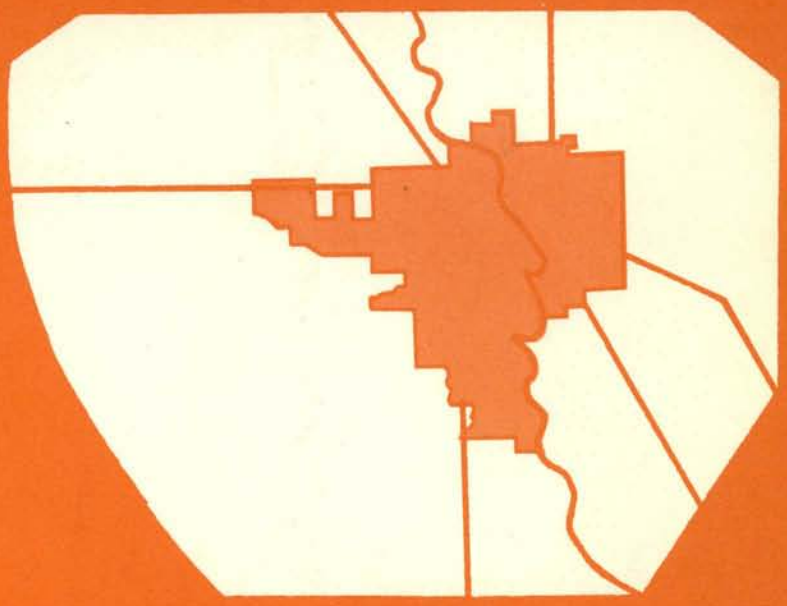
Jay — M. Carlson
April, 1969

GRAND FORKS - EAST GRAND FORKS

Urban Area Transportation Study



FINAL REPORT

Minnesota Department of Highways
North Dakota Highway Department

in cooperation with
the

U.S. DEPARTMENT of TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU of PUBLIC ROADS

#9899077

GRAND FORKS - EAST GRAND FORKS URBAN AREA TRANSPORTATION STUDY FINAL REPORT

ERRATA

April 1, 1969

Page 61 (Figure 12) - University Avenue from Washington Street to 3rd Street shown as "New Construction" should be shown as "Reconstruct".

Pages 87 and 88 - The top line of the heading, if not corrected, should be corrected to read "Improvement Priorities and Costs".

(4.2)

GRAND FORKS-EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

Final Report

Published - April 1969

prepared by

MINNESOTA DEPARTMENT OF HIGHWAYS

NORTH DAKOTA STATE HIGHWAY DEPARTMENT

in cooperation with

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

BUREAU OF PUBLIC ROADS

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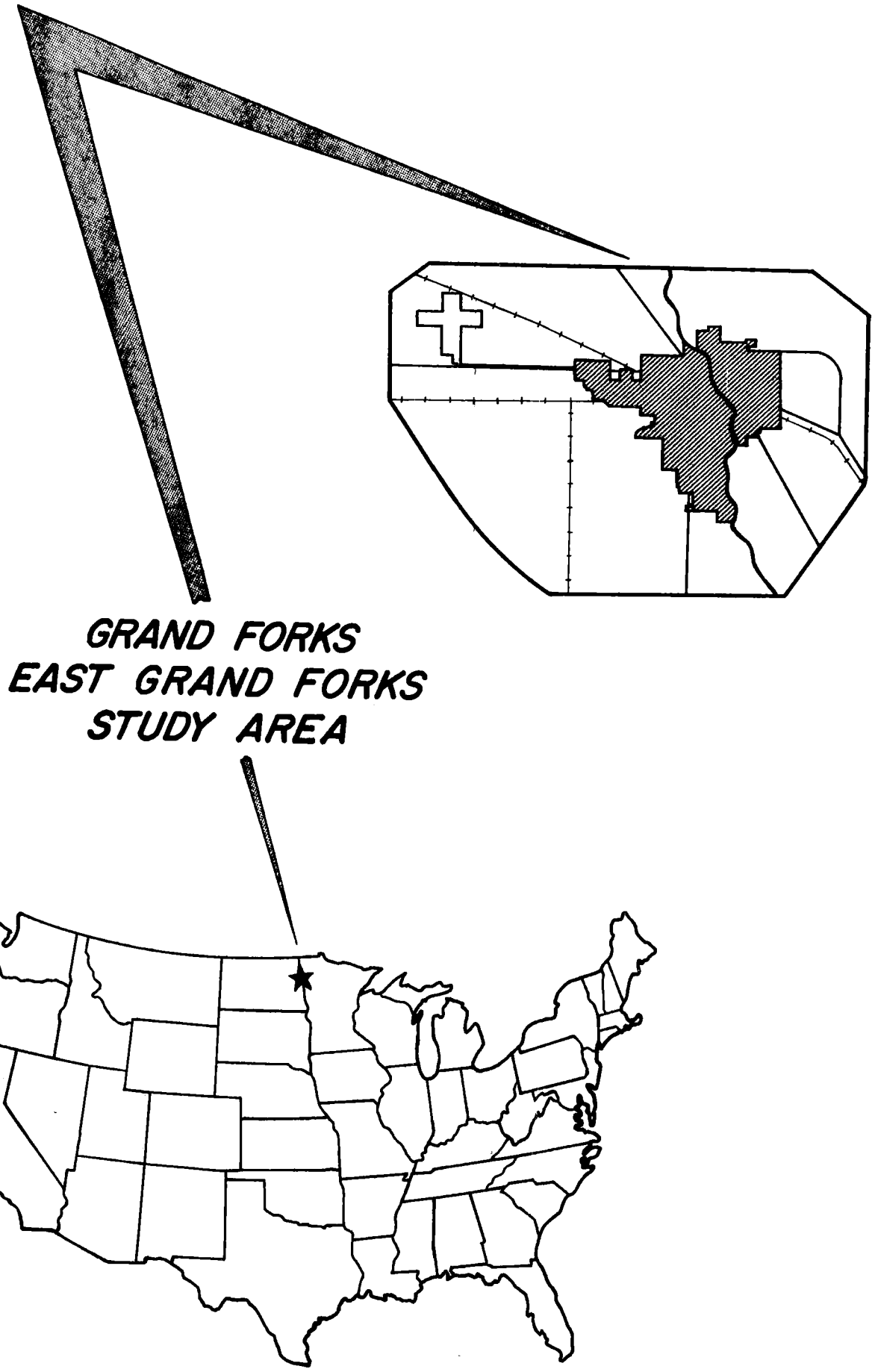
FOREWORD

Planning future traffic facilities for safer and more expedient vehicle travel has been recognized as a necessary element in urban area development. With the national population and vehicle registration continually increasing at a rapid rate the perplexing traffic problems on our urban streets and roadways will inevitably become more acute.

Instigated by Federal legislation, urban transportation planning such as the Grand Forks-East Grand Forks Urban Area Transportation Study is among the first of several to be conducted on all the major cities throughout the State. It is hoped that through these studies, and the resulting recommendations, major traffic congestion such as exists in the high-density areas along the East and West coast of our country today can be averted in future years.


GRAND FORKS
EAST GRAND FORKS
STUDY AREA


GRAND FORKS, NORTH DAKOTA


EAST GRAND FORKS, MINNESOTA

Summary

Enactment by Congress of the 1962 Federal-Aid Highway Act and the "TOPICS" program (initiated in 1967) provide both change and expansion of Federal-aid to urban transportation. Change was brought about by the 1962 Highway Act which provides that all traffic improvement projects involving Federal participation in urban areas of 50, 000 population or larger, must now be part of a continuous comprehensive transportation planning program. Expansion of Federal-aid to urban transportation is provided by the "TOPICS" program. Through this program Federal funds can be expended for certain traffic improvements along a specifically designated street network.

Although the combined population of Grand Forks and East Grand Forks totaled less than 50, 000 a comprehensive transportation study was initiated in 1965 to provide the initial phase of a continuous planning program. Local traffic conditions indicated that immediate establishment of such a program was advantageous and necessary to solve the growing traffic problems of the area. The transportation study will also serve a dual purpose of meeting fundamental requirements for traffic improvements within the "TOPICS" program.

In the development of the Grand Forks-East Grand Forks transportation plan, the present travel patterns and characteristics were ascertained through a series of origin-destination surveys and a number of basic inventory studies. These characteristics which included volume of traffic, pattern of traffic flow, time and mode of travel, purpose of trips, etc. were projected to the year 1990 using parameters of anticipated population growth, economic growth, and land area development of the study area. Once the future traffic characteristics were established a future transportation network plan was developed by modifying and expanding the existing network sufficiently to accommodate the 1990 travel demands.

STUDY AREA DEVELOPMENT

The daily vehicle travel generated in an urban area is largely dependent on the nature and extent of the area's development. The socio-economic factors expected to have the greatest influence in shaping the local traffic characteristics throughout the planning period are presented below:

- ★ The 1965 population of the study area was 48, 373. By 1990 the population is expected to increase to approximately 75, 000. These figures include the populations of both cities and the surrounding area within the cordon line.
- ★ Employment of area residents is expected to increase from 16, 869 in 1965 to approximately 27, 000 by 1990.
- ★ Passenger car registration in the area totaled 17, 519 in 1965 and is projected to 30, 640 by 1990.

★ Occupied dwelling units numbered 15, 030 in 1965 and are expected to total 23, 340 by 1990.

★ The future land area development plan for the Grand Forks-East Grand Forks urban area is shown in figure 2, page 5. This plan was established through future projection of recent development trends in the various categories of land use. The incorporation of unforeseen developments into the transportation plan during the annual review and periodic updating of all aspects affecting the transportation plan may alter the land area development plan considerably.

COMPARISON OF 1965 AND 1990 TRAVEL CHARACTERISTICS

Processing and expansion of the travel data acquired through the origin-destination surveys and other traffic related inventories yielded the following results:

★ During an average weekday in 1965 over 132, 121 vehicular trips were made in the study area. By 1990 the daily vehicular trips are expected to number approximately 233, 504, an increase of 77 percent.

★ Internal trips (trips having both origin and destination within the study area) will continue to comprise the largest portion of all travel in future years. Internal trips are projected to increase from 109, 882 in 1965 to 197, 050 by 1990.

★ Internal-external trips (trips crossing the cordon line only once per trip) will not increase as much proportionately as other types of trips. Internal-external trips are expected to number 30, 593 by 1990 as compared to 20, 331 in 1965.

★ Through trips (trips passing through the study area) are expected to increase almost 200 percent from 1, 960 trips in 1965 to 5, 861 by 1990. This high percentage of increase will be brought about by the completion of Interstate 29 which will draw more tourists and other traffic along this highway.

★ During the planning period between 1965 and 1990 the number of trips per household is expected to increase from 8.8 to 10 and the trips per capita will increase from 2.7 to 3.1, reflecting increased mobility and a higher standard of living.

THE TRANSPORTATION PLAN

The recommended future street network (as shown in figure 10, page 51) was developed by modifying and expanding the existing major street network. The new plan is expected to correct most of the existing traffic problems and accommodate the increasing traffic loads throughout the planning period.

The main features of the areawide transportation plan are the two overhead structures recommended for Grand Forks and the replacement bridge in East Grand Forks. These proposals along with all other recommended street improvements are shown in figure 12, page 61.

The DeMers Avenue Overpass: This structure, proposed for Grand Forks would link 6th Avenue South with DeMers Avenue by spanning the Great Northern railroad tracks and thereby providing a new continuous and direct route between Interstate 29 and the Central Business District of both cities. Passing through the central part of Grand Forks, this route would expand the local facilities for east-west travel through the area which is presently limited primarily to Gateway Drive (US Hwy. 2).

Columbia Road Overpass: This overhead structure, also proposed for Grand Forks would allow continuation of Columbia Road south over the Great Northern railroad tracks and through the southwest part of the city. The resulting route would provide convenient and uninterrupted access between the northwest and southwest parts of Grand Forks. Considerable future urban development anticipated in this part of the city and increased traffic generated by the growth of the nearby University indicate that development of additional north-south travel facilities in this area is necessary.

Red Lake River Bridge: Replacement of this structure in East Grand Forks is recommended on the basis of its age and inadequate overall design. The existing structure is not expected to handle the anticipated future traffic volumes efficiently.

Other major traffic improvements designed to eliminate major bottlenecks and improve traffic flow include the following:

1. Street Improvements - A variety of streets are recommended for reconstruction, resurfacing, or new construction as shown in figure 12, page 61.

2. Intersection Improvements - A number of intersections are recommended for miscellaneous improvements such as realignment, approach widening, establishment of left and right turning lanes, etc. as shown in figure 13, page 69.

3. Traffic Signals - Recommended improvements of several signalized intersections include: replacement of substandard and obsolete signal equipment, removal of unnecessary signals, (resulting from rerouting of major traffic) establishment of newly signalized intersections, and the synchronization of several consecutive signalized intersections. (See figure 14, page 75.)

Additional recommendations in the field of traffic control such as programs for more effective signing, pavement marking, and parking control are presented in the section entitled "Miscellaneous Recommendations". (See page 81.)

COST OF IMPROVEMENTS

The estimated cost of the recommended traffic improvements over the 20-year planning period is $12,800,000. Improvements in Grand Forks are estimated at $8,600,000 and in East Grand Forks they will cost $4,200,000. These estimates do not include the cost of drainage facilities and additional right-of-way which must be purchased when additional street width cannot be constructed within the limits of the original designated street right-of-way. Due to the difficulty in obtaining accurate estimates for these items at this stage of planning, no attempt was made to determine their cost. Distribution of the improvement costs will be made among all the participating governmental organizations, with the Federal Government participating through the Federal Highway Act, the "TOPICS" program and through the urban renewal program.

IMPLEMENTATION OF THE PLAN

The recommended traffic improvements should be carried out in five-year programs to allow ample planning and budgeting prior to their implementation. Through this procedure certain projects would be implemented each year and an annual review of the entire program would allow a changing series of projects to be identified five years in advance.

The first and second 5-year improvement programs and approximate costs along with the improvements tentatively scheduled for the remaining study period are presented in the appendix (pages 87 to 96).

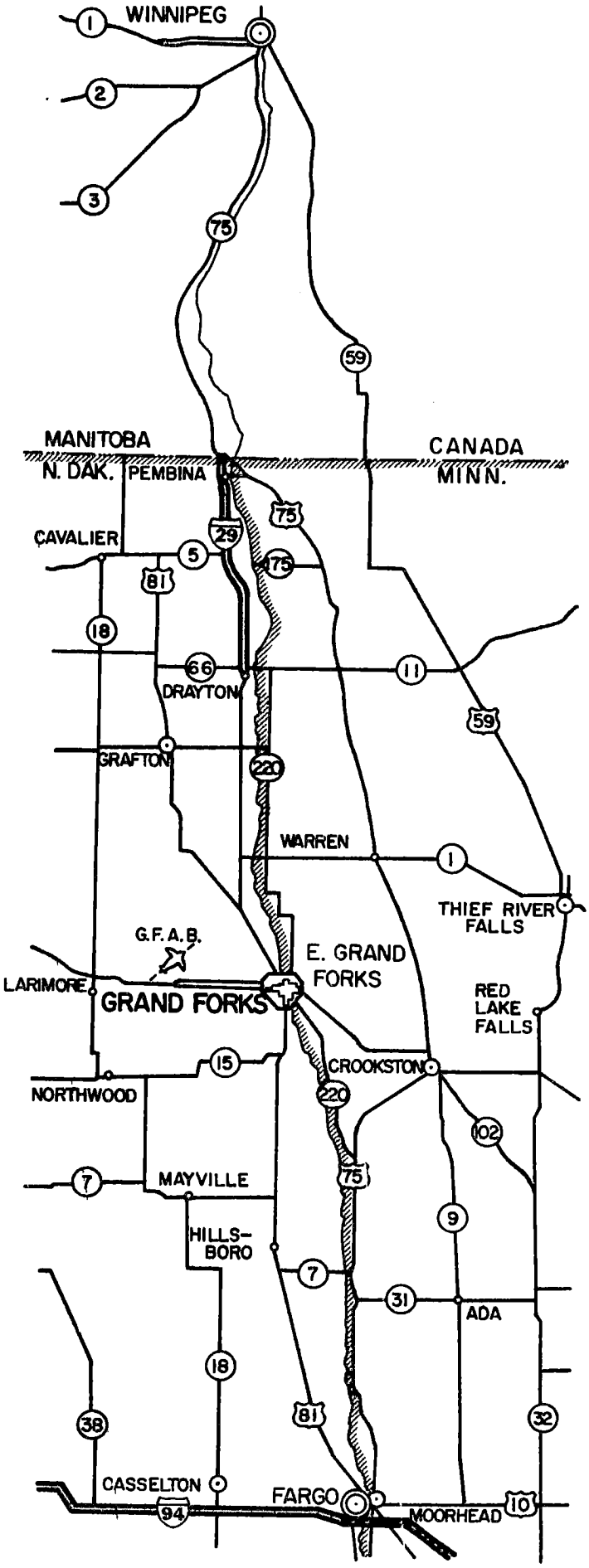
Introduction

The urbanization of America has created many social and economic adversities in our cities. Among the most prevalent of these is automobile traffic. Because the automobile has become an integral part of our society the resulting traffic with its inherent problems affects many phases of the day to day life of each individual.

The increased number of vehicles and vehicle traffic on our city streets today can be attributed to several factors: accelerated urban population growth coupled with heavy influx of rural population, the change of status of the automobile from a luxury to a necessity, and the affluence of our society resulting in more vehicles per capita and increased use of these vehicles.

Urban traffic problems of todays magnitude are the result of a backlog of needed street improvements accumulated over the past decade as many communities were unable to improve and expand their thoroughfare systems rapidly enough to keep pace with the tremendous traffic growth.

Until recent years construction of roadways by State and Federal governments was oriented mostly toward rural areas. It was felt that urban traffic was a matter for the municipal authorities, however, most cities were ill equipped



(technically and financially) to handle the complex traffic problems that were developing.

Recognizing the increased importance and necessity of sound transportation to urban life, the Federal government sought new legislation to assist municipalities in solving their traffic problems.

The most recent steps taken by Congress to expand aid to urban transportation was the enactment of the Federal-aid Highway Act of 1962. This was later followed by the 'TOPICS' program 1/ of 1967. Under these programs certain federal funds are made available through the various State Highway Departments for the analysis and correction of urban traffic problems and to provide for continued future traffic planning.

The Grand Forks-East Grand Forks Urban Area Transportation Study initiated in 1965 is in response to the 1962 Federal Highway Act. Although the Act does not require an urban transportation study in areas of less than 50, 000 population, the combined population of the two cities is expected to reach that figure by about 1970.

A series of five memorandum reports preceded this final report. The series covered the subjects of: (1) Living Patterns and Attitudes, (2) 1965 Land Use, (3) 1965 Traffic Characteristics, (4) Population and Economic Characteristics, and (5) Goals and Standards. These reports were created to provide working material for all the participating agencies while the final transportation plan was being formulated. The memorandum reports present in detail the data acquired from all traffic surveys and other social - economic studies and inventories conducted in the study area. Reference to these reports will be made throughout this presentation.

PURPOSE AND SCOPE

The goal of all traffic studies is the alleviation of existing traffic problems and the development of a planned arterial street system which will safely and efficiently serve the current and future traffic demands of an area. Only by evaluating the present system, establishing an improvement and development program to correct current deficiencies, and expanding the system to meet future traffic needs, can a community expect to keep pace with traffic growth.

The major elements of the transportation study are an analysis and projection of travel data, an analysis of present and future street needs,

1/ "Traffic Operations Program to Increase Capacity and Safety", Bureau of Public Roads Instructional Memorandum 21-7-67, issued February 13, 1967.

and the preparation of a street system for future traffic, which, when implemented with a planned program of systematic improvements, will adequately serve the present and future transportation needs of the cities.

The Grand Forks-East Grand Forks Transportation Study is a cooperative effort entered into and financed jointly by the cities of Grand Forks and East Grand Forks, the North Dakota State Highway Department, the Minnesota Department of Highways, Grand Forks County, Polk County, and the United States Department of Transportation, Bureau of Public Roads. This transportation study together with the Comprehensive Plan prepared by Nason, Wehrman, Knight & Chapman, Inc. for the city of Grand Forks and the Comprehensive Guide Plan, East Grand Forks Minnesota prepared by Community Planning and Design Associates Inc. will provide a long-range plan of coordinated physical development for the two cities.

THE STUDY AREA

The survey study area (encompassing approximately 85 square miles) includes the cities of Grand Forks and East Grand Forks and the surrounding unincorporated areas in both North Dakota and Minnesota, as shown in figure 1. This area is located in the heart of the fertile Red River Valley. Separated by the Red River which also serves as a State boundary line, Grand Forks lies on the west bank in North Dakota and East Grand Forks on the east bank in Minnesota. The river interrupts the general homogeneity of the urban area and limits vehicle access between the adjacent cities to the existing three bridges.

Grand Forks-East Grand Forks form the trade center for a large part of the Red River Valley. Established early in the settlement of the Valley, the cities served as a shipping center for the Valley's abundant agricultural products. The early means of shipping these products by oxcart and riverboat, along and on the Red River, have today been replaced by modern railroad and highway transportation.

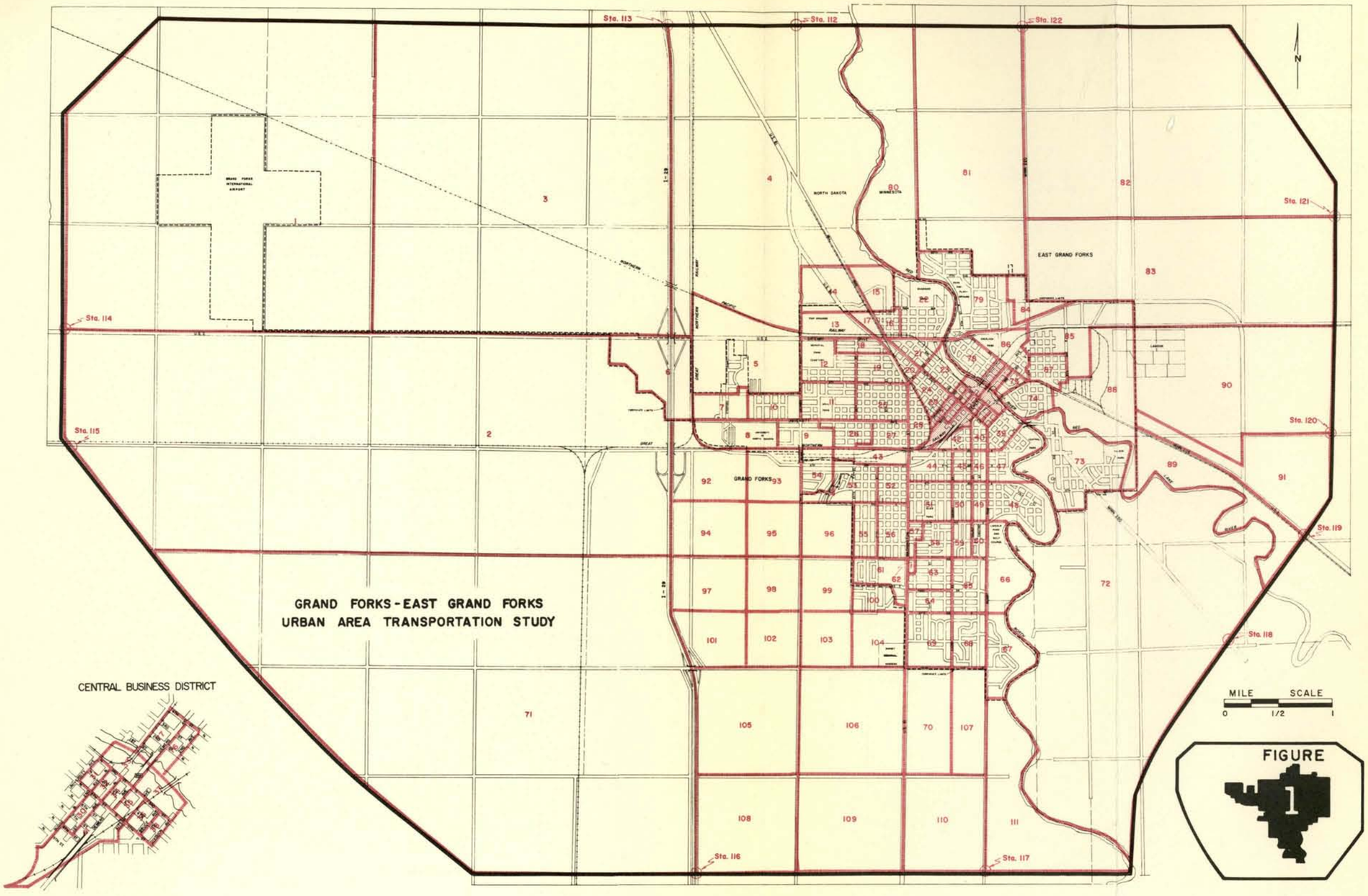
Major highways transversing the study area include US Highway 2, the main east-west travel route, US Highway 81, the main north-south travel route, and Minnesota Highway 220. These highway facilities enable service by interstate bus and truck freight lines adept to the needs of the area. Interstate Highway 29, presently under construction, will pass along the west edge of Grand Forks and will replace US Highway 81. This freeway will provide modern, and more efficient auto travel south to Fargo and points beyond and north to the Canadian Border in the direction of Winnipeg, Canada.

As was the case with most cities in the upper midwest, the railroads contributed significantly to the early development of the study area. Grand Forks-East Grand Forks is presently served by two major railroads; the Great Northern and the Northern Pacific. Both railroads provide adequate interstate and intrastate freight and passenger service for the study area.

In addition, the Great Northern operates a "roundhouse" in Grand Forks for the maintenance and repair of railroad equipment.

Complementing the highway and rail transportation facilities in the study area are two major airlines: Northwest Orient Airlines and North Central Airlines. To accommodate the present and future growth and advancement of airline service, the city of Grand Forks has recently completed a new International Airport located seven miles west of the downtown area. This new location was selected for the correlation of the future expansion of the study area and expansion of air travel facilities.

TRAFFIC ZONES



Existing Characteristics

All phases of future city developments are influenced by the social and economic conditions of the area. In planning a future transportation system these conditions must be known and analyzed to better understand the potential of future development. The social and economic aspects of the study area most pertinent to this transportation study include: population, economic and employment factors, and land area use. Data relative to these subjects was acquired through the eleven different surveys and inventories conducted as part of the Grand Forks-East Grand Forks Transportation Study.

POPULATION

An important element in traffic planning is future population growth. The 1965 population of the study area stood at 48, 373, of which 38, 821 resided in Grand Forks, (the second largest city in the State), 7, 881 resided in East Grand Forks, and 1, 671 resided in the rural area around the cities included in the study area.

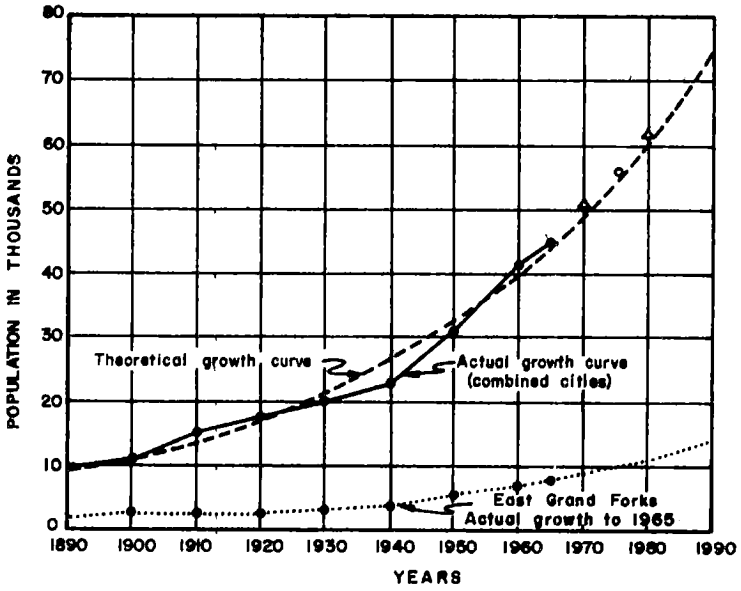
The cities' combined population is expected to reach 56, 000 by 1975 and 73, 500 by 1990. This growth is illustrated in graph 1. The projection compares satisfactorily to other recent population projections. For example, graph 1, predicts 61, 000 people by the year 1980. The Grand Forks Master Plan prepared by Nason, Law, Wehrum and Knight Inc., May, 1961 predicts a population of 62, 000 by the same year and the Population Study, East Grand Forks, Minnesota published by the Community Planning and Design Associates, April, 1963 predicts a figure of 62, 700 by 1980. Although there is a difference of up to 1, 000 population, the projections may be considered in close agreement by virtue of their speculative nature.

The principal forecast year for this study is 1990. The extreme length of the projection period increases the amount of uncertainty and chance for error, however, this length is essential for plans involving long-range transportation facilities. The continued review and future updating of the data in this study will greatly reduce any uncertainty relative to the population projection and other expectations presented herein.

The population growth in Grand Forks and East Grand Forks will depend, to a great extent, on good employment opportunities. Many young people are introduced to the community by the University of North Dakota and the Grand Forks Air Force Base. These, together with the young people, native to the area, will be ready to take advantage of the economic opportunities the communities have to offer. If a healthy economic atmosphere is maintained the youth will stay and prosper as residents of the area, however, the youth form a very mobile element of the population and will not restrict themselves to only the local job market.

GRAPH I

GRAND FORKS - EAST GRAND FORKS POPULATION TREND



● Actual Population △ Population predicted in the Grand Forks Master Plan, 1961 ○ Population predicted by the Upper Midwest Economics Study, 1963

Also contributing to the anticipated population growth are the excellent educational opportunities offered by the University which constitute a great drawing power for people with college age children and young adults who wish to continue their education beyond high school. Future enrollment at the University is expected to continue to rise annually with a leveling off anticipated at about 1980. However, if the University is re-established as the University of the Northern Plains, the enrollment will continue to rise steadily through the 1980's. Continued enrollment increases and campus expansion will be the principal source of future population growth for the Grand Forks-East Grand Forks area.

ECONOMICS AND EMPLOYMENT

The economic influence of the two cities encompasses approximately 18, 800 square miles, of which 10, 450 square miles or 55. 4 percent is presently under cultivation. The fertile soil of the Red River Valley is particularly noted for its production of root crops such as sugar beets and potatoes. The Valley ranks third throughout the nation in the production

of potatoes. Other crops raised in the Valley include wheat, oats, barley, and flax. These crops yield more than 200 million dollars in annual income to the farmers of the area.

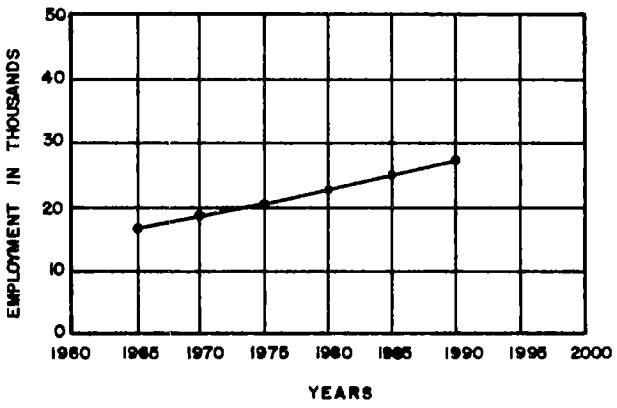
Retail trade is the cities number one industry and means of income. This is followed by the operation of governmental institutions such as the University of North Dakota, the Air Force Base, the State Mill and Elevator, and local governmental agencies. Manufacturing, mainly of food products, is also an important factor in the Grand Forks-East Grand Forks economy.

The population increase of a community is closely related to its economic development. Most of the previous mentioned population growth will be a direct result of additional employment provided by the expansion of the local economy. The study area's employment level is expected to rise from 1965 figure of 16, 869 to 20, 200 employed by 1975 and 27, 000 employed by 1990. The anticipated employment increase over the next two decades is illustrated in graph 2. The above employment figures indicate that approximately 35 percent of the areas population is presently employed. This is a relatively high percentage in view of the large number of non-employed students residing in the area.

The high ratio of employment to total population can be attributed mainly to the variety of governmental agencies and institutions located in the area particularly in Grand Forks, the county seat. The University of North Dakota, for example, employes approximately 1, 700 persons and is the largest single employer in the study area. Since its establishment in 1886, it has been one of the leading factors contributing to the economic development of the area, and will continue to be in future years. Other governmental organizations such as the North Dakota State Mill and Elevator, the State Highway Department, County and local governments, etc. employ a total of approximately 2, 060 persons. Governmental employment of all sorts in East Grand Forks totals approximately 241.

GRAPH 2

GRAND FORKS – EAST GRAND FORKS EMPLOYMENT TREND



Within the economic influence area of Grand Forks-East Grand Forks lies the Grand Forks Air Force Base. Located 15 miles west of the cities, the base houses bombers of the Strategic Air Command (SAC), interceptor fighter aircraft, and serves as the nerve center for a complex of 150

Minuteman II missiles. The 17,000 military personnel and dependents stationed at this base form the second largest SAC base in North America, and the sixth largest community in North Dakota.

In addition to the military personnel the air base and other military projects near Grand Forks employ approximately 830 civilians from the study area. The monthly Federal payroll for these two groups has a significant impact on the economy of the two cities. Due to the difficulty of predicting the future of the Air Base, it is assumed that it will remain a practically static source of employment and trade during the forecast period.

Also contributing to the local economy is light manufacturing, which consists primarily of converting agricultural produce into finished products. These industries include the production of sugar, flour, potato chips, and other similar products. Future manufacturing growth is expected to be moderate and will probably take the form of increased production with little increase in manufacturing employment. The growth will, however, lead to increased income per worker and will stimulate other sectors of the economy. Further information on the subjects of population and economics of the Grand Forks area can be found in the memorandum report Population and Economic Characteristics.

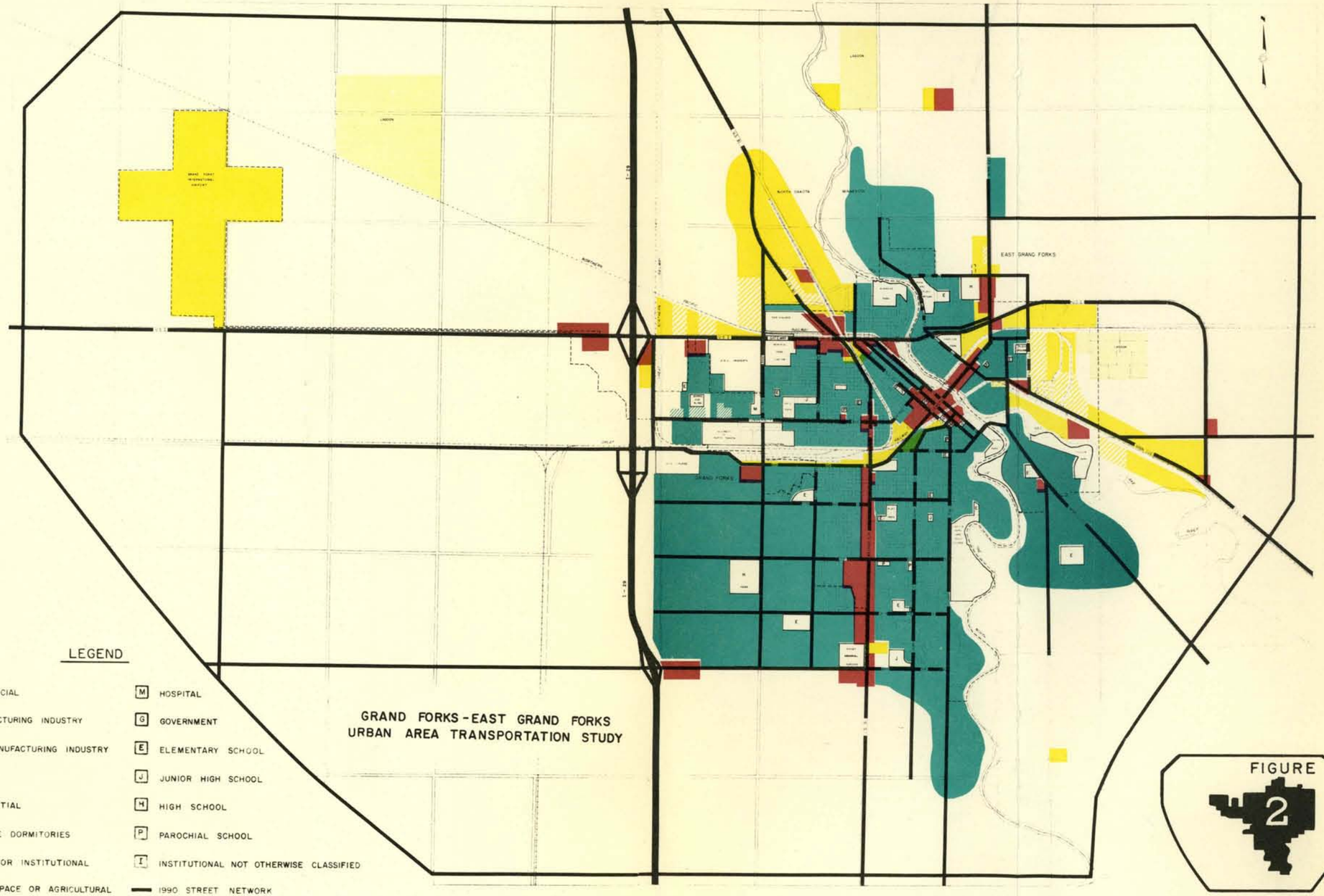
LAND USE

The type and volume of traffic on any urban roadway is dependent to a great extent on the purpose for which the surrounding land area is used. By correlating the present and future anticipated land use of the study area with the present and future needs and desires of the motoring public, a more effective transportation system can be planned. Pursuant to this end, a land use inventory of the Grand Forks-East Grand Forks area was conducted in 1965. The land use was classified into five categories. They are residential, commercial, industrial, public and institutional, and open space or agricultural land use. These five categories are discussed extensively in the memorandum report, 1965 Land Use which also features a generalized land use map of the study area. Below is a short discussion of the present and future land use of each category. A 1990 Area Development Plan accompanies this section (see figure 2).

RESIDENTIAL LAND USE

In Grand Forks the residential areas occupy approximately 37 percent of the developed land area within the study limits. These areas are comprised of single-family dwellings, multi-family dwellings, and trailer houses. The single-family dwellings are predominant throughout the city, however, multi-family dwellings are also quite prevalent especially in the

AREA DEVELOPMENT PLAN
1990



GRAND FORKS - EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

FIGURE 2

older residential areas. Areas zoned for multi-family dwellings include nearly continuous strips from one to two blocks wide on each side of the South Washington Street commercial district. These strips are at present occupied by many multi-family dwellings several of them large apartment houses.

