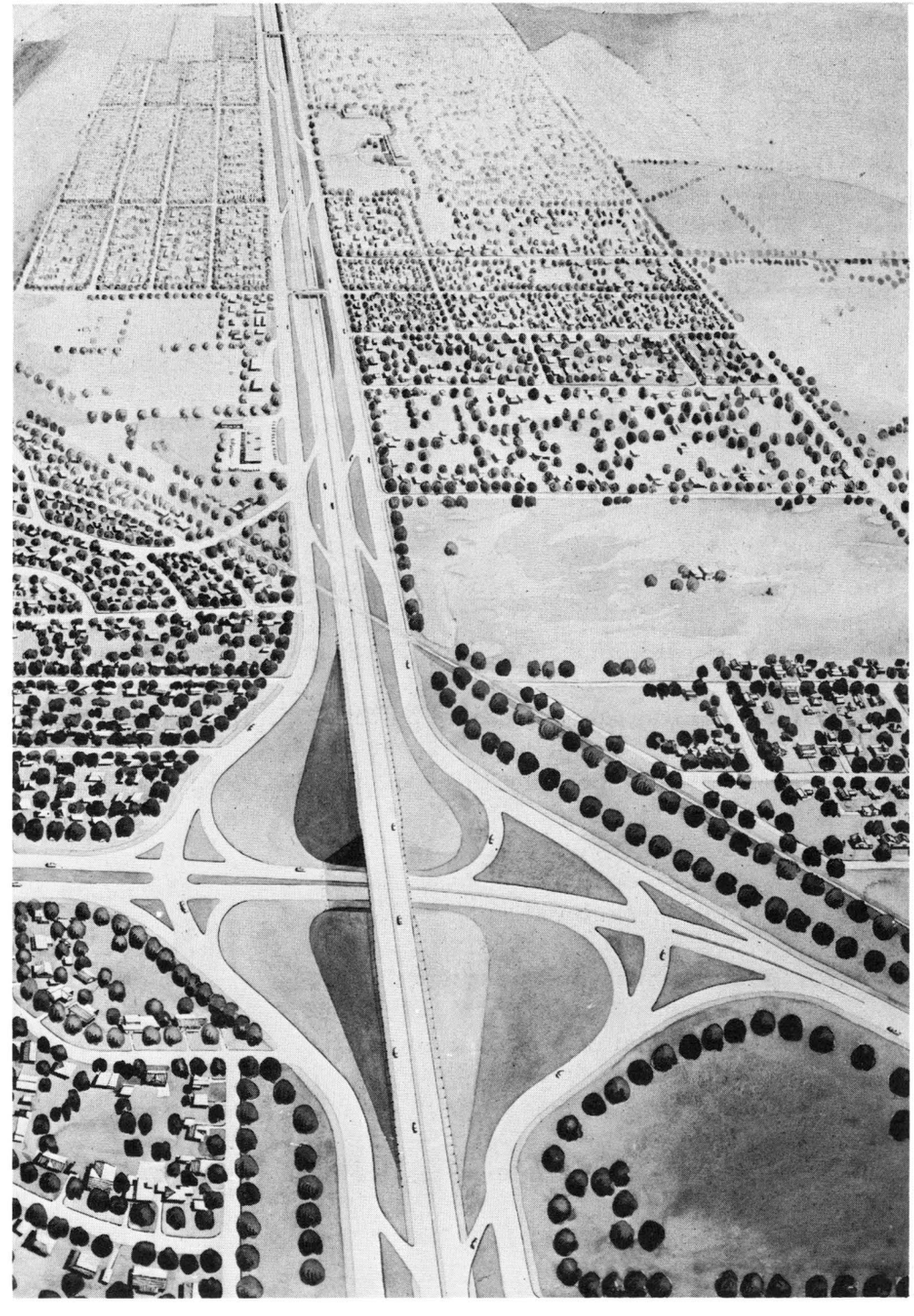
A SAFER HIGHWAY FACILITY

The accident records of the EXPRESSWAYS already constructed show a reduction of two-thirds to three-fourths when compared to the ordinary highways. Almost all accidents caused by multiple vehicle collisions are eliminated. Pedestrian accidents are limited to illegal incidents.

An average of seven persons die every day as a result of motor vehicle accidents on the streets and highways of Texas. Average daily property damage costs from all motor vehicle accidents in Texas total almost one-half million dollars.

An adequate system of EXPRESSWAYS will drastically reduce this loss of life and property.

The EXPRESSWAY shown on the opposite page will provide complete protection for 50,000 vehicles per day at an intersection of an important Interstate Highway and a major urban highway located in Austin.

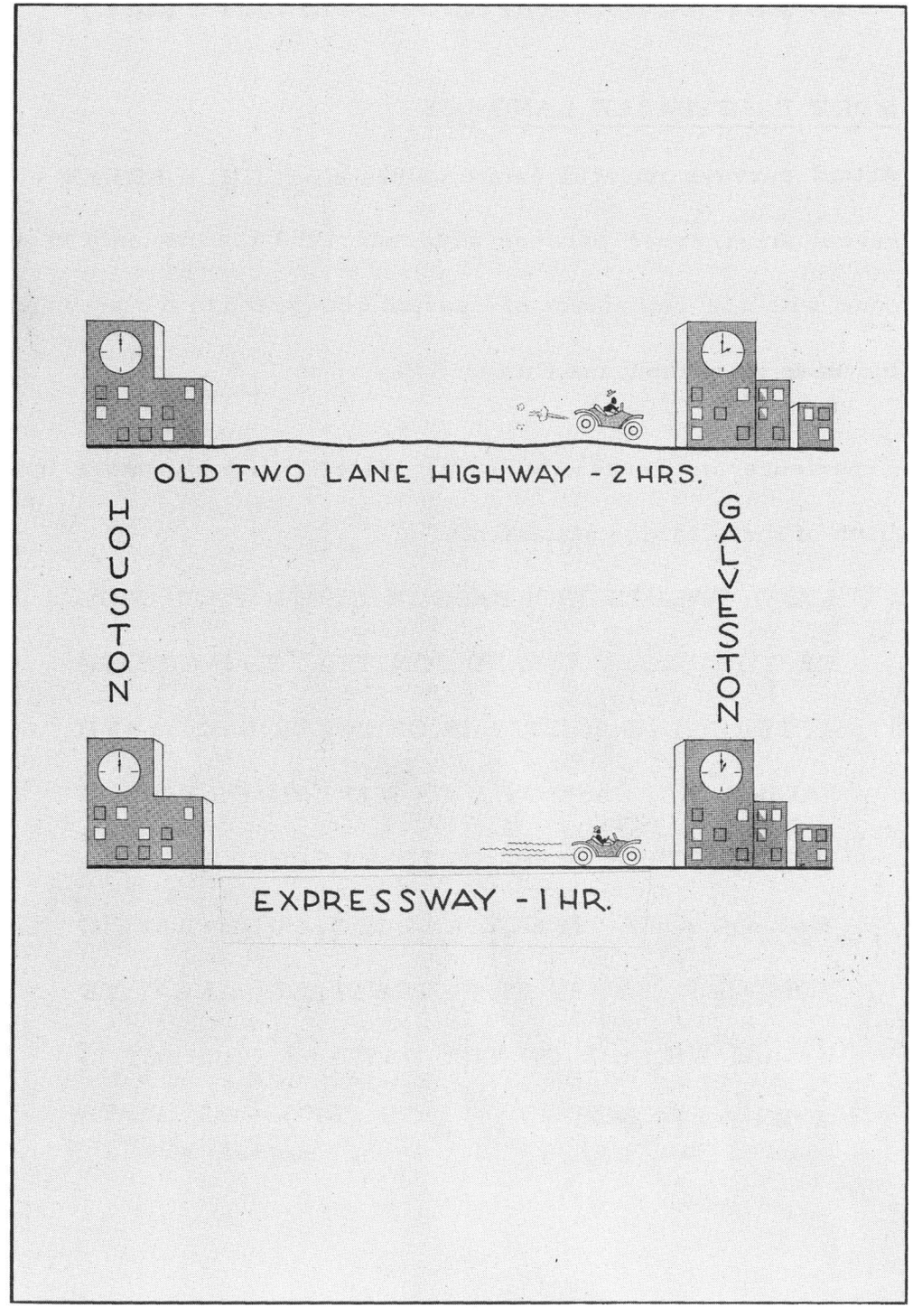


A MORE EFFICIENT HIGHWAY FACILITY

Traffic surveys conclusively prove that EXPRESSWAYS already in service are accommodating from 3 to 4 times as much traffic as the ordinary highway or city street of the same width. The elapsed time of a vehicle on an EXPRESSWAY is usually from one-third to one-half of that of a vehicle on an ordinary highway or city street of equal trip length.

The City of Los Angeles reports results of operating costs studies on sections of EXPRESSWAYS. Comparisons were made with similar cost studies on arterial highways. Minimum benefits per vehicle mile on the EXPRESSWAY were calculated as follows:

1.	Gasoline savings	0.33¢
2.	Maintenance cost savings due to elimination of stop and go traffic	0.24
3.	Accident savings	0.56
4.	Time savings (commercial vehicles only)	0.87
	Total	2.00¢

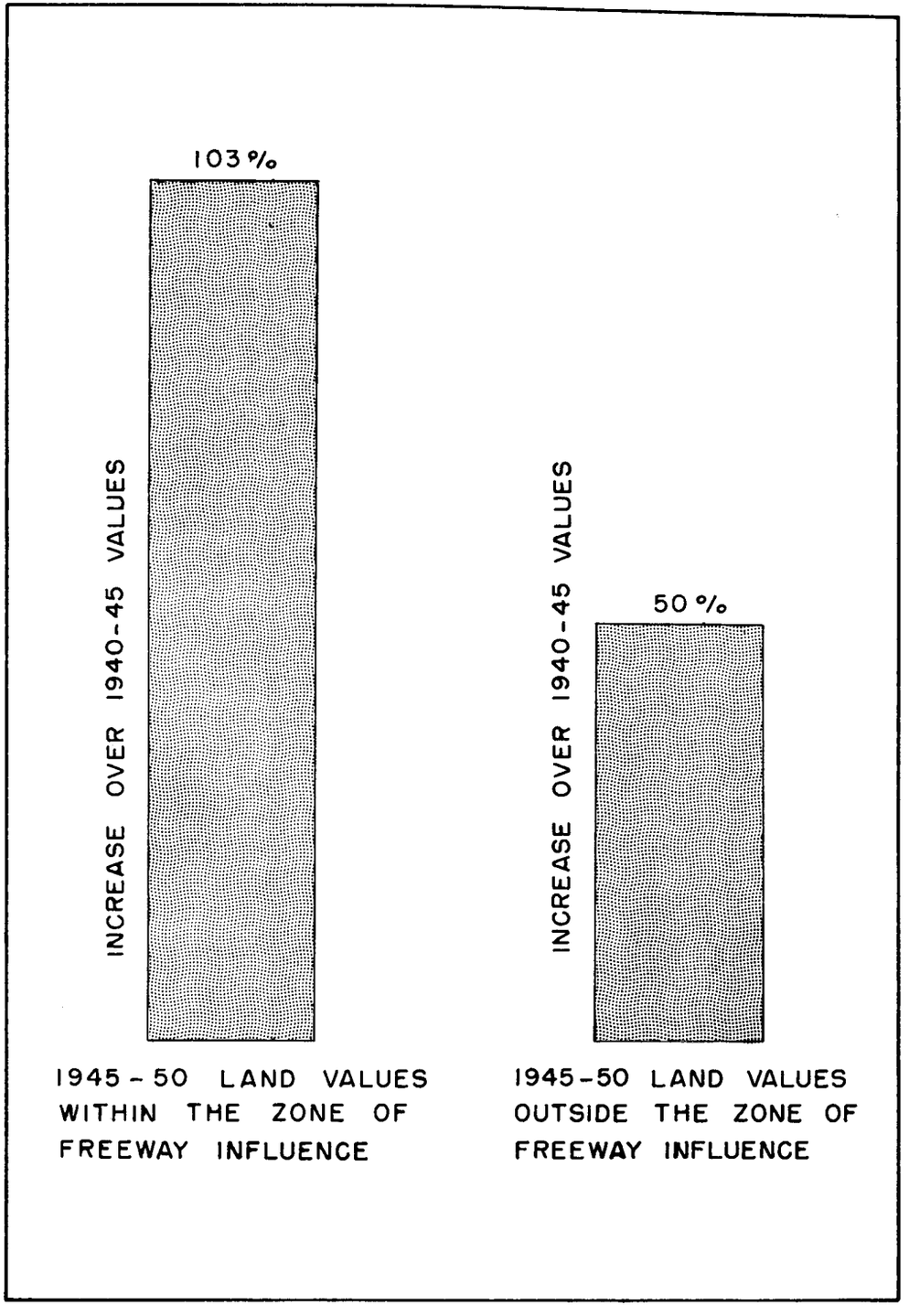


MORE PROFITABLE LAND USE

Actual surveys on real estate values along GULF FREEWAY reveal an increase between 1940 and 1950 that not only kept pace with the remainder of Houston but exceeded the average increase throughout the City by 53%.

Experience in Texas and other states definitely prove the truth of the following statement:

LAND VALUES INCREASE IN DEPTH EACH SIDE OF THE FREEWAY AND CONTINUE TO INCREASE AFTER THE FACILITY IS OPEN FOR USE. LAND VALUES INCREASE ONLY ON A FRINGE OR RIBBON PATTERN WITH RESPECT TO AN ORDINARY HIGHWAY OR CITY STREET AND IF LARGE TRAFFIC VOLUMES EXIST THE GREATEST RELATIVE VALUE WILL BE ON THE DAY THE PROJECT IS OPEN TO TRAFFIC.



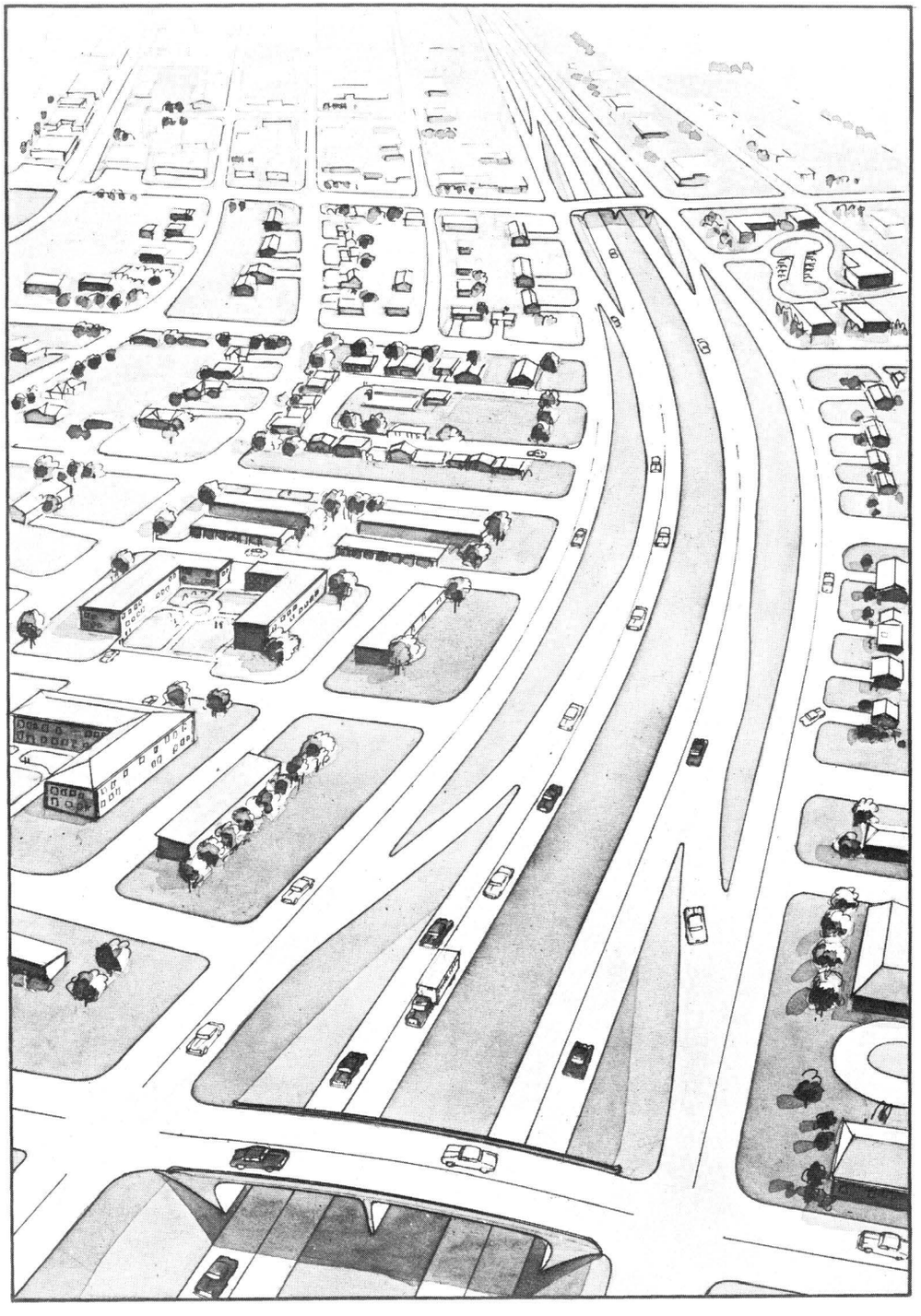
SUITABLE LAND USES WITHIN THE ZONE OF EXPRESSWAY INFLUENCE

RESIDENCES

Lands within one mile of EXPRESSWAYS which have been constructed in Texas are proving to be popular as sites for residential sub-divisions and public housing projects.

The EXPRESSWAYS will accommodate metropolitan commuters who live 15 to 25 miles away from their work.

Where an adequate system of EXPRESSWAYS exists, the residential diameter of most urban communities can be increased to about 50 miles.