Smaller multi-family residential districts are found near the University campus, along the east side of Memorial Park Cemetery, and east of Mill Road adjacent to the industrial area of northern Grand Forks. Trailer homes are accommodated at three locations -- near South Washington Street, north of the city fairgrounds and on University land north of the campus.

In East Grand Forks residental areas occupy approximately 32 percent of the developed land area. Single-family dwellings are also predominant throughout the residential areas of this city. There are, however, scattered multi-family dwellings especially near the central business district.

FUTURE RESIDENTIAL EXPANSION - Expansion of residential land use in Grand Forks is expected to occur in the south and southwest parts of the city as shown in figure 2. The southwest area between Interstate 29 and Washington Street south to 32nd Avenue will be the site of extensive residential development. The southeast area along Belmont Road will also undergo residential development but to a lesser extent as this area is zoned for high middle and upper income single-family dwellings. In East Grand Forks, residential development is expected to expand primarily north and south along the Red River; however, the greatest growth is expected to occur in the south.

COMMERCIAL LAND USE

Commercial areas in this text will consist of land areas utilized for both retail trade and personal services. The principal commercial areas in Grand Forks are the central business district and the strip along South Washington Street. The former may be considered a general commerce district and the latter a shopping center and highway service district.

A large retail trade area is also located in the northern part of the city in the vicinity of Gateway Drive and Washington Street. The area contains restaurants, liquor establishments, a supermarket and various other stores, but by far the greater part of this area is occupied by new and used car lots, implement and machinery lots, and other establishments that are not entirely devoted to retail trade. The commercial area from the central business district north along 3rd Street in Grand Forks is made up mostly of used car lots.

In East Grand Forks, the central business district is the only major shopping center. However, there are several stores and a bank located along DeMers Avenue east of the senior high school; this area has potential for development into a regional shopping center. There is also a supermarket in the residential area south of the Red Lake River and a few cafes and service stations along Minnesota Highway 202 (Business Loop 2) east of the city.

FUTURE COMMERCIAL EXPANSION - Commercial activity in downtown Grand Forks is expected to grow in the foreseeable future, but the land area comprising the central business district (CBD) will increase very little. Additional commercial area will be realized mostly by construction of multistory structures in the present CBD. Also, the commercial activity in the CBD will lean more and more toward the various public and private services as retail trade (with its more frequent trips) is drawn to the outlying shopping centers, where accessibility and parking spaces are readily available.

The commercial area at South Washington Street is expected to experience the largest growth-mainly in retail trade. Expansion there is expected to continue in the southerly direction. It is stressed, however, that this development should be controlled to avoid an undesirable extended strip development.

Other commercial areas expected to develop in Grand Forks are: a variety of retail outlets near 32nd Avenue South and the I-29 Interchange, a neighborhood store complex in the area of 6th Avenue Southwest and a roadside service-retail complex (motels, restaurants, service stations, etc.) located on US 2 in the vicinity of the I-29 Interchange.

Other areas having potential for commercial development in Grand Forks are in the vicinity of the 32nd Avenue Interchange, U.S. Highway 2 (Gateway Drive) Interchange, and in the area of 6th Avenue Southwest and Columbia Road. Retail trade is expected to be the main activity in these areas stimulated by the anticipated future development of the surrounding residential areas. The area around U.S. Highway 2 Interchange, however, will continue to develop along the lines of the existing roadside services such as motels, restaurants, service stations, etc.

The only significant commercial growth anticipated in East Grand Forks will include expansion of the CBD along DeMers Avenue and the Commercial area located farther north on Minnesota Highway 220. Roadside service and retail establishments are also expected to develop in the southeast area of the city along Minnesota Highways 202 and 220.

INDUSTRIAL LAND USE

Industrial land use can be divided into two forms - manufacturing and non-manufacturing industry. The first of these occupies a relatively small area because it included only the plants or grounds actually utilized in manufacturing. The second includes the storage grounds, waste disposal areas and property utilized for wholesale trade purposes. Most of the 2,499 acres devoted to non-manufacturing industry in the study area is occupied by the Grand Forks International Airport and three waste lagoons (one industrial and two municipal lagoons).

There is a considerable variety of both manufacturing and non-manufacturing industry in the study area, but most of the establishments are relatively small. The most important industry is the processing and handling of agricultural products. Plants for this purpose include two flour mills and three potato processing plants in Grand Forks, and a sugar refinery and two potato chip plants in East Grand Forks. Storage and handling of potatoes by other firms also take up large parts of the non-manufacturing industrial areas of both cities.

FUTURE INDUSTRIAL EXPANSION - Future industrial growth, based on data utilized for this report, is expected to be moderate and probably similar in nature to the existing industries. This growth is dependent largely on success of the two cities in attracting outside interests. Existing and new industries will become increasingly mechanized, therefore, reflecting little growth in terms of industrial employment.

Industrial development in Grand Forks is likely to occur north of Gateway Drive along Mill Road and along US 81 where much of the existing industry is located. The city has also zoned a large area west of I-29 between US 2 and the Great Northern Railroad tracks for industrial purposes in efforts to establish industry (particularly research oriented) which may utilize the resources of the nearby University of North Dakota.

Another area with potential for future industrial development is located west of Columbia Road and north of Gateway Drive. Plans for diversion by the State Water Commission of the English Coulee, which presently flows through the area will render the area suitable for this type of development.

Future industrial growth in East Grand Forks is expected to be similar to that of Grand Forks. Industrial expansion is likely to continue developing east of the city adjacent to the existing potato and sugarbeet processing complexes.

PUBLIC AND INSTITUTIONAL LAND USE

Land areas occupied by schools, churches, hospitals, and all public and semi-public open land such as parks and golf courses represent the category of "Public and Institutional" land use. The total area in this category is divided into space occupied by institutions (educational, religious, or cultural) and space that may be referred to as public or semi-public open land (parks, cemeteries, etc.). Institutions such as schools and hospitals are of foremost importance here, as they are the major generators of traffic in this category.

There are 16 schools located throughout Grand Forks. They include eight public elementary schools, three parochial elementary schools, three public junior high schools, and two senior high schools - one public and one parochial.[1/] The public high school (Central High) is located near the central business district in the vicinity of 1st Avenue and 4th Street north. The parochial high school (St. James High) occupies a square block area between 16th and 17th Street, one block north of University Avenue. The junior high and elementary schools are located throughout the various residential areas of the city.

In addition to the schools mentioned above, Grand Forks has two hospitals, Deaconess Hospital - located in the downtown area and St. Michael's Hospital - located just north of the University Campus.

East Grand Forks has seven schools located throughout the city. There are three public elementary schools; one located south of the Red Lake River, another in the east central part of the city, and a third is located in the northwest part of the city. There is also a parochial school (combination elementary and high school) located near the central business district.

The East Grand Forks public junior high is located also near the central business district (at 2nd Avenue and 6th Street South), and the public senior high school occupies a 20 acre tract extending to the north urban limits between 8th Street and DeMers Avenue. There are no hospitals located in East Grand Forks.

Public and semi-public open lands used for parks, golf courses, and other recreational activities in the study area generate significant seasonal traffic volumes. City parks occupy a combined area of 257 acres in Grand Forks and 78 acres in East Grand Forks and are located primarily in the lowlands along the Red River. These recreational facilities feature swimming pools, golf courses, and picnic grounds.

1/ Since the time of this inventory the Grand Forks school district has constructed another high school (Red River High) in the vicinity of Columbia Road and 17th Avenue South.

FUTURE PUBLIC AND INSTITUTIONAL LAND DEVELOPMENT - Locations of all existing facilities and anticipated sites for the location of future facilities discussed in this land use category are shown in figure 2. An extensive study on the potential of public and institutional land development in the Grand Forks-East Grand Forks area can be found in the Comprehensive Plan prepared by Nason, Wehrman, Knight and Chapman, Inc. for Grand Forks and the Comprehensive Guide Plan, East Grand Forks Minnesota prepared by Community and Design Associates, Inc.

OPEN SPACE OR AGRICULTURAL LAND USE

Vacant land and land used primarily for agriculture is referred to as "open space". In cases where industrial or commercial establishments are small or scattered, their sites may not be differentiated from "open space". This was the case with several establishments located north of Grand Forks near US 81 and near Mill Road. The situation also occurs in the case of new residential sub-divisions in rural areas which have not reached the population density expected of a residential area.

Obviously, this category of land use has the least affect on the transportation plan. Additional land area for future expansion of the other land use categories will be acquired primarily from this source.

ORIGIN-DESTINATION SURVEY

Effective future traffic planning necessitates extensive knowledge of the present traffic characteristics. This knowledge is acquired through a variety of traffic related surveys which reveal the number,, type, origin, destination, etc., of vehicle movements, in addition to the social and economic aspects of the study area just presented. The most widely used method of obtaining this information is by means of the Origin-Destination Survey. The North Dakota State Highway Department and the Minnesota Department of Highways jointly conducted a comprehensive Origin-Destination Survey of the Grand Forks area in the summer and fall of 1965. A sampling procedure was used for the collection of data, which was statistically expanded to represent the traffic movements during a typical 24-hour period.

The Origin-Destination Survey was divided into two phases: External Cordon Survey and Internal Survey. The External Cordon Survey consisted of traffic surveys conducted at several stations located on the perimeter of the study area. The Internal Survey represents a composite of several traffic surveys conducted inside the study area. To facilitate the cataloging, analysis, and projection of the data acquired by the Origin-Destination Survey, the study area was delimited by a cordon line. Eleven external

survey stations were located on this line, and the area inside the cordon line was divided into 91 traffic assignment zones. To facilitate distribution of future trips a number of the larger zones were later divided which increased the number of zones to 111. The cordon line, external stations, and traffic assignment zones are shown on the Traffic Zone map, figure 1.

EXTERNAL SURVEY

The External Survey provided information on the movement of vehicles that enter, leave, or pass through the study area. This was accomplished by locating interview stations on most of the highways and county roads, where they crossed the cordon line.

A total of 11 such interview stations were established on roads which carried approximately 95 percent of the traffic into the study area. The remaining 5 percent of the traffic crossing the cordon line was distributed along roads whose low daily traffic volumes were impractical to survey.

During the External Survey, which was conducted for 14 hours at each of the eleven stations, a total of 12, 634 motorists were interviewed. These interviews secured information relative to the origin, destination, purpose of trip, vehicle type, number of passengers, etc. Statistical expansion of the above figure indicated that approximately 22, 291 trips (external trips) cross the cordon line in an average 24-hour period. This represents 17 percent of all vehicle trips in the study area.

INTERNAL SURVEY

A total of eleven surveys and inventories designed to reveal the present traffic patterns and their associated social, economic, and land use patterns, were conducted inside the cordon area. Five of these surveys form the basic Internal Survey. These five are listed below with short explanatory notes.

1. Home Interview Survey - A sample of study area residents were interviewed in their homes to obtain information of all trips made by members of the household during the preceding day and also the social and economic characteristics of the household.

2. Traffic Volume Counts - Manual and portable machine counters were used to determine average summer day traffic on all streets and highways throughout the study area.

3. Truck Survey - Truck drivers and owners were interviewed to obtain information of truck trips during the preceding day.

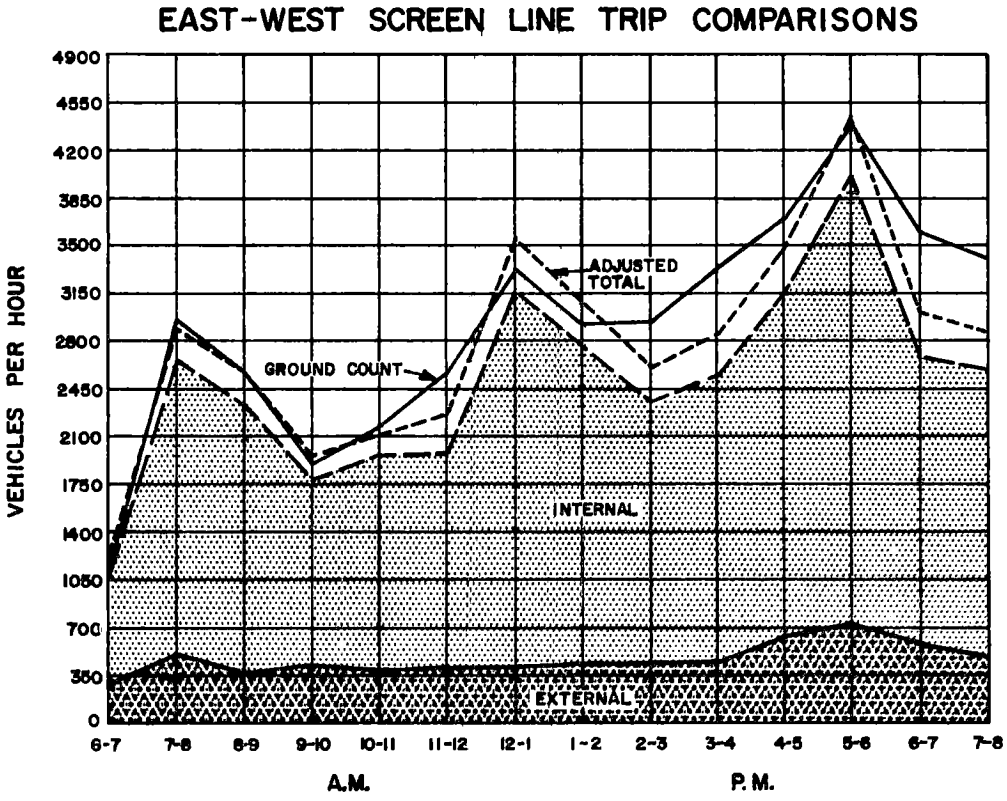
4. Taxi Survey - This survey was conducted in the same manner as the truck survey.

5. Travel Time Study - A "test vehicle" method was employed to obtain travel time and delays along the main urban routes during peak and off-peak rush hours.

The acquired travel data from both the External and Internal surveys included: traffic volume measurements, measures of trip production (per person, per dwelling unit, etc.) prevailing modes of travel, trip purpose, travel speeds, and desired lines of travel.

These travel data were coded and subjected to extensive machine editing and contingency checking by electronic data processing equipment. To further check the accuracy and completeness of these data, a "Screenline Check" and "External Cordon Check" were conducted. The screenline check consists of a comparison of hourly traffic volume crossing a hypothetical line bysecting the study area, with the theoretical traffic volumes calculated from the origin-destination data. The external cordon check is a comparison of hourly traffic volumes obtained from the external cordon survey with those of the internal survey.

GRAPH 3



As shown in graph 3, the screenline check indicated that the theoretical hourly volumes did not correspond with the hourly ground count (machine counts). To correct this discrepancy the internal theoretical volumes were factored-up in efforts to align the two surveys. The adjusted hourly volumes shown as "Adjusted Total" were found to be within 5 percent of the ground counts, which is within the acceptable limits for a check of this nature.

The volume adjustments made in the screenline check also reduced the discrepancy in the external cordon check to an acceptable level. From the adjusted travel data, the following summary of the Grand Forks-East Grand Forks traffic characteristics was established.

Grand Forks and East Grand Forks are the focus of 132,121 vehicle trips per day. More than 98 percent of these trips have their origin and/or destination within the study area. Typically they are trips from the drivers home to places of work, business, shopping, or social activities. Twenty-five percent of all trips by residents of the study area can be classified as work trips, 40% as shopping or business trips, and 25% as social recreational trips. Of all these trips, 75% begin or end at the home.

Much of the traffic thus generated is funneled into a few arterial streets, specifically Washington Street, Gateway Drive and DeMers Avenue. The average summer weekday traffic volumes on Washington Street in the vicinity of the Great Northern underpass numbered 23, 000 vehicles per day. On Gateway Drive near its intersection with Washington Street the traffic volume is as high as 19, 400 vehicles per day. High volumes in East Grand Forks are found on DeMers Avenue and on US Highway 2. These streets have 21, 700 and 10, 400 vehicles per day respectively on segments near the river crossings. Other streets where volumes on some segments reach about 11, 000 vehicles per day are University Avenue, the Walnut-Chestnut one-way pairs, Third Street North, and Fourth Street North in Grand Forks, and Fourth Street South in East Grand Forks. Figure 3 shows the average 24-hour traffic volumes of the major streets throughout the study area.

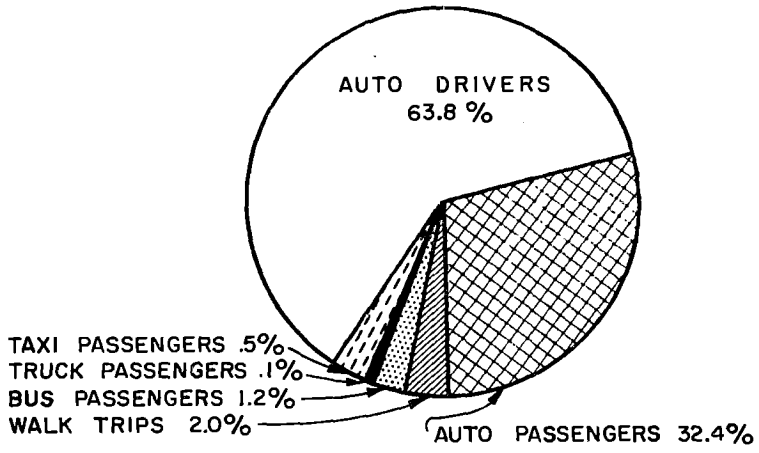
Eighty-five percent of the daily traffic occurs between 7:00 a.m. and 10:00 p.m. The peak hour is 5:00 p.m. to 6:00 p.m. when 8% of the daily traffic occurs.

The classification of trips by mode of travel (graph 4) shows that all but 3.8% of person trips by study area residents were made by automobile and, further, that auto driver trips outnumbered auto passenger trips by nearly two to one. Buses, school and transit together, accounted for only 1.2% of the person trips.

GRAPH 4

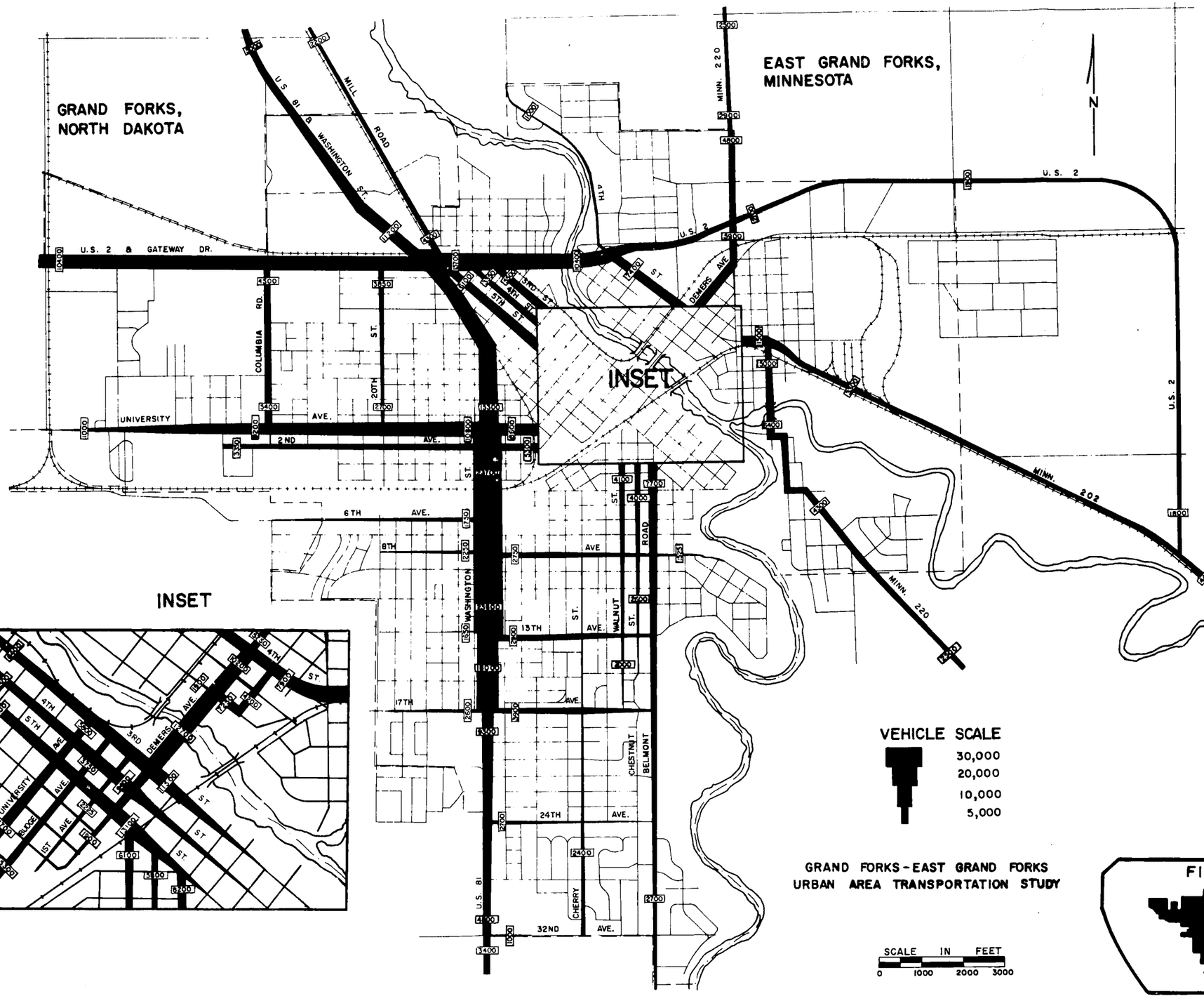
MODES OF TRAVEL (1965)

Internal Survey



TRAFFIC VOLUMES

1965



GRAND FORKS - EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

FIGURE 3

Walk trips are shown as 2% of all person trips, but due to the survey method these are not comparable to other trip data. Only certain types of walk trips, such as walk to work trips, were of interest in the study. Therefore, walk trips were recorded only if they were the first trip of the day.

Travel speeds, which were tested during both peak and off-peak hours, are less than 15 miles per hour on streets in the central business district and on other short segments of the main traffic arteries. Major bottlenecks occur in the vicinity of the DeMers Avenue and Fifth Street intersection and just north of the Great Northern underpass on Washington Street in Grand Forks. Travel speeds on main routes in other parts of the two cities generally averaged 20 miles per hour or over. Travel speeds will be discussed at length in a subsequent section of this report.

The accumulation of vehicles (parked or moving) in the central business districts reached 2, 643 in Grand Forks and 207 in East Grand Forks during busy hours of the day. (At 10:00 a.m. - 11:00 a.m. and 2:00 p.m. - 3:00 p.m. in Grand Forks and at 2:00 p.m. - 3:00 p.m. in East Grand Forks.)

As a generator of traffic, the Grand Forks central business district is still predominant; approximately 17, 800 vehicle trips per day originate in that district. The South Washington Street shopping center district ranks second with 10, 000 vehicle trips per day, and the University district ranks third with approximately 4, 600 vehicle trips per day. The East Grand Forks central business district also generates a significant volume of 2, 400 trips per day.

Additional information and further explanation on the External Survey, Internal Survey, Sampling Procedure, Screenline Check, and External Cordon Check plus related graphs and charts (traffic volume map, speed map, desire line maps, etc.) are presented in the memorandum report 1965 Traffic Characteristics.

TRAFFIC CONDITIONS

Other surveys and inventories conducted as part of the Grand Forks-East Grand Forks Transportation Study covered the subjects of street function and classification, street widths, travel speeds, traffic signals, accidents, and parking. These topics will be discussed in the following pages.

EXISTING STREET NETWORK

In the analysis of the existing Grand Forks-East Grand Forks Street Network, the streets were grouped into three major classifications: arterial streets, 1/ collector streets, and local streets. The classification of individual streets was based on their particular function in the street network.

1/ In the Grand Forks-East Grand Forks Memorandum Report No. 5 Goals and Standards arterial streets were referred to as major streets.

ARTERIAL STREETS - The arterial system is a network of through streets serving the major traffic movements. This system not only serves to interconnect the various sections of the city, but also interconnects the city with the highway system. Service to abutting property and access to these properties are secondary functions and may be provided only where and when traffic requirements permit. Arterial streets are considered the "work horses" of a transportation system and should receive priority in maintenance.

Arterial streets of the Grand Forks area include parts or all of the streets listed below.

Grand Forks	East Grand Forks
Gateway Drive (US 2)	Gateway Drive (US 2)
DeMers Avenue	DeMers Avenue
Columbia Road	Minnesota Highway 202 (Bus. Loop 2)
Washington Street (US 81)	Minnesota Highway 220
Belmont Road	4th Avenue South
5th Street North	
University Avenue	
2nd Avenue North	

In the establishment of arterial streets the following criteria should be considered:

1. Arterials should be spaced approximately one mile apart to attract optimum traffic volumes and encourage through traffic movements. (This spacing may be reduced in small urban areas.)

2. Parking and commercial access should be controlled.

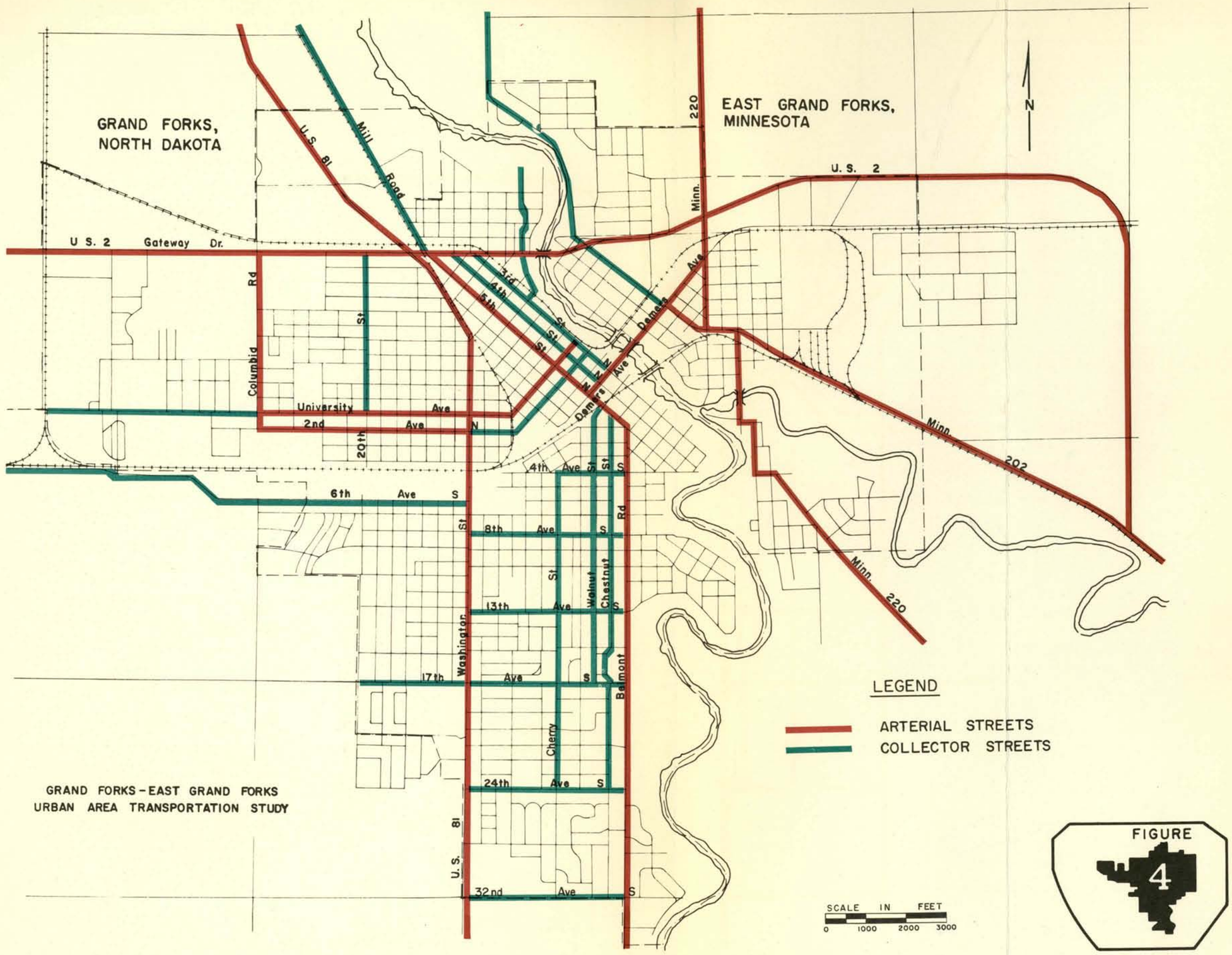
3. Large traffic generating activities should have access to arterials only by means of approved exits and entrances.

4. Developments bordering arterials should be regulated to preserve the characteristics necessary for efficient traffic operation.

5. Interconnection should be made with the State and County Systems to provide good access to and from rural areas.

MAJOR STREET NETWORK

1965



GRAND FORKS - EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

FIGURE 4

COLLECTOR STREETS - The principal function of a collector street as its name implies, is to gather traffic from the local streets and carry it to the arterial streets. It also performs the equally important function of providing access to adjacent property.

The major difference between collector and arterial streets is the volume of traffic and length of individual trips they accommodate. Collector streets should not handle long through trips and are not of necessity, continuous for any great distance.

In some instances, due to the existing state of development of the metropolitan area, the outer end of an arterial street may be functioning as a collector street if it handles traffic to, rather than through, the area it penetrates. In this context, the west end of University Avenue serves as both collector and arterial, but for this study, the segment is considered to be a collector street.

Traffic control devices may need to be installed to protect or facilitate traffic on the collector street, and to give these roadways priority over adjoining local streets. These controls normally would not be as elaborate as those on arterial streets, and, in many cases, may be absent.

Collector streets in Grand Forks include all or parts of the following streets:

Grand Forks

1. Mill Road
2. Lewis Boulevard
3. 3rd Street
4. 4th Street
5. 2nd Avenue North
6. 20th Street
7. University Avenue
8. 6th Avenue South
9. 4th Avenue South
10. 8th Avenue South
11. 13th Avenue South
12. 17th Avenue South
13. 24th Avenue South
14. 32nd Avenue South
15. Cherry Street
16. Walnut Street
17. Chestnut Street

In East Grand Forks 4th Street is the only street presently functioning as a collector.

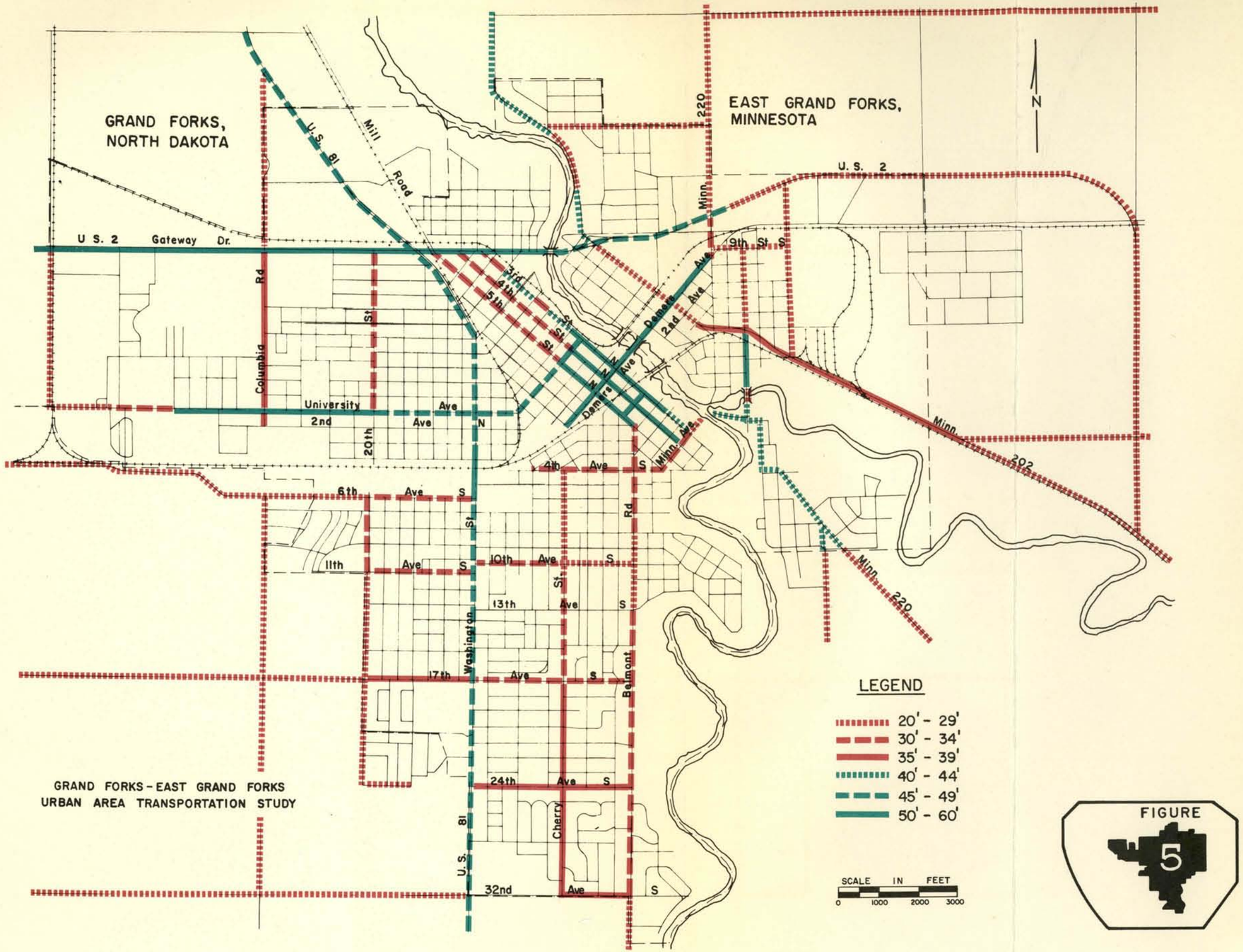
LOCAL STREETS - The primary function of local streets is to provide access to abutting property. They also provide for circulation within a local area. These streets make up a large proportion of the total street mileage, but carry only a small percentage of the vehicle-miles of travel. In the Central Business District, however, local streets may carry heavy traffic due to the function of the adjacent land area.

Local streets may be further subdivided into local business streets, local industrial streets, and local residential streets, with the business streets generally carrying the most traffic and the industrial streets carrying the least traffic.

The existing Grand Forks and East Grand Forks Street Systems and the classification of the individual streets are illustrated in figure 4.

STREET WIDTHS

1965



STREET WIDTHS

Street widths were among the data obtained for the analysis of the local network. They serve as a major parameter in the calculation of street and intersection approach capacities, and in the evaluation of existing street geometrics with respect to modern design standards. A map depicting the 1965 street width of the Grand Forks-East Grand Forks Major Network is presented in figure 5.

The evaluation of the local network revealed several areas where street widths are inadequate. This condition impairs with traffic-carrying capacity of the streets. Obvious deficiencies in width exist on the older section of Washington Street between 1st and 8th Avenues North, most of 5th Street, all of Belmont Road, Cherry Street, and 4th Street. In East Grand Forks they include most of 4th Street, all of 7th Street South, and 9th Avenue South. These and other streets in need of a variety of improvements will be discussed in detail in the street improvement program.

The National Committee on Urban Transportation recommends, as minimum design standards, that arterial streets provide four 11-foot traffic lanes and collector streets provide at least two 10-foot traffic lanes. Guidelines for future construction and upgrading of the existing street system can be found in the memorandum report entitled Goals and Standards.

TRAVEL TIME

One of the objectives of a transportation plan is to increase freedom of movement, in order that a maximum number of people may satisfy their individual needs for travel and the interchange of goods. The ease and efficiency with which the motoring public may accomplish this is dependent on the travel speed and total time required to reach the desired destinations.

Travel time studies of individual routes are a simple means of identifying congested streets and thus lead more rapidly to needed improvements. Travel time figures also play an important roll in determining deficiencies in signal timing, and establishing traffic enforcement assignments.

Because of its value as a working tool, a travel time investigation of the study area was conducted in 1965. The travel time between check points was obtained by means of a test vehicle which "floated" with traffic along the major street network. Each street was traveled several times and the average travel time was computed. The travel times were determined by actual time elapse, including delays - not from speedometer readings. The average speeds of travel, used in making the travel time map, figure 6,

were taken as two-thirds of the average off-peak hour travel speeds plus one-third of the average peak hour speeds. This "weighted" average gives a fair representation of the "average" speeds of travel on the street system.

As demonstrated on the travel time map, all parts of Grand Forks are within approximately ten minutes of the central business district. The map also shows that it requires approximately three minutes to travel through the Grand Forks Central Business District from the DeMers Avenue Bridge.

In East Grand Forks all parts of the city are within approximately four minutes travel time of the Central Business District. Also, between one and two minutes are required to travel through the Central Business District from the DeMers Avenue Bridge.

Minimum desirable overall speeds for the various street classifications, as outlined in the procedure manual Standards for Street Facilities and Service, prepared by the National Committee on Urban Transportation, are summarized below.