SUITABLE LAND USES WITHIN THE ZONE OF EXPRESSWAY INFLUENCE (con't.)

BUSINESS

Many types of businesses are adapting their operations to motor transportation. Locations adjacent to an adequate EXPRESSWAY System will provide outlet routes for fast delivery of products to both inter-city and intra-city markets.

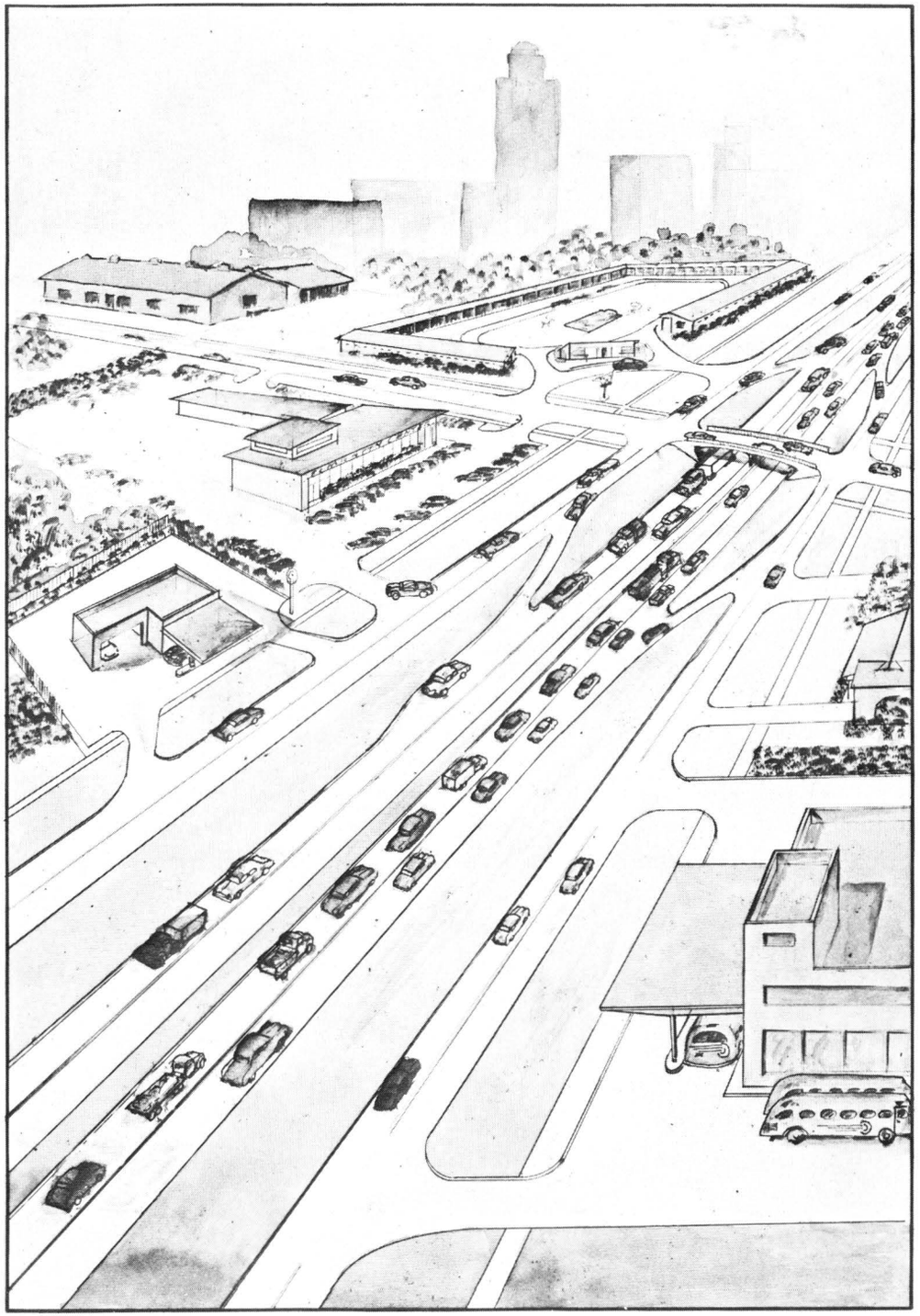
Examples:

- Freight terminals
- Warehouses
- Light industries

EXPRESSWAY locations are also being chosen for service establishments to accommodate mass traffic needs.

Examples:

- Tourist courts
- Community Centers
- Service Stations



SUITABLE LAND USES WITHIN THE ZONE OF EXPRESSWAY INFLUENCE (con't.)

EDUCATION AND RECREATION

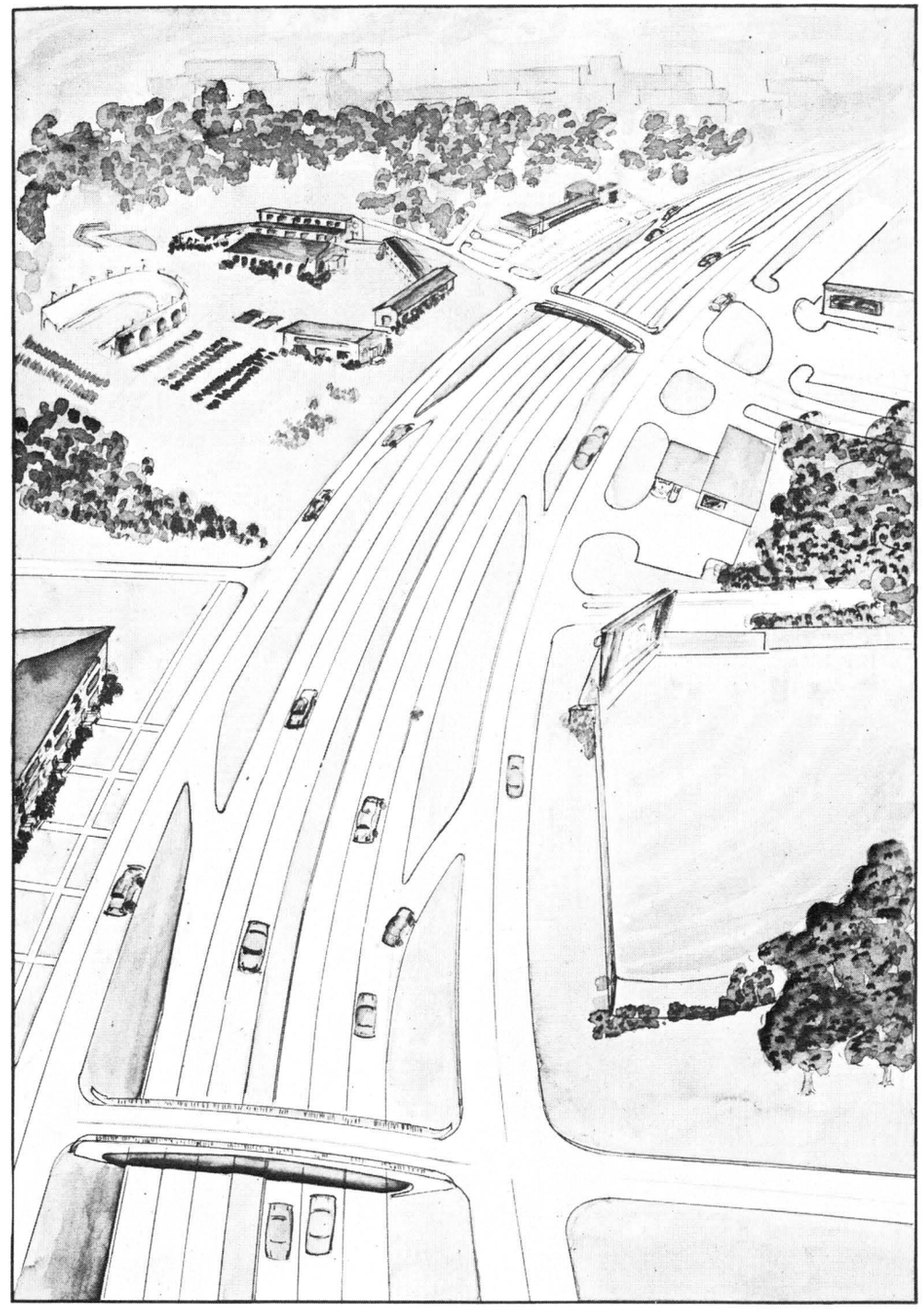
Lands adjacent to EXPRESSWAYS are suitable locations for institutions producing high peak traffic movements.

Examples:

- Schools
- Outdoor Theatres
- Exposition Grounds
- Auditoriums
- Stadia

The complete insulation of through traffic from conflicting local traffic makes zones adjacent to EXPRESSWAYS desirable for the location of educational institutions, even those attended by children.

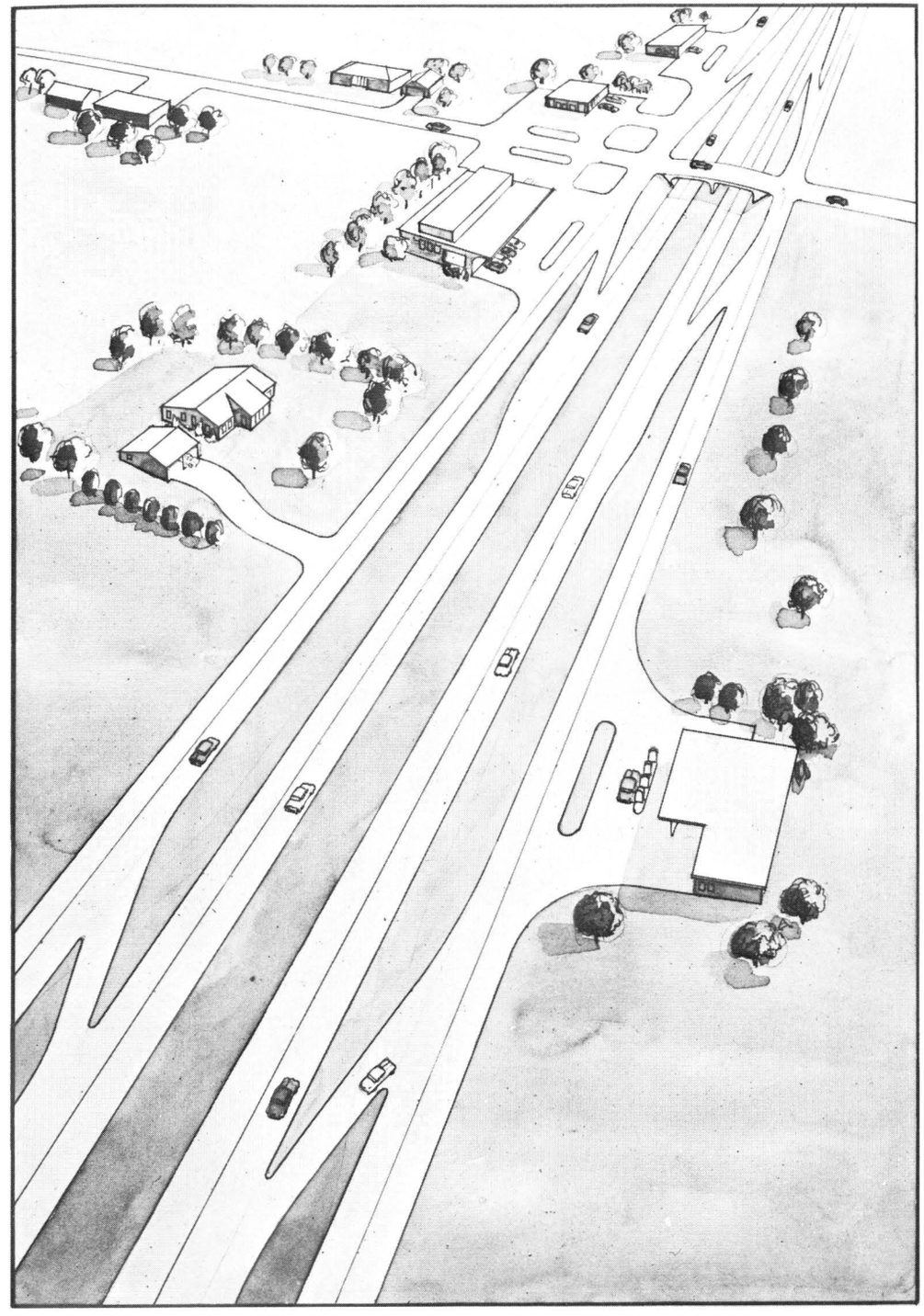
Before the advent of EXPRESSWAYS it was not considered safe to locate schools near arterial highways and streets.



EXAMPLES OF EXPRESSWAYS AND FREEWAYS

IN TEXAS:

It is State Highway Commission policy to provide FRONTAGE ROADS for the unrestricted ingress and egress to and from every business, residence, and other institutions. Connections between the FRONTAGE ROADS and THROUGH LANES are provided at convenient intervals. Crossings are provided at necessary locations.

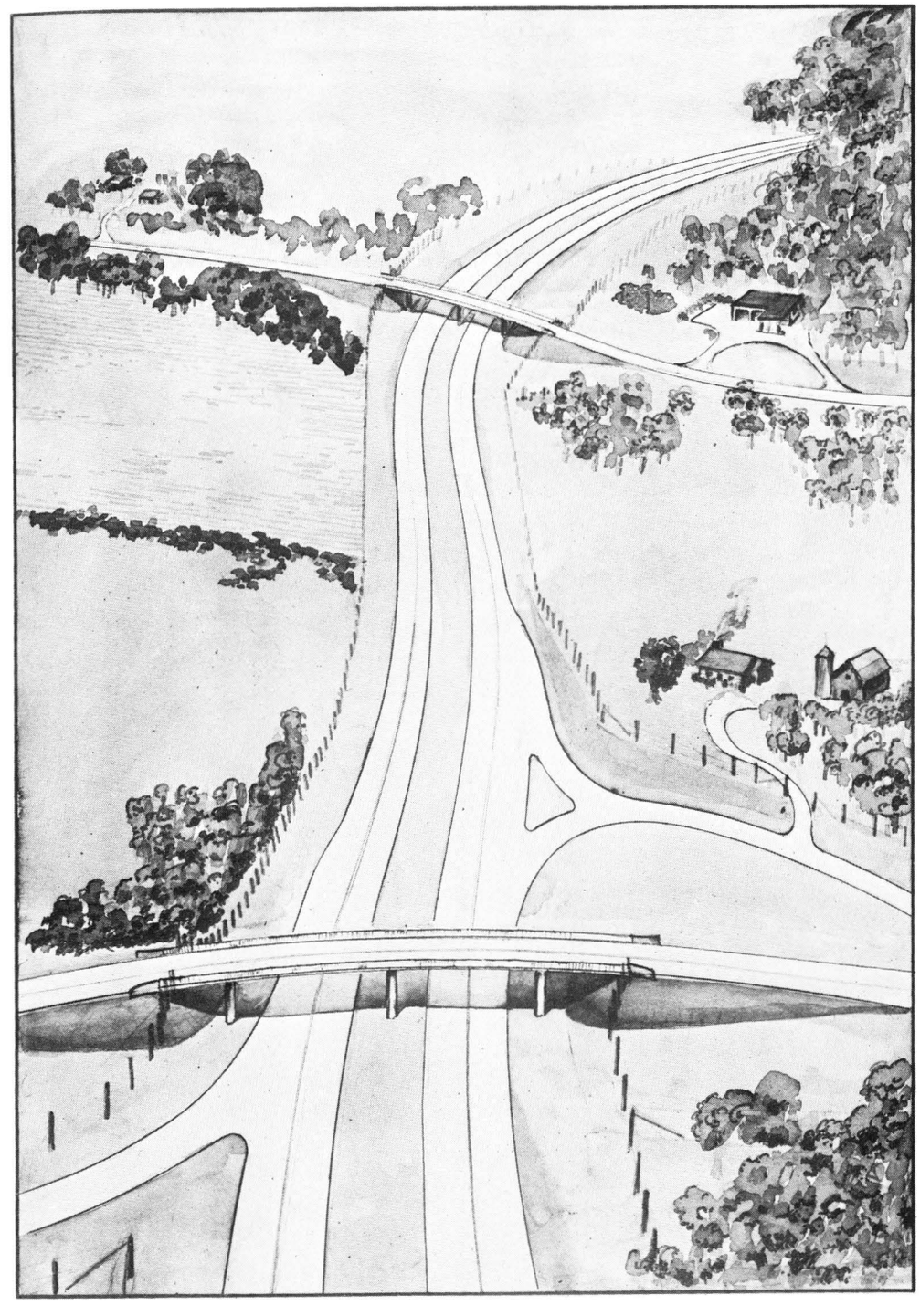


IN OTHER STATES:

There is a tendency in some states to favor through traffic at the expense and inconvenience of the abutting land holders.

The view on the opposite page shows an example of a FREEWAY without a FRONTAGE ROAD.

FRONTAGE ROADS with convenient access points would permit development of land along this route.