DESIRABLE OVERALL SPEEDS

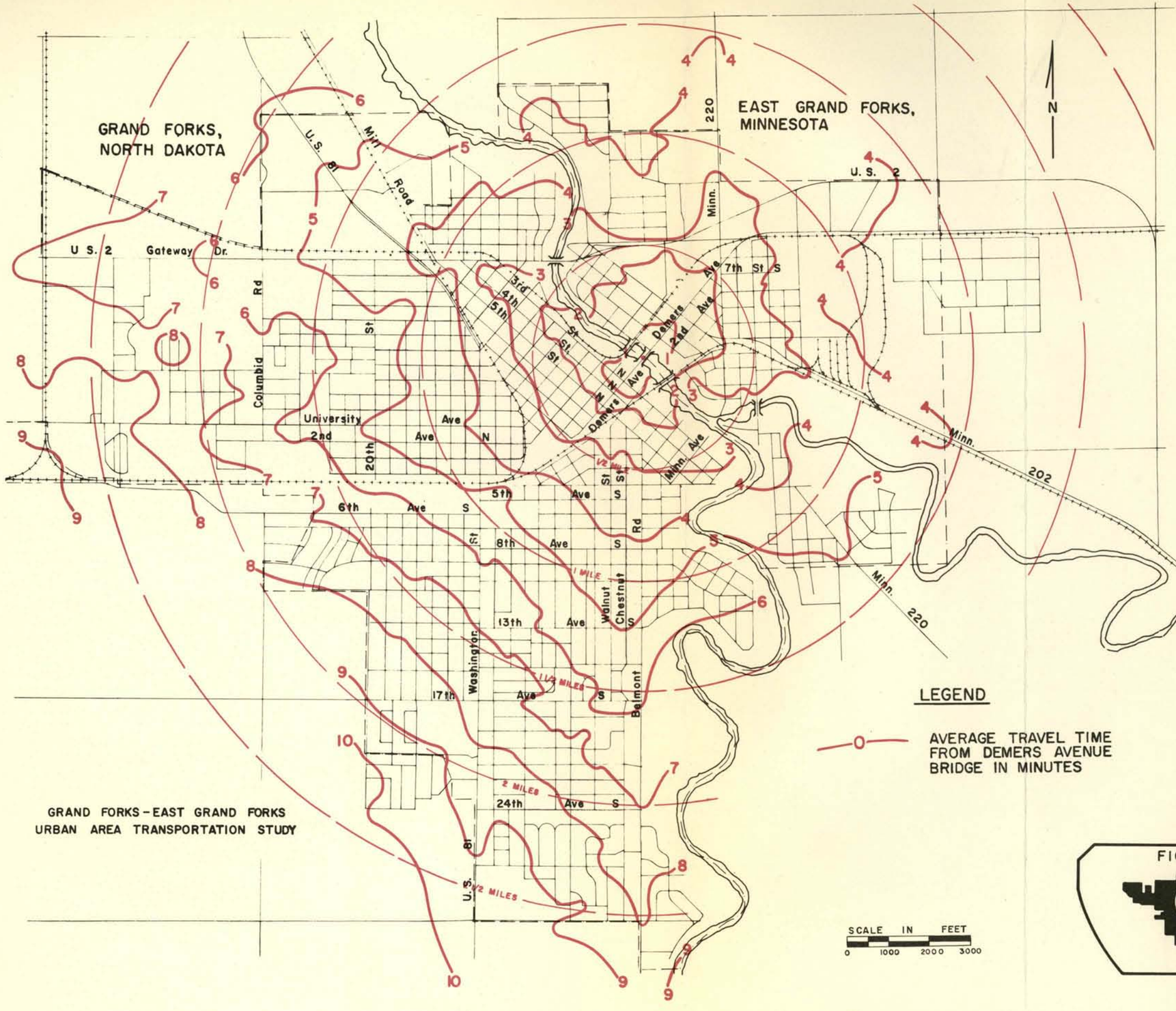
Type of Street	Overall Speeds	
	Peak Hour	Off-Peak Hour
Expressway	35	35-50
Arterial	25	25-35
Collector	20	20-25
Local	10	10-20

Several streets in the cities failed to meet the minimum desirable overall speed standards for their classification. For example, traffic on portions of Washington Street, DeMers Avenue, Third, Fourth and Fifth Streets North was able to maintain speeds of from only five to ten miles per hour at certain times. The travel speeds on these streets must be increased (by means of traffic improvements) in order to increase the efficiency of the existing transportation system.

In some instances the travel speeds were found to be higher than the posted speed limits. Speeds on the south end of Washington Street are an example of this condition. In general, the average speeds tend to increase gradually as the distance from the Central Business District increases, with most of the delays occurring in the Central Business Districts. Among the principal causes of delay are: conflicting land usage, parking friction, vehicle-pedestrian conflicts, and inefficient traffic signal timing. Inadequate street markings were also considered to cause delays, by contributing to

TRAVEL TIME

1965



inefficient lane usage. The travel speeds of all major streets and highways ascertained from this study are shown on the Average Speed Map in the memorandum report entitled 1965 Traffic Characteristics.

TRAFFIC ACCIDENTS

To many individuals, traffic accidents are mere statistics. It should be realized that they represent a real loss to the general public in terms of increased insurance rates, loss of man-hour production, inconvenience, etc., not to mention the physical and mental anguish resulting from injuries and death. Although it is impossible to evaluate the loss of human life or limbs in terms of dollars, let it suffice to say that they at least equal if not exceed the monetary loss in property damage. It is the moral obligation of the entire community, not only the public officials, to work towards reducing the number and severity of traffic accidents.

There is no simple solution to traffic accidents, because there is usually no single cause for them. Accidents result from human failure, both mental and physical; from mechanical failure of vehicles; from physical inadequacies of streets and intersections; from inadequate signing and signalization; from adverse weather conditions; etc. Accidents are usually found to be caused by a combination of these faults. The relative importance of any one of these factors varies depending upon the presence of one or several of the other factors at the time of the accident.

Traffic accidents can give important clues to street system deficiencies. Accidents must be carefully analyzed to prevent their occurrence or reduce their frequency. The local traffic accident records for the years 1965, 1966, and 1967 were reviewed and summarized to present a clear picture of the accident characteristics in the two cities.

Auto accidents in Grand Forks and East Grand Forks during the three years in question occurred indiscriminately throughout the cities, with a heavy concentration in the downtown areas. Intersection type accidents were of the majority and occurred most frequently at heavy volume intersections. (As was expected.) The monthly number of accidents, injuries, and deaths during the three year period are tabulated on the following page.

ACCIDENT DATA
GRAND FORKS POLICE DEPARTMENT
GRAND FORKS, NORTH DAKOTA

	1965			1966			1967		
	Accidents	Injuries	Deaths	Accidents	Injuries	Deaths	Accidents	Injuries	Deaths
January	233	1	-	334	28	-	324	21	1
February	192	7	-	251	29	-	260	14	-
March	238	19	-	368	37	-	225	13	-
April	175	26	2	190	35	-	210	16	-
May	187	33	-	171	29	1	187	26	-
June	166	33	-	168	21	-	199	41	-
July	190	32	-	144	22	-	133	21	-
August	156	24	-	177	15	-	141	17	-
September	223	30	-	184	30	-	186	22	-
October	191	41	-	216	31	1	219	21	-
November	261	22	-	241	26	-	232	30	-
December	293	28	-	296	28	-	308	18	-
Total	2, 505	296	2	2, 740	331	2	2, 624	260	1

ACCIDENT DATA
EAST GRAND FORKS POLICE DEPARTMENT
EAST GRAND FORKS, MINNESOTA

Year	Total Accidents	Personal Injuries	Deaths
1965	225	10	3
1966	228	17	2
1967	220	15	0

The above accident data indicated that Grand Forks experienced one accident every 3.50 hours in 1965; one every 3.20 hours in 1966; and one every 3.34 hours in 1967. East Grand Forks averaged less than one accident per day during the same three year period. It is interesting to note that during this period both cities had the same number of traffic fatalities (two).

Intersections found to have noticably high accident frequencies are as follows:

GRAND FORKS
1. Gateway Drive and Washington Street
2. Washington Street and University Avenue
3. Washington Street and 2nd Avenue North
4. Washington Street and 17th Avenue South
5. Washington Street and 6th Avenue South
6. DeMers Avenue and 3rd Street North
7. Gateway Drive and 5th Street North

EAST GRAND FORKS
1. DeMers Avenue and 2nd Street South
2. DeMers Avenue and 3rd Street South

The traffic operation of these intersections and others was analyzed in efforts to determine specific causes of accidents. Intersection improvements found necessary to reduce accidents and accommodate present and future traffic volumes such as; improving sight distances, establishing left and right-turn lanes, standardizing and coordinating traffic control devices, etc. are presented in a subsequent section entitled Intersection Improvements

To demonstrate the high cost of auto accidents, the financial losses in property damage incurred in Grand Forks during the first four months of 1968 are tabulated below:

ESTIMATED PROPERTY LOSS
GRAND FORKS, NORTH DAKOTA

Month	Automobile Damage	Other Property Loss
January 68	$ 80,169	$ 5,686
February 68	44,902	6,425
March 68	52,084	4,989
April 68	32,364	3,830
Total	$ 209,519	$ 20,930

These losses are somewhat higher than can be expected during other months of the year as the adverse weather conditions of winter increase the accident frequency considerably. During summer months, however, the accidents are generally more severe due to increased traffic speed.

In conclusion, if the number of accidents can be reduced (even by a small percentage) through street improvements, the financial savings alone over several years would greatly outweigh the initial street improvement costs.

PARKING

One of the foremost traffic problems of Grand Forks and East Grand Forks is that of providing adequate and convenient parking in the Central Business Districts. The parking problem is most urgent and must be solved if the Central Business Districts are to remain the cities center for social and economic activities.

The 1966 parking survey revealed that the Central Business District of Grand Forks had approximately 3, 200 parking spaces, and that the East Grand Forks Central Business District had about 500 available parking spaces. These spaces were provided in the following manner:

GRAND FORKS CENTRAL BUSINESS DISTRICT PARKING SPACE

Facility	Number of Parking Spaces
Curb Side Parking (free parking)	908
Outside Off Street Parking	1, 920
Parking Ramps and Garages	136
Alley Parking	199

EAST GRAND FORKS CENTRAL BUSINESS DISTRICT PARKING SPACE

Facility	Number of Parking Spaces
Curb Side Parking (free, one hour parking)	155
Outside Off Street Parking	204
Private Alley Parking	18

Locations of all curbside and off street parking spaces in the Central Business Districts of both cities are shown in figure 7.

Using the parking space factor from Parking in the City Center by Wilbur Smith and Associates, May, 1965, the present parking requirements for both Central Business Districts are estimated at 3, 400 spaces. Compared to the existing capacity of 3, 700 spaces, a surplus of approximately 300 spaces appears to exist. However, this surplus exists in the "fringe" area of the Central Business Districts and is of little value to the hard pressed "core" area. If the all day parkers could be encouraged to make

use of the more remote facilities, thereby leaving the spaces in the "core" area for short-term parkers, the parking problem would be greatly improved at least for the time being.

The main disadvantage of the existing parking facilities is their remote locations from the "core" areas of the Central Business Districts. Most motorists wish to park their vehicles within approximately 400 feet of their destination. Shoppers generally want to park within this distance of the first store they wish to patronize. This characteristic is reflected by the poor usage record of the present parking facilities which are located mostly in the fringe areas of the Central Business Districts.

The parking inventory showed that the parking lot located under the DeMers Avenue Bridge, having a 100 space capacity, had a maximum usage of 42 percent. The parking lot at the end of Second Avenue, near the river, had a similar low usage. The city lot on the corner of Division Avenue and Third Street South also had a low usage.

The city parking lot behind the old Y.M.C.A. building had a 76 percent peak usage while the city lot across from Central High School between Fifth and Sixth Streets North had a peak usage of 57 percent. The city lot between North Fourth and Fifth Streets, near the Great Northern Railroad Tracks, had the greatest usage of all the city lots. The parking lot located North of DeMers Avenue, just across the bridge, in East Grand Forks, is the largest lot in this Central Business District. It also had a poor usage record.

The maximum number of vehicles parking in the Grand Forks Park E-Z during the study period was 80, or 63 percent of capacity. In this particular case the parking facility is conveniently located, however, its time consuming parking operation is not advantageous to short-term parkers.

Parking lots should be located within acceptable walking distance of major activity centers if they are to function effectively. The pleasantness of pedestrian access lanes has a considerable effect on the distance people will walk from parking facilities. The more remote lots, especially those near the river, would likely be more attractive to motorists if convenient pedestrian access lanes were provided.

The value of adequate, convenient parking facilities in commercial districts has been recognized for some time. They are an important factor in the success of many business enterprises. It has been estimated that a single parking space may generate several thousand dollars per year in trade.

The conversion of obsolete land-use to parking space in the Central Business Districts of the cities encourages and promotes the development of adjacent land. Also, the integration of parking facilities with other land uses permits the sharing of land costs as well as building a market for the facilities.

The future, 1990, needs of the Central Business Districts are estimated at 5, 800 spaces. This indicates that a considerable number of new parking spaces must be provided. These "new" spaces are in addition to making the present parking facilities more attractive to motorists.

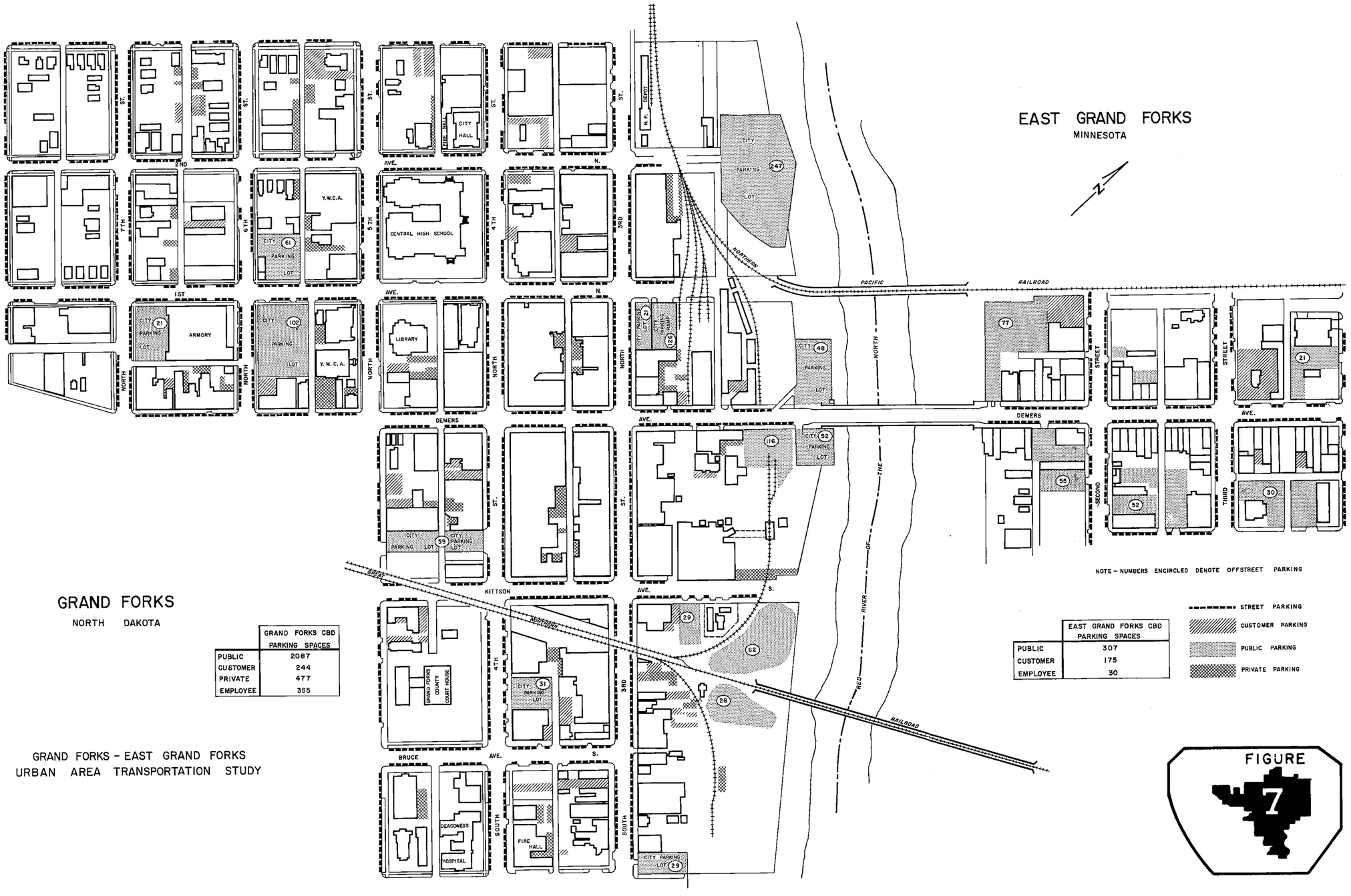
Generally, as the Central Business District traffic increases, it will be necessary to continue to reduce the amount of curb side parking. It is, therefore, evident that new parking space must be in the form of off-street parking. The following parking requirements should be considered as minimum guidelines for the various land use functions of the Central Business Districts.

LAND USE	REQUIRED NUMBER OF OFF-STREET PARKING SPACES
Retail and Personnel Service Establishments	1 space per 150 square feet of gross floor area.
Business or Professional Offices, Research Laboratories, Semi-Public Uses	1 space per 200 square feet of gross floor area.
Restaurants and Bars, and Fraternal Organizations, and Private Clubs	1 space per 100 square feet of gross floor area.
Hotels, Motels, Apartment Buildings	1 space per rental unit.
Meeting Rooms	1 space per 50 square feet of gross floor area.
Convention Center, Theater	1 space per four seats at maximum capacity.

The expedience and extent to which the cities solve the downtown parking shortage will have a significant affect on the rate of future development of the Central Business Districts. Private enterprise should also be encouraged to make investments in this field to aid the cities in solving the parking problem.

CBD PARKING

1965



NOTE – NUMBERS ENCIRCLED DENOTE OFFSTREET PARKING

STREET PARKING
CUSTOMER PARKING
PUBLIC PARKING
PRIVATE PARKING

	EAST GRAND FORKS CBD PARKING SPACES
PUBLIC	307
CUSTOMER	175
EMPLOYEE	30

GRAND FORKS

NORTH DAKOTA

	GRAND FORKS CBD PARKING SPACES
PUBLIC	2087
CUSTOMER	244
PRIVATE	477
EMPLOYEE	355

GRAND FORKS - EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

FIGURE 7

Future Transportation Plan

The trend for increased college enrollment and continued military activities within the study area are expected to promote a pleasing economic atmosphere conducive to industrial and retail development and overall growth of the two cities throughout the next two decades. The continuing influx of people from rural areas to urban centers will also contribute favorably to this growth. As the cities expand to the 1990 population forecast of about 73, 500, many dramatic changes will take place, most pertinent of which will be a sizable increase in number of motor vehicles and an even larger increase in vehicle trips. Figure 2 shows the expected urban expansion and land development plan of the Grand Forks-East Grand Forks area over the next 20 years.

Based on population and other social-economic projections, it is anticipated that by 1990 there will be 233, 504 vehicle trips daily in the Grand Forks-East Grand Forks study area. This figure, which includes 197, 050 internal trips (trips inside the cordon area), 30, 593 internal-external trips, and 5, 861 through trips, indicates that future traffic will almost double over the 132, 121 daily vehicle trips of 1965.

In view of these figures, there is little doubt that if the cities are to forestall serious traffic congestion in future years, a continuous comprehensive street planning and improvement program is necessary.

TRAVEL DESIRES – 1990

Desire line maps were developed as a visual aid to illustrate the future travel patterns of the motoring public. These are included in the report as figures 8 and 9. Data for the construction of the desire line maps were obtained by predicting zonal trip productions and attractions through the use of trip generation equations and a mathematical trip distribution model (gravity model).

Trip generations were developed to predict existing as well as future trip productions and attractions by zone. The socio-economic data and the known trip generations for the base year were subjected to a multiple regression analysis to develop the trip generation equations. The 1990 traffic volumes were obtained by applying the predicted future social and economic conditions to the trip generation equations.

To determine the distribution of these trips, the origin-destination data were used to construct a trip distribution model (gravity model) which duplicated the present trip distribution in the study area. The future zonal trip productions and attractions, which were obtained from the trip generation equations, were then applied to the trip distribution model.

The desire line maps (External Station to External Station and All Trips to and from the Central Business Districts) do not account for all trips of the area but were selected for demonstration as they are most easily understood by the layman. These maps, depicting the major 1990 desired travel movements, were used to help locate and establish arterial and collector streets necessary to adequately accommodate the future traffic characteristics. The width of the desire lines are proportional to the average daily traffic volumes desiring to travel between the traffic zones or external stations established for this study. It should be understood that desire lines do not necessarily show the exact route of travel, but rather the intent of travel.

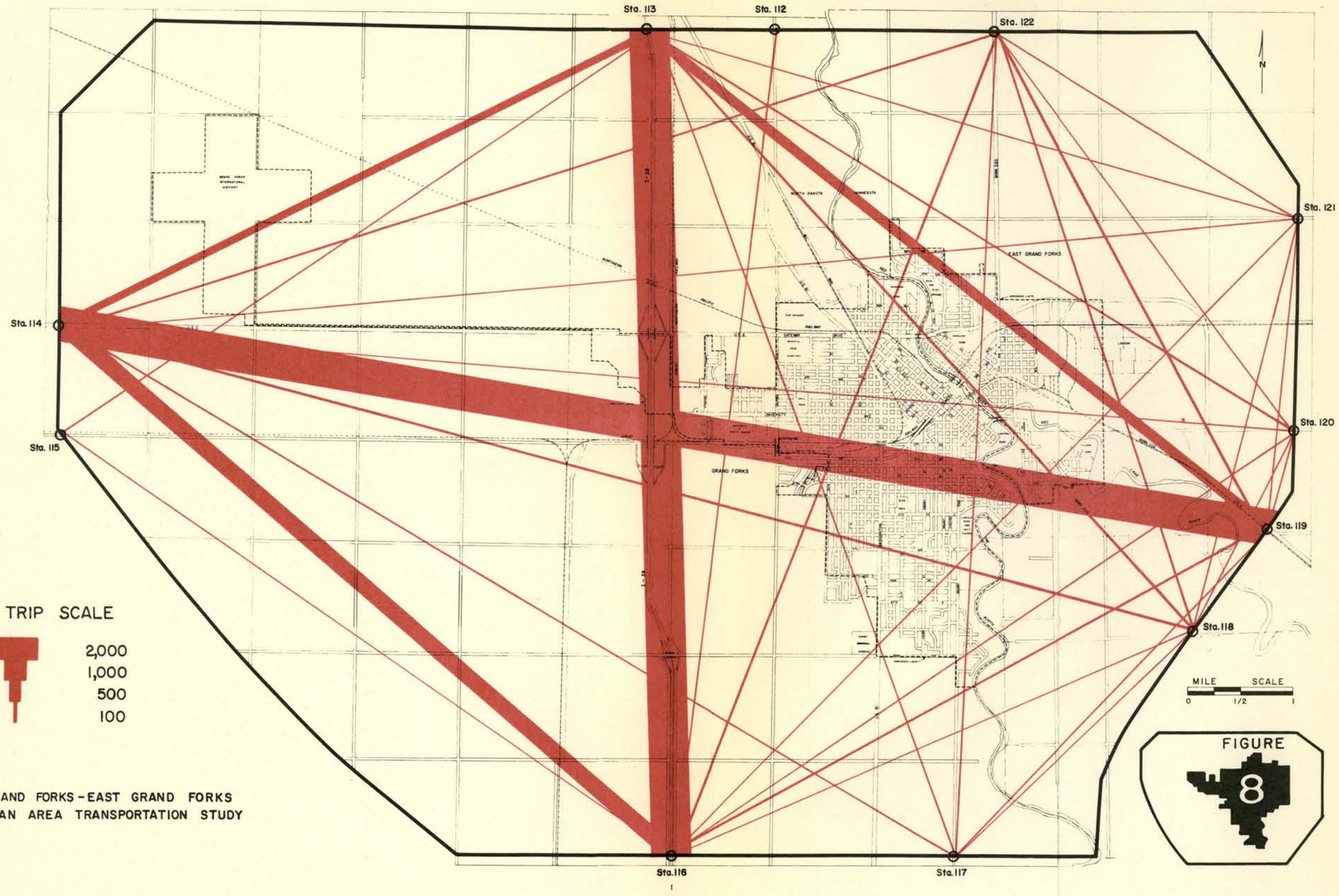
EXTERNAL STATION TO EXTERNAL STATION

The future through traffic desire line map of the Grand Forks area (figure 8) shows the expected increase in through traffic when compared to the present External to External Station map shown in the memorandum report 1965 Traffic Characteristics. This comparison also shows that the traffic increase will be distributed proportionately among all the bands of travel crossing the study area with little change in the general traffic pattern of 1965. As anticipated, the future completion of Interstate 29 will cause the only principal shift in through traffic movement through the area. All north-south through traffic will be drawn off US 81 and carried by Interstate 29, with the exception of those motorists making stops in the study area for needed services, or overnight lodging. The Interstate Highway will also experience the largest volume growth of all through routes in the area, reflecting increased tourist and visitor travel.

DESIRE LINES OF TRAVEL

EXTERNAL STATION - EXTERNAL STATION

1990

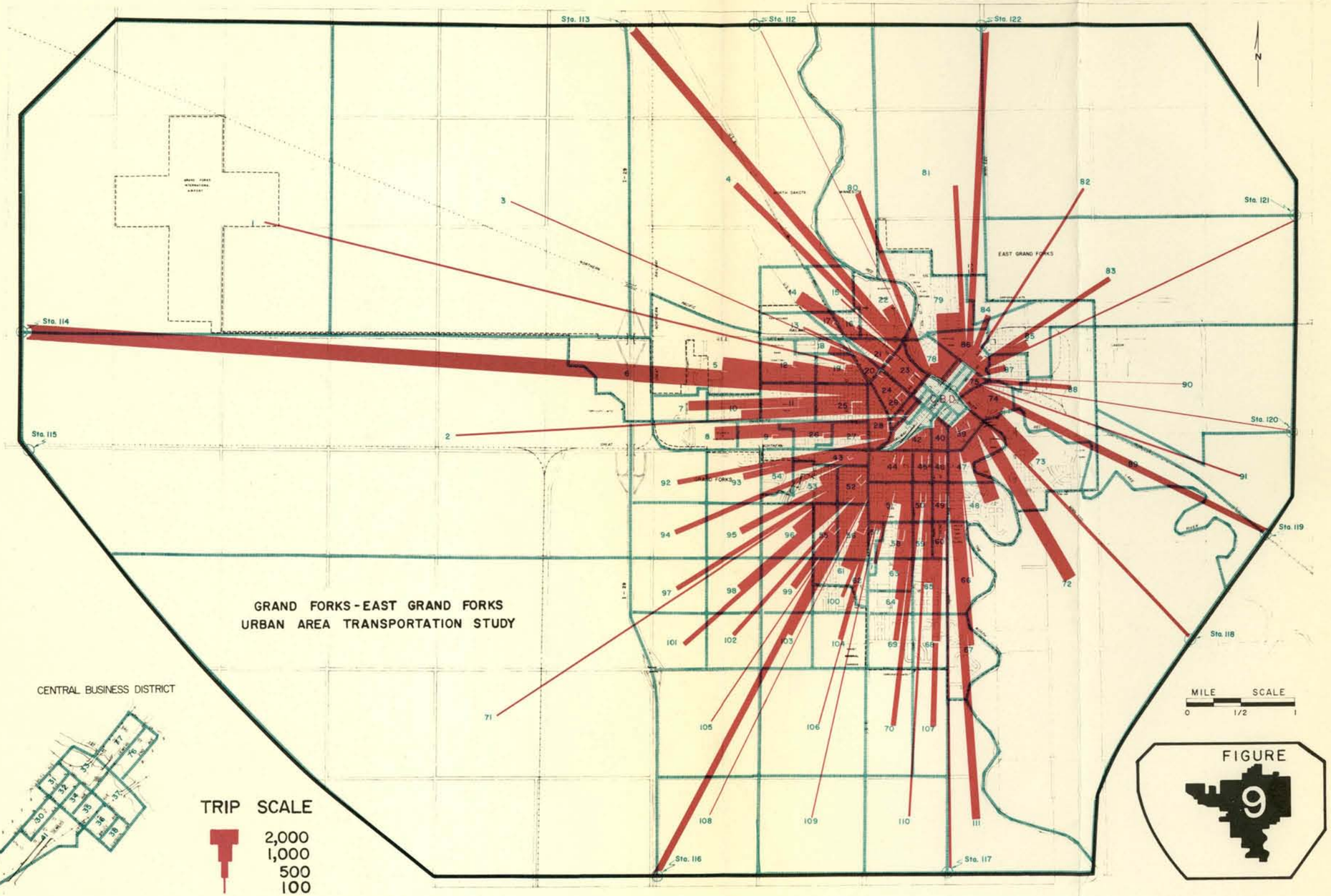


GRAND FORKS - EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

DESIRE LINES OF TRAVEL

ALL TRIPS TO AND FROM THE CBD

1990



ALL TRIPS TO AND FROM THE CENTRAL BUSINESS DISTRICTS

When comparing the future Central Business Districts desire line map (figure 9) with the current desire line map also shown in the memorandum report 1965 Traffic Characteristics, a significant increase in traffic movement can be seen between the Central Business Districts and the southwest part of Grand Forks and also the southeast part of East Grand Forks. This coincides with the heavy residential and commercial developments anticipated in these areas in the future land development plan.

STREET SYSTEM AND TRAFFIC VOLUMES - 1990

Once the future traffic volumes and their distribution throughout the study area were established, they were placed on the existing 1965 arterial street network by the use of an electronic computer. This step revealed points of extreme overloading and demonstrated the overall inadequacy of the existing arterial network under future traffic requirements. A new arterial street network plan was therefore established on the basis of future land development, available finances, and other considerations, and again loaded with the future traffic characteristics. This procedure was repeated several times, each time with minor modifications to the network plan until an acceptable level of service throughout the revised arterial network plan was attained. The final arterial street network plan shown in figure 10 is expected to adequately handle future traffic requirements through 1990 and will need only periodic adjustments for unforeseen developments.

FUTURE STREET NETWORK

The new major street network was developed by modifying the existing system. These modifications consisted of re-assigning street functions (reducing some streets to locals and upgrading others to an arterial or collector level), extending existing streets through areas expected to develop, establishing new through streets wherever necessary to form an integrated major street grid throughout the Grand Forks area, and re-routing major streets to attain smoother traffic flow.

The recommended network has a total length of approximately 99.2 miles of which 73.4 miles are on the North Dakota side of the Red River, and 25.8 miles are on the Minnesota side. This represents an increase of 43% over the existing major network. In Grand Forks, the new network consists of about 7.9 miles of interstate highway, 31.1 miles of arterial streets and 34.4 miles of collector streets. In East Grand Forks, the new network consists of 15.7 miles of arterials and 10.1 miles of collector streets. Although

local streets are part of the network their mileage was not determined as only the major streets comprising the basic transportation network carry enough traffic to be significant in traffic planning.

Among the most significant changes presented in the future network are:

GRAND FORKS

1. Extension and establishment of Columbia Road as a high grade arterial street.

2. Establishment of 6th Avenue South as an arterial from Interstate 29 to the Central Business District.

3. Removal from the major system the one-way streets, Chestnut and Walnut, and upgrading Cherry Street and Belmont Road as their replacements.

4. Extension of 5th Street North beyond Gateway Drive, and extension of Cherry Street North to the Central Business District.

5. Addition of 10th and 11th Avenues South to the major system to replace 8th and 13th Avenues South and addition of Minnesota Avenue to the major system.

6. Extension of 20th Street to the South, and extension of South 17th, 24th and 32nd Avenues to the west.

7. The incorporation of approximately 7.9 miles of the preplanned Interstate Highway into the future system.

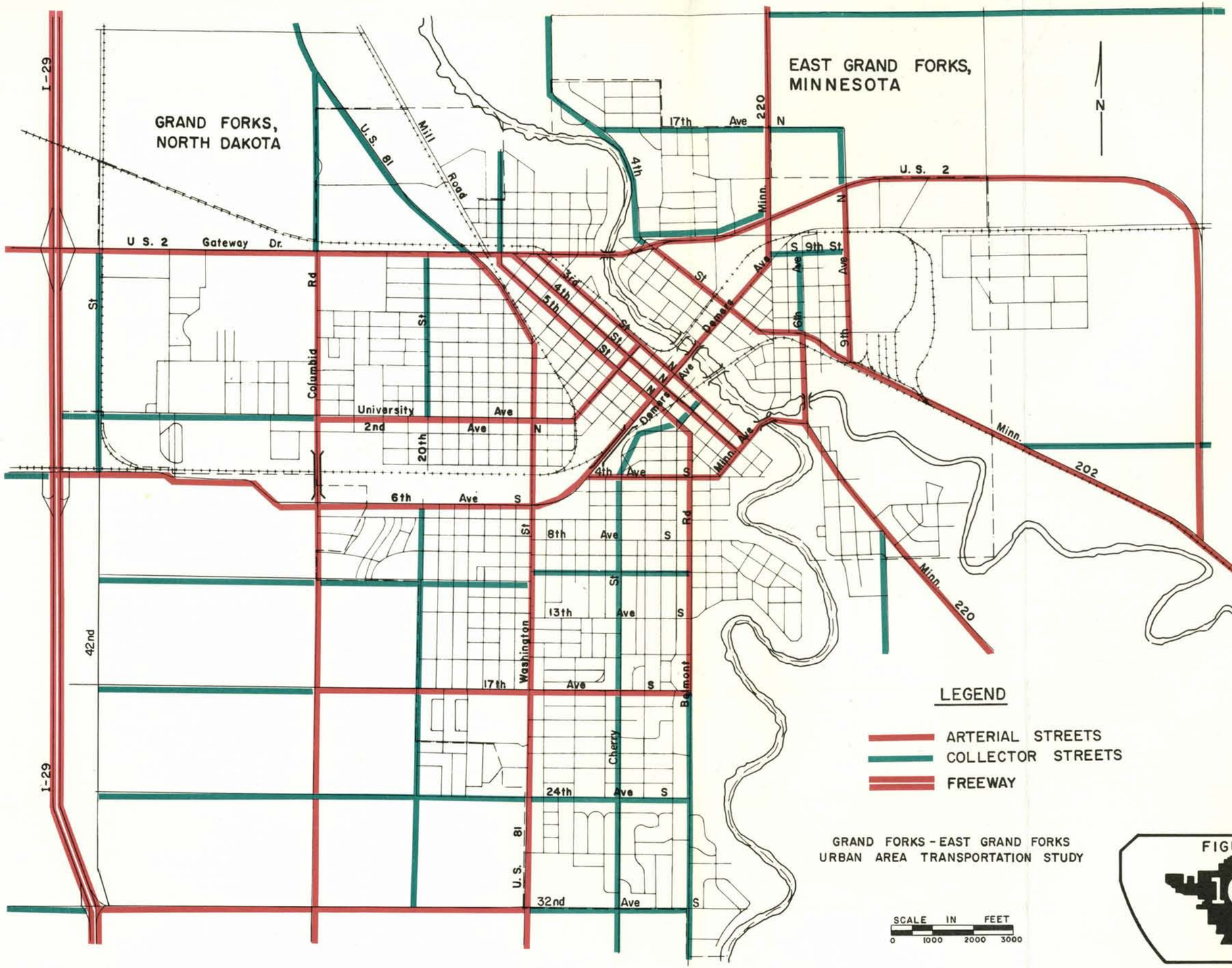
EAST GRAND FORKS

1. Removal from the major network of 4th Avenue South from 9th Street South to 4th Street South.

2. Additions to the major network are: 9th Avenue South from Minnesota 202 (Business Loop 2) to 17th Avenue North; 9th Street South from 9th Avenue South to DeMers Avenue; 6th Avenue South from 9th Street South to 4th Street South; 17th Avenue North, 5th Street from the Point Bridge to 6th Avenue Southeast, and Reinhart Drive.

Other miscellaneous alterations made in the establishment of the future transportation network of both cities can be seen in figure 10.

MAJOR STREET NETWORK
1990



LEGEND

- ARTERIAL STREETS
- COLLECTOR STREETS
- FREEWAY

GRAND FORKS - EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

SCALE IN FEET
0 1000 2000 3000

FIGURE 10

The key element in establishing the future transportation network is the development of major north-south and east-west travel routes. These routes are of paramount importance and represent the backbone of the transportation plan. Future traffic volumes and city development suggest the establishment of another north-south high grade arterial street through the western part of Grand Forks. This street would augment north-south traffic flow within the city, which is presently concentrated primarily on Washington Street. It was determined that Columbia Road could provide this service, but, only if a grade separation were constructed at its intersection with the Great Northern Railroad tracks to insure uninterrupted traffic flow. (See page 67.)

Similarly, 6th Avenue South was determined to provide the additionally needed east-west through street to facilitate travel between I-29 and the Central Business District. Presently most east-west travel in the city is carried by Gateway Drive (US Hwy. 2). However, here again because of the Great Northern Railroad tracks a structure is needed to link 6th Avenue South with DeMers Avenue and the downtown area. (See page 65.)

In East Grand Forks establishment of additional major north-south and east-west travel routes through the city will not be necessary as improvement of the existing routes will increase their capacity adequately to handle future traffic volumes.

In the formulation of the recommended network, consideration was given to include a segment of 8th Avenue North from Washington Street to Gateway Drive in the network. However, the anticipated traffic volumes on this section do not justify its inclusion at this time. The proposal should be given further consideration in future years when the transportation plan is updated.

A proposal to add 8th Street to the major transportation network as a link between Gateway Drive and DeMers Avenue was abandoned in favor of retaining the existing 5th Street arterial. Although traffic on 8th Street would bypass the adjacent residential area, its junction with DeMers Avenue in the vicinity of the proposed DeMers Avenue overpass, would create an adverse traffic situation there. The possibility of upgrading 8th Street to an arterial level should also be considered in future years.

Consideration was also given to construction of a "River Road (a proposed street between and following the Red River and the Central Business District of Grand Forks). This proposal was found to be unfeasible at the moment due to (1) access to such a road would be limited to one side of the river, (2) to pass below the existing bridge structures the road elevation would be of necessity near or even below the flood level of the area, (3) excessive access roadway grades would be necessary to link any part of 3rd Street with such a road, and (4) roadway stability would be endangered by land slides due to the close proximity of the river.

Upon completion of I-29 (in late 1969 or early 1970) US Highway 81 (Washington Street) through Grand Forks will be designated as the Interstate Business Loop and thereby retained on the State highway system. A feasible route for the business loop would be to commence at the Thompson interchange and terminate at the north US 81 interchange until Columbia Road is upgraded, then, the business loop could terminate at the Gateway Drive (US 2) Interchange.

FUTURE TRAFFIC VOLUMES

The 1990 expected daily traffic of approximately 233, 500 trips was assigned to the various streets of the future network by the aid of an electronic computer. These volume assignments were made principally on the basis of travel time of the different streets, thereby routing traffic along the most expedient route between origin and destination. Distribution of the 1990 traffic volumes on the future transportation network is shown in figure 11.

In Grand Forks, traffic volumes on most streets show the expected increase with the exception of a few streets affected noticably by the network alterations. Washington Street, for example, shows only a moderate increase of about 4, 500 vehicles at its busiest section. This is due to the extension of Columbia Road South over the Great Northern Railroad tracks and improvement of Belmont Road and also construction of Interstate 29, which will all share in the future north-south traffic movements of the area.

Volume increases of up to 17, 000 daily trips on Gateway Drive (US 2) indicates that this street will remain the major east-west travel route. However, the location of the I-29 Interchange will also divert significant amounts of east-west traffic along 6th Avenue and along 32nd Avenue South between the Interstate and the Central Business District.

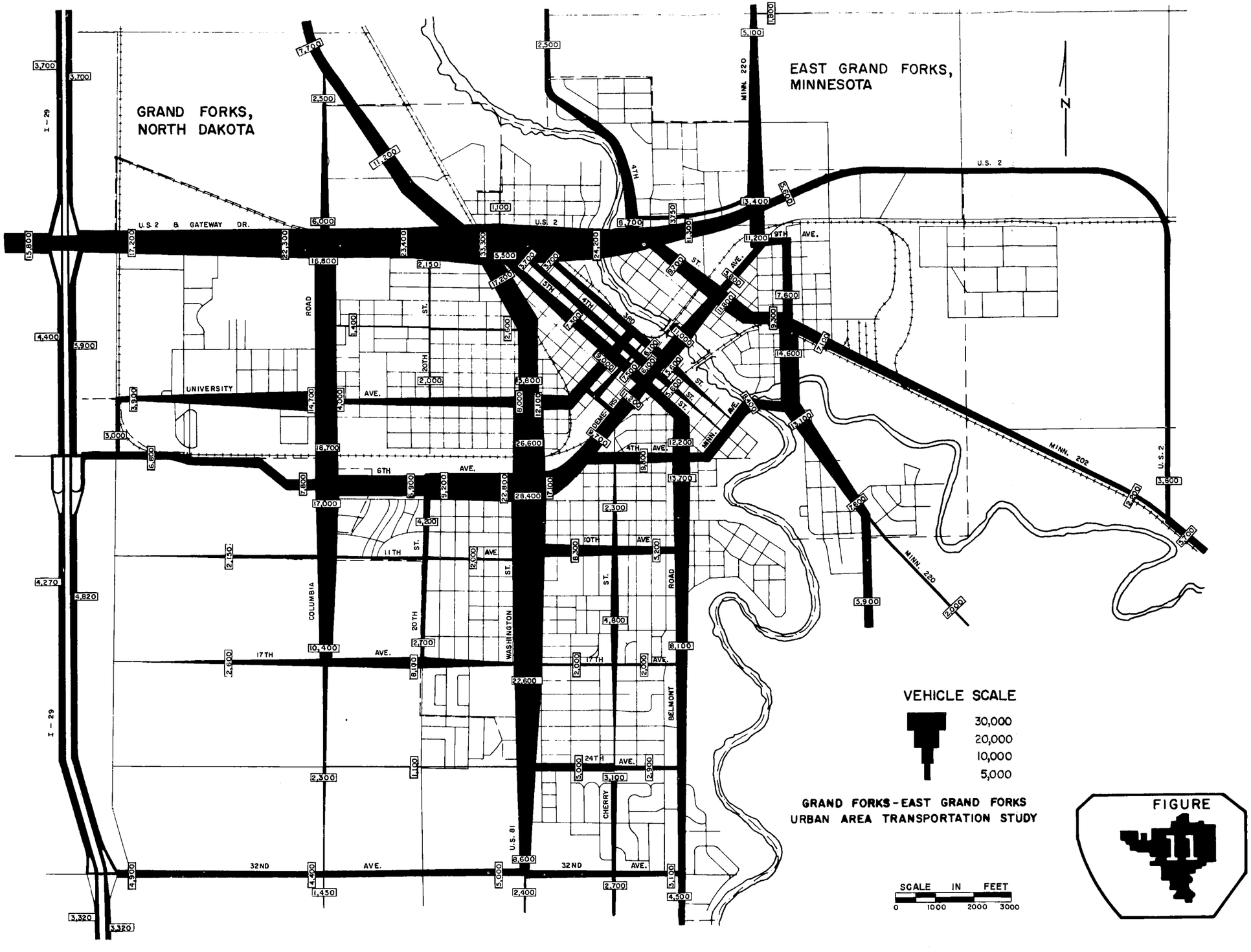
A reduction of traffic is indicated on University Avenue east of the UND Campus. This is a result of convenient access provided to the South part of Grand Forks by means of Columbia Road and 6th Avenue South.

The traffic volume crossing the DeMers Avenue Bridge is shown to decrease significantly due to more traffic diverted along Minnesota Avenue and over the Point Bridge. Also most traffic flowing between Interstate 29 and East Grand Forks is expected to follow along Gateway Drive and cross over the Kennedy Bridge. The possibility of constructing another bridge over the Red River in the vicinity of 32nd Avenue South may likely receive more serious consideration in future years. Such a bridge would affect the anticipated traffic volumes on the existing bridges noticeably.

In East Grand Forks, the expected traffic increase is reflected by the larger traffic volumes shown throughout the street system. DeMers Avenue is the exception with a future volume less than at the present. This is due to a reduction of traffic crossing the DeMers Avenue Bridge for reasons discussed in the preceding paragraph.

Traffic volumes throughout the Central Business Districts are expected to be somewhat higher than shown in figure 11. This is brought about by the distribution of high-density traffic between the smaller traffic zones of the downtown areas. The distribution of interzonal traffic between small adjacent zones may not necessarily follow along the paths of the computer network, in which case they are not included in the network traffic volumes presented in figure 11. Other traffic contributing to volumes being higher than shown in

TRAFFIC VOLUMES
1990



VEHICLE SCALE

30,000
20,000
10,000
5,000

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URBAN AREA TRANSPORTATION STUDY

SCALE IN FEET
0 1000 2000 3000

FIGURE 11

figure 11 is that of motorists repeatedly circling city blocks in search of parking space. This traffic is not reported in the internal interview survey and consequently not simulated by the computer.

IMPROVEMENT PLAN

To establish and implement the recommended future transportation plan, the existing street network must undergo a series of alterations and improvements. These will include; street improvements (widening and resurfacing), construction of new roadways, construction of new structures, intersection improvements, signal installations, and other miscellaneous alterations. The overall improvement plan is shown in figure 12.

STREET IMPROVEMENTS

The following improvements are the result of an extensive engineering analysis which encompassed the volume to capacity criteria and modern design standards. Through these features a series of street improvements was established and incorporated with a long-range transportation plan.

A total of approximately 47.7 miles of street construction and improvement is necessary over the next 20 years. This includes about 39.0 miles of street widening and/or resurfacing and about 8.7 miles of new roadway construction. About 38.5 miles of street improvements are necessary in the Grand Forks network and 9.2 miles in the East Grand Forks network. All streets to be upgraded under the improvement plan are tabulated on the following pages.

The construction of 32nd Avenue South from Washington Street west to I-29 should be accomplished in a stage development. Initially, the street should be built as a collector and later upgraded to an arterial level. This procedure would pace the development of the area but most important, discourage continuation of the undesirable elongated commercial strip development, such as exists along south Washington Street and along west Gateway Drive.

In East Grand Forks, the possibility of rerouting a segment of Minnesota Highway 220 along 9th Street South and 6th Avenue South should be taken into consideration in the upgrading of these two streets. To function as an urban highway route they will necessitate a greater width and load carrying capacity. The rerouting of Minnesota Highway 220 may also delay the necessity of improving 4th Street from DeMers Avenue to 6th Avenue South which is part of the existing route. All other streets of the East Grand Forks network programmed for improvement will be upgraded during the development of the respective areas.

STREETS TO BE IMPROVED

GRAND FORKS

Street	From	To	Type of Improvement
Washington St.	1st Av. N.	8th Av. N.	Widen to 62 feet and resurface
University Av.	3rd St. N.	42nd St. N.	Reconstruct from 3rd St. to Wash., resurface from Wash. to Princeton, and widen to 44 feet from Princeton to 42nd St.
Columbia Road	US 81	32nd Av. S.	Widen all sections to 48 feet and resurface
6th Av. S.	Washington St.	I-29	Reconstruct to standards for 4-lane traffic
5th St. N.	Belmont Road	Alpha Av.	Resurface from Belmont to University, widen to 48 feet from University to Gateway, Reconstruct (44 feet wide) from Gateway to Alpha
4th St. N.	University Av.	Gateway Dr.	Resurface
3rd St. N.	Minnesota Av.	Gateway Dr.	Resurface from Minnesota Av. to University, widen to 44 feet and resurface from University to Gateway Dr.
Minnesota Av.	4th Av. S.	Point Bridge	Widen to 44 feet and resurface
4th Av. S.	DeMers Av.	Minnesota Av.	Widen to 44 feet and resurface
DeMers Av.	Washington St.	8th St. N.	Location of new overpass and approaches
1st Av. S.	Cottonwood St.	Bruce Av.	Construct new roadway 44 feet wide
Belmont Rd.	5th St. N.	1 mile south of 32nd Av. S.	Widen all sections to 44 feet and resurface

STREETS TO BE IMPROVED
(continued)

GRAND FORKS

Street	From	To	Type of Improvement
Cherry St.	4th Av. S.	1 mile south of 32nd Av. S.	Widen to 44 feet from 4th Av. S. to 32nd Av. S. Construct roadway, 44 feet wide, from 32nd Av. south 1 mile
11th Av. S.	Washington St.	42nd St.	Widen to 44 feet from Washington to 20th St. and construct roadway 44 feet wide from 20th St. to 42nd St.
17th Av. S.	Belmont Rd.	42nd St.	Widen to 48 feet from Belmont to 20th St. and construct 44 foot roadway from 20th St. to 42nd St.
20th St.	24th Av. S.	32nd Av. S.	Construct roadway 44 feet wide
24th Av. S.	Belmont Rd.	42nd St.	Widen to 44 feet from Belmont to Washington, Construct roadway 44 feet wide from Washington to 42nd St.
32nd Av. S.	Cherry St.	I-29	Widen to 44 feet and resurface all sections of roadway
42nd St.	University Av.	6th Av. S.	Construct 44 foot roadway
County Road 4 (west extension of 6th Av. S.)	I-29	County Road 5	Construct roadway as per standard rural section for two lane traffic
County Road 5	US 2	3 miles south	Construct roadway as per standard rural section for two lane traffic

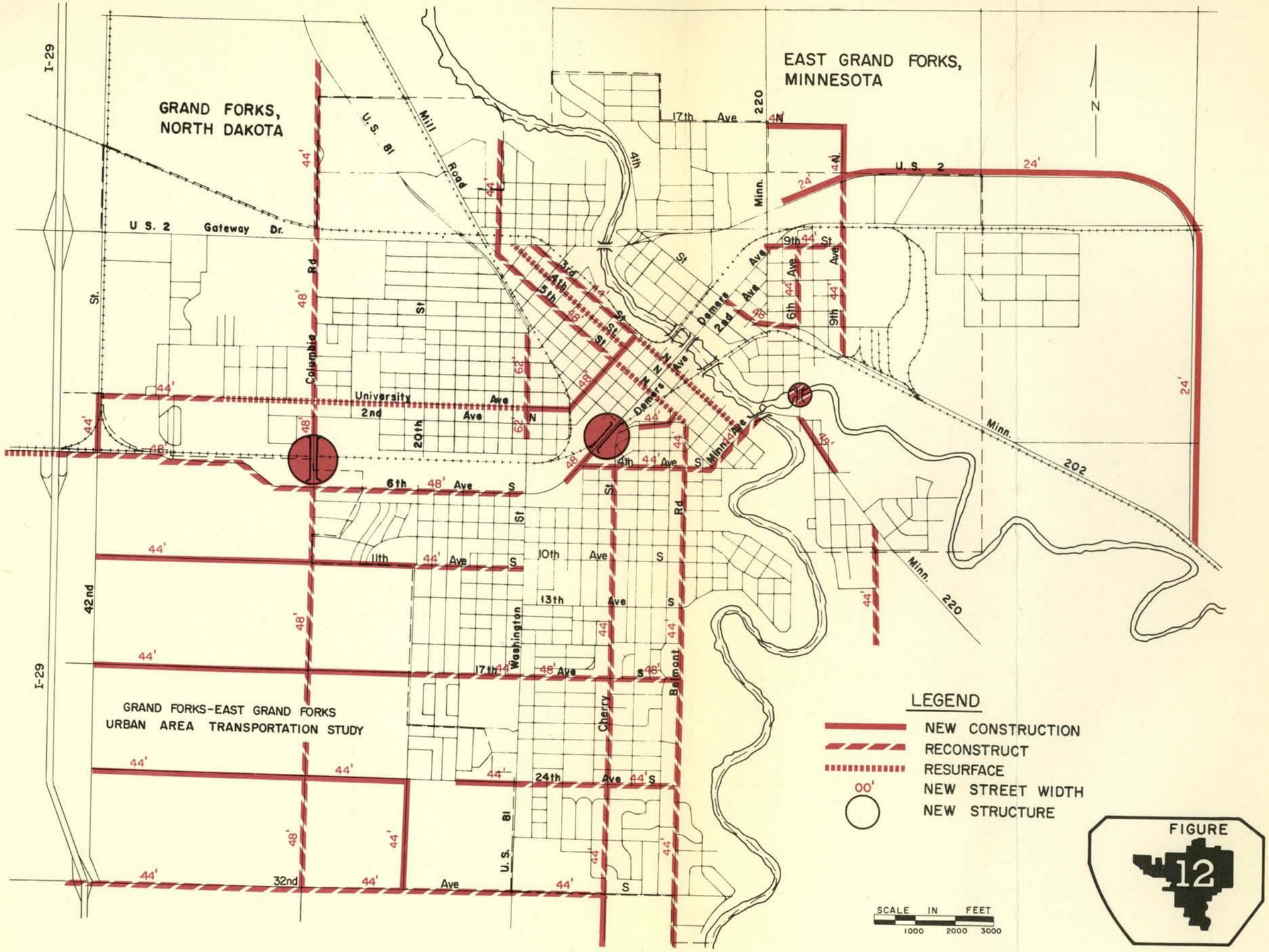
STREETS TO BE IMPROVED

EAST GRAND FORKS

Street	From	To	Type of Improvement
9th Av.	Minnesota Hwy 202	17th Av. N.	Reconstruction* from Minn. 202 to US 2, new construction from US 2 to 17th Av. N.
17th Av. N.	9th Av. N.	Minnesota Hwy 220	Reconstruction*
9th St. S.	4th Av. S.	9th Av. S.	Reconstruction*
6th Av. S.	4th St. S.	9th St. S.	Reconstruction*
Reinhart Drive	Minnesota Hwy 220	1½ miles south	Reconstruction and resurfacing*
US 2	DeMers Av.	east thru study area	Reconstruction to standards for 4 lane rural traffic
6th Av. S.E. (Minn. 220)	US 2 (Bus.)	7th St. S.E.	Relocation*
4th St.	DeMers Av.	6th Av. S.	Reconstruction*

* Street widths of all roadways to be improved should comply with modern standards and commensurate with their particular function in the street network.

STREET IMPROVEMENT PLAN



MAJOR STRUCTURES

Major structures of the transportation plan are:

GRAND FORKS

1. DEMERS AVENUE OVERPASS (New Structure). This recommended structure will connect 6th Avenue South with DeMers Avenue by spanning over the Great Northern Railroad tracks and thereby provide a new convenient and expedient route between I-29 and the downtown area via 6th Avenue South as shown on page 65.

2. COLUMBIA ROAD OVERPASS (New Structure). This recommended structure will allow continuation of Columbia Road South over the Great Northern Railroad tracks and through the southwest part of Grand Forks. The resulting continuous route will provide convenient access between the northwest and southwest parts of Grand Forks and will serve as a supplemental north-south travel route to Washington Street. (See page 67.)

EAST GRAND FORKS

1. RED LAKE RIVER BRIDGE (Replacement Structure). Replacement of this bridge is recommended on the basis of its age and inadequate overall design. The existing structure is not expected to handle the anticipated future traffic volumes efficiently. The location of the replacement bridge is pending the possible realignment or relocation of Minnesota Highway 220.

INTERSECTION IMPROVEMENTS

Intersections in need of improvements such as: approach widening and realignment, establishment of separate left and right turning lanes, etc. will be presented in this section. In many instances, additional approach width for the establishment of turning lanes can be obtained by either eliminating curb side parking or widening the approaches, depending on the individual intersection characteristics. The majority of intersection improvements should be done in conjunction with the street widening and resurfacing projects as little additional cost is incurred if the above mentioned intersection improvement features are incorporated in the development of detailed street improvement plans. All intersections in need of assorted improvements are listed below and their locations shown in figure 13.

INTERSECTION IMPROVEMENTS

GRAND FORKS

1. Intersection of Gateway and Washington Street - Establish left-turn lanes at north and south approaches.

2. Intersection of Gateway and 5th Street - Realign the south approach and construct a north approach.

3. Intersection of Gateway and 20th Street - Establish a right-turn lane at the south approach.

4. Intersection of Gateway and Columbia Road - Establish left and right-turn lanes at north and south approaches.

5. Intersection of Washington and University Avenue - Establish left and right-turn lanes at all approaches.

6. Intersection of Washington and 6th Avenue South - Establish left-turn lanes at the east and west approaches.

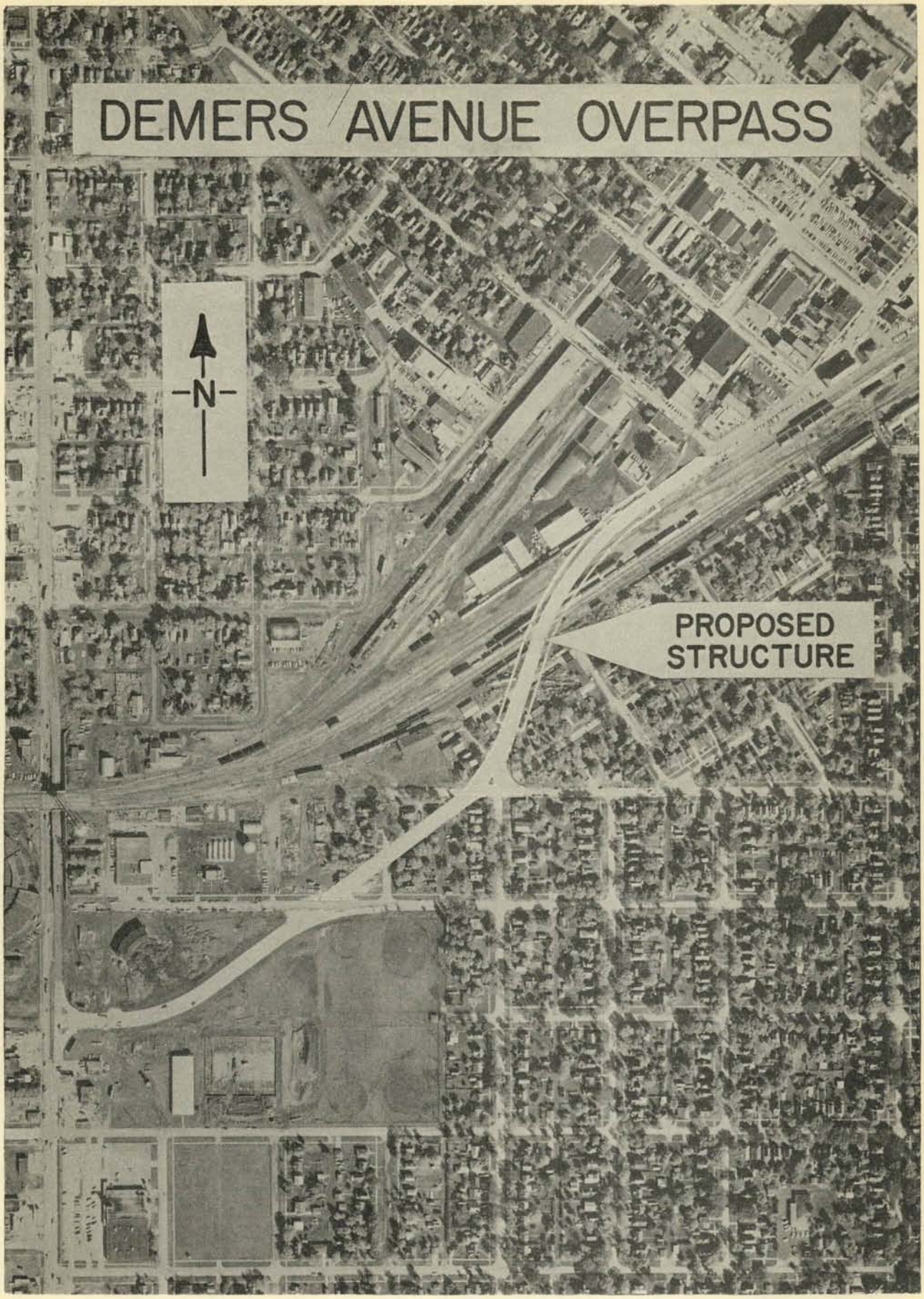
7. Intersection of Washington and 32nd Avenue South - Establish left and right-turn lanes at all approaches.

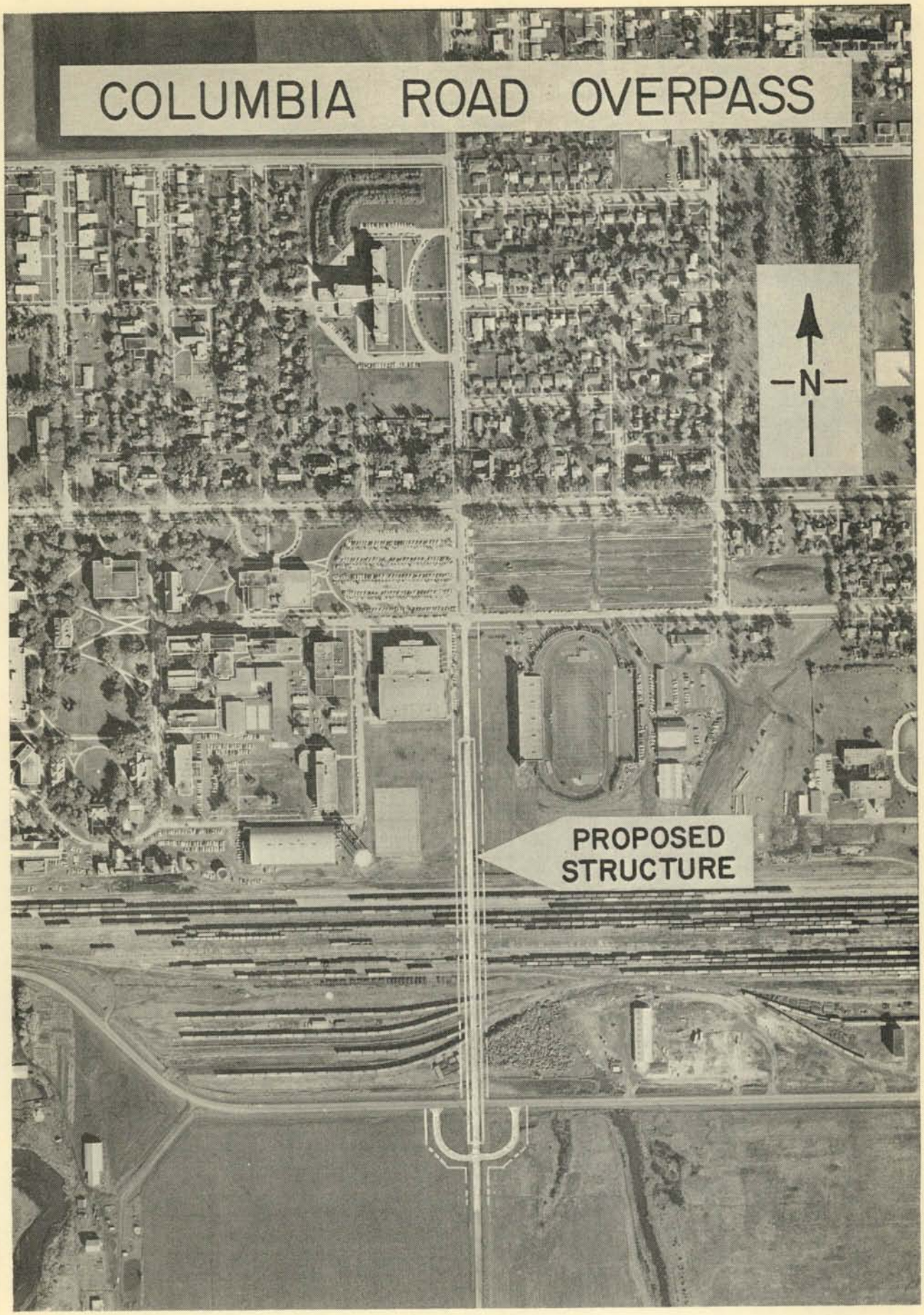
8. Intersection of Columbia and University Drive - Establish left and right-turn lanes at all approaches.

9. Intersection of Columbia and 2nd Avenue North - Establish left and right-turn lanes at all except east approach.

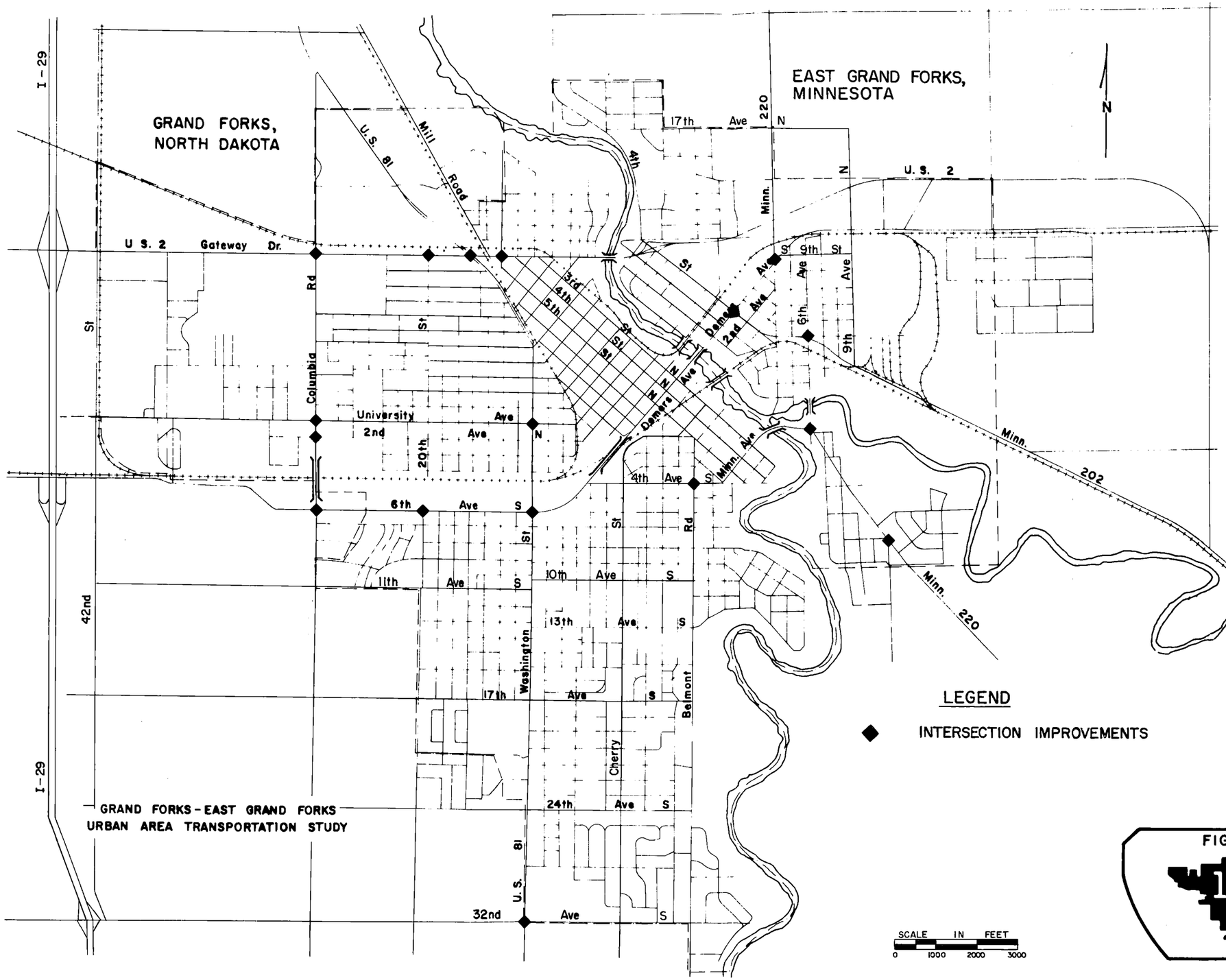
10. Intersection of 20th Street and 6th Avenue South - Establish left and right-turn lanes at all except north approach.

11. Intersection of Belmont and 4th Avenue South - Establish left and right-turn lanes at the north and south approaches.


DEMERS AVENUE OVERPASS
N
PROPOSED
STRUCTURE


COLUMBIA ROAD OVERPASS
N
PROPOSED
STRUCTURE

INTERSECTION IMPROVEMENTS



INTERSECTION IMPROVEMENTS

EAST GRAND FORKS

1. Intersection of DeMers and 4th Street - Install left-turn lanes on all approaches.

2. Intersection of 6th Avenue South and Minnesota Highways 202 and 220 - Establish left and right-turn lanes at all approaches.

3. Intersection of 5th Street Southeast and Minnesota Highway 220 - Establish left and right-turn lanes at all except south approach.

4. Intersection of Minnesota Highway 220 and Reinhart Drive - Establish left and right-turn lanes at all except west approach.

5. Intersection of 4th Avenue South, 9th Street South and DeMers Avenue - Reconstruct intersection with necessary turning lanes to provide efficient traffic flow particularly between DeMers Avenue and 9th Street South.

Analysis of the intersection of Gateway Drive and Washington Street revealed that despite the establishment of left-turn lanes traffic operation of "level E" (unstable flow) may occur there during future peak hour flow. However, the peak flow conditions contributing to this level of operation will not extend over any appreciable length of time. It is also likely that traffic making left turns at this intersection (the major cause of congestion) may travel along alternate and possibly more convenient routes developed by the transportation plan.

Improvement of the intersection of 6th Avenue Southeast and 5th Street Southeast (in East Grand Forks) is pending the relocation and reconstruction of Minnesota Highway 220 (6th Avenue Southeast) from Minnesota Highway 2 to 7th Street Southeast. It is difficult to determine at this time whether the intersection will require reconstruction prior to the rebuilding of Minnesota Highway 220. This can be more easily determined at the preliminary design stage.

In addition to the aforementioned improvements, several intersections may need miscellaneous improvements to their geometric configurations. Sight obstructions should also be corrected wherever necessary. It is stressed that during the intersection improvements phase, provisions should be made to facilitate future installation of traffic signals at all intersections where such installations are contemplated. In many instances, signal installations and intersection improvements can be accomplished simultaneously.

TRAFFIC SIGNALS

Although the installation and upgrading of traffic signals can be categorized as part of the general intersection improvements, they are presented as a separate entity to help emphasize the importance of their function in a transportation system.

Traffic signals provide for more positive control of vehicular and pedestrian traffic. They can, when properly used, increase the capacity of an intersection, increase the ease and safety of pedestrian movements, and reduce the frequency and severity of certain types of accidents. However, traffic signals along are not always the solution to traffic congested intersections; that is, the installation of traffic signals does not necessarily improve the traffic operation of all intersections, as in some instances they may operate to the distinct disadvantage of traffic flow. Traffic signals should, therefore, be installed only at intersections where legitimate warrants for their use have been satisfied through an engineering study. Standard warrants for the installation of traffic signals can be found in the Manual on Uniform Traffic Control Devices.

Signals at individual intersections serve a direct function of distributing traffic through the intersection in the most efficient manner. However, the full function of signals is realized only when they are also employed in conjunction with other signalized intersections to allow progressive traffic flow along a route having several consecutive signalized intersections.

The key to maximum efficiency of a signalized system is the synchronization or "timing" of the signals. Traffic volume, turning movements, signal spacing, street width, presence of parking in relation to the intersection, and pedestrian movements must all be taken into consideration when coordinating a system.

The interconnection and coordination of traffic signals is necessary to provide for progressive movement of traffic at the desired speed levels, and to provide for "platooning" (vehicles moving in groups) thereby creating gaps in the traffic stream to allow ample access from cross streets and abutting property. For these reasons, both cities are encouraged to interconnect and synchronize their signalized intersections, whenever possible.

Traffic actuated signals should be considered at intersections on major arterials where signals are widely spaced, or where traffic flow varies widely. When signals are essentially isolated full or semi-actuation is preferred. Actuated signals can also be interconnected to provide progression during normal flow resulting in maximum efficiency during peak periods and minimum delay during off peak hours.

The locations of existing traffic signals in Grand Forks and East Grand Forks are shown on the traffic signals map, figure 14. Grand Forks has 22 signalized intersections and East Grand Forks has four. Analysis of these signals and their function in the recommended network indicated that 14

signal locations in Grand Forks (most in the Central Business District) are in need of replacement, and four others will become unnecessary - due to a change in the traffic pattern. In East Grand Forks, the three signals along DeMers Avenue were found to be substandard. Replacement of obsolete signals in both cities is necessary due to their out-dated overall design, particularly the internal mechanism which does not lend itself to interconnection with other signals for synchronization. In Grand Forks, the signals of only two intersections are presently synchronized with one another. They are located at Washington Street and Gateway Drive and at Mill Road and Gateway Drive. East Grand Forks has no synchronized intersections, however, the recently installed signals at the intersection of US Highway 2 and Minnesota Highway 220 are fully traffic actuated. In addition to the above mentioned signal light deficiencies both cities will need new signals at various intersections where future traffic volumes will warrant and necessitate their installation. Traffic signals to be installed, replaced, removed, or to remain during the planning period are tabulated on the following page.

Rerouting of major traffic, realignment of streets and intersections, and installation of traffic signals at new locations, as proposed by the recommended transportation plan, will render unnecessary the existing signals at four locations in Grand Forks. These signals are therefore recommended for removal and should be phased out with the development of the new street network in the following manner:

The signals at Washington Street and 13th Avenue South should be removed upon establishment of 10th and 11th Avenues South as a continuous east-west collector street and upon installation of the recommended signals at the intersection of these streets with Washington Street. Likewise, the signals at 2nd Avenue North and Washington Street should be removed after the DeMers Avenue crossover structure becomes operational.

The midblock pedestrian crosswalk signals on Gateway Drive between 3rd and 4th Street North should be removed upon installation of the recommended traffic signals at the nearby intersection of 3rd Street and Gateway Drive.

Realignment of North 5th Street at its intersection with Gateway Drive, and the installation of new signals there, will eliminate the need for the existing signals at Mill Road and Gateway Drive. Removal of these signals will increase the distance between two heavily used intersections (Gateway and Washington and at Gateway and 5th Street North), thereby allowing smoother traffic flow along Gateway Drive.

Detailed plans and final decisions relative to the make, type, installation, and operation of all traffic signal improvements will be determined by the responsible agencies prior to the time of improvement. Along with the necessary traffic signal improvements periodic field checks and signal phase adjustments should be conducted throughout the planning period to determine the adequacy of operation and to provide for the continuous increase in traffic volume at the various signalized intersections.

TRAFFIC SIGNAL IMPROVEMENT PLAN

GRAND FORKS

New		Replace		Remove	Remain
Gateway Dr. & 3rd St. N.	4th Ave. S. & DeMers Ave.	Washington St. & 8th Ave. N.	1st Ave. N. & 4th St. N.	Gateway Dr. & 5th St. N. (present location)	Gateway Dr. & Columbia Road
Gateway Dr. & 5th St. N. (new location)	6th Ave. S. & 20th St.	Washington St. & University Ave.	1st Ave. N. & 3rd St. N.	Gateway Dr. & 3rd St. N.	Gateway Dr. & Washington St.
Gateway Dr. & 20th St.	6th Ave. S. & Columbia Road	Columbia Road & University Ave.	DeMers Ave. & 5th St. N.	Washington St. & 2nd Ave. N.	Washington St. & 6th Ave. S.
Gateway Dr. & I-29 ramps	Belmont Road & 10th Ave. S.	University Ave. & 5th St. N.	DeMers Ave. & 4th St. N.	Washington St. & 13th Ave. S.	Washington St. & 17th Ave. S.
Bruce Ave. & 5th St. S.	Washington St. & 10th Ave. S., 11th Ave. S.	2nd Ave. N. & 5th St. N.	DeMers Ave. & 3rd St. N.		
Bruce Ave. & 4th St. S.	Columbia Road & 11th Ave. S.	2nd Ave. N. & 3rd St. N.	Kittson Ave. & 3rd St. N.		
Bruce Ave. & 3rd St. S.	Washington St. & 24th Ave. S.	1st Ave. N. & 5th St. N.			
Division Ave. & 5th St. S.	Washington St. & 32nd Ave. S.				
Division Ave. & 4th St. S.					

SIGNAL LIGHTS

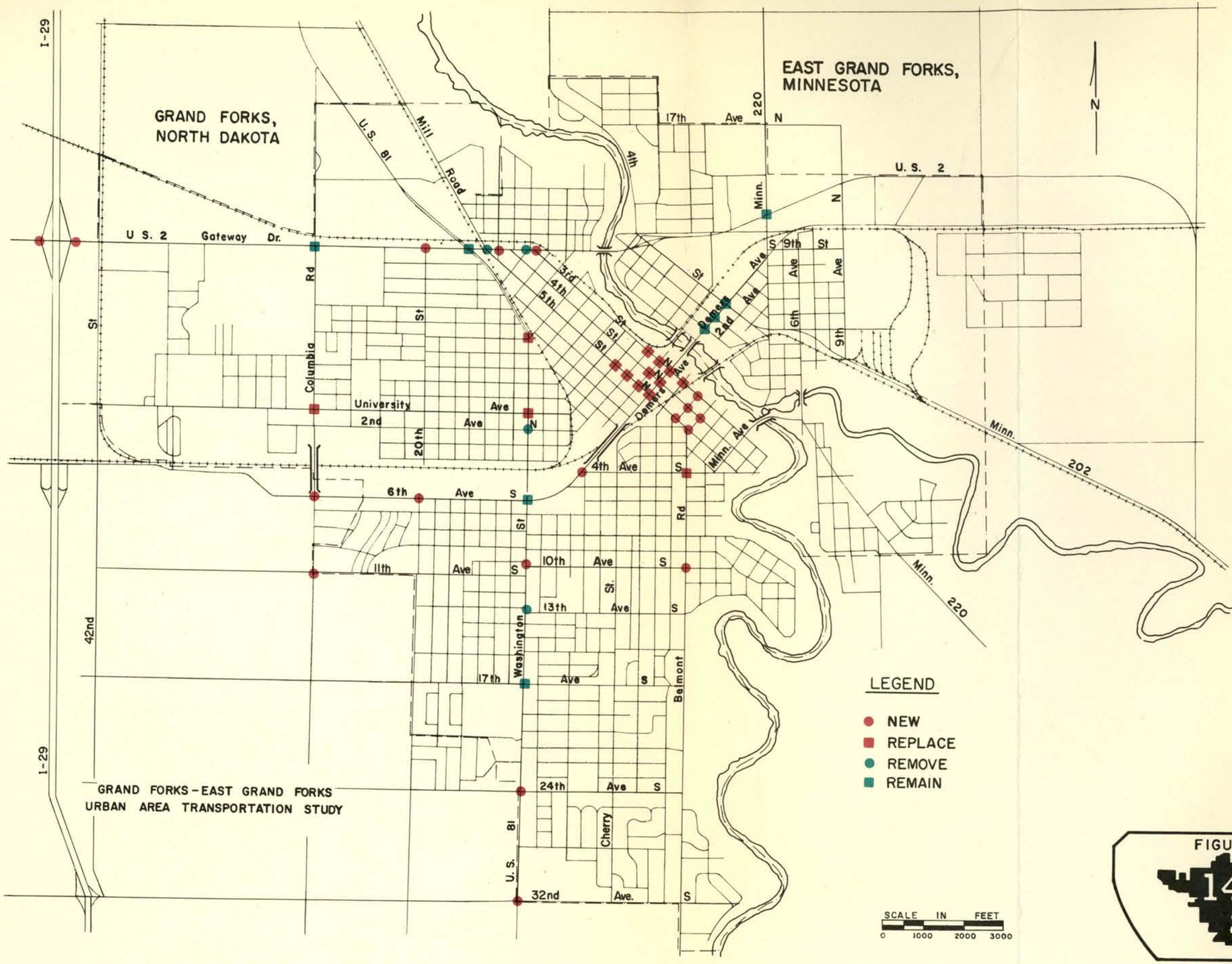


FIGURE 14

CAPITAL IMPROVEMENT SCHEDULE

A general priority schedule and cost estimate has been prepared to provide guidelines for implementing the long-range improvements. The estimated costs presented with the scheduled improvements are based on the present cost and represent only preliminary planning.