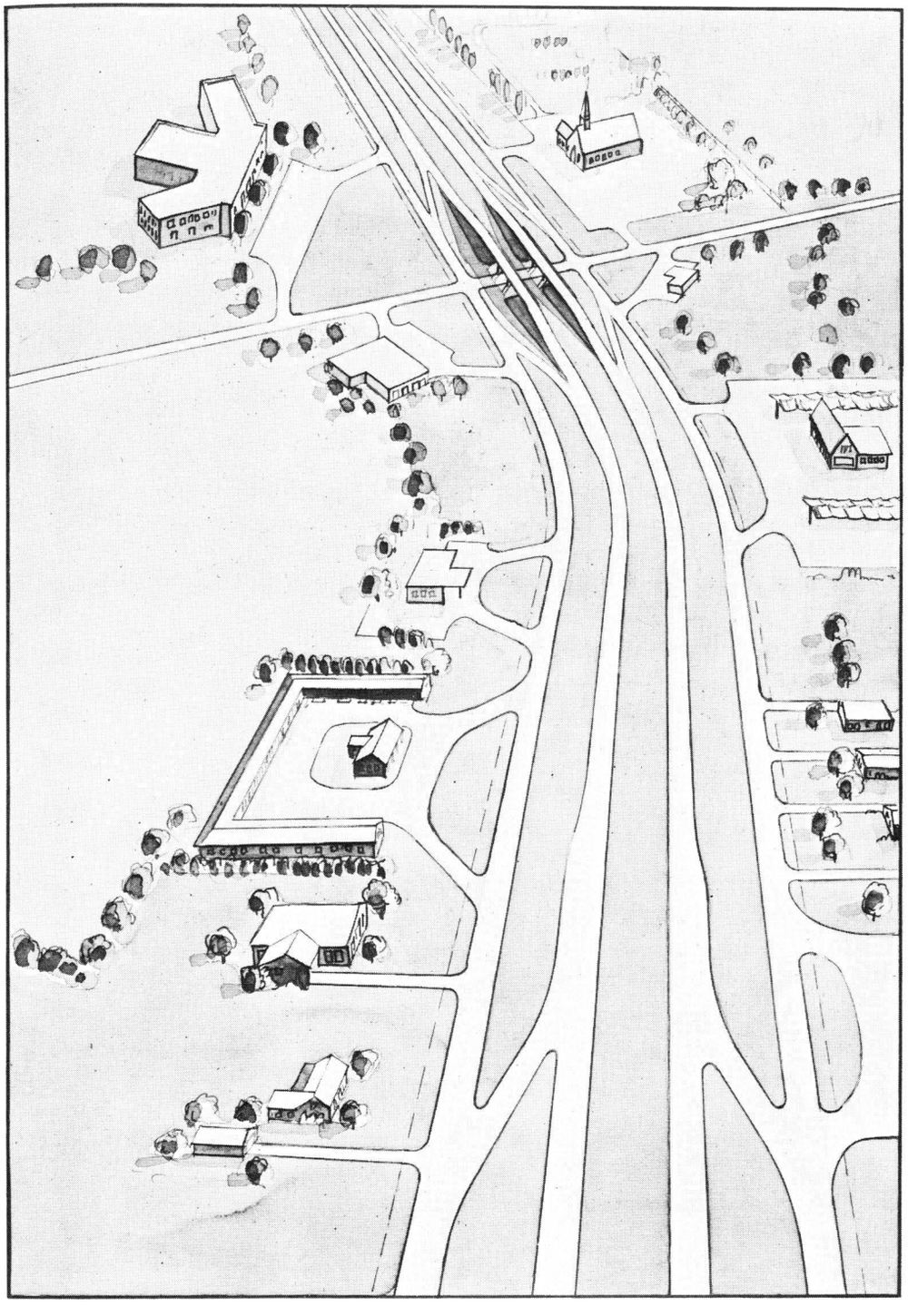
STAGES OF DEVELOPING AN EXPRESSWAY

PLAN I

A TURN-KEY JOB

All elements of the EXPRESSWAY, including divided and complete separation of grades, as well as complete FRONTAGE ROADS are constructed during first stage.

This type of treatment is employed where traffic volumes are high and where adjacent lands are fully developed.



PLAN II

FIRST STAGE

Existing road and two additional lanes to form ultimate THROUGH LANES.

Necessary FRONTAGE ROADS to serve existing residences and settlements.

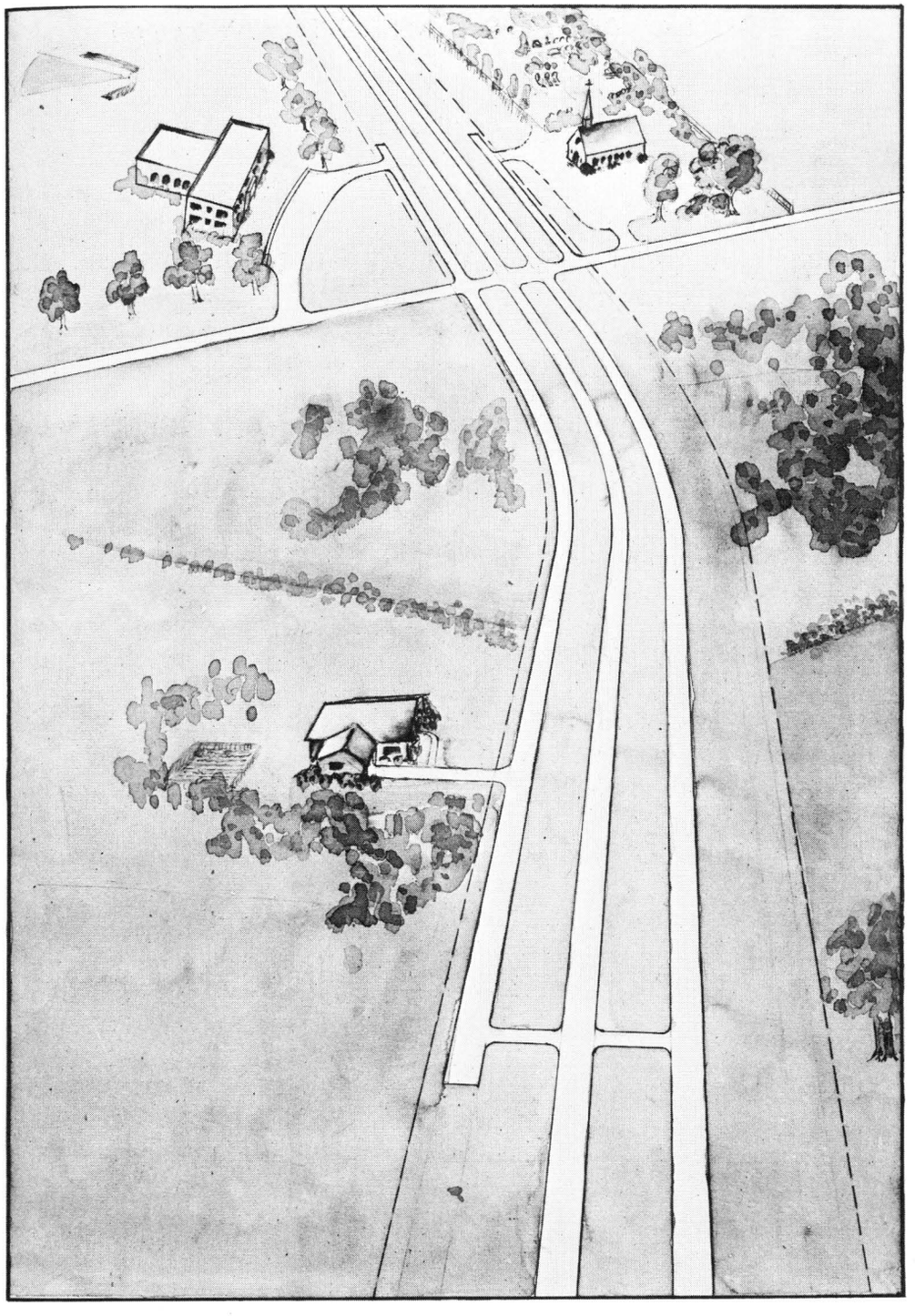
Temporary crossovers at selected points between THROUGH LANES will be permitted.

SUBSEQUENT STAGES

Addition of remaining FRONTAGE ROADS and grade separations to complete the ultimate facility.

See page 31 for a sketch showing ultimate development.

This type of treatment will be employed where an existing two-lane facility is structurally adequate and where intermittent roadside development exists.