The street improvement cost estimates cover roadway construction only and do not include costs of additional right-of-way and drainage facilities. Because of the difficulty in obtaining accurate estimates for these items at this stage of planning, no attempt has been made to determine their costs. However, it should be realized that urban right-of-way and drainage costs will be significant in the overall cost of the projects and in many cases will be much higher than the roadway construction.

Continuous rising labor and material costs (part of the national inflationary trend) and other contingencies can alter these estimates significantly. It is believed, however, that the estimated costs are sufficiently liberal to reflect the scope of future expenditures for budgeting purposes.

FINANCING

The estimated cost of implementing the 20-year transportation plan will be in the neighborhood of $12, 800, 000. The required improvements in the Grand Forks area will amount to $8, 600, 000 whereas the East Grand Forks area will necessitate $4, 200, 000 worth of improvements. Distribution of these costs will be made among all the participating governmental agencies.

Improvement costs on all Federal primary and secondary designated routes running through the study area will be shared on the basis of 50% Federal and 50% among State, County, and City depending on jurisdiction and type of improvement. Minor improvements such as intersection turning lane construction, traffic signal replacement, street lighting improvement, pavement striping, etc. on certain other city streets may qualify for Federal aid under the "TOPICS" program. Improvements of these types will be financed in a similar manner as Federal and State routes in urban areas, with the exception that the State Government has the option of not participating finanically in projects concerning local streets. All major reconstruction and new construction of local streets (projects beyond the scope of "TOPICS") will be financed solely by the respective cities if within the corporate limits. Projects of this nature outside the corporate limits are financed by the counties or may qualify for participating State and Federal funds. The cities may also receive Federal Urban Renewal funds to improve certain city streets in blighted Central Business District areas.

FIVE-YEAR IMPROVEMENT PROGRAMS

It is recommended that the improvements be carried out in five-year programs to allow ample planning and budgeting prior to their implementation. By this procedure, certain projects would be implemented each year and annual updating of the program would allow a changing series of projects to be identified five years in advance. Other advantages of the five-year plan is that it provides opportunities for alterations in priorities resulting from unexpected developments and conveys planned reality through project accomplishments for continued public support.

The first and second 5-year improvement programs along with the improvement scheduled tentatively for the remaining study period have been established for the Grand Forks-East Grand Forks Metropolitan Area and are shown in the appendix (pages 87 to 96). The initial 5-year improvement program, depicted in figure 15, will span over nearly six years (1969-1974 inclusive) due to the time lapse between the completion of this study and implementation of the recommendations. The accompanying time-table for the scheduled projects in the initial program may be altered with the availability of funds. The second five-year program is a tentative schedule included merely to show priorities beyond the initial improvement program. The improvements scheduled during the remaining period are also listed according to their priorities as viewed from the present, however, the priorities and even entire projects beyond the initial five-year program are subject to change with future developments.

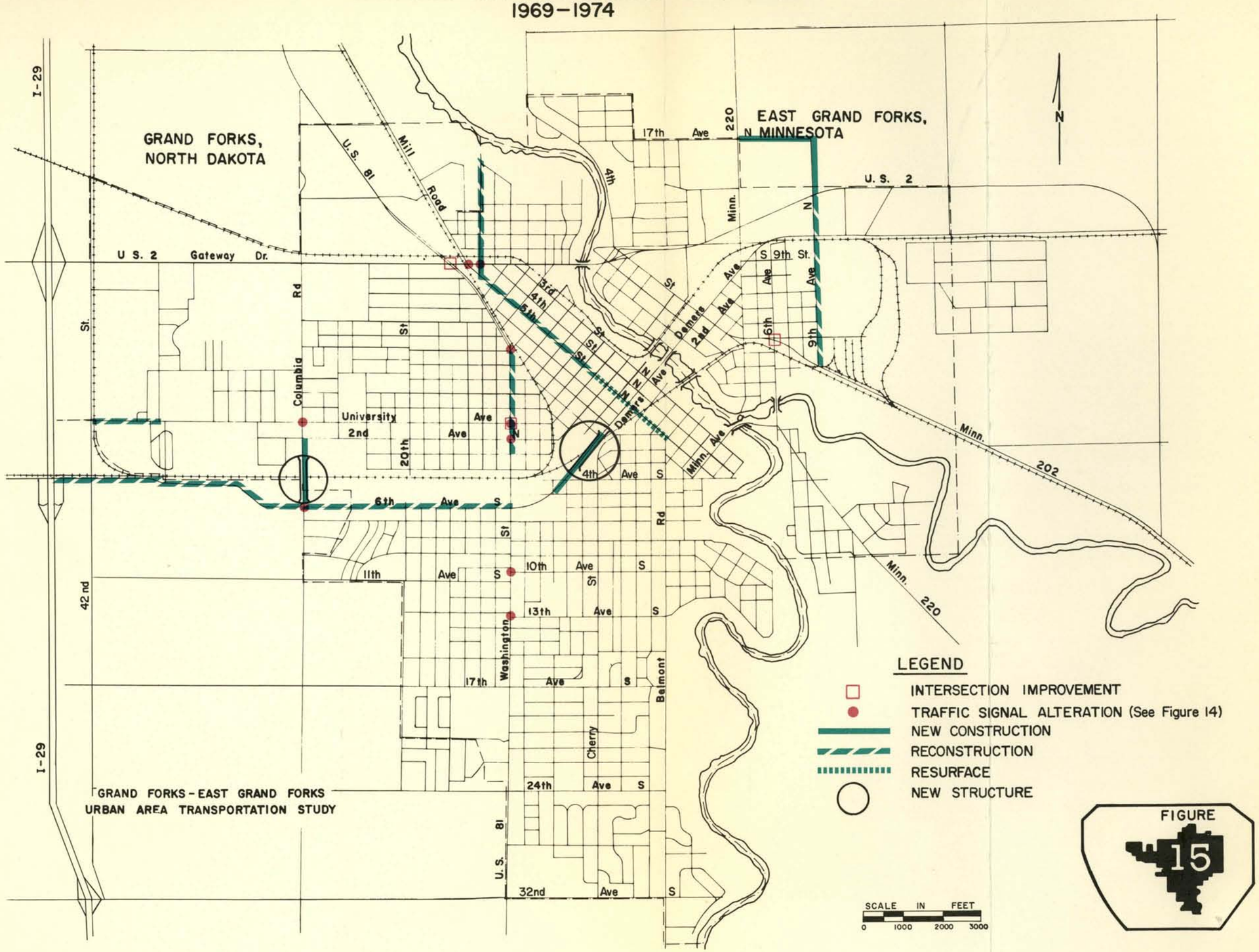
Priorities of the recommended projects were assigned with the following considerations:

1. Improvements should provide maximum service for present traffic demands.

2. Individual projects should complement the present system and be usable sections upon completion.

3. Improvements should pace the anticipated future city developments, particularly areas generating high traffic volumes.

INITIAL IMPROVEMENT PROGRAM
1969–1974



MISCELLANEOUS RECOMMENDATIONS

In this report it was attempted to establish the major solutions needed to provide an effective transportation plan for the urban area in question. Aside from increasing the physical capacity of the street system (which has been the principal objective to this point) much can be done in the field of traffic control to reduce congestion and delay, at comparatively little cost.

Streets operating at or near practical capacity can sometimes have their traffic-carrying capacity greatly increased by selected methods of improved traffic control. Among the most widely employed devices for this purpose are: signing, pavement marking, and parking control.

SIGNING

Traffic signs are used for the safety, expediency, and control of traffic. Signs are placed for the benefit of the motorists to point out existing speed limits, through streets, danger areas, etc. Care must be taken in their placement as it is recognized that motorists must give these signs a quick glance to ascertain their content and then must proceed with adequate knowledge of approaching conditions. Signing should be conservative but adequate. Superfluous signing can be more of a hindrance to the driver than an aid. Confusion may result from too many signs stating well-known or universally recognized rules of the road as they distract the driver's attention from those he needs to read for proper execution of his desired movement.

To insure uniformity and to avoid confusion, certain basic rules of signing have been established and can be found in the Manual on Uniform Traffic Control Devices for Streets and Highways.

During February, 1967, the North Dakota State Legislature passed the "Uniform Signing Law". This law requires that all nonstandard traffic control devices in the State of North Dakota be replaced or brought up to standard levels by December 31, 1968. To assist county and municipal governments in upgrading their traffic signs, a condensed manual on uniform signing entitled "Guide For Signing City Streets and Roads" has been prepared by the State Highway Department and sent to all local governmental units throughout the State.

In compliance with this law, Grand Forks conducted a signing inventory and is presently upgrading all deficient signs and other traffic control devices. East Grand Forks (although not under North Dakota jurisdiction) conducted a similar inventory and is also presently upgrading its traffic control devices.

Noncompliance on the part of local governments in North Dakota could result in difficulties in enforcing traffic ordinances and could make local

governments liable in lawsuits stemming from traffic accidents. Changing attitudes toward government immunities make it necessary to consider such possibilities.

It is expected, however, that the long run advantages of safety, convenience and economy will constitute the greatest incentives for bringing traffic control devices up to the uniform standards. The basic premises proposed in the code are that:

> Uniformity of traffic control devices simplifies the task of users because it aids in instant recognition and understanding. It aids police courts and road users by giving everyone the same interpretation. It also aids public highway and traffic officials through economy in manufacture, installation, maintenance, and administration.

PAVEMENT MARKING

Pavement markings have become a widely used supplement to the other regulating devices such as traffic signs and signals. They serve to add emphasis and clarity to the message without diverting the driver's attention from the roadway. In addition to this function, pavement markings can often convey a message that could not be conveyed practically by any other means, e.g., lane lines, parking stalls, some stop lines, and pedestrian crosswalks.

Marking of pavement, however, also has limitations in that it may be obscured by snow or difficult to see when wet. It is also not very durable and requires frequent application under heavy traffic conditions. Despite these limitations, street markings are the simplest and most expedient regulating devices and generally yield highest response per dollar invested.

Extensive pavement marking throughout the city street network is encouraged and highly recommended. A complete review of the city's pavement marking system should be conducted with a goal of providing an effective and continuous marking program.

Like other traffic control devices, pavement markings on all public roadways must conform to the standards set forth by the Uniform Traffic Controls Manual.

PARKING CONTROL

Curb side parking along major streets should be closely controlled to reduce traffic friction and maintain optimum traffic flow. Parked vehicles along busy streets hinder the free flow of traffic since the flow is frequently interrupted by vehicles attempting to park or enter the traffic stream.

Curb side parking also reduces the usable roadway width by up to ten feet, which is considerably more than the actual width of a parked vehicle. It has been observed that motorists have a tendency to shy from parked vehicles near their path and crowd the centerline. This condition creates a general uneasiness among drivers which is reflected by reduced efficiency in traffic flow. Parking near intersections should also be controlled to provide adequate sight distances and room for turning movements.

Restriction of parking is the most frequent corrective traffic control method employed to improve the traffic carrying capacity of urban roadways, and may be used in some instances as an alternate solution to street widening.

CONTINUOUS PLANNING PROGRAM

The analysis and recommendations outlined in this comprehensive transportation study have been developed through the use of tested and accepted procedures based on extensive research in land-use characteristics, growth trends, anticipated development, and travel requirements of the study area. The results of this study are designed to meet future needs as defined by the detailed studies of expected growth.

It should be realized that the accuracy of future growth forecasts, changes in travel habits, and changes in travel distribution will have an influence on the reliability of the estimates of future transportation needs. Therefore, an essential portion of the completed transportation study will be a continuous review and analysis of the data supporting the plan as well as periodic reviews of the plan itself. To obtain maximum results, it is necessary to coordinate the transportation planning process with other planning objectives and goals of the urban community.

To maintain an effective continuing program, data should be kept current on:

1. Land Use
2. Street Inventory
3. Traffic Volumes
4. Parking in the Central Business District
5. Accident Records
6. Actions by governing bodies with respect to zoning, subdivision regulations, and traffic regulation; liaison should be maintained with the railroads and airport authority, and with the Federal agencies involved with those modes of travel.

It is the responsibility of the city to utilize this data in the continuous updating of the transportation program.

Experience has shown that an effective method of control over the transportation program may be obtained by the formulation of a Metropolitan Council. This council may consist of two voting members from each of the following major political divisions:

1. Grand Forks
2. East Grand Forks
3. Polk County
4. Grand Forks County

The general responsibility of this council would be to see that all information is analyzed and that appropriate action is taken to insure the continuing adequacy of the transportation program for all parties concerned.

In addition to a Metropolitan Council, it is recommended that an advisory committee of non-voting members be formed. This Technical Committee should be comprised of the following personnel:

1. Council Coordinator
2. City Planning Directors
3. City Urban Renewal Directors
4. City Traffic Engineers
5. City Engineers
6. North Dakota State Highway Department Engineer
7. Minnesota Department of Highways Engineer
8. Bureau of Public Roads Engineer
9. U. S. Department of Housing and Urban Development Representative

It would be the general responsibility of this committee to review information and to make pertinent recommendations to the Metropolitan Council.

In summary, realizing that a successful transportation plan can not be put into effect without a continuous implementation program, the city must establish a workable system for reviewing and administering necessary changes to maintain its transportation plan in a current state. The Metropolitan Council and Technical Committee should, therefore, develop an "operations plan" to be used as a procedural guide for annual reviewing and updating of the transportation plan. The operations plan will outline the scope of the planning program, the participants, responsibilities and procedures for the operation, financing, maintaining and keeping current this transportation plan. Only through the implementation of an adequate operations program can the comprehensive transportation plan approach fulfillment in continuing planning.

Appendix

IMPROVEMENT PRIORITIES AND COSTS
INITIAL PERIOD (1969-1974)
GRAND FORKS AREA

Year	Street	Intersection	From	To	Type of Improvement	Estimated Costs
1969	University Ave.		42nd St.	Stanford Rd.	Reconstruct to a width of 44 ft.	$ 38,000
1970		Gateway & Washington			Establish left-turn lanes at north and south approaches	17,000
1970	DeMers Avenue		5th Ave. S.	8th St. N.	Overpass and approaches 4-lane 48 feet wide	1,900,000
1970 to 72	6th Ave. S.		I-29	Washington	Reconstruct and Resurface	502,000
1970 to 72	Washington St.		1st Ave. N.	8th Ave. N.	Widen to 62 feet	70,000*
1970 to 72		Washington & 8th Ave. N.			Replace traffic signals	10,500
1970 to 72		Washington & University Ave.			Replace traffic signals	12,000
1970 to 72		Washington & 10th Ave. S.			Install traffic signals	9,500
1970 to 72		Washington & 13th Ave. S.			Remove existing traffic signals	2,000
1973	5th St. N.		Gateway Dr.	Alpha Ave.	Construct roadway from Gateway to Seward, reconstruct roadway from Seward to Alpha (all 44 foot width)	45,000

* R/W costs will be considerably higher than construction costs on this section.

IMPROVEMENT PRIORITIES AND COSTS (CONTINUED)
INITIAL PERIOD (1969-1974)
GRAND FORKS AREA

Year	Street	Intersection	From	To	Type of Improvement	Estimated Costs
1973	5th St. N.		Gateway Dr.	University Ave.	Widen to 48 feet and reconstruct approach	$ 122,000
1973		Gateway Dr. & 5th St. N.			Relocate traffic signals to new intersection	10,500
1973	5th St. N.		University Ave.	Belmont Rd.	Resurface	15,000
1973		5th St. N. & University Ave.			Replace traffic signals	12,000
1973		5th St. N. & 2nd Ave. N.			Replace traffic signals	10,500
1973		5th St. N. & 1st Ave. N.			Replace traffic signals	10,500
1973		5th St. N. & DeMers Ave.			Replace traffic signals	10,500
1974	Columbia Rd.		2nd Ave. N.	6th Ave. S.	Overpass and approaches 4-lane 48 feet wide	2,500,000
1974		Columbia Rd. & 6th Ave. S.			Install traffic signals	12,000
1974		Columbia Rd. & University Ave.			Replace traffic signals	12,000
1974		Washington & 2nd Ave. N.			Remove existing traffic signals	2,000
1974	County Rd. 5	4	U.S. Hwy. 2	3 miles south	Hard surface	132,000
					Total cost for 1st period -	$ 5,455,000
					Cost per year for 1st period -	$ 909,167

IMPROVEMENT PRIORITIES AND COSTS
INITIAL PERIOD (1969-1974)
EAST GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvement	Estimated Costs
9th Ave. S.		Minnesota Hwy. 202	U.S. Hwy. 2	Reconstruct (44 ft. width)	$ 127,000
9th Ave. S.		U.S. Hwy. 2	17th Ave. N.	New Construction (44 ft. width)	42,000
17th Ave. N.		9th Ave. N.	Minn. 220	New Construction (44 ft. width)	58,000
	6th Ave. S. (Minn. 220) & Minnesota Hwy. 202			General Intersection Improvements to include separate turning lanes	75,000
				Total cost for 1st period -	$ 302,000
				Cost per year for 1st period -	$ 50,333

IMPROVEMENT PRIORITIES AND COSTS
SECOND PERIOD (1975-1979)
GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvements	Estimated Costs
Belmont Rd.		5th St. S.	24th Ave. S.	Widen to 44 feet and resurface	$ 222,000
	5th St. & Bruce Ave.			Install traffic signals	11,000
	5th St. & Division Ave.			Install traffic signals	11,000
	Belmont Rd. 10th St. S.			Install traffic signals	9,500
Belmont Rd.		24th Ave. S.	32nd Ave. S.	Widen to 44 feet and resurface	88,000
4th Ave. S.		DeMers Ave. (6th Ave. S. ext.)	Minnesota Ave.	Widen to 44 feet and resurface	80,000
	Belmont Rd. & 4th Ave. S.			Replace existing traffic signals	11,000
	DeMers Ave. & 4th Ave. S.			Install traffic signals	11,000
Minnesota Ave.		4th Ave. S.	Point Bridge	Widen to 44 feet and resurface	43,000
Columbia Rd.		U.S. Route 81	Gateway Dr.	Reconstruct and resurface-straighten curve-widen to 44 feet - channelize Columbia's approach to Gateway	110,000
Columbia Rd.		Gateway Dr.	University Ave.	Channelize Columbia's approach to Gateway and University - widen Columbia Rd. to 48 feet	60,000

IMPROVEMENT PRIORITIES AND COSTS (CONTINUED)
SECOND PERIOD (1975-1979)
GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvement	Estimated Costs
Columbia Rd.		University Ave.	2nd Ave. N.	Channelize Columbia's approach to University - widen to 48 feet	$ 9,000
Columbia Rd.		6th Ave. S.	32nd Ave. S.	Reconstruct and surface	182,000
32nd Ave. S.		I-29	Washington	Reconstruct to 44 feet wide and hard surface	197,000
32nd Ave. S.		Washington	Cherry St.	Widen to 44 feet and hard surface	62,000
	Washington St. & 24th Ave. S.			Install traffic signals	9,500
	Washington St. & 32nd Ave. S.			Install traffic signals	11,000
	Gateway Dr. & 20th St.			Install traffic signals and general intersection improvements to include a right-turn lane at the south approach	14,500
1st Ave. S.*		Cottonwood St.	Bruce Ave.	Construct 44 feet wide	23,000
Cherry Street*		4th Ave. S.	32nd Ave. S.	Widen to 44 feet and resurface	206,000
County Rd. 4 Extension of 6th Ave. S.		I-29	County Rd. 5	Hard surface	176,000
				Cost of 2nd period program -	$ 1,546,500
				Cost per year for 2nd period -	$ 309,300

* The section connecting 1st Ave. S. and Cherry St. is not shown here but will be improved under proposed Urban Renewal plans in the near future.

IMPROVEMENT PRIORITIES AND COSTS
SECOND PERIOD (1975-1979)
EAST GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvement	Estimated Costs
9th St. S.		4th Ave. S.	9th Ave. S.	Reconstruct to 44 foot width	$ 65,000
6th Ave. S.		4th St. S.	9th St. S.	Reconstruct to 44 foot width	72,000
Reinhart Dr.	Reinhart Dr. & Minn. Hwy. 220	Minn. Hwy. 220	Approximately 1 mile south	Reconstruct to 44 feet and surface, general intersection improvements to include left and right-turn lanes	256,000
U.S. Hwy. 2		DeMers Ave.	East thru study area	Reconstruct to standards of 4-lane roadway	400,000
				Cost of 2nd period program -	$ 793,000
				Cost per year for 2nd period -	$ 158,600

IMPROVEMENT PRIORITIES AND COSTS
REMAINING PERIOD (1980-1990)
GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvement	Estimated Costs
	Columbia Rd. & 11th Ave. S.			Install traffic signals	$ 9,500
42nd St.		University Ave.	6th Ave. S.	Construct and hard surface	29,000
Cherry St.		32nd Ave. S.	1 mile south	Construct to 44 foot width and hard surface	113,000
Belmont Rd.		32nd Ave. S.	1 mile south	Widen to 44 foot and resurface	187,000
4th St. N.		Gateway Dr.	University Ave.	Resurface	14,000
	4th St. & 1st Ave. N.			Replace existing traffic signals	11,000
	4th St. & DeMers Ave.			Replace existing traffic signals	9,500
	4th St. & Bruce Ave.			Install traffic signals	9,500
	4th St. & Division Ave.			Install traffic signals	9,500
3rd St. N.		Gateway Dr.	University Ave.	Widen to 44 feet	97,000
	3rd St. & Gateway Dr.			Remove midblock signal and install new signals at intersection	13,000
3rd St. N.		University Ave.	Minn. Ave.	Resurface	15,000
	3rd St. & 2nd Ave. N.			Replace existing traffic signals	9,500

IMPROVEMENT PRIORITIES AND COSTS (CONTINUED)
REMAINING PERIOD (1980-1990)
GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvement	Estimated Costs
	3rd St. & 1st Ave. N.			Replace existing traffic signals	$ 9,500
	3rd St. & DeMers Ave.			Replace existing traffic signals	11,000
	3rd St. & Kittson Ave.			Replace existing traffic signals	9,500
	3rd St. & Bruce Ave.			Install traffic signals	11,000
20th St.		24th Ave. S.	32nd Ave. S.	Construct to 44 foot width and surface	50,000
University Ave.		Stanford Rd.	Princeton	Widen to 44 foot width and surface	28,000
University Ave.		Princeton	Washington	Resurface	28,000
University Ave.		Washington	3rd St. N.	Reconstruct	75,000
24th Ave. S.		42nd St.	S. 20th St.	Construct to 44 foot width and surface	170,000
24th Ave. S.		S. 17th St.	Washington	Construct to 44 foot width and surface	28,000
24th Ave. S.		Washington	Belmont Rd.	Widen to 44 foot width and re-surface	43,000
17th Ave. S.		42nd St.	20th St.	Construct 44 foot roadway	171,000

IMPROVEMENT PRIORITIES AND COSTS (CONTINUED)
REMAINING PERIOD (1980-1990)
GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvement	Estimated Costs
17th Ave. S.		S. 20th St.	Washington	Widen to 48 foot width (4-lane)	$ 36,000
17th Ave. S.		Washington	Belmont	Widen to 48 foot width (4-lane)	97,000
11th Ave. S.		42nd St.	20th St.	Construct to 44 foot width	198,000
11th Ave. S.		20th St.	Washington	Widen to 44 foot width	65,000
	U.S. Hwy. 2 & Interstate Hwy 29			Install traffic signals at two locations	22,000
	6th Ave. S. & 20th St.			Install traffic signals	9,500
				Total cost of remaining period -	$ 1,588,000
				Cost per year -	$ 317,600

IMPROVEMENT PRIORITIES AND COSTS
REMAINING PERIOD (1980-1990)
EAST GRAND FORKS AREA

Street	Intersection	From	To	Type of Improvement	Estimated Costs
6th Ave. S.E. (Minn. 220)		U.S. Hwy. 2 (Bus.)	7th St. S.E.	Relocation and construction	$ 1,750,000
Red Lake River St. (Minn. Hwy. 220)				New bridge structure	1,300,000
4th Ave. S.		DeMers Ave.	9th St. S.	General intersection improvements to include realignment of approaches	*
4th St. S.		DeMers Ave.	6th Ave. S.	Reconstruct roadway to 44 or 48 feet if Minn. Hwy. 220 is not re-routed	*

* Costs for these projects were not determined as the extent of improvements required at these locations is contingent on the re-routing of Minnesota Highway 220.

TRIP GENERATION FORMULAS
Grand Forks-East Grand Forks Urban Area Transportation Study

HOME BASE WORK PRODUCTION TRIP ENDS (All Traffic Zones)

Trip Ends = 0.26 x Pop. + 7.50 x Res. Land Use

Correlation Coefficient (R)	= 0.9720
Coefficient Determination $(R)^2$	= 0.9449
Mean	= 331.36
Relative Error	= 34.0
Relative Constant	= 0.0

HOME BASE OTHER PRODUCTION TRIP ENDS (All Traffic Zones)

Trip Ends = 2.56 x Cars + 4.50 x Res. Land Use

Correlation Coefficient (R)	= 0.9809
Coefficient Determination $(R)^2$	= 0.9622
Mean	= 669.61
Relative Error	= 27.9
Relative Constant	= 0.0

HOME BASE WORK ATTRACTION TRIP ENDS
(Traffic Zones Predominant in Retail and Services)

Trip Ends = $11.62 + 8.09$ x Net Land Use + 1.54 x $(\text{Other Emp.})^{.8} + 3.05$ x $(\text{Total Emp.})^{.8}$

Correlation Coefficient (R)	= 0.9415
Coefficient Determination $(R)^2$	= 0.8865
Mean	= 552.17
Relative Error	= 15.5
Relative Constant	= 2.1

HOME BASE OTHER ATTRACTION TRIP ENDS
(Traffic Zones Predominant in Retail and Services)

Trip Ends = $526.99 + 25.26$ x Other Land Use + 1.33 x $(\text{Retail Emp.})^{1.2}$

Correlation Coefficient (R)	= 0.7325
Coefficient Determination $(R)^2$	= 0.5365
Mean	= 1357.84
Relative Error	= 44.5
Relative Constant	= 38.8

TRIP GENERATION FORMULAS
(CONTINUED)

NON HOME BASE TRIP ENDS
(Traffic Zones Predominant in Retail and Services)

$$\text{Trip Ends} = 750.39 + 24.49 \times \text{Net Land Use} + 1.92 \times (\text{Retail Emp.})^{1.1}$$

Correlation Coefficient (R)	=	0.8399
Coefficient Determination $(R)^2$	=	0.7055
Mean	=	1473.11
Relative Error	=	22.1
Relative Constant	=	50.9

HOME BASE OTHER ATTRACTION TRIP ENDS
(Assorted Traffic Zones not Predominant in Retail or Services)

$$\text{Trip Ends} = -35.59 + 10.86 \times (\text{Retail Emp.})^{.8} + 3.10 \times (\text{Total Emp.})^{.8} + 4.10 \times (\text{Dwelling Units})^{.8}$$

Correlation Coefficient (R)	=	0.7719
Coefficient Determination $(R)^2$	=	0.5959
Mean	=	549.54
Relative Error	=	48.7
Relative Constant	=	6.5

HOME BASE WORK ATTRACTION TRIP ENDS
(Traffic Zones Predominantly Residential)

$$\text{Trip Ends} = 22.06 + 3.84 \times (\text{Retail Emp.})^{.8} + 2.49 \times (\text{Total Emp.})^{.8}$$

Correlation Coefficient (R)	=	0.8617
Coefficient Determination $(R)^2$	=	0.7426
Mean	=	178.29
Relative Error	=	50.8
Relative Constant	=	12.4

TRIP GENERATION FORMULAS
(CONTINUED)

NON HOME BASE TRIP ENDS
(Traffic Zones Predominantly Residential)

$$\text{Trip Ends} = 162.11 + 19.87 \times (\text{Retail Emp.})^{.8} + 2.72 \times (\text{Total Emp.})^{.8} + 3.55 \times (\text{Dwelling Units})^{.8}$$

Correlation Coefficient (R)	=	0.6975
Coefficient Determination $(R)^2$	=	0.4865
Mean	=	802.19
Relative Error	=	44.4
Relative Constant	=	20.2

HOME BASE WORK ATTRACTION TRIP ENDS
(Assorted Traffic Zones not Predominant in Retail, Services, and Residential Land Use)

$$\text{Trip Ends} = 258.84 + 0.84 \times (\text{Government Emp.})^{1.2} + 0.34 \times (\text{Other Emp.})^{1.2}$$

Correlation Coefficient (R)	=	0.8723
Coefficient Determination $(R)^2$	=	0.7609
Mean	=	454.03
Relative Error	=	35.5
Relative Constant	=	57.0

NON HOME BASE TRIP ENDS
(Assorted Traffic Zones not Predominant in Retail, Services, and Residential Land Use)

$$\text{Trip Ends} = 183.72 + 7.18 \times (\text{Total Emp.})^{.8} + 4.07 \times (\text{Population})^{.8}$$

Correlation Coefficient (R)	=	0.9204
Coefficient Determination $(R)^2$	=	0.8471
Mean	=	883.07
Relative Error	=	22.6
Relative Constant	=	20.8

DESCRIPTION OF THE INDEPENDENT VARIABLES
FOR THE TRIP GENERATION FORMULAS
Grand Forks-East Grand Forks Urban Area Transportation Study

Dwelling Unit Independent Variables

1. Dwelling Units - The number of occupied living quarters within a traffic zone.
2. Population (Pop.) - The number of people living within a traffic zone.
3. Cars - The number of cars owned by the residents within a traffic zone.

Land Use Independent Variables

1. Residential Land Use. (Res. Land Use) - The number of acres of land used for residential purposes within a traffic zone.
2. Net Land Use - The number of acres used for residential, retail, service, nonmanufacturing industry, manufacturing industry, educational, religious and cultural purposes within a traffic zone.
3. Other Land Use - The number of acres used as public open and other open land within a traffic zone.

Employment Independent Variables

1. Retail Employment (Retail Emp.) - The number of people employed within a traffic zone in retail establishments.
2. Government Employment (Government Emp.) - The number of people employed by Federal, State and local government within a traffic zone. Teachers are considered in this group also.
3. Other Employment (Other Emp.) - The number of people employed within a traffic zone that were not included in the above two employment catagorys except service employment.
4. Total Employment (Total Emp.) - The total number of people employed within a traffic zone.

SMALL AREAS FORECAST INDEPENDENT VARIABLES

Grand Forks-East Grand Forks Urban Area Transportation Study

Assignment Zones	Dwelling Units	Cars Owned	Population	Residential Land Use	Net Land Use 1/	Other Land Use 2/	Total Land Use	Retail Employment	Government Employment	Services Employment	Other Employment	Total Employment
1	7	13	26	6	942	4,622	5,564	0	30	0	50	80
2	75	75	300	23	24	6,803	6,827	0	0	0	2	2
3	27	13	80	10	30	5,154	5,184	10	0	0	10	20
4	110	110	400	30	330	2,550	2,880	180	0	49	1,000	1,229
5	628	755	1,582	50	193	272	465	75	200	90	500	865
6	0	0	0	0	30	222	252	0	0	50	10	60
7	855	752	2,239	29	38	43	81	0	100	0	60	160
8	1,426	738	3,105	41	92	33	125	0	2,805	0	0	2,805
9	104	62	218	2	62	12	74	0	200	0	50	250
10	710	790	1,917	32	54	23	77	12	20	500	0	532
11	513	782	1,642	54	67	52	119	0	100	55	0	155
12	304	455	1,093	38	40	73	113	0	0	15	15	30
13	0	0	0	0	67	24	91	160	0	20	50	230
14	158	217	412	14	103	35	138	150	650	30	320	1,150
15	0	0	0	0	89	12	101	0	0	0	400	400
16	86	101	283	12	19	14	33	100	0	25	75	200
17	0	0	0	0	12	13	25	100	0	5	15	120
18	103	114	227	6	30	10	40	220	0	30	200	450
19	310	434	1,086	41	48	23	71	100	0	25	50	175
20	82	119	261	7	12	17	29	50	0	30	120	200
21	150	194	524	11	26	18	44	75	50	30	60	215
22	370	575	1,035	67	69	100	169	20	10	0	50	80
23	218	265	609	20	26	32	58	30	0	25	200	255
24	326	337	1,045	28	35	21	56	60	50	140	150	400
25	488	680	1,563	57	66	40	106	75	50	100	25	250
26	244	262	628	30	37	22	59	0	0	5	25	30
27	205	244	634	23	34	27	61	50	0	20	80	150
28	313	380	907	28	34	28	62	50	0	10	150	210
29	129	97	204	5	10	7	17	50	150	20	50	270
30	27	45	82	2	6	4	10	50	5	100	200	355
31	0	0	0	0	4	3	7	180	325	90	100	695
32	25	9	50	0	4	3	7	64	115	75	268	522

SMALL AREAS FORECAST INDEPENDENT VARIABLES
(CONTINUED)

Assignment Zones	Dwelling Units	Cars Owned	Population	Residential Land Use	Net Land Use 1/	Other Land Use 2/	Total Land Use	Retail Employment	Government Employment	Services Employment	Other Employment	Total Employment
33	88	53	170	0	9	7	16	160	36	198	170	564
34	55	16	55	0	4	3	7	600	42	199	303	1,144
35	60	11	60	0	5	3	8	508	0	335	290	1,133
36	25	0	25	0	5	4	9	225	320	70	25	640
37	30	15	39	0	10	9	19	350	20	175	288	833
38	0	0	0	0	4	3	7	58	0	764	183	1,005
39	240	203	528	16	30	21	51	24	197	19	57	297
40	156	127	407	10	15	9	24	12	0	64	56	132
41	0	0	0	0	12	29	41	85	22	113	550	770
42	260	325	650	17	18	21	39	13	0	5	90	108
43	0	0	0	0	18	67	85	18	0	0	500	518
44	238	272	760	26	40	45	85	100	0	5	57	162
45	260	245	832	22	23	13	36	15	0	11	6	32
46	191	204	613	16	18	8	26	0	42	3	4	49
47	235	249	423	34	34	49	83	0	0	0	10	10
48	535	957	1,818	75	77	86	163	0	60	210	21	291
49	191	319	670	22	22	10	32	0	0	9	0	9
50	202	255	626	26	28	15	43	3	102	6	9	120
51	422	581	1,394	48	55	45	100	58	59	45	14	176
52	255	347	867	28	35	29	64	71	0	12	44	127
53	341	451	1,262	63	90	37	127	6	49	6	0	61
54	156	220	626	40	40	11	51	0	0	0	5	5
55	239	335	1,004	45	47	20	67	4	0	12	9	25
56	318	433	953	42	56	35	91	125	32	7	74	238
57	98	130	195	7	14	10	24	197	0	52	9	258
58	260	441	1,020	46	49	22	71	0	9	3	4	16
59	163	271	488	28	28	11	39	0	0	37	10	47
60	104	196	333	21	21	8	29	0	0	0	6	6
61	172	229	619	29	76	21	97	625	0	56	18	699
62	0	0	0	0	3	3	6	180	0	6	0	186
63	338	493	1,183	40	52	23	75	37	0	127	60	224
64	189	303	698	22	41	17	58	17	54	19	7	97

SMALL AREAS FORECAST INDEPENDENT VARIABLES
(CONTINUED)

Assignment Zones	Dwelling Units	Cars Owned	Population	Residential Land Use	Net Land Use 1/	Other Land Use 2/	Total Land Use	Retail Employment	Government Employment	Services Employment	Other Employment	Total Employment
65	334	556	1,167	75	75	28	103	4	0	0	54	58
66	0	0	0	0	6	122	128	0	50	95	0	145
67	153	285	627	69	69	81	150	0	0	0	47	47
68	309	569	1,082	79	79	25	104	0	0	8	25	33
69	294	353	882	51	90	51	141	52	60	9	154	275
70	160	320	560	55	61	214	275	20	20	0	5	45
71	50	50	194	16	17	6,598	6,615	15	0	0	0	15
72	417	689	1,843	167	226	3,757	3,983	48	29	23	49	149
73	692	989	2,472	156	172	168	340	62	22	63	24	171
74	250	280	757	23	31	44	75	44	32	8	16	100
75	50	37	142	5	12	11	23	56	107	38	18	219
76	0	0	0	0	7	8	15	127	44	48	113	332
77	0	0	0	0	5	7	12	149	7	51	15	222
78	475	656	1,392	44	45	47	92	10	0	5	16	31
79	1,164	1,770	3,846	171	184	117	301	0	27	11	74	112
80	230	347	903	67	515	459	974	0	0	0	4	4
81	194	312	718	52	70	1,477	1,547	12	0	0	35	47
82	50	108	215	27	30	3,460	3,490	14	0	0	0	14
83	199	327	751	31	53	1,676	1,729	16	0	5	15	36
84	0	0	0	0	41	40	81	108	42	121	84	355
85	126	186	466	19	173	94	267	29	0	49	459	537
86	156	121	338	7	30	55	85	94	32	28	199	353
87	198	334	701	24	34	31	65	69	53	9	94	225
88	49	79	182	12	221	154	375	52	24	0	227	303
89	15	32	64	13	82	432	514	20	0	0	65	85
90	4	9	17	4	100	1,048	1,148	0	0	0	0	0
91	10	22	43	11	121	643	764	51	0	11	43	105
92	176	248	706	45	60	234	294	15	0	10	10	35
93	317	447	1,270	80	97	65	162	25	0	20	10	55
94	256	360	1,026	65	65	187	252	5	0	0	5	10
95	357	503	1,430	90	90	78	168	0	0	0	5	5
96	403	567	1,614	102	102	54	156	5	0	0	5	10
97	217	306	870	55	55	197	252	0	0	0	5	5

SMALL AREAS FORECAST INDEPENDENT VARIABLES
(CONTINUED)

Assignment Zones	Dwelling Units	Cars Owned	Population	Residential Land Use	Net Land Use 1/	Other Land Use 2/	Total Land Use	Retail Employment	Government Employment	Services Employment	Other Employment	Total Employment
98	308	433	1,234	78	109	59	168	0	100	0	0	100
99	377	532	1,510	95	95	57	152	5	0	0	5	10
100	148	208	592	38	46	17	63	10	0	0	5	15
101	200	282	802	51	56	168	224	10	0	10	0	20
102	197	279	790	76	76	92	168	5	50	0	0	55
103	205	289	822	26	52	105	157	5	0	0	5	10
104	196	276	786	50	58	112	170	15	0	10	0	25
105	4	8	14	2	7	608	615	15	0	5	10	30
106	4	8	14	2	11	629	640	10	15	5	10	40
107	210	420	735	75	75	130	205	5	0	0	10	15
108	3	6	11	1	1	574	575	0	0	0	0	0
109	4	8	14	2	2	636	638	0	0	0	0	0
110	60	120	210	21	21	458	479	0	0	0	5	5
111	305	610	1,068	104	104	636	740	0	0	0	10	10
Total	23,340	30,640	75,350	3,625	7,343	46,949	54,292	6,534	6,618	4,749	9,099	27,000

1/ Net land use includes all developed land use areas (Residential, retail, services, non-manufacturing industries, manufacturing industries, education, religious and cultural land activities).

2/ Other land use includes all open space that does not produce any trips (Streets, alleys, railroad right-of-way, public open land and other open land).

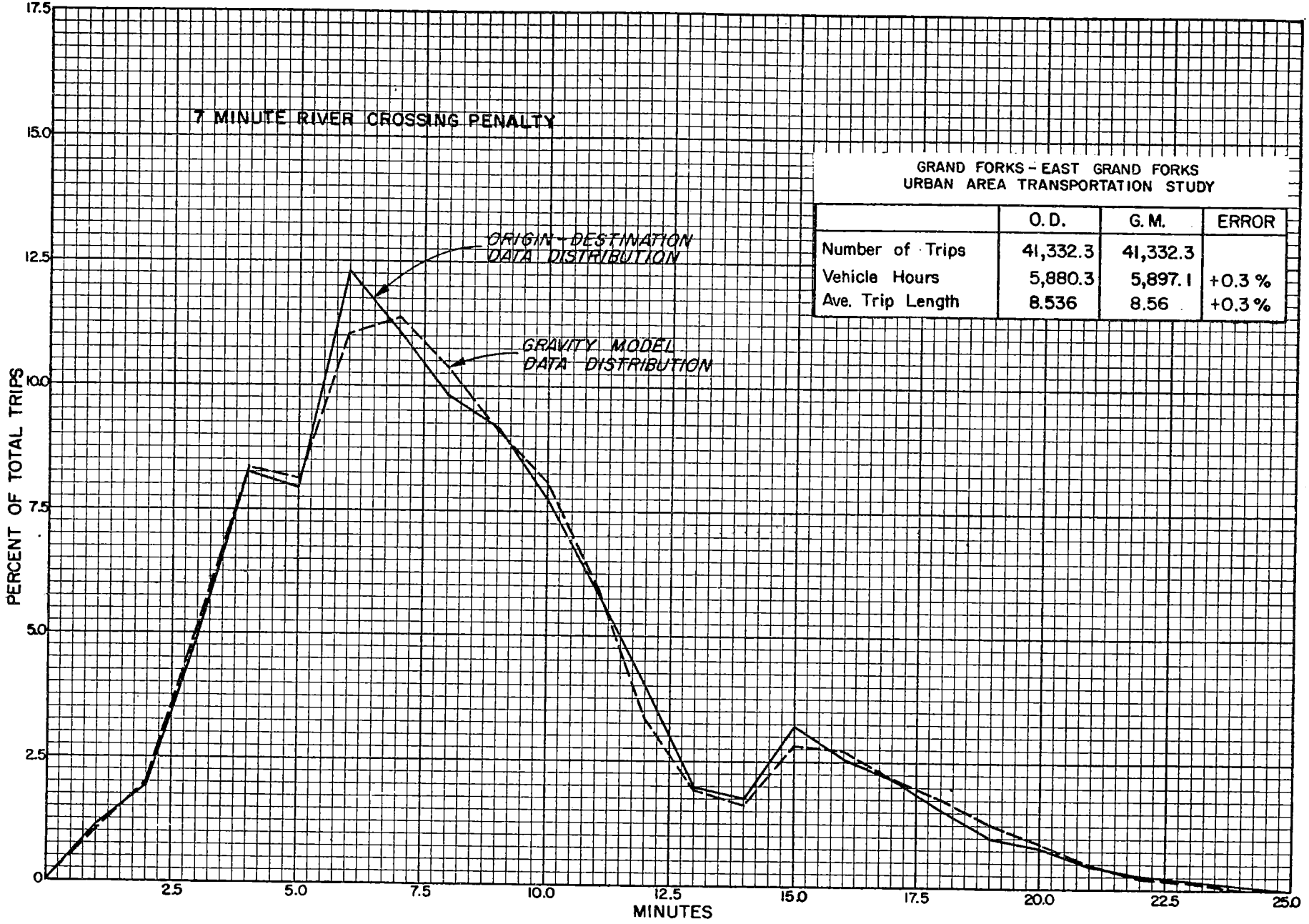
TRAVELTIME FACTOR BY TRIP PURPOSE BY MINUTES
Grand Forks-East Grand Forks Urban Area Transportation Study

Traveltime (Minutes)	Trip Purpose		
	Home Base Work	Home Base Other	Non-Home Base With Trucks
1	13.10	30.78	15.00
2	8.69	16.30	8.28
3	7.00	10.90	5.15
4	5.75	7.60	3.61
5	4.80	5.65	2.75
6	4.07	4.40	2.20
7	3.53	3.58	1.82
8	3.10	3.00	1.54
9	2.78	2.55	1.33
10	2.50	2.20	1.18
11	2.30	1.93	1.05
12	2.10	1.70	0.94
13	1.95	1.53	0.84
14	1.81	1.38	0.76
15	1.68	1.26	0.68
16	1.55	1.15	0.62
17	1.43	1.06	0.57
18	1.32	0.98	0.52
19	1.22	0.89	0.48
20	1.12	0.81	0.44
21	1.03	0.74	0.40
22	0.95	0.68	0.37
23	0.86	0.62	0.34
24	0.78	0.56	0.32
25	0.70	0.52	0.30
26	0.63	0.48	0.28
27	0.56	0.44	0.26
28	0.50	0.40	0.24
29	0.46	0.37	0.22
30	0.42	0.35	0.21

K Factors Used In The
Grand Forks-East Grand Forks Gravity Model

Zones From	Zones To	K Factor
92-102	92-102	0.01

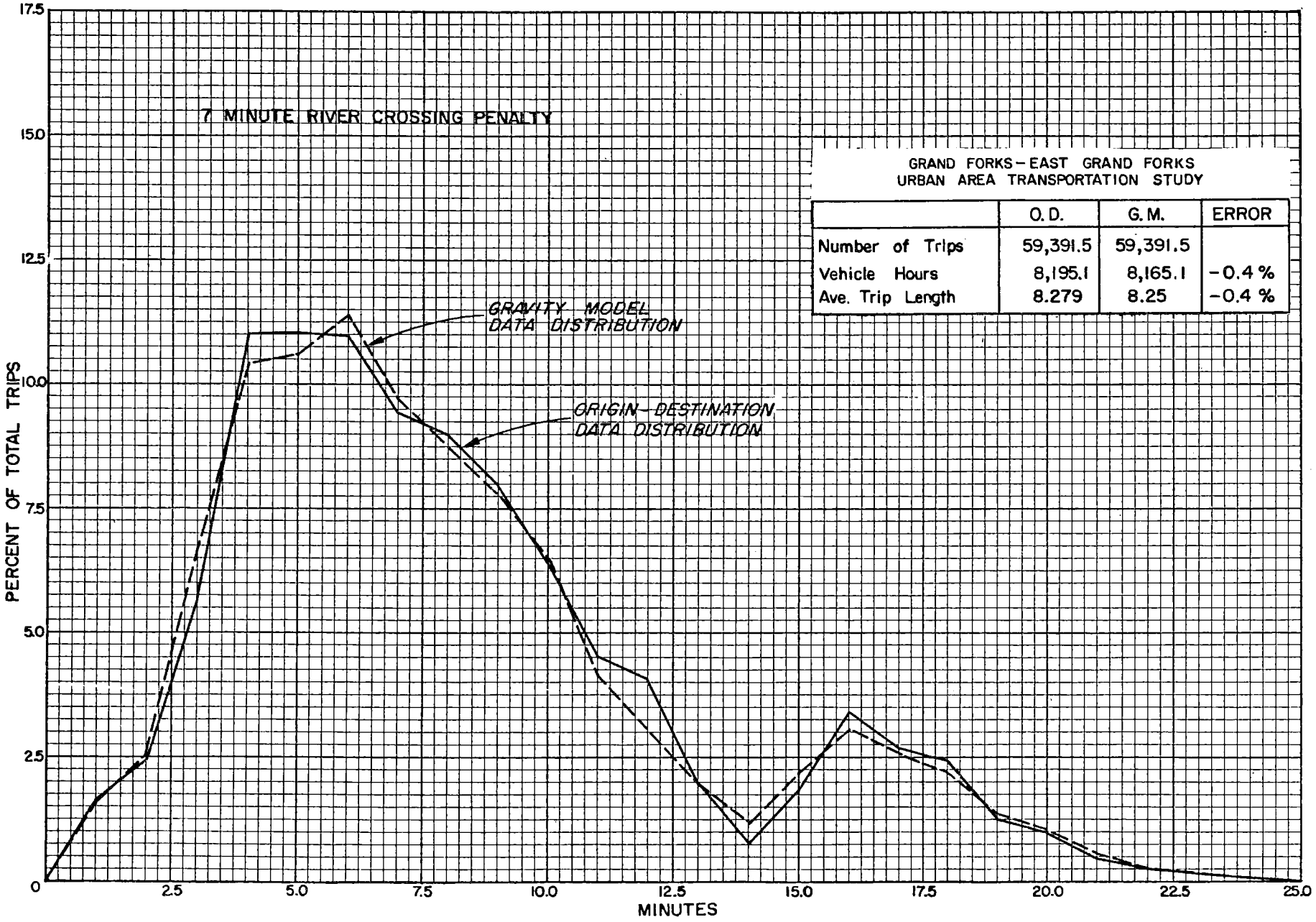
TRIP LENGTH FREQUENCY DISTRIBUTION
NON-HOME BASED



GRAND FORKS - EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

	O. D.	G. M.	ERROR
Number of Trips	41,332.3	41,332.3	
Vehicle Hours	5,880.3	5,897.1	+0.3 %
Ave. Trip Length	8.536	8.56	+0.3 %

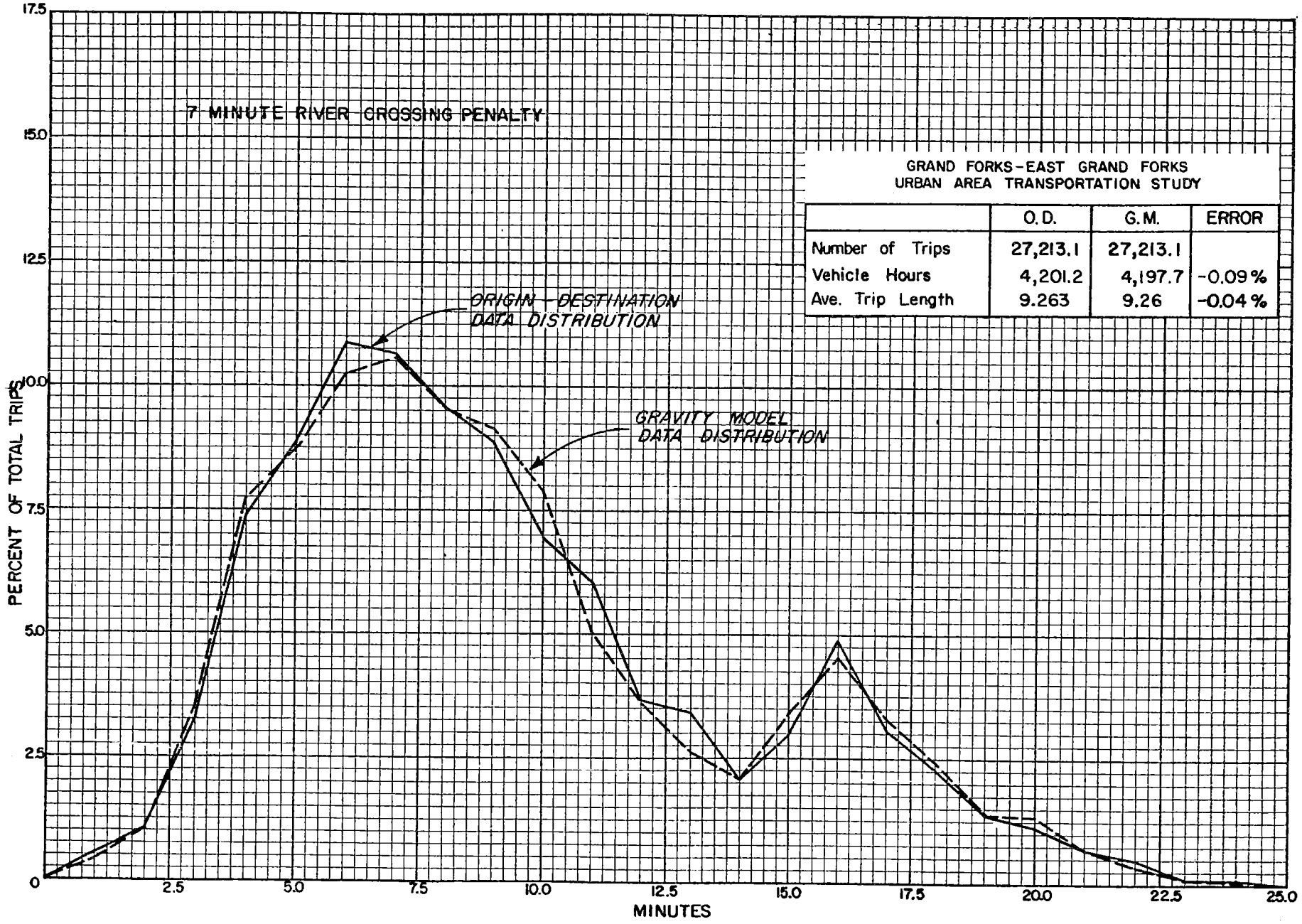
TRIP LENGTH FREQUENCY DISTRIBUTION
HOME BASED OTHER



GRAND FORKS – EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

	O. D.	G. M.	ERROR
Number of Trips	59,391.5	59,391.5	
Vehicle Hours	8,195.1	8,165.1	-0.4 %
Ave. Trip Length	8.279	8.25	-0.4 %

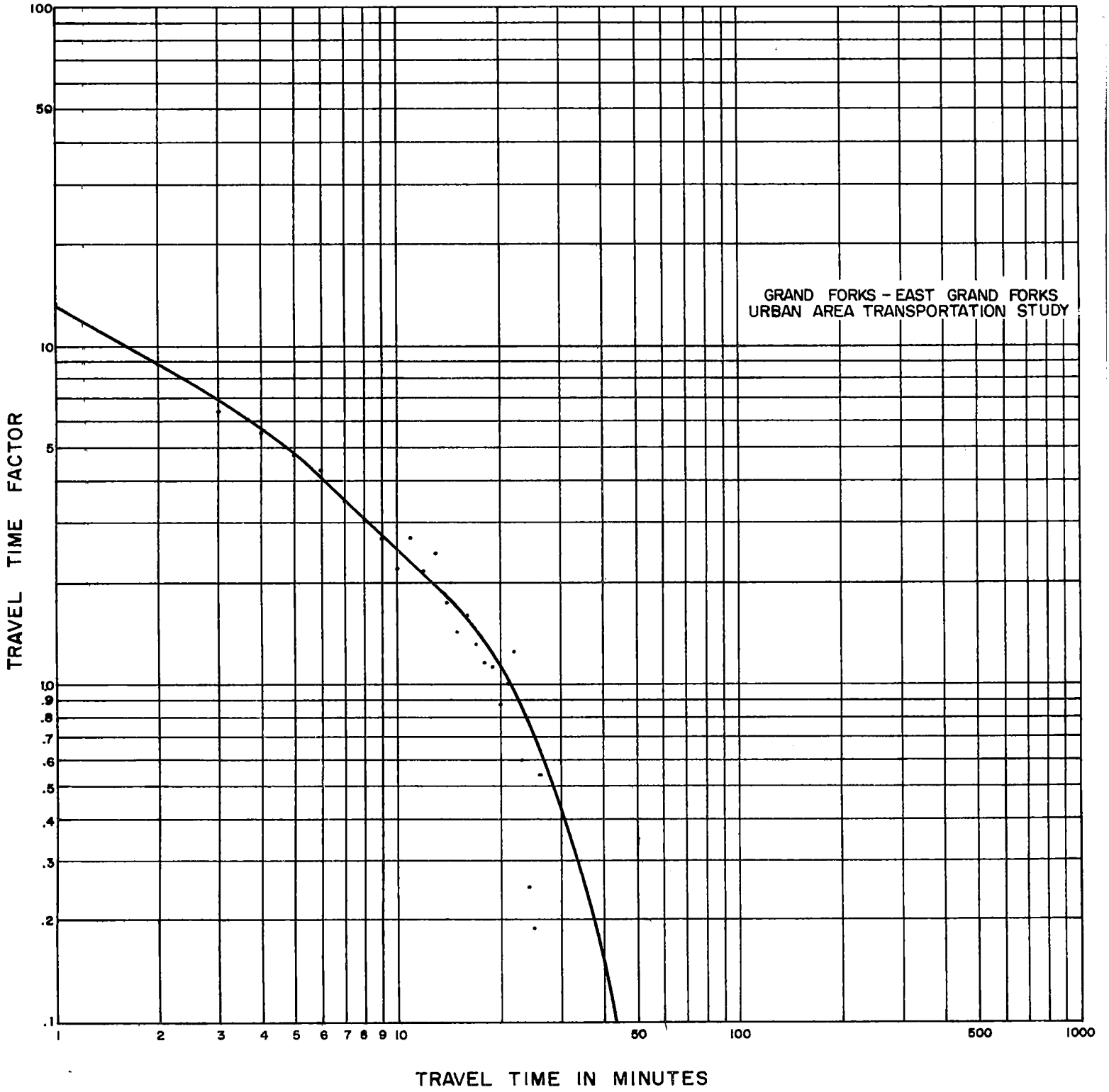
TRIP LENGTH FREQUENCY DISTRIBUTION
HOME BASED WORK



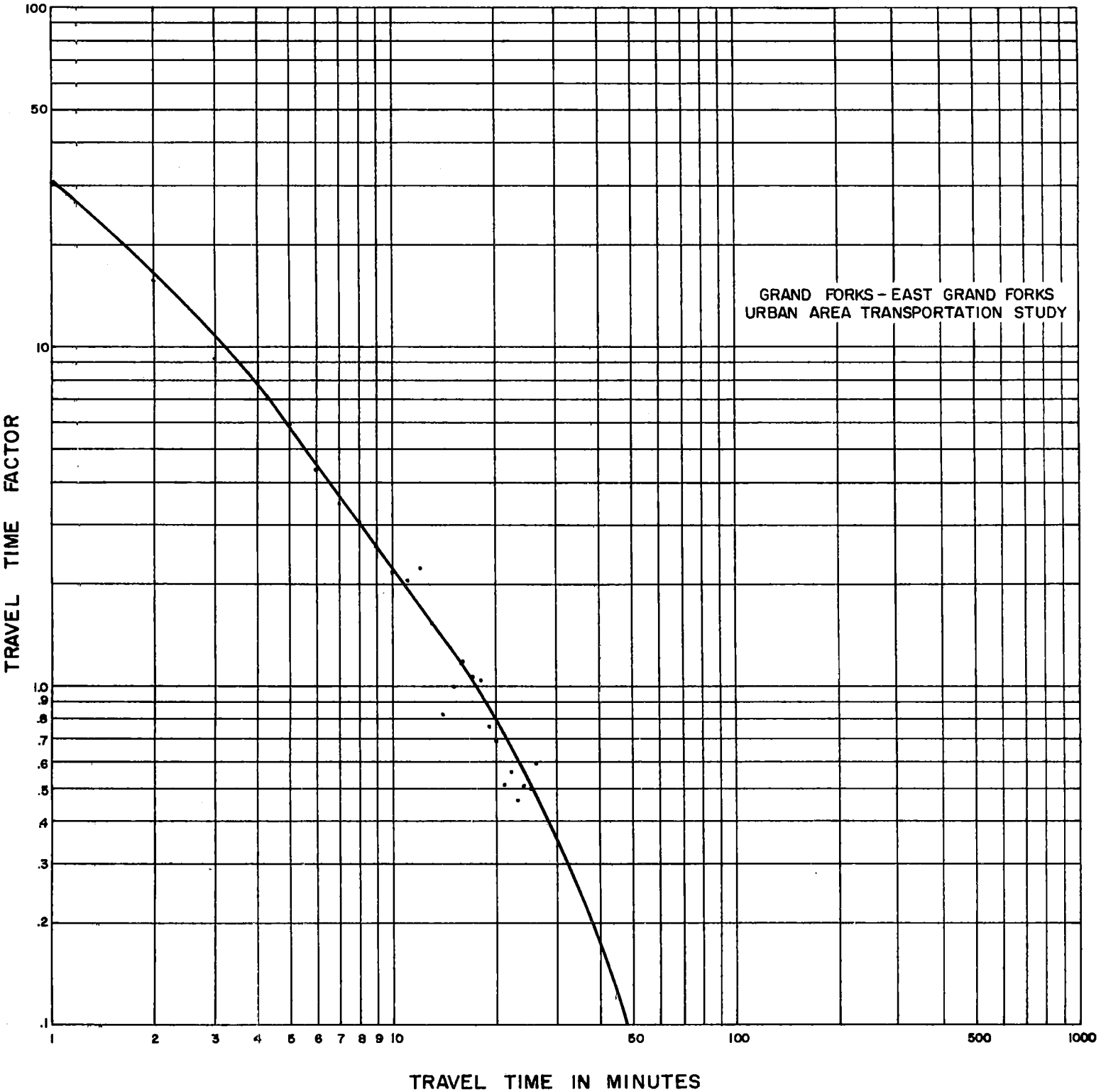
GRAND FORKS-EAST GRAND FORKS
URBAN AREA TRANSPORTATION STUDY

	O.D.	G.M.	ERROR
Number of Trips	27,213.1	27,213.1	
Vehicle Hours	4,201.2	4,197.7	-0.09%
Ave. Trip Length	9.263	9.26	-0.04%

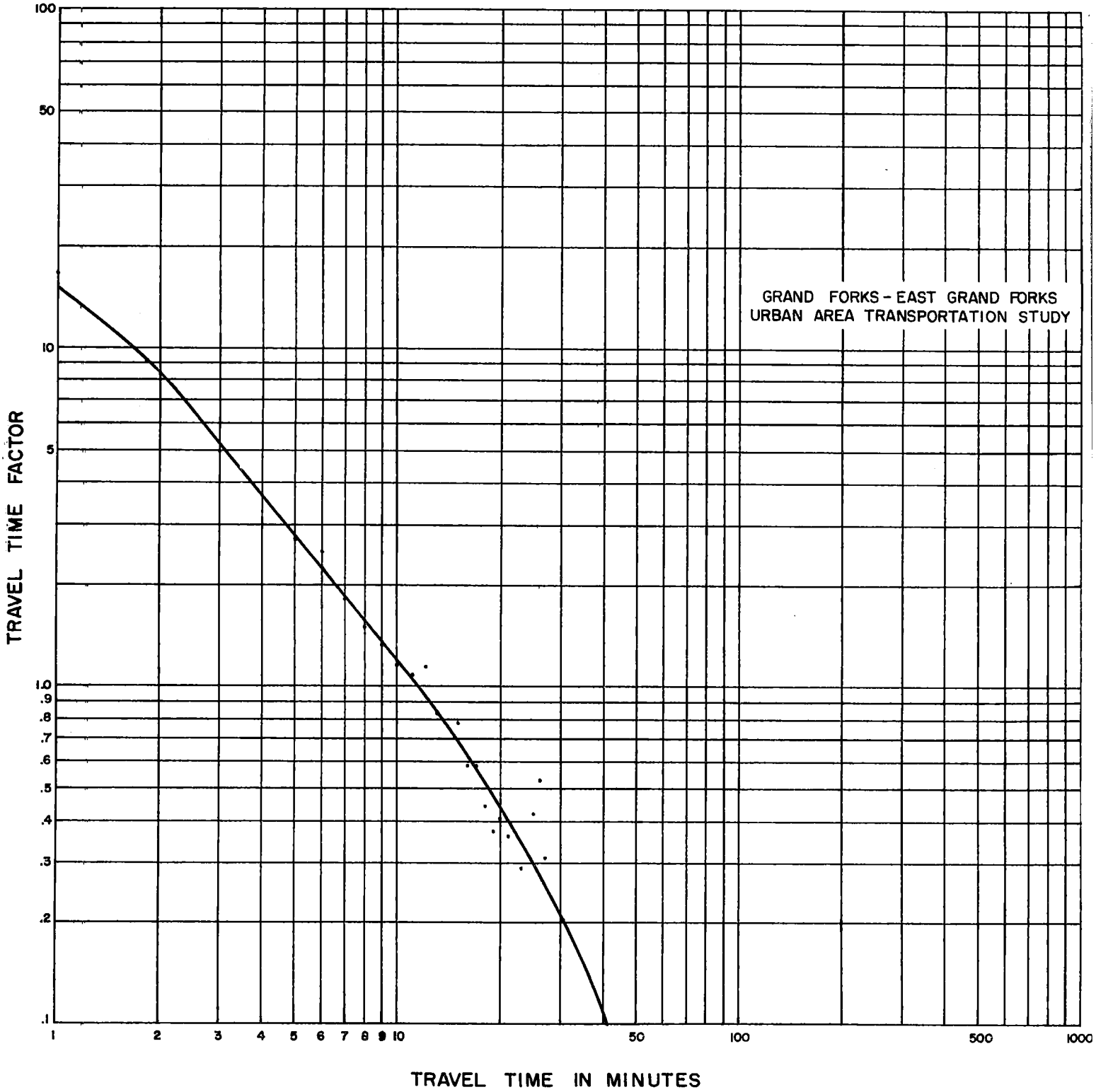
FINAL "F" FACTOR CURVE
Home Based Work Trips



FINAL "F" FACTOR CURVE
Home Based Other Trips



FINAL "F" FACTOR CURVE
Non-Home Based Trips



TERMINAL TIME AND INTRAZONAL TIME BY ZONES
Grand Forks-East Grand Forks Urban Area Transportation Study

Zones*	Terminal Time (Minutes)	Intrazone Time (Minutes)	Zones*	Terminal Time (Minutes)	Intrazone Time (Minutes)	Zones*	Terminal Time (Minutes)	Intrazone Time (Minutes)
1	1	3	35	3	0	69	1	1
2	1	5	36	3	0	70	1	2
3	1	4	37	3	1	71	1	4
4	1	3	38	3	1	72	1	4
5	0	1	39	3	2	73	0	1
6	1	1	40	1	1	74	1	1
7	1	1	41	3	1	75	1	1
8	1	1	42	1	1	76	3	1
9	1	0	43	1	1	77	3	0
10	1	0	44	1	0	78	1	2
11	1	1	45	1	0	79	1	2
12	0	1	46	1	1	80	1	1
13	1	0	47	1	1	81	0	1
14	1	1	48	1	0	82	1	3
15	1	0	49	1	0	83	1	2
16	0	1	50	1	1	84	1	0
17	2	1	51	1	1	85	1	1
18	2	1	52	1	2	86	1	2
19	0	1	53	1	1	87	1	1
20	1	0	54	1	4	88	1	1
21	2	1	55	1	1	89	1	1
22	0	1	56	1	0	90	1	2
23	1	1	57	2	0	91	0	1
24	1	1	58	1	1	92	0	60
25	1	1	59	1	2	93	0	60
26	1	0	60	1	0	94	0	60
27	0	1	61	1	1	95	0	60
28	2	0	62	2	0	96	0	60
29	1	0	63	0	1	97	0	60
30	3	0	64	1	1	98	0	60
31	3	0	65	1	1	99	0	60
32	3	0	66	1	0	100	0	60
33	3	0	67	1	1	101	0	60
34	3	0	68	1	1	102	0	60

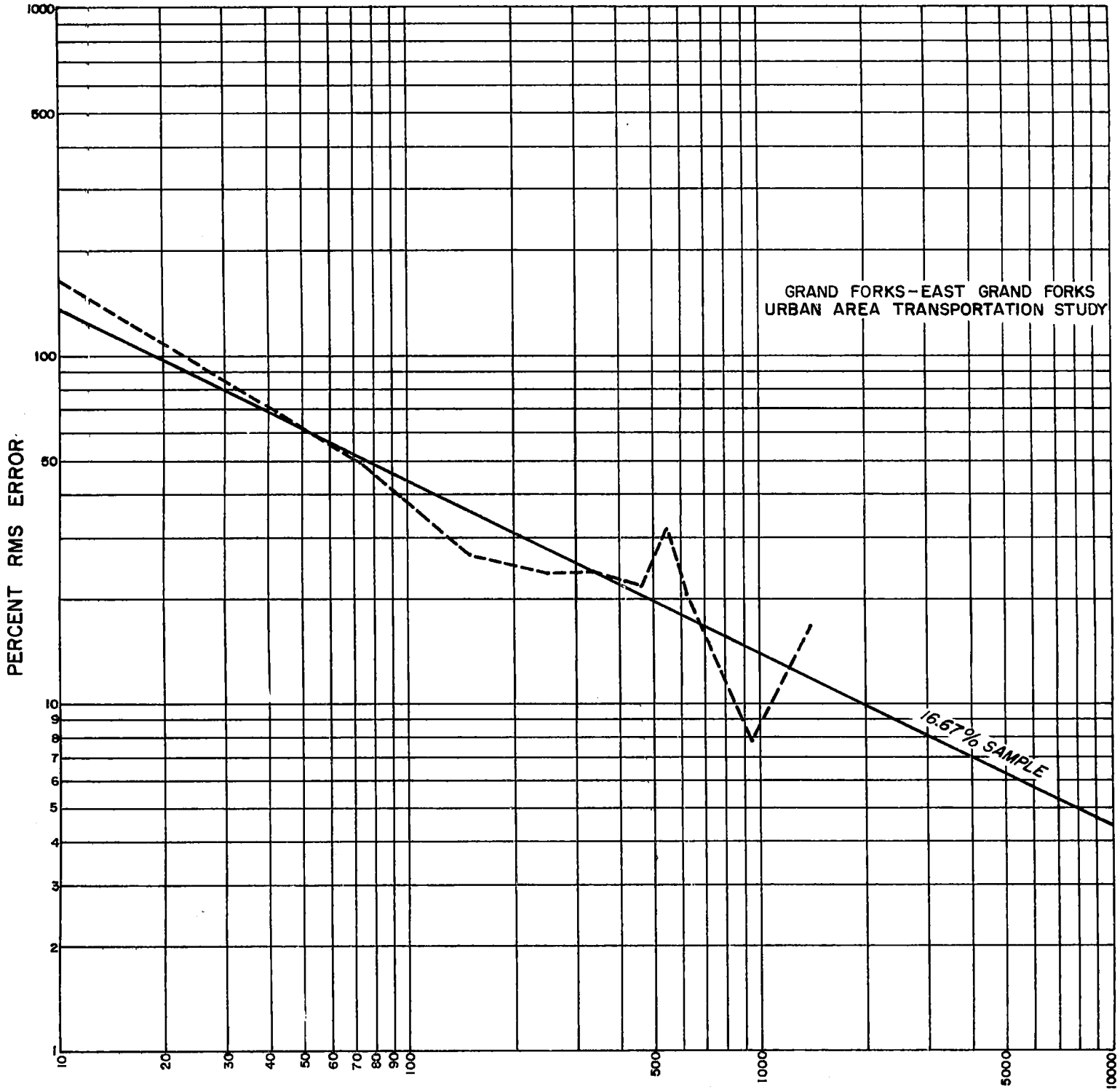
* After the gravity model was calibrated, the 102 traffic zones were expanded to 122.