PLAN III

FIRST STAGE

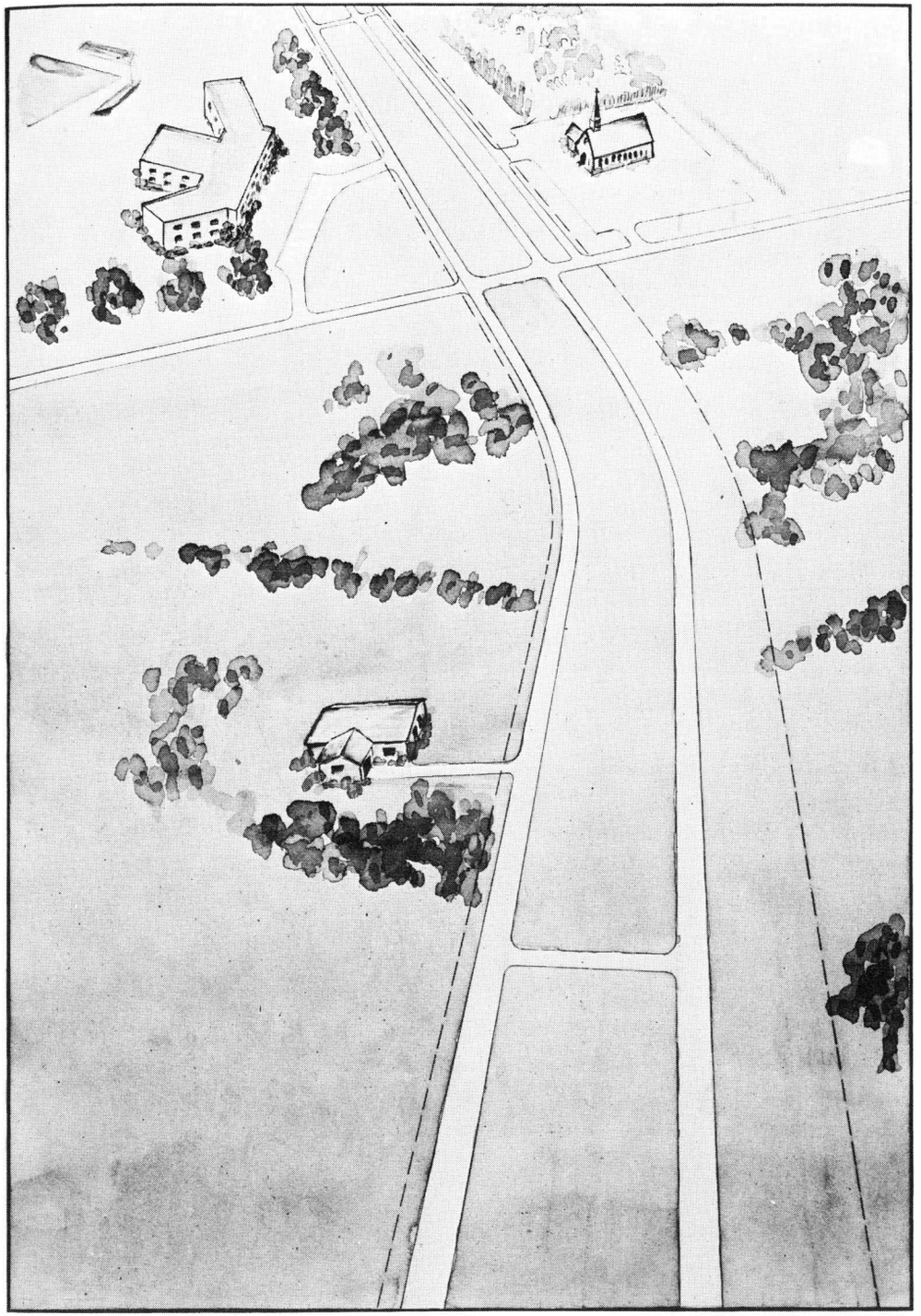
Existing road to form one of the ultimate FRONTAGE ROADS but to be used temporarily for one directional through traffic.

Construct two THROUGH LANES of ultimate EXPRESSWAY. Temporary use of this facility will be the same as for any ordinary four-lane road.

SUBSEQUENT STAGES

Addition of two THROUGH LANES, FRONTAGE ROAD and GRADE SEPARATIONS to complete the ultimate facility. Operation as an EXPRESSWAY will be initiated when all components are completed. See page 31 for a sketch showing ultimate development.

This type of treatment will be employed where an existing two-lane facility is structurally inadequate and where new rights of way can be more economically acquired on one side of the existing right of way.



PLAN IV

FIRST STAGE

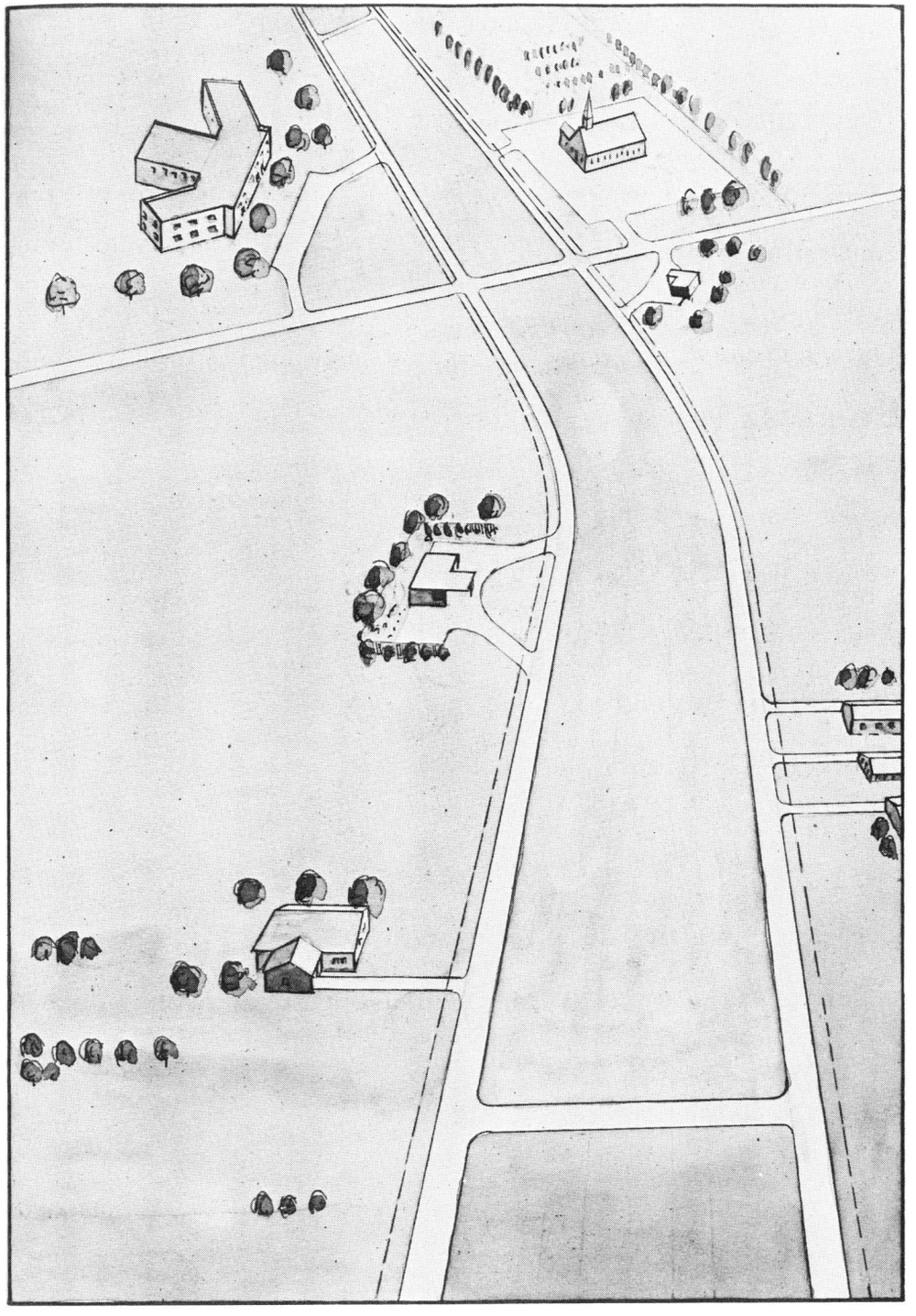
Construct two complete FRONTAGE ROADS, deferring THROUGH LANES.

One directional traffic on FRONTAGE ROADS and temporary crossovers at grade at selected points.

SUBSEQUENT STAGES

Construct THROUGH LANES and grade separations to complete the ultimate facility. See page 31 for a sketch showing ultimate development.