ZONE EQUIVALENCY TABLE

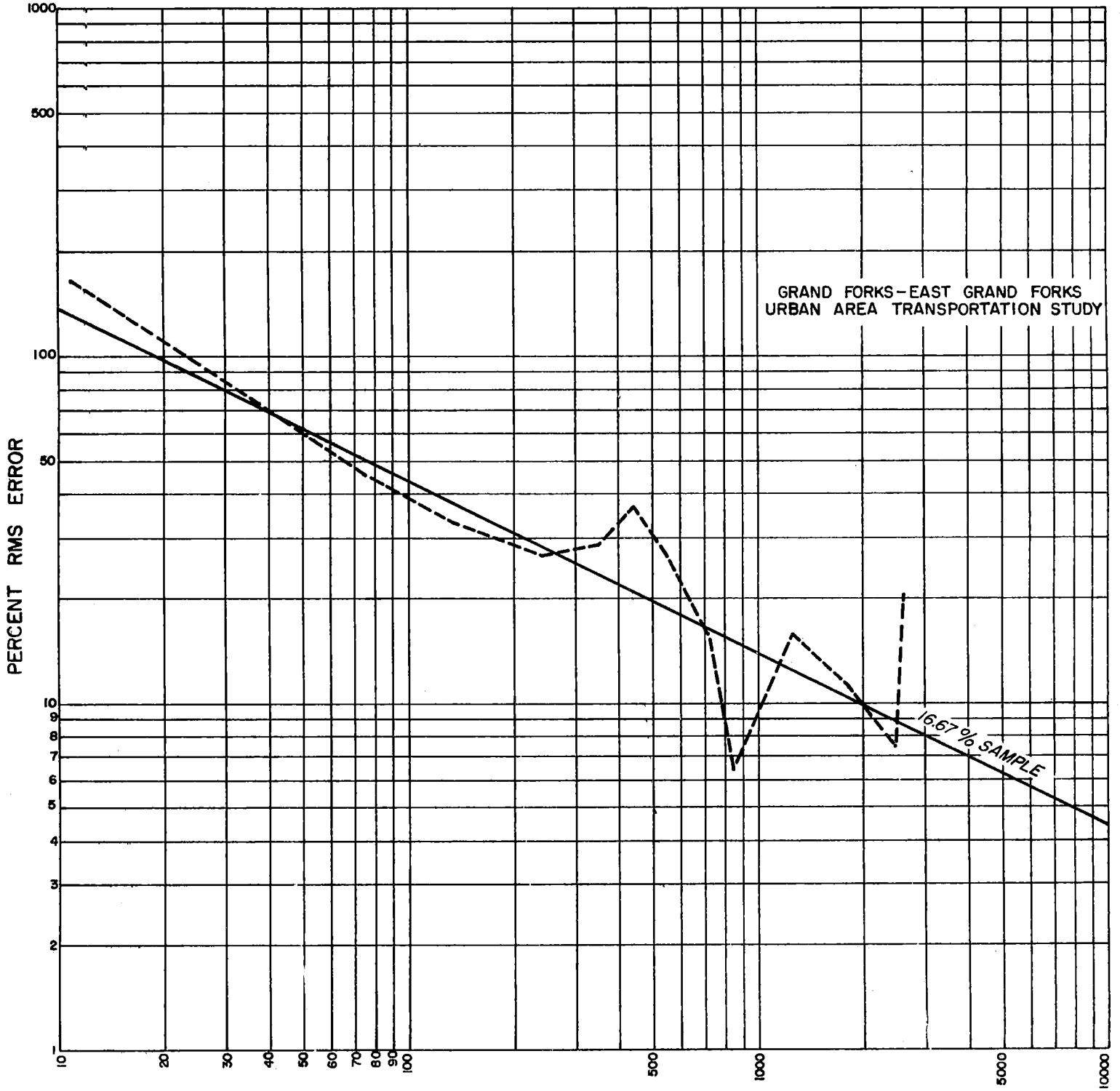
Grand Forks-East Grand Forks Urban Area Transportation Study

1965 Traffic Zones	1990 Traffic Zones	1965 Traffic Zones	1990 Traffic Zones	1965 Traffic Zones	1990 Traffic Zones
1	1	35	35	69	69
2	2	36	36	70	70,105-111
3	3	37	37	71	71
4	4	38	38	72	72
5	5	39	39	73	73
6	6	40	40	74	74
7	7	41	41	75	75
8	8	42	42	76	76
9	9	43	43	77	77
10	10	44	44	78	78
11	11	45	45	79	79
12	12	46	46	80	80
13	13	47	47	81	81
14	14	48	48	82	82
15	15	49	49	83	83
16	16	50	50	84	84
17	17	51	51	85	85
18	18	52	52	86	86
19	19	53	53	87	87
20	20	54	54,92-104	88	88
21	21	55	55	89	89
22	22	56	56	90	90
23	23	57	57	91	91
24	24	58	58	92	112
25	25	59	59	93	113
26	26	60	60	94	114
27	27	61	61	95	115
28	28	62	62	96	116
29	29	63	63	97	117
30	30	64	64	98	118
31	31	65	65	99	119
32	32	66	66	100	120
33	33	67	67	101	121
34	34	68	68	102	122

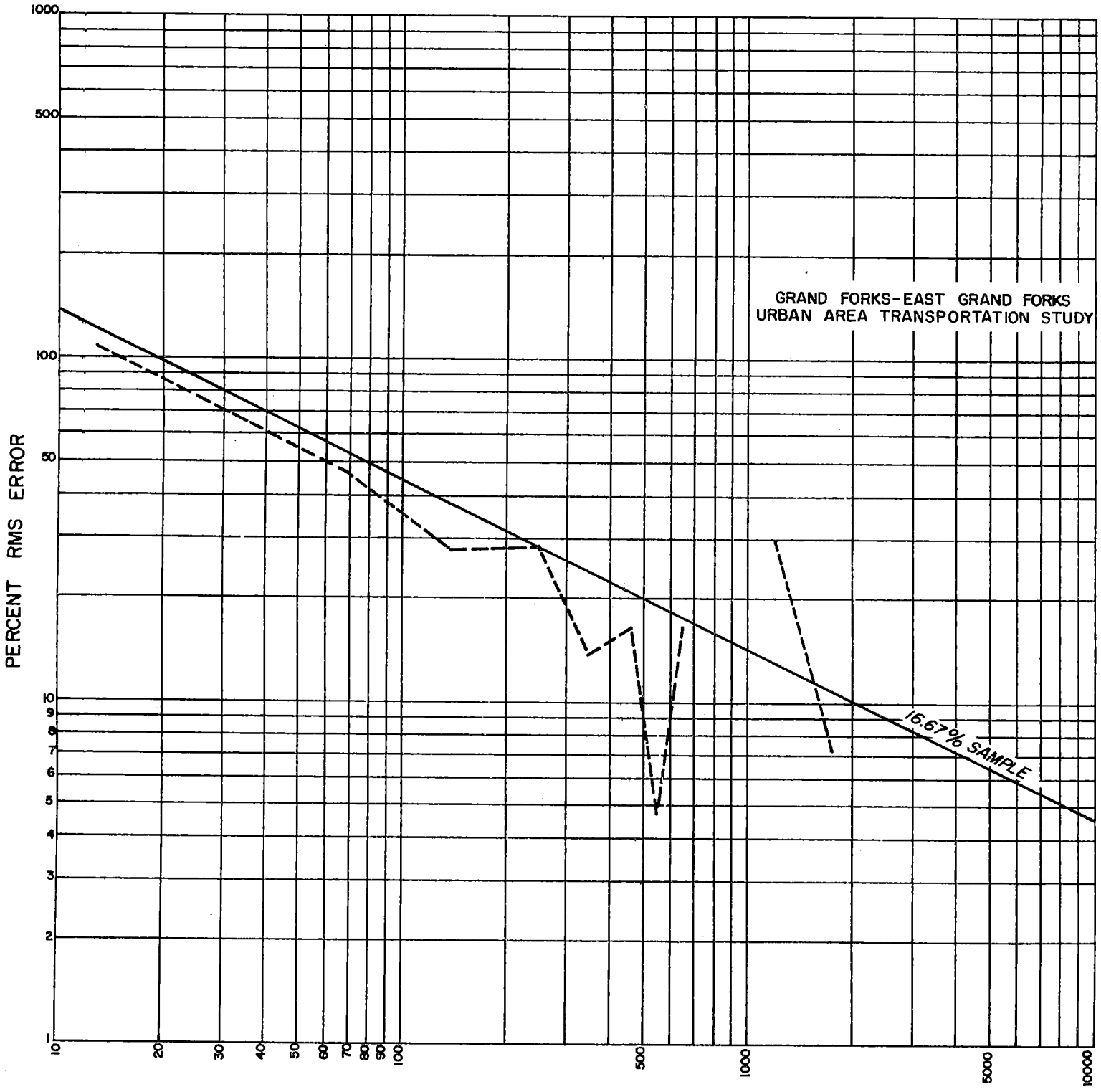
TRIP DISTRIBUTION BIAS CHECK
BETWEEN O.D. DATA AND G.M. DATA
Home Based Work Trips



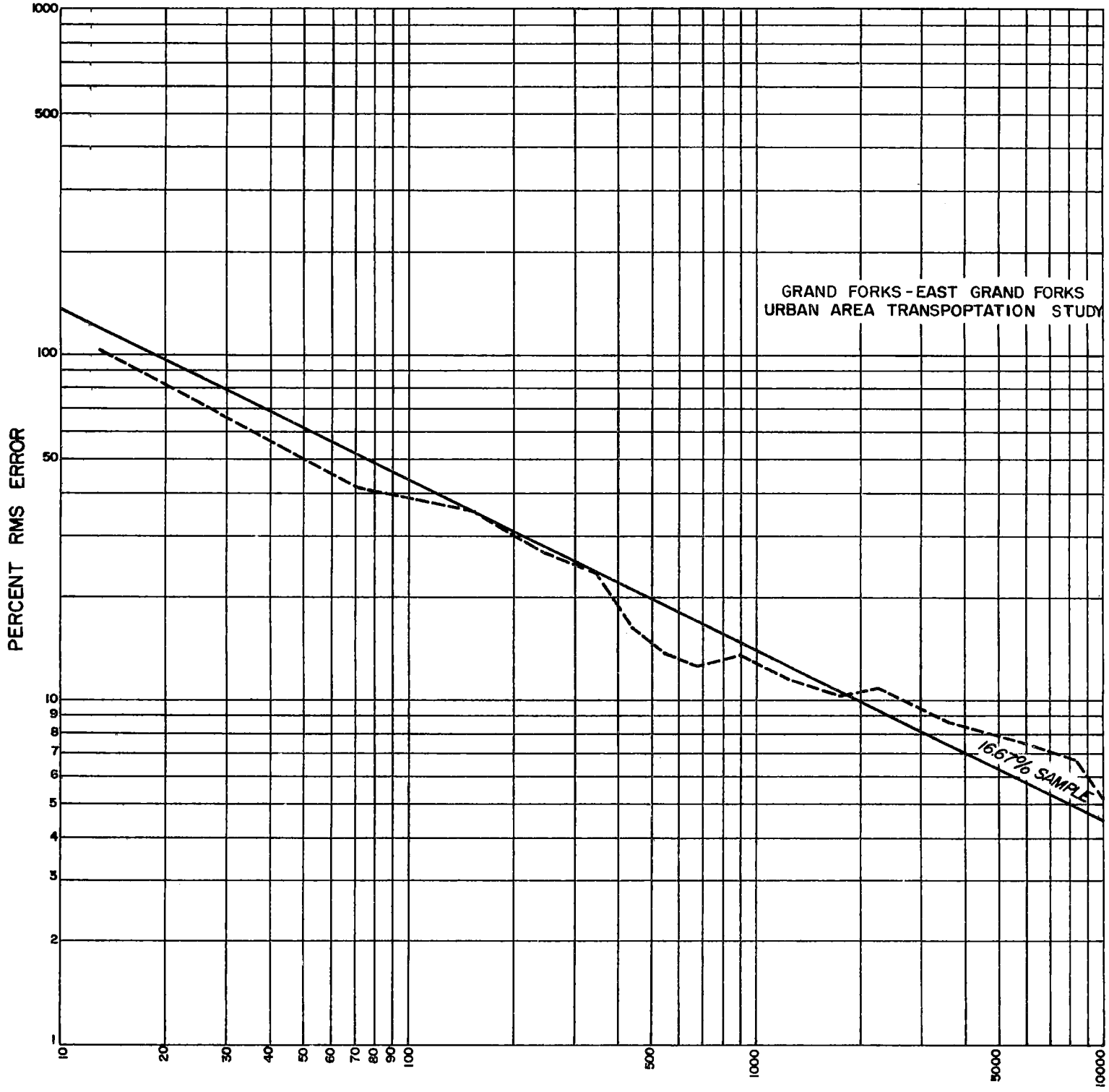
TRIP DISTRIBUTION BIAS CHECK
BETWEEN O.D. DATA AND G.M. DATA
Home Based Other Trips



TRIP DISTRIBUTION BIAS CHECK
BETWEEN O.D. DATA AND G.M. DATA
Non – Home Based Trips



NETWORK ASSIGNMENT BIAS CHECK
BETWEEN O.D. DATA AND G.M. DATA
Total Trips



TRIPS BETWEEN INTERNAL ZONES - 1990

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips
001	001	37.2
001	002	23.7
001	003	6.0
001	004	31.5
001	005	89.2
001	006	6.6
001	007	52.4
001	008	53.5
001	009	14.2
001	010	35.6
001	011	31.5
001	012	17.4
001	013	10.0
001	014	56.7
001	015	12.1
001	016	13.3
001	017	14.6
001	018	39.0
001	019	22.8
001	020	14.2
001	021	24.2
001	022	28.0
001	023	16.6
001	024	18.0
001	025	30.1
001	026	12.2
001	027	12.0
001	028	21.8
001	029	12.0
001	030	8.4
001	031	23.0
001	032	7.7
001	033	12.3
001	034	26.2
001	035	20.3
001	036	13.5
001	037	19.1
001	038	7.4
001	039	27.5
001	040	6.0
001	041	11.3
001	042	14.0
001	043	8.5
001	044	18.4
001	045	10.1
001	046	9.4
001	047	9.3
001	048	30.0
001	049	10.0
001	050	8.6
001	051	19.5
001	052	15.8
001	053	26.7
001	054	11.8
001	055	16.3
001	056	19.6
001	057	16,8
001	058	12.5
001	059	8.7
001	060	5.6
001	061	47.4
001	062	12.6
001	063	17.1
001	064	11.8
001	065	20.1
001	066	3.8
001	067	12.7
001	068	21.2
001	069	16.3
001	070	14.1
001	071	5.0
001	072	26.7
001	073	25.3
001	074	10.4
001	075	2.9
001	076	7.4
001	077	8.5
001	078	17.9
001	079	54.5
001	080	12.5
001	081	9.3
001	082	4.7
001	083	10.5
001	084	17.1
001	085	17.7
001	086	8.5
001	087	12.1
001	088	11.3
001	089	1.8
001	090	.8
001	091	3.4
001	092	19.1
001	093	25.5
001	094	22.8
001	095	21.5
001	096	23.3
001	097	18.2
001	098	19.5
001	099	22.5
001	100	8.4
001	101	21.3
001	102	17.0
001	103	15.9
001	104	12.4
001	105	2.8
001	106	1.9
001	107	16.2
001	108	1.3
001	109	1.2
001	110	6.0
001	111	24.7
002	002	3.5
002	003	4.4
002	004	24.8
002	005	43.9
002	006	5.9
002	007	16.6
002	008	28.8
002	009	11.3
002	010	14.2
002	011	9.2
002	012	5.5
002	013	8.0
002	014	37.0
002	015	8.9
002	016	7.9
002	017	11.0
002	018	22.0
002	019	9.2
002	020	7.1
002	021	12.4
002	022	11.0
002	023	8.8
002	024	8.6
002	025	10.4
002	026	4.1
002	027	6.0
002	028	9.1
002	029	6.2
002	030	6.2
002	031	14.3
002	032	7.5
002	033	9.6
002	034	20.9
002	035	15.8
002	036	10.0
002	037	15.2
002	038	6.9
002	039	16.7
002	040	3.6
002	041	9.6
002	042	6.2
002	043	7.4
002	044	10.8
002	045	4.3
002	046	4.5
002	047	3.2
002	048	9.8
002	049	3.2
002	050	3.6
002	051	8.9
002	052	8.2
002	053	11.8
002	054	4.1
002	055	6.5
002	056	11.5
002	057	11.6
002	058	3.3
002	059	3.1
002	060	2.0
002	061	39.3
002	062	10.7
002	063	7.2
002	064	4.8
002	065	5.6
002	066	3.0
002	067	2.9
002	068	5.0
002	069	6.5
002	070	3.5
002	071	1.9
002	072	8.0
002	073	5.3
002	074	3.9
002	075	2.2
002	076	5.0
002	077	5.4
002	078	3.8
002	079	12.0
002	080	2.8
002	081	2.3
002	082	1.8
002	083	2.7
002	084	9.7
002	085	9.2
002	086	5.5
002	087	5.0
002	088	5.4
002	089	1.2
002	090	.4
002	091	2.0
002	092	9.4
002	093	9.6
002	094	8.6
002	095	7.0
002	096	6.8
002	097	6.3
002	098	5.1
002	099	6.0
002	100	3.0
002	101	6.1
002	102	5.5
002	103	4.6
002	104	4.1
002	105	1.9
002	106	1.1
002	107	3.3
002	108	.6
002	109	.6
002	110	1.6
002	111	4.8
003	003	.6
003	004	10.4
003	005	38.4
003	006	2.7
003	007	12.5
003	008	14.5
003	009	4.9
003	010	8.4
003	011	7.2
003	012	4.2
003	013	3.5
003	014	16.3
003	015	3.8
003	016	4.0
003	017	4.4
003	018	11.1
003	019	6.4
003	020	4.2
003	021	5.8
003	022	6.9
003	023	4.4
003	024	4.5
003	025	6.9
003	026	2.7
003	027	3.1
003	028	5.0
003	029	3.2
003	030	2.5
003	031	6.3
003	032	2.7
003	033	3.6
003	034	7.4
003	035	5.9
003	036	3.8
003	037	5.5
003	038	2.5
003	039	6.2
003	040	1.4
003	041	3.3
003	042	3.1
003	043	2.6
003	044	4.2
003	045	2.4
003	046	1.8
003	047	1.8
003	048	5.4
003	049	2.0
003	050	1.4
003	051	4.2
003	052	3.6
003	053	5.6
003	054	2.9
003	055	3.5
003	056	4.2
003	057	4.4
003	058	2.3
003	059	1.5
003	060	1.1
003	061	12.7
003	062	3.4
003	063	3.8
003	064	2.6
003	065	4.1
003	066	1.0
003	067	2.6
003	068	4.0
003	069	3.8
003	070	2.7
003	071	1.2
003	072	4.9
003	073	4.7
003	074	2.1
003	075	1.1
003	076	1.8
003	077	2.2
003	078	2.9
003	079	9.3
003	080	2.3
003	081	2.0
003	082	.9
003	083	1.8
003	084	4.0
003	085	4.0
003	086	2.3
003	087	2.5
003	088	2.5
003	089	.5
003	090	.4
003	091	1.1
003	092	4.7
003	093	6.5
003	094	5.1
003	095	4.6
003	096	5.1
003	097	3.8
003	098	4.2
003	099	4.7
003	100	1.9
003	101	4.9
003	102	3.9
003	103	3.5
003	104	2.8
003	105	.8
003	106	.6
003	107	3.1
003	108	.2
003	109	.5
003	110	1.2
003	111	4.5
004	004	111.7
004	005	232.7
004	006	12.6
004	007	122.1
004	008	192.3
004	009	43.8
004	010	125.9
004	011	117.3
004	012	86.6
004	013	41.9
004	014	393.2
004	015	50.2
004	016	70.3
004	017	60.0
004	018	144.2
004	019	128.8
004	020	56.7
004	021	96.6
004	022	172.2
004	023	77.3
004	024	93.2
004	025	141.6
004	026	52.4
004	027	56.5
004	028	94.2
004	029	40.9
004	030	30.8
004	031	67.5
004	032	31.1
004	033	44.9
004	034	80.9
004	035	65.2
004	036	44.2
004	037	65.2
004	038	24.8
004	039	83.0
004	040	27.0
004	041	38.4
004	042	50.6
004	043	25.1
004	044	71.5
004	045	44.6
004	046	35.8
004	047	37.6
004	048	107.3
004	049	36.0
004	050	38.4
004	051	85.1
004	052	64.9
004	053	92.9
004	054	46.0
004	055	61.6
004	056	73.3
004	057	52.0
004	058	53.9
004	059	35.6
004	060	22.8
004	061	126.3
004	062	33.1
004	063	65.3
004	064	40.9
004	065	76.9
004	066	9.1
004	067	51.7
004	068	76.8
004	069	59.2
004	070	47.2
004	071	17.0
004	072	109.0
004	073	125.2
004	074	41.0
004	075	12.4
004	076	19.7
004	077	22.1
004	078	70.3
004	079	225.0
004	080	65.8
004	081	47.3
004	082	20.0
004	083	42.5
004	084	43.4
004	085	53.6
004	086	31.0
004	087	45.0
004	088	33.4
004	089	7.5
004	090	2.7
004	091	10.6
004	092	55.1
004	093	89.7
004	094	71.7
004	095	100.9
004	096	98.1
004	097	58.2
004	098	79.7
004	099	92.7
004	100	36.8
004	101	57.6
004	102	52.8
004	103	51.0
004	104	47.9
004	105	5.6
004	106	4.1
004	107	58.9
004	108	2.2
004	109	2.8
004	110	17.4
004	111	82.1
005	005	731.4
005	006	47.8
005	007	223.5
005	008	298.5
005	009	103.5
005	010	243.7
005	011	148.1
005	012	134.7
005	013	118.5
005	014	371.1
005	015	66.9
005	016	105.2
005	017	113.7
005	018	228.5
005	019	146.7
005	020	78.7
005	021	123.1
005	022	186.5
005	023	95.8
005	024	105.1
005	025	136.7
005	026	52.8
005	027	62.2
005	028	99.6
005	029	56.6
005	030	48.7
005	031	105.4
005	032	57.5
005	033	75.1
005	034	143.5
005	035	119.5
005	036	75.6
005	037	114.5
005	038	43.1
005	039	107.4
005	040	29.3
005	041	63.3
005	042	49.3
005	043	47.1
005	044	81.8
005	045	40.0
005	046	31.5
005	047	79.1
005	048	91.8
005	049	30.8
005	050	39.7
005	051	73.5
005	052	62.8
005	053	100.6
005	054	55.8
005	055	58.6
005	056	81.6
005	057	76.2
005	058	35.7
005	059	26.9
005	060	15.9
005	061	233.4
005	062	66.8
005	063	64.0
005	064	36.4
005	065	51.7
005	066	16.4
005	067	36.9
005	068	54.3
005	069	52.4
005	070	40.7
005	071	20.9
005	072	76.4
005	073	76.3
005	074	35.7
005	075	16.9
005	076	32.6
005	077	35.5
005	078	50.4
005	079	150.9
005	080	40.2
005	081	30.8
005	082	15.9
005	083	30.9
005	084	64.6
005	085	61.3
005	086	39.2
005	087	42.0
005	088	38.5
005	089	8.7
005	090	2.7
005	091	14.9
005	092	76.6
005	093	112.5
005	094	82.1
005	095	89.4
005	096	97.5
005	097	60.5
005	098	75.2
005	099	85.4
005	100	31.6
005	101	75.9
005	102	59.2
005	103	47.2
005	104	39.9
005	105	11.4
005	106	7.3
005	107	41.7
005	108	3.6
005	109	3.8
005	110	17.1
005	111	69.0
006	006	3.1
006	007	43.7
006	008	35.3
006	009	7.5
006	010	20.6
006	011	16.0
006	012	10.0
006	013	4.4
006	014	22.8
006	015	4.8
006	016	6.0
006	017	5.6
006	018	14.0
006	019	10.3
006	020	5.4
006	021	9.9
006	022	14.3
006	023	7.0
006	024	8.2
006	025	12.6
006	026	6.2
006	027	6.0
006	028	9.2
006	029	4.2
006	030	3.0
006	031	7.4
006	032	2.6
006	033	4.2
006	034	8.9
006	035	6.0
006	036	4.6
006	037	6.3
006	038	2.3
006	039	8.8
006	040	2.6
006	041	3.8
006	042	5.8
006	043	3.1
006	044	8.0
006	045	4.8
006	046	4.0
006	047	4.1
006	048	11.6
006	049	4.0
006	050	3.6
006	051	9.0
006	052	7.2
006	053	13.0
006	054	6.0
006	055	8.3
006	056	8.6
006	057	6.0
006	058	5.5
006	059	3.8
006	060	2.6
006	061	18.0
006	062	3.8
006	063	7.9
006	064	4.9
006	065	8.7
006	066	1.2
006	067	6.3
006	068	9.6
006	069	7.3
006	070	6.5
006	071	2.7
006	072	11.8
006	073	11.9
006	074	4.4
006	075	1.1
006	076	2.2
006	077	2.7
006	078	6.8
006	079	22.2
006	080	6.2
006	081	4.6
006	082	2.1
006	083	4.2
006	084	5.2

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips
006	085	6.5	007	082	6.7	008	080	49.8	009	079	72.0	010	079	84.1	011	080	11.5
006	086	3.0	007	083	13.8	008	081	36.7	009	080	20.9	010	080	20.7	011	081	10.5
006	087	4.6	007	084	37.6	008	082	15.8	009	081	15.1	010	081	16.0	011	082	5.4
006	088	3.8	007	085	33.3	008	083	36.3	009	082	5.9	010	082	8.3	011	083	11.1
006	089	.8	007	086	24.5	008	084	55.1	009	083	13.7	010	083	17.5	011	084	32.2
006	090	.4	007	087	21.1	008	085	58.2	009	084	14.3	010	084	36.7	011	085	28.2
006	091	1.2	007	088	20.5	008	086	38.9	009	085	17.6	010	085	34.7	011	086	20.0
006	092	9.8	007	089	6.1	008	087	43.6	009	086	9.9	010	086	23.1	011	087	17.3
006	093	13.8	007	090	1.3	008	088	36.2	009	087	14.7	010	087	21.9	011	088	17.2
006	094	13.6	007	091	8.5	008	089	9.8	009	088	10.7	010	088	19.6	011	089	6.0
006	095	13.1	007	092	32.3	008	090	2.5	009	089	2.2	010	089	6.3	011	090	.7
006	096	14.4	007	093	52.5	008	091	13.5	009	090	1.2	010	090	1.1	011	091	7.7
006	097	10.5	007	094	33.8	008	092	95.6	009	091	3.5	010	091	8.5	011	092	24.0
006	098	11.3	007	095	40.4	008	093	165.8	009	092	41.9	010	092	49.1	011	093	54.6
006	099	11.6	007	096	44.4	008	094	109.1	009	093	76.2	010	093	87.6	011	094	24.5
006	100	4.6	007	097	24.8	008	095	142.5	009	094	48.4	010	094	51.5	011	095	38.2
006	101	10.8	007	098	36.2	008	096	154.3	009	095	66.8	010	095	68.1	011	096	33.6
006	102	9.5	007	099	39.4	008	097	82.9	009	096	72.2	010	096	74.3	011	097	17.6
006	103	8.0	007	100	15.9	008	098	118.9	009	097	36.8	010	097	37.5	011	098	26.7
006	104	6.8	007	101	27.0	008	099	135.1	009	098	53.6	010	098	56.1	011	099	29.1
006	105	1.1	007	102	25.2	008	100	47.0	009	099	61.9	010	099	62.4	011	100	10.8
006	106	.9	007	103	22.3	008	101	73.4	009	100	20.7	010	100	22.2	011	101	16.7
006	107	7.8	007	104	20.2	008	102	76.5	009	101	32.0	010	101	33.3	011	102	17.8
006	108	.6	007	105	5.5	008	103	72.2	009	102	33.6	010	102	35.6	011	103	16.0
006	109	.6	007	106	4.4	008	104	52.4	009	103	32.1	010	103	32.8	011	104	14.2
006	110	2.9	007	107	17.6	008	105	9.0	009	104	22.8	010	104	24.4	011	105	4.2
006	111	11.7	007	108	1.8	008	106	7.2	009	105	3.0	010	105	4.6	011	106	3.1
007	007	146.6	007	109	1.3	008	107	61.4	009	106	2.3	010	106	4.0	011	107	13.8
007	008	417.4	007	110	7.1	008	108	3.2	009	107	26.8	010	107	25.8	011	108	1.0
007	009	99.0	007	111	25.7	008	109	3.8	009	108	1.6	010	108	1.6	011	109	.8
007	010	141.0	008	008	460.8	008	110	18.4	009	109	1.5	010	109	1.4	011	110	4.5
007	011	78.5	008	009	170.9	008	111	84.1	009	110	8.4	010	110	7.8	011	111	17.7
007	012	37.4	008	010	353.5	009	009	37.1	009	111	35.8	010	111	34.2	012	012	36.1
007	013	34.1	008	011	226.4	009	010	137.4	010	010	168.4	011	011	59.8	012	013	40.6
007	014	154.3	008	012	112.9	009	011	93.0	010	011	125.2	011	012	83.6	012	014	109.8
007	015	31.7	008	013	49.4	009	012	48.6	010	012	84.8	011	013	43.8	012	015	25.8
007	016	38.0	008	014	226.2	009	013	12.1	010	013	47.2	011	014	140.8	012	016	42.3
007	017	50.1	008	015	49.8	009	014	60.8	010	014	160.2	011	015	32.7	012	017	37.6
007	018	92.1	008	016	66.0	009	015	12.5	010	015	35.8	011	016	46.1	012	018	84.9
007	019	55.7	008	017	71.8	009	016	20.2	010	016	43.1	011	017	49.0	012	019	76.1
007	020	29.8	008	018	148.7	009	017	18.1	010	017	53.2	011	018	101.5	012	020	26.8
007	021	48.3	008	019	124.3	009	018	43.5	010	018	117.5	011	019	75.2	012	021	29.0
007	022	47.2	008	020	53.6	009	019	45.8	010	019	74.8	011	020	40.7	012	022	40.9
007	023	41.6	008	021	88.9	009	020	16.8	010	020	39.4	011	021	47.1	012	028	34.2
007	024	52.0	008	022	110.2	009	021	29.8	010	021	50.9	011	022	51.2	012	024	37.3
007	025	68.7	008	023	75.9	009	022	41.6	010	022	71.8	011	023	54.2	012	025	73.5
007	026	29.0	008	024	101.5	009	023	23.5	010	023	54.3	011	024	59.7	012	026	17.8
007	027	48.8	008	025	161.6	009	024	32.7	010	024	60.9	011	025	108.8	012	027	38.2
007	028	52.9	008	026	77.7	009	025	60.0	010	025	89.2	011	026	37.9	012	028	34.8
007	029	33.8	008	027	104.1	009	026	31.9	010	026	42.3	011	027	77.7	012	029	23.8
007	030	36.2	008	028	111.4	009	027	38.1	010	027	69.1	011	028	56.4	012	030	19.8
007	031	72.4	008	029	57.2	009	028	38.5	010	028	62.2	011	029	37.2	012	031	44.7
007	032	42.4	008	030	53.5	009	029	17.2	010	029	36.2	011	030	38.8	012	032	27.9
007	033	51.3	008	031	107.9	009	030	12.2	010	030	35.9	011	031	72.7	012	033	32.0
007	034	111.9	008	032	58.3	009	031	27.5	010	031	70.1	011	032	45.8	012	034	69.3
007	035	97.3	008	033	72.9	009	032	10.7	010	032	41.3	011	033	54.1	012	035	53.2
007	036	51.7	008	034	151.4	009	033	15.7	010	033	50.6	011	034	118.7	012	036	30.2
007	037	81.1	008	035	115.5	009	034	32.8	010	034	109.6	011	035	91.8	012	037	48.4
007	038	32.8	008	036	70.9	009	035	22.9	010	035	84.9	011	036	52.0	012	038	19.8
007	039	72.8	008	037	109.4	009	036	15.9	010	036	49.6	011	037	82.7	012	039	33.9
007	040	18.6	008	038	45.6	009	037	23.4	010	037	77.6	011	038	33.2	012	040	9.9
007	041	48.4	008	039	115.9	009	038	8.3	010	038	30.6	011	039	67.5	012	041	26.0
007	042	30.2	008	040	35.2	009	039	33.1	010	039	70.8	011	040	16.6	012	042	12.6
007	043	36.9	008	041	69.3	009	040	10.4	010	040	20.4	011	041	49.5	012	043	19.5
007	044	55.9	008	042	66.3	009	041	14.9	010	041	46.0	011	042	25.2	012	044	25.8
007	045	25.8	008	043	58.0	009	042	23.6	010	042	35.1	011	043	36.3	012	045	11.2
007	046	18.0	008	044	104.4	009	043	14.2	010	043	38.9	011	044	52.4	012	046	7.9
007	047	16.2	008	045	55.7	009	044	34.3	010	044	64.6	011	045	23.2	012	047	7.1
007	048	51.8	008	046	41.7	009	045	20.2	010	045	31.2	011	046	16.1	012	048	19.7
007	049	16.8	008	047	41.6	009	046	16.0	010	046	20.5	011	047	14.6	012	049	6.0
007	050	18.5	008	048	136.0	009	047	16.4	010	047	19.9	011	048	41.4	012	050	8.7
007	051	46.3	008	049	45.2	009	048	51.7	010	048	63.4	011	049	13.2	012	051	23.6
007	052	45.7	008	050	45.0	009	049	17.6	010	049	20.6	011	050	18.4	012	052	17.4
007	053	51.2	008	051	106.2	009	050	16.6	010	050	22.8	011	051	48.8	012	053	20.8
007	054	25.6	008	052	85.7	009	051	38.7	010	051	56.8	011	052	35.4	012	054	9.0
007	055	35.0	008	053	137.9	009	052	30.5	010	052	47.4	011	053	43.4	012	055	11.6
007	056	62.9	008	054	84.4	009	053	58.9	010	053	68.6	011	054	19.6	012	056	24.8
007	057	60.3	008	055	84.1	009	054	39.3	010	054	43.5	011	055	24.8	012	057	27.1
007	058	21.0	008	056	110.3	009	055	35.8	010	055	40.4	011	056	50.1	012	058	7.9
007	059	14.7	008	057	91.1	009	056	37.3	010	056	64.0	011	057	54.3	012	059	6.4
007	060	9.3	008	058	62.4	009	057	23.7	010	057	61.4	011	058	16.7	012	060	3.5
007	061	185.5	008	059	39.3	009	058	26.2	010	058	28.3	011	059	13.1	012	061	87.0
007	062	57.9	008	060	27.4	009	059	15.3	010	059	18.4	011	060	7.3	012	062	26.9
007	063	39.0	008	061	277.3	009	060	10.8	010	060	11.9	011	061	174.7	012	063	16.8
007	064	26.9	008	062	76.5	009	061	74.4	010	061	195.8	011	062	54.5	012	064	11.2
007	065	29.9	008	063	89.3	009	062	17.2	010	062	58.2	011	063	33.6	012	065	10.9
007	066	14.1	008	064	51.4	009	063	33.0	010	063	47.0	011	064	23.6	012	066	6.7
007	067	17.0	008	065	87.8	009	064	17.8	010	064	27.6	011	065	23.3	012	067	5.9
007	068	24.4	008	066	20.0	009	065	36.0	010	065	39.3	011	066	12.9	012	068	8.5
007	069	33.7	008	067	53.6	009	066	4.4	010	066	13.4	011	067	13.2	012	069	14.4
007	070	17.4	008	068	76.8	009	067	23.0	010	067	23.3	011	068	19.0	012	070	6.4
007	071	9.8	008	069	77.3	009	068	32.0	010	068	33.2	011	069	29.6	012	071	3.2
007	072	31.7	008	070	52.5	009	069	27.6	010	069	40.4	011	070	14.1	012	072	14.3
007	073	30.6	008	071	19.2	009	070	21.4	010	070	23.6	011	071	6.2	012	073	13.8
007	074	17.3	008	072	86.3	009	071	7.6	010	071	9.7	011	072	25.4	012	074	8.3
007	075	11.8	008	073	95.2	009	072	34.8	010	072	41.3	011	073	25.4	012	075	6.9
007	076	24.0	008	074	37.8	009	073	39.5	010	073	44.1	011	074	14.2	012	076	12.7
007	077	24.9	008	075	17.5	009	074	13.2	010	074	18.6	011	075	11.4	012	077	12.4
007	078	22.4	008	076	32.8	009	075	4.2	010	075	11.2	011	076	22.6	012	078	10.0
007	079	61.7	008	077	33.9	009	076	6.9	010	076	22.1	011	077	22.4	012	079	27.3
007	080	15.6	008	078	80.7	009	077	8.2	010	077	22.8	011	078	18.7	012	080	6.2
007	081	12.6	008	079	182.4	009	078	22.6	010	078	29.2	011	079	49.1	012	081	5.8

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Zone	Zone	Total Vehicle Trips
012	082	3.0	013	085	14.1	014	089	9.6	015	094	20.2	016	100	8.6	017	107	17.8
012	083	6.3	013	086	6.7	014	090	4.6	015	095	25.2	016	101	14.2	017	108	1.1
012	084	20.3	013	087	10.5	014	091	17.1	015	096	27.5	016	102	12.4	017	109	1.1
012	085	17.0	013	088	8.6	014	092	67.6	015	097	16.6	016	103	11.7	017	110	5.8
012	086	12.7	013	089	1.4	014	093	108.0	015	098	21.8	016	104	13.0	017	111	24.4
012	087	10.3	013	090	.7	014	094	82.2	015	099	25.8	016	105	1.8	018	018	96.8
012	088	10.5	013	091	2.7	014	095	101.6	015	100	11.0	016	106	1.8	018	019	116.2
012	089	3.6	013	092	16.0	014	096	111.8	015	101	16.4	016	107	14.0	018	020	82.5
012	090	.7	013	093	26.6	014	097	66.2	015	102	15.2	016	108	.8	018	021	103.3
012	091	4.9	013	094	19.0	014	098	89.1	015	103	14.6	016	109	.7	018	022	157.2
012	092	11.2	013	095	24.1	014	099	104.3	015	104	14.0	016	110	4.0	018	023	71.5
012	093	25.2	013	096	26.0	014	100	44.1	015	105	1.9	016	111	18.8	018	024	78.2
012	094	11.3	013	097	14.8	014	101	68.0	015	106	1.4	017	017	15.4	018	025	112.5
012	095	17.4	013	098	20.2	014	102	61.9	015	107	15.6	017	018	76.4	018	026	45.5
012	096	19.2	013	099	23.2	014	103	59.2	015	108	1.0	017	019	60.6	018	027	48.1
012	097	7.8	013	100	8.2	014	104	57.3	015	109	1.0	017	020	29.1	018	028	83.4
012	098	14.8	013	101	14.9	014	105	9.0	015	110	4.7	017	021	49.1	018	029	43.6
012	099	12.9	013	102	13.3	014	106	7.0	015	111	21.3	017	022	83.8	018	030	31.3
012	100	6.0	013	103	12.7	014	107	63.0	016	016	53.8	017	023	34.6	018	031	76.3
012	101	7.8	013	104	10.3	014	108	3.6	016	017	50.4	017	024	38.7	018	032	30.9
012	102	9.6	013	105	1.6	014	109	4.1	016	018	78.0	017	025	60.4	018	033	45.8
012	103	7.3	013	106	1.0	014	110	19.9	016	019	58.3	017	026	20.9	018	034	99.9
012	104	6.7	013	107	12.4	014	111	85.6	016	020	39.6	017	027	23.5	018	035	68.5
012	105	2.0	013	108	.8	015	015	32.6	016	021	56.9	017	028	42.2	018	036	48.8
012	106	1.8	013	109	.7	015	016	60.9	016	022	116.1	017	029	24.0	018	037	70.0
012	107	6.0	013	110	4.4	015	017	33.9	016	023	42.4	017	030	13.0	018	038	24.5
012	108	.6	013	111	17.0	015	018	61.3	016	024	46.9	017	031	36.8	018	039	81.0
012	109	.4	014	014	416.3	015	019	43.5	016	025	50.5	017	032	11.2	018	040	21.4
012	110	1.9	014	015	79.3	015	020	29.5	016	026	16.1	017	033	18.6	018	041	40.6
012	111	7.7	014	016	128.8	015	021	47.5	016	027	21.6	017	034	38.8	018	042	42.5
013	013	13.3	014	017	124.6	015	022	59.0	016	028	35.2	017	035	29.2	018	043	31.9
013	014	89.1	014	018	280.2	015	023	32.0	016	029	22.8	017	036	19.3	018	044	63.0
013	015	13.8	014	019	193.7	015	024	29.6	016	030	15.8	017	037	27.5	018	045	32.0
013	016	19.8	014	020	101.1	015	025	43.5	016	031	43.9	017	038	10.5	018	046	28.4
013	017	21.5	014	021	167.9	015	026	15.5	016	032	17.5	017	039	36.3	018	047	29.4
013	018	54.4	014	022	200.6	015	027	18.6	016	033	23.9	017	040	10.2	018	048	91.4
013	019	48.8	014	023	118.7	015	028	31.7	016	034	51.0	017	041	16.2	018	049	28.4
013	020	21.2	014	024	111.3	015	029	18.9	016	035	41.2	017	042	22.2	018	050	25.7
013	021	27.1	014	025	189.6	015	030	12.3	016	036	27.5	017	043	11.0	018	051	59.9
013	022	48.3	014	026	65.7	015	031	30.8	016	037	34.4	017	044	29.4	018	052	52.0
013	023	19.7	014	027	82.3	015	032	11.1	016	038	14.4	017	045	16.2	018	053	68.1
013	024	22.3	014	028	138.8	015	033	17.4	016	039	40.3	017	046	14.5	018	054	29.1
013	025	44.2	014	029	70.8	015	034	32.3	016	040	10.6	017	047	15.8	018	055	41.4
013	026	18.8	014	030	51.2	015	035	24.6	016	041	19.9	017	048	45.2	018	056	63.1
013	027	17.0	014	031	123.6	015	036	18.4	016	042	16.9	017	049	14.0	018	057	53.4
013	028	24.0	014	032	51.0	015	037	25.9	016	043	14.2	017	050	13.7	018	058	32.1
013	029	13.2	014	033	75.7	015	038	8.8	016	044	26.2	017	051	31.5	018	059	24.4
013	030	7.2	014	034	145.0	015	039	32.9	016	045	13.2	017	052	26.4	018	060	14.6
013	031	19.5	014	035	113.3	015	040	9.5	016	046	12.6	017	053	35.4	018	061	141.4
013	032	6.1	014	036	79.8	015	041	15.3	016	047	13.5	017	054	16.1	018	062	37.4
013	033	10.0	014	037	115.3	015	042	16.3	016	048	37.1	017	055	21.4	018	063	53.4
013	034	20.9	014	038	40.0	015	043	9.2	016	049	11.3	017	056	27.1	018	064	29.2
013	035	15.6	014	039	134.5	015	044	24.1	016	050	10.4	017	057	23.3	018	065	47.2
013	036	10.4	014	040	37.0	015	045	13.3	016	051	25.1	017	058	18.2	018	066	9.3
013	037	14.6	014	041	66.3	015	046	12.9	016	052	21.4	017	059	13.3	018	067	27.9
013	038	5.6	014	042	70.2	015	047	12.3	016	053	31.9	017	060	8.0	018	068	44.6
013	039	22.5	014	043	44.0	015	048	33.4	016	054	12.0	017	061	53.1	018	069	36.5
013	040	5.9	014	044	107.5	015	049	11.6	016	055	16.3	017	062	14.6	018	070	29.6
013	041	8.8	014	045	50.9	015	050	11.0	016	056	26.4	017	063	23.7	018	071	10.2
013	042	12.6	014	046	49.3	015	051	24.6	016	057	21.3	017	064	15.0	018	072	76.2
013	043	7.0	014	047	46.2	015	052	20.5	016	058	14.7	017	065	25.5	018	073	68.6
013	044	16.8	014	048	126.7	015	053	29.7	016	059	9.7	017	066	3.6	018	074	30.2
013	045	9.7	014	049	44.0	015	054	13.3	016	060	6.6	017	067	15.3	018	075	9.8
013	046	9.6	014	050	46.8	015	055	18.7	016	061	57.2	017	068	24.8	018	076	21.0
013	047	9.4	014	051	106.1	015	056	22.1	016	062	17.2	017	069	19.0	018	077	24.4
013	048	26.7	014	052	88.9	015	057	18.4	016	063	21.8	017	070	14.9	018	078	44.5
013	049	9.3	014	053	122.8	015	058	14.7	016	064	12.0	017	071	4.9	018	079	138.7
013	050	9.2	014	054	55.3	015	059	10.2	016	065	18.8	017	072	40.6	018	080	36.7
013	051	21.8	014	055	76.5	015	060	7.0	016	066	4.2	017	073	41.1	018	081	27.6
013	052	15.2	014	056	98.0	015	061	44.9	016	067	11.3	017	074	15.6	018	082	14.3
013	053	24.2	014	057	87.2	015	062	12.3	016	068	18.1	017	075	4.2	018	083	27.2
013	054	13.9	014	058	61.0	015	063	19.8	016	069	15.2	017	076	9.0	018	084	49.6
013	055	14.8	014	059	43.6	015	064	12.1	016	070	12.0	017	077	10.8	018	085	49.9
013	056	18.0	014	060	26.4	015	065	21.6	016	071	3.6	017	078	28.3	018	086	27.2
013	057	12.8	014	061	211.6	015	066	3.4	016	072	32.1	017	079	87.6	018	087	35.3
013	058	12.5	014	062	61.2	015	067	14.1	016	073	33.0	017	080	20.9	018	088	31.2
013	059	7.6	014	063	84.4	015	068	20.8	016	074	14.2	017	081	14.9	018	089	5.4
013	060	5.5	014	064	51.9	015	069	16.2	016	075	5.3	017	082	7.4	018	090	2.7
013	061	33.0	014	065	88.5	015	070	12.8	016	076	10.2	017	083	16.6	018	091	10.2
013	062	8.9	014	066	15.4	015	071	4.6	016	077	11.4	017	084	23.3	018	092	36.3
013	063	16.0	014	067	57.2	015	072	34.3	016	078	22.0	017	085	25.1	018	093	66.1
013	064	9.0	014	068	77.9	015	073	36.3	016	079	67.4	017	086	12.3	018	094	42.4
013	065	17.7	014	069	69.6	015	074	13.7	016	080	17.5	017	087	17.9	018	095	58.9
013	066	2.2	014	070	52.7	015	075	4.0	016	081	13.6	017	088	14.3	018	096	64.0
013	067	10.6	014	071	18.8	015	076	7.6	016	082	5.7	017	089	2.5	018	097	33.7
013	068	15.6	014	072	130.2	015	077	9.2	016	083	13.0	017	090	1.4	018	098	50.6
013	069	12.9	014	073	136.2	015	078	19.9	016	084	23.2	017	091	5.1	018	099	51.5
013	070	10.2	014	074	53.1	015	079	65.4	016	085	22.8	017	092	19.0	018	100	22.2
013	071	3.7	014	075	17.5	015	080	19.3	016	086	13.8	017	093	30.8	018	101	38.5
013	072	24.5	014	076	34.4	015	081	14.2	016	087	16.6	017	094	23.1	018	102	35.3
013	073	26.0	014	077	39.9	015	082	6.0	016	088	14.5	017	095	33.0	018	103	29.8
013	074	9.3	014	078	77.0	015	083	12.7	016	089	3.1	017	096	30.5	018	104	29.0
013	075	2.6	014	079	249.3	015	084	19.5	016	090	1.3	017	097	18.8	018	105	5.4
013	076	4.8	014	080	72.1	015	085	20.9	016	091	4.9	017	098	24.2	018	106	4.3
013	077	5.8	014	081	53.4	015	086	10.7	016	092	14.8	017	099	28.3	018	107	34.3
013	078	17.3	014	082	22.8	015	087	15.5	016	093	23.4	017	100	11.4	018	108	2.4
013	079	52.9	014	083	48.9	015	088	12.9	016	094	17.0	017	101	18.9	018	109	2.3
013	080	13.1	014	084	80.5	015	089	2.2	016	095	24.8	017	102	17.0	018	110	11.0
013	081	9.3	014	085	82.1	015	090	1.1	016	096	23.2	017	103	16.0	018	111	42.5
013	082	4.5	014	086	46.0	015	091	4.0	016	097	13.4	017	104	14.9	019	019	109.0
013	083	9.8	014	087	60.1	015	092	16.2	016	098	18.4	017	105	2.3	019	020	83.7
013	084	12.5	014	088	52.4	015	093	26.3	016	099	21.2	017	106	1.8	019	021	57.1