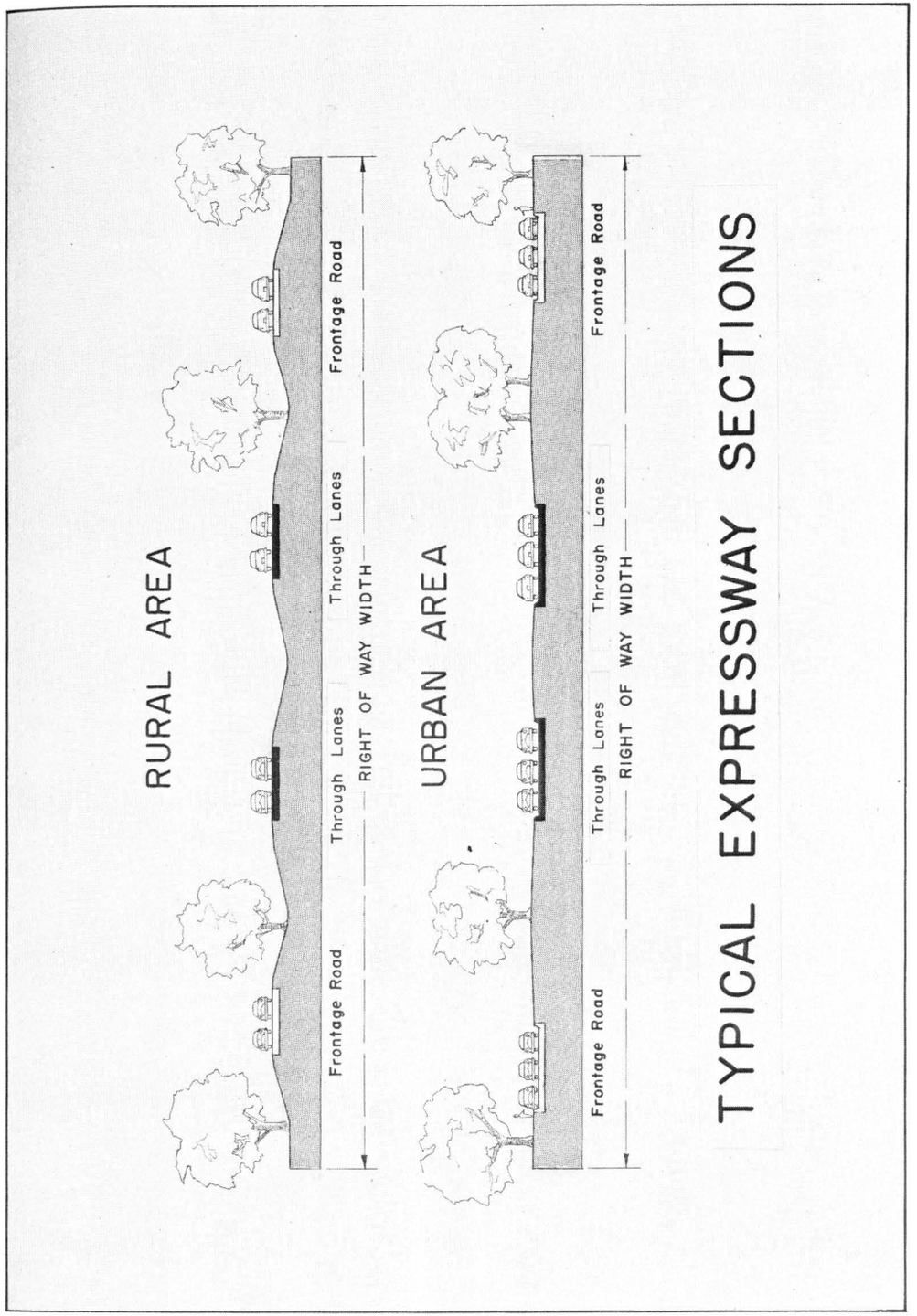
This type of treatment will be employed on routes where passenger traffic is predominant. It is a suitable plan in suburban areas where the land use pattern is being newly established.



EXPRESSWAY CROSS SECTIONS

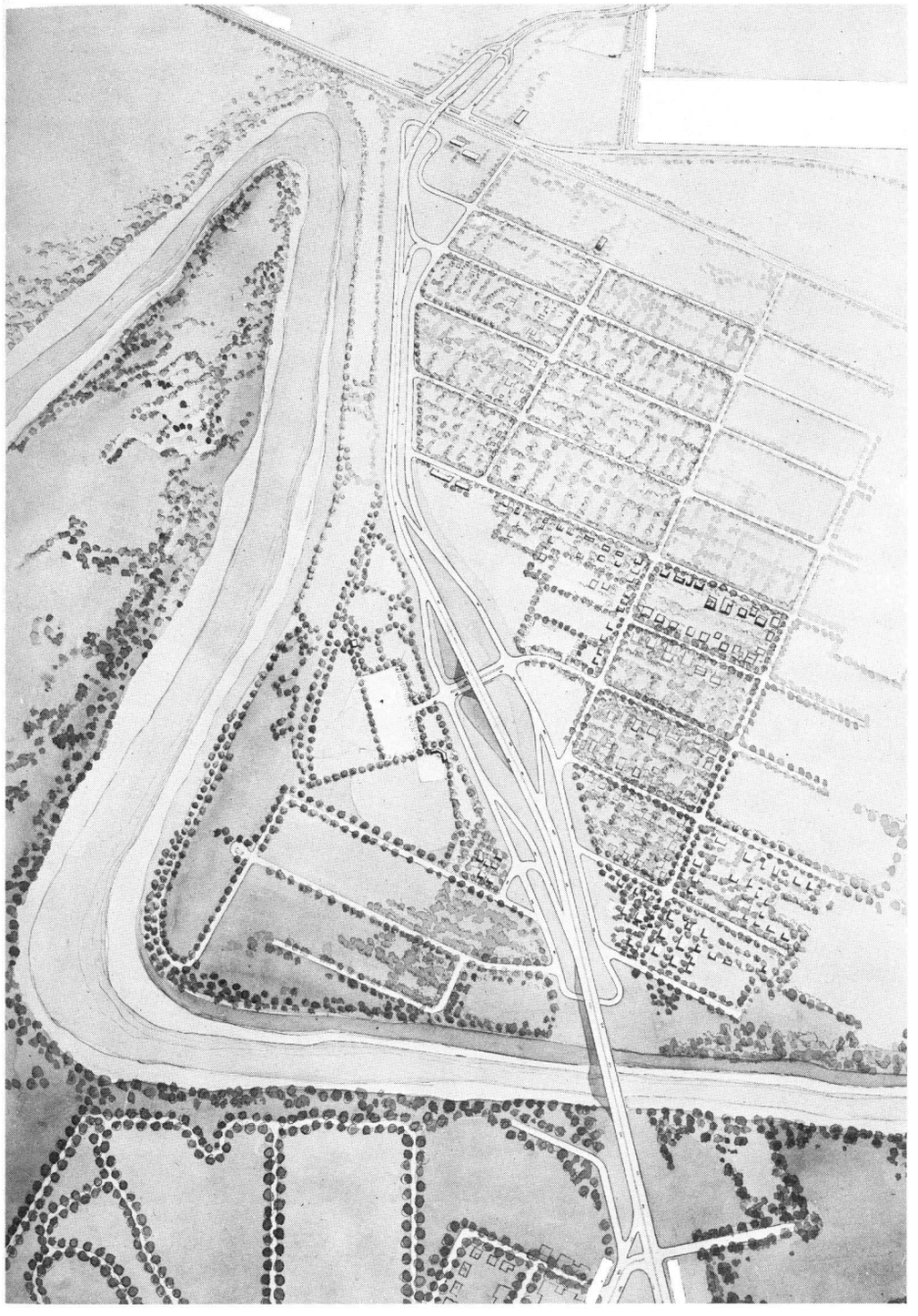
The THROUGH LANES and FRONTAGE ROADS must be properly spaced in the right of way for the protection of large conflicting traffic volumes.

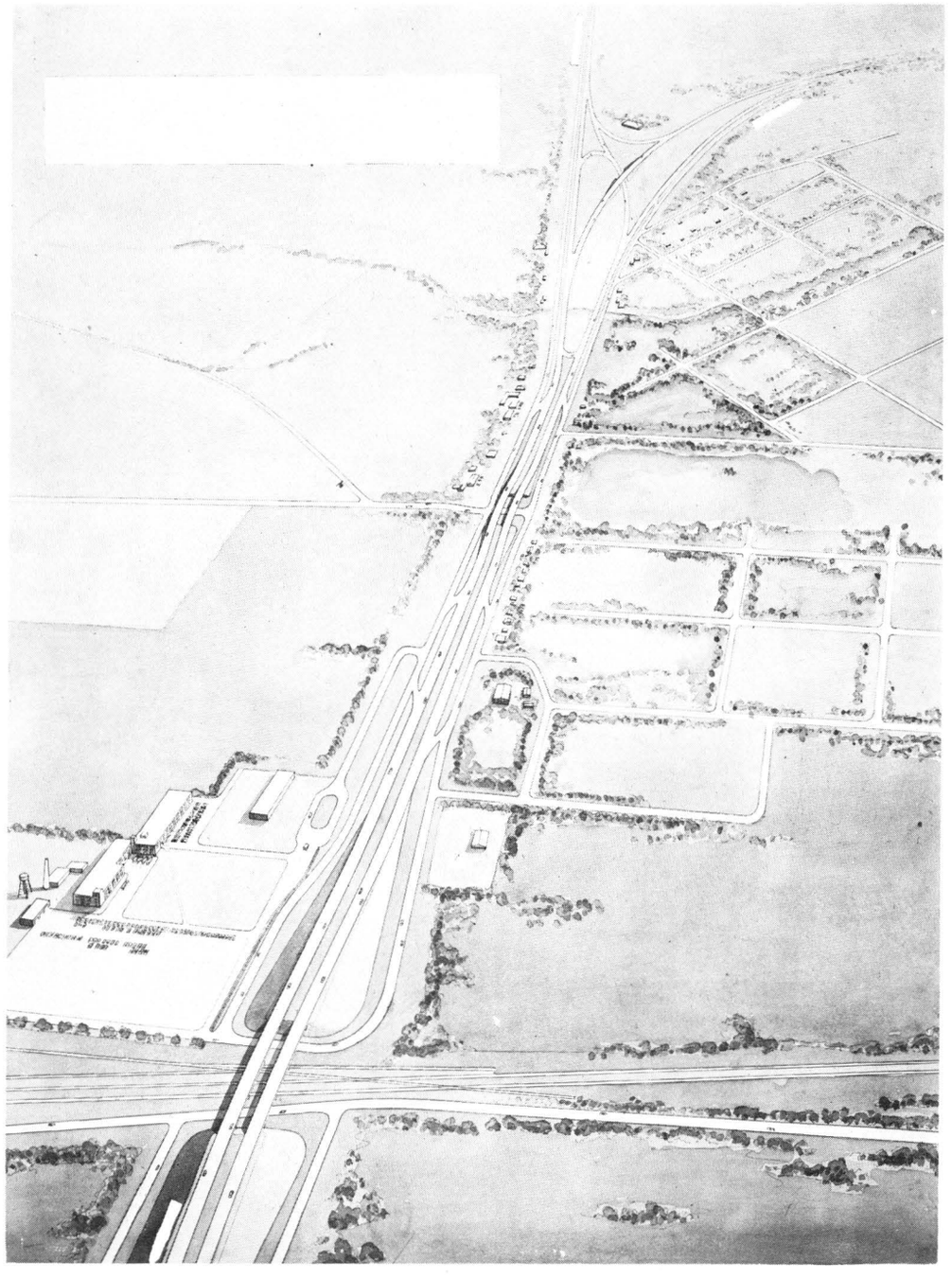
The sketches on page 39 show an adequately designed EXPRESSWAY cross section.

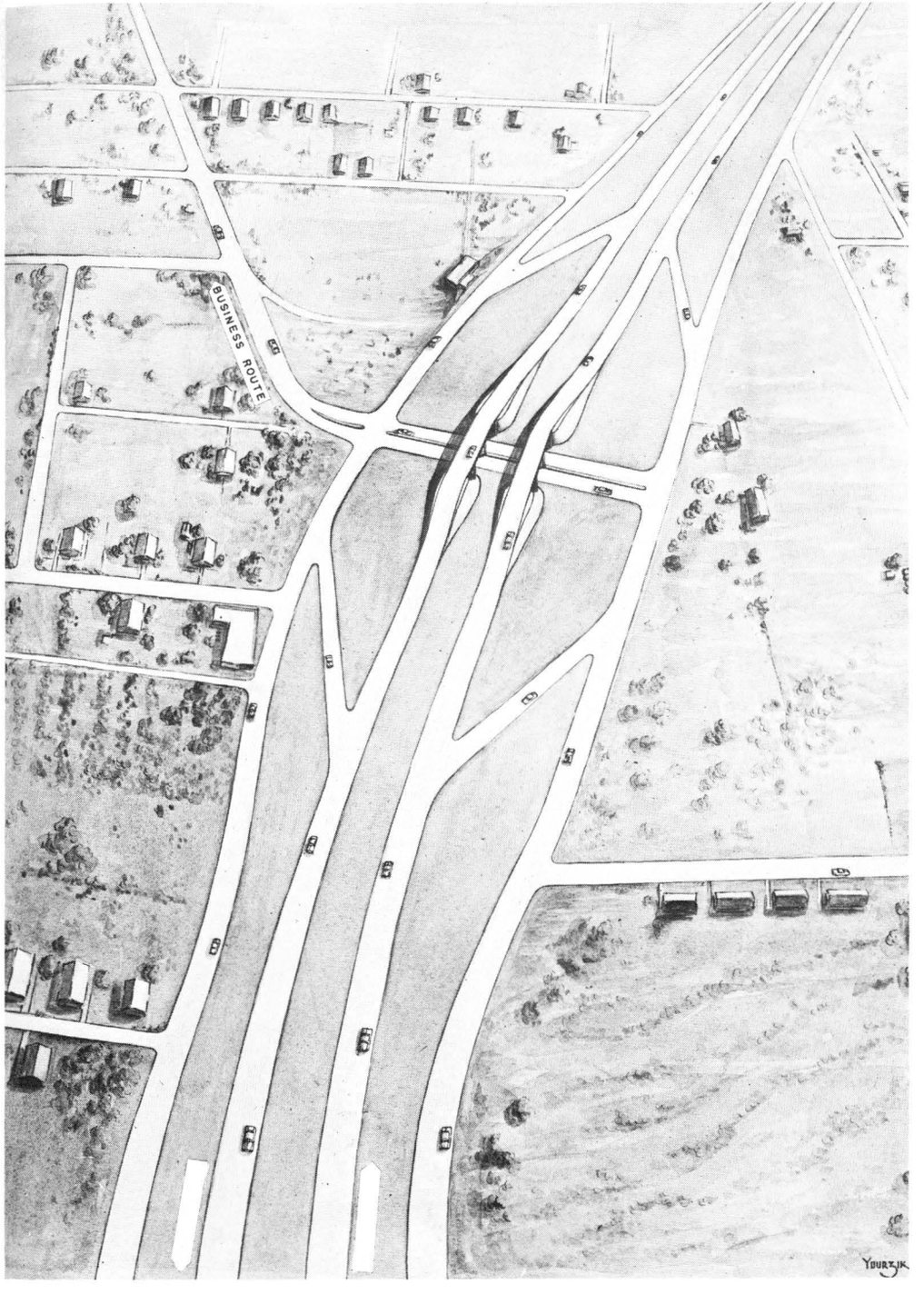


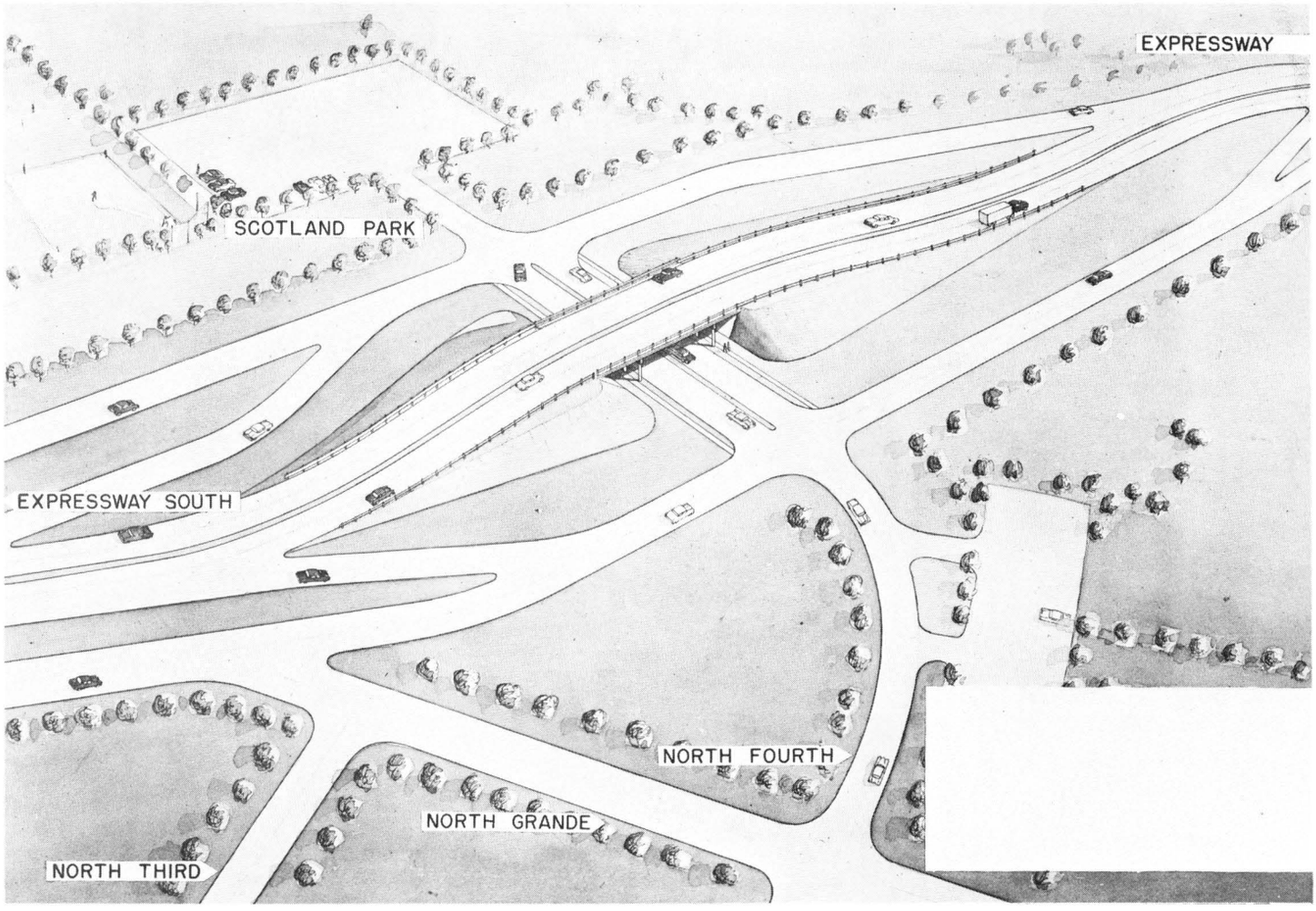
EXPRESSWAY PLANS

The following sketches shown on pages 41 to 47 are from the Texas Highway Department files. They represent plans for EXPRESSWAYS which are now being prepared. Both rural and urban types are shown.






BUSINESS ROUTE


EXPRESSWAY
SCOTLAND PARK
EXPRESSWAY SOUTH
NORTH FOURTH
NORTH GRANDE
NORTH THIRD