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips
019	022	99.3
019	023	63.5
019	024	69.9
019	025	182.1
019	026	33.2
019	027	56.2
019	028	75.6
019	029	43.6
019	030	28.4
019	031	69.6
019	032	35.9
019	033	44.4
019	034	95.2
019	035	81.8
019	036	41.9
019	037	64.9
019	038	25.4
019	039	60.4
019	040	16.3
019	041	35.8
019	042	30.6
019	043	30.1
019	044	57.4
019	045	21.0
019	046	17.6
019	047	15.8
019	048	44.3
019	049	15.1
019	050	18.4
019	051	47.4
019	052	43.0
019	053	42.9
019	054	16.2
019	055	21.2
019	056	43.8
019	057	47.9
019	058	19.6
019	059	14.6
019	060	8.4
019	061	109.5
019	062	36.7
019	063	33.2
019	064	21.4
019	065	27.0
019	066	8.8
019	067	15.5
019	068	22.4
019	069	26.6
019	070	15.6
019	071	4.9
019	072	33.1
019	073	31.1
019	074	14.6
019	075	8.6
019	076	16.4
019	077	16.8
019	078	21.1
019	079	61.5
019	080	15.9
019	081	12.7
019	082	6.1
019	083	12.7
019	084	30.6
019	085	28.8
019	086	18.1
019	087	17.6
019	088	16.0
019	089	5.1
019	090	1.2
019	091	6.6
019	092	19.7
019	093	32.7
019	094	21.9
019	095	32.5
019	096	29.5
019	097	16.6
019	098	23.6
019	099	26.2
019	100	13.3
019	101	16.9
019	102	15.9
019	103	14.6
019	104	16.7
019	105	2.6
019	106	2.5
019	107	17.2
019	108	.9
019	109	1.4
019	110	5.3
019	111	22.5
020	020	31.5
020	021	58.4
020	022	72.4
020	023	41.6
020	024	45.0
020	025	61.4
020	026	14.0
020	027	27.4
020	028	42.4
020	029	30.8
020	030	16.8
020	031	46.5
020	032	18.0
020	033	24.7
020	034	54.6
020	035	43.9
020	036	24.8
020	037	37.0
020	038	12.6
020	039	41.4
020	040	10.6
020	041	20.7
020	042	19.3
020	043	18.2
020	044	31.4
020	045	15.0
020	046	14.6
020	047	12.6
020	048	33.5
020	049	11.8
020	050	11.0
020	051	27.3
020	052	25.0
020	053	29.8
020	054	10.7
020	055	17.4
020	056	29.7
020	057	25.8
020	058	13.2
020	059	9.9
020	060	6.7
020	061	69.9
020	062	18.8
020	063	24.4
020	064	12.3
020	065	19.0
020	066	4.4
020	067	11.0
020	068	17.4
020	069	15.8
020	070	11.8
020	071	3.6
020	072	26.7
020	073	23.5
020	074	11.2
020	075	4.3
020	076	10.0
020	077	11.0
020	078	17.1
020	079	52.5
020	080	12.7
020	081	9.5
020	082	5.2
020	083	10.7
020	084	22.0
020	085	21.1
020	086	11.2
020	087	12.9
020	088	12.1
020	089	2.6
020	090	1.0
020	091	4.6
020	092	13.4
020	093	21.1
020	094	13.3
020	095	18.2
020	096	20.3
020	097	11.6
020	098	15.9
020	099	18.3
020	100	9.3
020	101	12.4
020	102	11.2
020	103	10.6
020	104	11.4
020	105	1.9
020	106	1.7
020	107	13.4
020	108	.8
020	109	.8
020	110	4.0
020	111	15.7
021	021	45.0
021	022	136.9
021	023	62.6
021	024	66.1
021	025	69.0
021	026	21.7
021	027	40.3
021	028	54.3
021	029	48.1
021	030	28.9
021	031	81.4
021	032	31.6
021	033	51.8
021	034	97.2
021	035	78.1
021	036	52.3
021	037	77.1
021	038	26.9
021	039	74.7
021	040	17.0
021	041	38.0
021	042	26.8
021	043	25.7
021	044	43.3
021	045	19.9
021	046	19.9
021	047	19.6
021	048	52.4
021	049	16.2
021	050	17.6
021	051	42.5
021	052	33.2
021	053	47.1
021	054	14.0
021	055	23.6
021	056	41.7
021	057	40.7
021	058	19.7
021	059	13.8
021	060	9.2
021	061	109.2
021	062	35.0
021	063	33.1
021	064	18.6
021	065	29.3
021	066	8.5
021	067	16.3
021	068	23.9
021	069	25.0
021	070	16.2
021	071	4.9
021	072	47.5
021	073	39.5
021	074	21.1
021	075	8.8
021	076	20.4
021	077	23.2
021	078	26.9
021	079	82.0
021	080	21.1
021	081	16.7
021	082	9.3
021	083	17.0
021	084	46.7
021	085	42.4
021	086	22.5
021	087	25.1
021	088	24.3
021	089	5.1
021	090	2.1
021	091	9.4
021	092	18.1
021	093	27.3
021	094	20.5
021	095	26.8
021	096	29.2
021	097	16.1
021	098	21.1
021	099	24.4
021	100	12.4
021	101	17.1
021	102	15.4
021	103	16.1
021	104	18.2
021	105	3.4
021	106	3.2
021	107	17.7
021	108	1.6
021	109	1.2
021	110	5.4
021	111	23.1
022	022	167.9
022	023	114.1
022	024	88.2
022	025	79.5
022	026	22.8
022	027	50.6
022	028	71.5
022	029	57.9
022	030	38.3
022	031	95.3
022	032	59.6
022	033	73.3
022	034	160.1
022	035	113.7
022	036	68.3
022	037	106.0
022	038	39.8
022	039	79.9
022	040	24.9
022	041	49.4
022	042	30.8
022	043	33.1
022	044	47.9
022	045	21.7
022	046	21.2
022	047	17.8
022	048	50.1
022	049	17.0
022	050	18.2
022	051	46.1
022	052	34.5
022	053	40.7
022	054	14.0
022	055	20.0
022	056	45.8
022	057	47.3
022	058	17.8
022	059	14.2
022	060	9.4
022	061	127.6
022	062	43.7
022	063	33.4
022	064	22.0
022	065	25.5
022	066	12.3
022	067	13.7
022	068	20.8
022	069	27.0
022	070	14.4
022	071	5.4
022	072	42.6
022	073	42.1
022	074	21.4
022	075	14.9
022	076	27.5
022	077	28.3
022	078	32.4
022	079	91.7
022	080	19.7
022	081	16.4
022	082	9.2
022	083	19.5
022	084	52.2
022	085	46.2
022	086	29.3
022	087	26.1
022	088	28.0
022	089	7.5
022	090	1.9
022	091	10.8
022	092	18.2
022	093	28.7
022	094	19.3
022	095	23.3
022	096	25.0
022	097	14.8
022	098	20.8
022	099	22.9
022	100	10.4
022	101	16.1
022	102	14.8
022	103	13.3
022	104	15.2
022	105	3.3
022	106	2.8
022	107	15.1
022	108	1.2
022	109	.9
022	110	4.9
022	111	19.2
023	023	46.0
023	024	102.0
023	025	75.4
023	026	23.8
023	027	43.3
023	028	63.9
023	029	44.8
023	030	31.6
023	031	67.0
023	032	36.3
023	033	48.6
023	034	104.4
023	035	87.1
023	036	45.3
023	037	68.7
023	038	28.5
023	039	61.3
023	040	19.7
023	041	37.7
023	042	29.2
023	043	22.0
023	044	39.7
023	045	23.4
023	046	21.0
023	047	22.7
023	048	61.4
023	049	18.6
023	050	17.8
023	051	44.0
023	052	31.7
023	053	43.6
023	054	14.4
023	055	22.5
023	056	39.5
023	057	34.1
023	058	20.9
023	059	15.5
023	060	10.5
023	061	91.3
023	062	29.1
023	063	31.7
023	064	20.2
023	065	29.2
023	066	8.0
023	067	17.2
023	068	25.2
023	069	25.6
023	070	17.2
023	071	4.6
023	072	40.8
023	073	38.2
023	074	16.8
023	075	7.5
023	076	16.5
023	077	17.8
023	078	26.1
023	079	77.2
023	080	20.1
023	081	15.6
023	082	7.3
023	083	15.3
023	084	27.5
023	085	29.7
023	086	17.6
023	087	19.6
023	088	16.8
023	089	4.1
023	090	1.4
023	091	6.2
023	092	17.5
023	093	28.0
023	094	20.9
023	095	29.4
023	096	32.0
023	097	16.3
023	098	22.4
023	099	25.5
023	100	12.0
023	101	15.2
023	102	15.7
023	103	15.9
023	104	17.9
023	105	2.4
023	106	2.4
023	107	19.6
023	108	1.2
023	109	1.0
023	110	6.4
023	111	26.0
024	024	56.8
024	025	109.2
024	026	26.0
024	027	47.5
024	028	69.4
024	029	68.3
024	030	36.3
024	031	74.6
024	032	44.2
024	033	46.5
024	034	99.6
024	035	84.5
024	036	43.9
024	037	67.5
024	038	29.9
024	039	67.6
024	040	22.8
024	041	44.0
024	042	31.0
024	043	31.7
024	044	53.0
024	045	26.2
024	046	22.0
024	047	20.9
024	048	58.3
024	049	19.6
024	050	19.7
024	051	49.4
024	052	42.2
024	053	46.6
024	054	18.5
024	055	28.2
024	056	52.1
024	057	44.5
024	058	23.3
024	059	16.5
024	060	11.5
024	061	118.9
024	062	32.7
024	063	41.4
024	064	22.7
024	065	32.3
024	066	9.2
024	067	19.6
024	068	31.0
024	069	29.4
024	070	21.2
024	071	5.3
024	072	40.9
024	073	43.1
024	074	16.7
024	075	8.9
024	076	17.3
024	077	17.8
024	078	28.3
024	079	84.6
024	080	20.8
024	081	15.5
024	082	7.5
024	083	16.8
024	084	29.8
024	085	30.1
024	086	18.2
024	087	19.4
024	088	18.4
024	089	4.9
024	090	1.3
024	091	6.9
024	092	19.5
024	093	36.6
024	094	23.0
024	095	32.5
024	096	35.6
024	097	18.3
024	098	28.4
024	099	32.6
024	100	15.4
024	101	16.8
024	102	19.0
024	103	18.2
024	104	19.4
024	105	3.0
024	106	2.6
024	107	24.3
024	108	1.1
024	109	1.1
024	110	6.9
024	111	29.0
025	025	91.6
025	026	47.9
025	027	130.6
025	028	113.3
025	029	68.3
025	030	46.6
025	031	92.6
025	032	51.3
025	033	62.7
025	034	135.6
025	035	117.8
025	036	59.8
025	037	94.1
025	038	36.9
025	039	83.6
025	040	25.3
025	041	58.6
025	042	45.7
025	043	48.0
025	044	89.2
025	045	32.2
025	046	25.5
025	047	22.5
025	048	63.0
025	049	21.2
025	050	26.7
025	051	71.0
025	052	64.6
025	053	60.8
025	054	22.5
025	055	29.4
025	056	67.5
025	057	78.1
025	058	27.2
025	059	20.9
025	060	11.8
025	061	179.9
025	062	62.0
025	063	49.2
025	064	32.1
025	065	37.6
025	066	14.6
025	067	21.2
025	068	30.6
025	069	39.8
025	070	21.8
025	071	6.5
025	072	38.5
025	073	39.0
025	074	19.7
025	075	12.6
025	076	24.7
025	077	25.4
025	078	27.2
025	079	76.8
025	080	19.8
025	081	15.8
025	082	8.2
025	083	16.4
025	084	39.7
025	085	36.2
025	086	26.3
025	087	23.6
025	088	22.3
025	089	6.6
025	090	1.4
025	091	9.1
025	092	27.5
025	093	45.1
025	094	29.8
025	095	36.8
025	096	40.2
025	097	22.1
025	098	32.5
025	099	35.6
025	100	18.6
025	101	21.2
025	102	21.8

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips
025	103	19.8	027	034	60.3	028	052	45.9	029	071	3.4	030	091	3.7	032	032	7.8
025	104	23.2	027	035	50.9	028	053	59.0	029	072	27.5	030	092	16.6	032	033	21.5
025	105	3.9	027	036	27.0	028	054	17.2	029	073	27.4	030	093	26.9	032	034	42.2
025	106	4.0	027	037	41.1	028	055	27.9	029	074	12.2	030	094	21.2	032	035	32.4
025	107	23.0	027	038	18.1	028	056	57.7	029	075	4.4	030	095	29.2	032	036	19.4
025	108	1.3	027	039	47.1	028	057	56.0	029	076	10.9	030	096	31.9	032	037	28.4
025	109	1.5	027	040	13.0	028	058	24.3	029	077	12.8	030	097	17.0	032	038	9.3
025	110	7.2	027	041	32.5	028	059	19.2	029	078	16.1	030	098	22.8	032	039	42.1
025	111	30.2	027	042	28.0	028	060	10.7	029	079	50.3	030	099	26.7	032	040	15.8
026	026	17.7	027	043	34.4	028	061	151.3	029	080	13.4	030	100	11.9	032	041	16.3
026	027	33.8	027	044	51.3	028	062	50.5	029	081	10.0	030	101	15.4	032	042	28.0
026	028	32.2	027	045	22.7	028	063	43.6	029	082	5.1	030	102	15.6	032	043	8.7
026	029	21.0	027	046	19.6	028	064	27.4	029	083	10.2	030	103	16.4	032	044	31.7
026	030	20.0	027	047	16.9	028	065	34.4	029	084	18.9	030	104	17.4	032	045	23.6
026	031	32.6	027	048	44.6	028	066	11.9	029	085	20.3	030	105	1.6	032	046	21.3
026	032	22.8	027	049	15.8	028	067	19.1	029	086	11.7	030	106	2.0	032	047	26.0
026	033	23.3	027	050	19.9	028	068	27.6	029	087	14.5	030	107	20.4	032	048	72.9
026	034	49.6	027	051	55.2	028	069	33.0	029	088	12.9	030	108	1.0	032	049	22.2
026	035	43.8	027	052	40.1	028	070	19.3	029	089	2.2	030	109	1.2	032	050	20.3
026	036	22.4	027	053	52.5	028	071	4.9	029	090	1.2	030	110	6.3	032	051	40.3
026	037	34.9	027	054	15.0	028	072	33.2	029	091	4.0	030	111	28.0	032	052	30.6
026	038	16.4	027	055	22.1	028	073	31.5	029	092	15.0	031	031	55.8	032	053	43.7
026	039	29.7	027	056	45.6	028	074	16.3	029	093	24.3	031	032	40.2	032	054	19.8
026	040	8.7	027	057	38.2	028	075	8.6	029	094	17.3	031	033	52.8	032	055	28.9
026	041	25.2	027	058	20.6	028	076	20.3	029	095	25.0	031	034	113.1	032	056	32.3
026	042	13.7	027	059	15.6	028	077	22.0	029	096	27.3	031	035	72.1	032	057	20.3
026	043	20.4	027	060	8.6	028	078	21.1	029	097	13.5	031	036	53.6	032	058	26.1
026	044	27.8	027	061	102.2	028	079	63.4	029	098	18.6	031	037	76.4	032	059	18.9
026	045	11.7	027	062	33.4	028	080	16.0	029	099	24.2	031	038	25.1	032	060	13.7
026	046	7.4	027	063	35.9	028	081	13.2	029	100	12.4	031	039	93.5	032	061	53.7
026	047	6.7	027	064	21.4	028	082	7.3	029	101	12.7	031	040	27.4	032	062	11.3
026	048	21.7	027	065	27.6	028	083	13.4	029	102	12.7	031	041	45.2	032	063	29.5
026	049	7.2	027	066	7.4	028	084	32.6	029	103	13.6	031	042	48.2	032	064	18.8
026	050	8.2	027	067	15.0	028	085	30.1	029	104	15.3	031	043	23.6	032	065	40.3
026	051	21.5	027	068	22.0	028	086	19.7	029	105	2.0	031	044	59.4	032	066	3.4
026	052	19.0	027	069	25.0	028	087	19.3	029	106	1.9	031	045	36.8	032	067	26.0
026	053	20.6	027	070	15.0	028	088	19.2	029	107	15.6	031	046	37.6	032	068	36.1
026	054	9.1	027	071	3.4	028	089	4.6	029	108	.8	031	047	34.2	032	069	26.3
026	055	9.7	027	072	22.5	028	090	1.7	029	109	1.2	031	048	94.0	032	070	24.2
026	056	25.9	027	073	20.5	028	091	7.2	029	110	4.9	031	049	33.3	032	071	5.8
026	057	27.0	027	074	9.8	028	092	21.7	029	111	20.8	031	050	30.0	032	072	50.0
026	058	8.8	027	075	4.9	028	093	34.2	030	030	10.0	031	051	60.3	032	073	57.7
026	059	6.3	027	076	10.7	028	094	23.6	030	031	36.7	031	052	51.1	032	074	18.3
026	060	3.9	027	077	11.0	028	095	28.3	030	032	15.5	031	053	70.8	032	075	4.7
026	061	73.9	027	078	14.4	028	096	36.4	030	033	20.1	031	054	27.1	032	076	7.9
026	062	25.9	027	079	41.8	028	097	18.2	030	034	41.8	031	055	43.4	032	077	9.1
026	063	17.9	027	080	10.9	028	098	24.8	030	035	32.5	031	056	54.2	032	078	31.5
026	064	10.1	027	081	8.5	028	099	28.0	030	036	23.0	031	057	17.2	032	079	91.6
026	065	10.9	027	082	4.3	028	100	14.8	030	037	28.9	031	058	34.7	032	080	26.4
026	066	6.3	027	083	8.3	028	101	17.4	030	038	11.0	031	059	28.1	032	081	18.3
026	067	5.8	027	084	17.1	028	102	17.6	030	039	40.2	031	060	19.2	032	082	7.7
026	068	9.7	027	085	18.0	028	103	18.8	030	040	13.2	031	061	125.3	032	083	18.1
026	069	12.8	027	086	10.9	028	104	21.4	030	041	22.3	031	062	31.2	032	084	14.5
026	070	7.3	027	087	11.5	028	105	3.2	030	042	26.9	031	063	47.6	032	085	21.7
026	071	2.6	027	088	10.0	028	106	3.9	030	043	11.4	031	064	29.2	032	086	11.9
026	072	11.8	027	089	2.9	028	107	20.6	030	044	27.4	031	065	56.2	032	087	20.2
026	073	10.7	027	090	.4	028	108	1.6	030	045	21.5	031	066	9.9	032	088	13.2
026	074	5.7	027	091	4.1	028	109	1.4	030	046	17.0	031	067	33.8	032	089	2.6
026	075	4.4	027	092	17.6	028	110	6.8	030	047	19.5	031	068	48.5	032	090	1.0
026	076	9.6	027	093	29.6	028	111	26.8	030	048	54.0	031	069	37.6	032	091	4.1
026	077	9.8	027	094	19.2	029	029	36.5	030	049	16.8	031	070	31.9	032	092	20.8
026	078	7.9	027	095	30.6	029	030	25.5	030	050	14.8	031	071	7.6	032	093	38.0
026	079	22.4	027	096	33.1	029	031	60.4	030	051	35.1	031	072	73.8	032	094	27.4
026	080	5.0	027	097	14.2	029	032	26.7	030	052	24.2	031	073	75.3	032	095	38.1
026	081	4.2	027	098	20.6	029	033	30.5	030	053	38.5	031	074	30.4	032	096	41.2
026	082	2.5	027	099	23.0	029	034	66.7	030	054	13.8	031	075	8.6	032	097	22.9
026	083	5.0	027	100	12.0	029	035	52.8	030	055	21.2	031	076	21.2	032	098	30.0
026	084	14.7	027	101	12.9	029	036	29.7	030	056	29.5	031	077	25.4	032	099	39.1
026	085	13.2	027	102	13.8	029	037	43.7	030	057	20.8	031	078	42.3	032	100	16.9
026	086	9.1	027	103	14.6	029	038	17.5	030	058	20.1	031	079	134.6	032	101	20.6
026	087	7.4	027	104	17.5	029	039	50.9	030	059	14.2	031	080	34.2	032	102	20.2
026	088	7.6	027	105	2.2	029	040	16.7	030	060	9.9	031	081	24.9	032	103	21.2
026	089	2.6	027	106	2.3	029	041	30.2	030	061	54.3	031	082	12.2	032	104	22.0
026	090	.5	027	107	16.9	029	042	32.5	030	062	15.2	031	083	26.0	032	105	1.8
026	091	3.5	027	108	1.0	029	043	18.6	030	063	25.8	031	084	40.2	032	106	1.6
026	092	11.1	027	109	.8	029	044	42.5	030	064	16.5	031	085	46.3	032	107	27.6
026	093	18.8	027	110	5.2	029	045	24.8	030	065	28.2	031	086	24.9	032	108	1.0
026	094	11.3	027	111	21.9	029	046	19.2	030	066	4.2	031	087	34.6	032	109	1.2
026	095	13.7	028	028	51.7	029	047	16.4	030	067	17.8	031	088	29.6	032	110	8.4
026	096	15.4	028	029	61.3	029	048	43.7	030	068	25.2	031	089	4.9	032	111	38.5
026	097	8.0	028	030	37.8	029	049	16.2	030	069	21.6	031	090	2.6	033	033	20.7
026	098	12.2	028	031	81.4	029	050	14.8	030	070	16.8	031	091	9.5	033	034	69.9
026	099	12.8	028	032	45.3	029	051	36.9	030	071	4.1	031	092	30.3	033	035	54.2
026	100	5.1	028	033	49.9	029	052	34.2	030	072	33.2	031	093	52.9	033	036	32.3
026	101	7.4	028	034	108.7	029	053	40.3	030	073	36.3	031	094	36.9	033	037	47.2
026	102	8.1	028	035	91.8	029	054	12.7	030	074	13.1	031	095	50.1	033	038	18.1
026	103	7.5	028	036	49.0	029	055	19.3	030	075	4.1	031	096	54.4	033	039	60.0
026	104	7.5	028	037	74.9	029	056	32.4	030	076	8.1	031	097	30.2	033	040	20.3
026	105	1.6	028	038	31.9	029	057	32.1	030	077	9.6	031	098	39.7	033	041	26.9
026	106	1.6	028	039	74.3	029	058	17.4	030	078	20.6	031	099	51.3	033	042	30.8
026	107	7.0	028	040	21.2	029	059	13.0	030	079	64.3	031	100	24.0	033	043	13.7
026	108	.7	028	041	56.0	029	060	8.7	030	080	17.9	031	101	28.3	033	044	35.8
026	109	.4	028	042	34.4	029	061	72.4	030	081	12.7	031	102	27.9	033	045	24.5
026	110	2.2	028	043	40.2	029	062	22.1	030	082	5.4	031	103	29.2	033	046	26.7
026	111	9.2	028	044	62.0	029	063	26.8	030	083	12.1	031	104	31.2	033	047	30.8
027	027	53.1	028	045	27.6	029	064	16.0	030	084	14.3	031	105	4.4	033	048	76.2
027	028	75.2	028	046	24.5	029	065	24.3	030	085	18.1	031	106	3.7	033	049	26.4
027	029	41.6	028	047	21.0	029	066	5.8	030	086	10.1	031	107	34.8	033	050	20.6
027	030	27.7	028	048	56.6	029	067	14.0	030	087	15.0	031	108	2.0	033	051	42.1
027	031	46.2	028	049	19.8	029	068	20.5	030	088	11.4	031	109	2.4	033	052	32.9
027	032	26.7	028	050	23.4	029	069	19.6	030	089	2.3	031	110	11.0	033	053	45.6
027	033	28.1	028	051	60.9	029	070	13.4	030	090	.8	031	111	47.8	033	054	19.2

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips
033	055	29.5
033	056	40.1
033	057	26.9
033	058	29.0
033	059	19.9
033	060	15.6
033	061	70.5
033	062	16.9
033	063	35.1
033	064	20.2
033	065	40.3
033	066	5.9
033	067	27.5
033	068	40.1
033	069	27.4
033	070	24.4
033	071	5.6
033	072	62.3
033	073	62.3
033	074	22.7
033	075	6.1
033	076	12.4
033	077	15.0
033	078	36.6
033	079	103.7
033	080	28.3
033	081	20.2
033	082	9.1
033	083	21.2
033	084	22.6
033	085	29.5
033	086	16.5
033	087	25.3
033	088	18.3
033	089	3.4
033	090	1.5
033	091	6.1
033	092	20.7
033	093	36.7
033	094	27.1
033	095	36.5
033	096	39.6
033	097	22.0
033	098	32.4
033	099	37.2
033	100	16.6
033	101	20.3
033	102	22.0
033	103	21.2
033	104	21.8
033	105	2.4
033	106	2.2
033	107	29.8
033	108	1.2
033	109	1.4
033	110	8.2
033	111	41.1
034	034	85.2
034	035	128.9
034	036	66.0
034	037	95.5
034	038	35.9
034	039	146.2
034	040	52.0
034	041	65.5
034	042	79.4
034	043	28.8
034	044	88.4
034	045	59.9
034	046	69.1
034	047	67.1
034	048	191.3
034	049	67.8
034	050	50.7
034	051	102.2
034	052	82.3
034	053	111.5
034	054	46.1
034	055	69.7
034	056	96.4
034	057	64.4
034	058	69.1
034	059	48.3
034	060	39.1
034	061	163.9
034	062	38.6
034	063	85.7
034	064	48.3
034	065	95.7
034	066	13.7
034	067	63.9
034	068	84.8
034	069	62.1
034	070	55.5
034	071	12.4
034	072	133.1
034	073	129.1
034	074	48.5
034	075	12.1
034	076	26.1
034	077	31.3
034	078	79.8
034	079	224.1
034	080	59.7
034	081	46.1
034	082	19.9
034	083	45.9
034	084	48.8
034	085	63.6
034	086	35.3
034	087	55.1
034	088	39.8
034	089	7.9
034	090	3.4
034	091	13.4
034	092	49.3
034	093	87.7
034	094	62.1
034	095	85.2
034	096	91.4
034	097	50.4
034	098	74.2
034	099	85.7
034	100	37.9
034	101	46.3
034	102	50.3
034	103	47.6
034	104	49.7
034	105	5.6
034	106	5.2
034	107	67.8
034	108	2.8
034	109	3.3
034	110	19.0
034	111	93.9
035	035	48.6
035	036	71.2
035	037	85.5
035	038	27.2
035	039	116.2
035	040	44.0
035	041	49.6
035	042	67.0
035	043	22.1
035	044	73.4
035	045	52.2
035	046	58.1
035	047	69.4
035	048	194.7
035	049	59.1
035	050	51.5
035	051	89.6
035	052	70.0
035	053	96.2
035	054	40.9
035	055	61.1
035	056	82.0
035	057	51.0
035	058	61.7
035	059	42.2
035	060	34.3
035	061	128.9
035	062	29.0
035	063	73.8
035	064	41.7
035	065	95.5
035	066	10.2
035	067	57.7
035	068	85.2
035	069	55.1
035	070	50.1
035	071	10.9
035	072	116.8
035	073	116.9
035	074	41.4
035	075	9.9
035	076	19.7
035	077	23.6
035	078	71.3
035	079	200.0
035	080	53.8
035	081	41.3
035	082	17.2
035	083	40.1
035	084	36.8
035	085	51.2
035	086	28.2
035	087	46.5
035	088	31.6
035	089	6.9
035	090	2.5
035	091	10.5
035	092	43.3
035	093	78.3
035	094	55.7
035	095	76.8
035	096	82.2
035	097	45.9
035	098	67.0
035	099	77.7
035	100	33.7
035	101	41.3
035	102	44.7
035	103	43.1
035	104	44.2
035	105	4.4
035	106	3.8
035	107	61.6
035	108	2.3
035	109	2.5
035	110	17.0
035	111	86.0
036	036	26.3
036	037	62.4
036	038	23.7
036	039	91.7
036	040	34.0
036	041	31.1
036	042	48.6
036	043	16.3
036	044	47.2
036	045	36.9
036	046	43.8
036	047	40.8
036	048	112.5
036	049	40.7
036	050	30.5
036	051	52.6
036	052	36.9
036	053	58.6
036	054	21.1
036	055	32.8
036	056	44.6
036	057	31.0
036	058	35.3
036	059	28.3
036	060	23.2
036	061	80.1
036	062	21.3
036	063	39.6
036	064	25.1
036	065	55.3
036	066	8.6
036	067	37.2
036	068	48.8
036	069	32.3
036	070	26.0
036	071	5.9
036	072	69.1
036	073	73.1
036	074	25.6
036	075	6.6
036	076	14.6
036	077	17.4
036	078	40.0
036	079	113.8
036	080	28.4
036	081	21.8
036	082	10.6
036	083	21.6
036	084	27.6
036	085	34.6
036	086	19.0
036	087	28.8
036	088	21.8
036	089	3.8
036	090	2.0
036	091	6.9
036	092	25.6
036	093	40.3
036	094	29.3
036	095	39.3
036	096	47.7
036	097	26.3
036	098	34.6
036	099	39.9
036	100	18.2
036	101	22.3
036	102	23.9
036	103	22.6
036	104	26.3
036	105	2.7
036	106	3.2
036	107	34.9
036	108	1.4
036	109	1.7
036	110	9.8
036	111	52.8
037	037	45.0
037	038	33.8
037	039	116.3
037	040	34.4
037	041	38.3
037	042	63.0
037	043	19.7
037	044	61.5
037	045	48.5
037	046	55.2
037	047	54.1
037	048	152.3
037	049	54.3
037	050	41.0
037	051	72.5
037	052	57.2
037	053	79.8
037	054	29.6
037	055	45.5
037	056	61.3
037	057	45.6
037	058	50.2
037	059	38.7
037	060	31.5
037	061	105.1
037	062	27.6
037	063	54.4
037	064	34.9
037	065	77.9
037	066	10.7
037	067	53.1
037	068	69.4
037	069	46.1
037	070	37.9
037	071	8.6
037	072	108.6
037	073	116.6
037	074	39.1
037	075	9.9
037	076	20.8
037	077	24.8
037	078	58.4
037	079	166.9
037	080	45.2
037	081	34.8
037	082	15.8
037	083	33.9
037	084	35.5
037	085	51.2
037	086	25.4
037	087	44.1
037	088	31.8
037	089	5.9
037	090	2.7
037	091	9.9
037	092	36.1
037	093	56.6
037	094	46.7
037	095	63.1
037	096	67.9
037	097	38.1
037	098	50.1
037	099	63.9
037	100	28.3
037	101	35.0
037	102	34.6
037	103	36.1
037	104	37.1
037	105	3.6
037	106	3.5
037	107	50.9
037	108	2.0
037	109	2.4
037	110	14.4
037	111	77.8
038	038	6.4
038	039	63.8
038	040	22.5
038	041	16.7
038	042	31.0
038	043	8.7
038	044	30.8
038	045	26.2
038	046	28.8
038	047	34.2
038	048	90.9
038	049	27.8
038	050	21.8
038	051	37.9
038	052	25.2
038	053	42.4
038	054	16.6
038	055	24.9
038	056	30.9
038	057	18.1
038	058	30.7
038	059	20.2
038	060	16.4
038	061	48.0
038	062	11.6
038	063	32.0
038	064	19.9
038	065	47.6
038	066	4.7
038	067	30.4
038	068	42.4
038	069	27.8
038	070	20.8
038	071	5.1
038	072	56.9
038	073	59.6
038	074	17.7
038	075	3.9
038	076	7.3
038	077	8.7
038	078	26.6
038	079	78.4
038	080	21.2
038	081	16.1
038	082	6.8
038	083	15.6
038	084	13.6
038	085	19.7
038	086	10.7
038	087	19.4
038	088	13.3
038	089	2.6
038	090	1.1
038	091	3.9
038	092	20.0
038	093	32.2
038	094	26.2
038	095	33.0
038	096	39.6
038	097	21.6
038	098	29.1
038	099	33.8
038	100	14.8
038	101	19.7
038	102	19.2
038	103	20.5
038	104	21.2
038	105	1.7
038	106	1.8
038	107	31.7
038	108	.8
038	109	.9
038	110	8.4
038	111	43.2
039	039	93.1
039	040	62.8
039	041	66.3
039	042	80.9
039	043	38.6
039	044	86.8
039	045	60.5
039	046	71.7
039	047	75.3
039	048	200.1
039	049	61.3
039	050	46.9
039	051	83.6
039	052	62.0
039	053	90.2
039	054	29.3
039	055	48.2
039	056	77.1
039	057	67.0
039	058	56.3
039	059	42.3
039	060	33.7
039	061	176.4
039	062	54.0
039	063	72.3
039	064	46.0
039	065	90.6
039	066	21.5
039	067	50.8
039	068	75.5
039	069	57.0
039	070	35.9
039	071	8.8
039	072	101.6
039	073	99.6
039	074	37.5
039	075	12.8
039	076	30.0
039	077	34.3
039	078	48.2
039	079	134.7
039	080	31.8
039	081	26.1
039	082	13.6
039	083	29.2
039	084	50.9
039	085	55.9
039	086	32.3
039	087	44.1
039	088	39.0
039	089	8.4
039	090	2.8
039	091	14.6
039	092	37.6
039	093	57.2
039	094	44.2
039	095	52.3
039	096	63.8
039	097	35.7
039	098	46.4
039	099	53.4
039	100	25.6
039	101	33.8
039	102	33.3
039	103	34.7
039	104	37.4
039	105	5.2
039	106	5.6
039	107	51.7
039	108	2.6
039	109	2.8
039	110	14.8
039	111	68.8
040	040	11.3
040	041	22.9
040	042	28.6
040	043	11.3
040	044	30.2
040	045	23.6
040	046	28.4
040	047	22.4
040	048	55.1
040	049	21.8
040	050	16.1
040	051	27.1
040	052	19.2
040	053	22.4
040	054	8.9
040	055	13.6
040	056	24.0
040	057	19.7
040	058	14.8
040	059	13.0
040	060	10.8
040	061	52.8
040	062	14.1
040	063	19.4
040	064	12.1
040	065	24.0
040	066	6.2
040	067	16.1
040	068	19.9
040	069	15.4
040	070	10.4
040	071	2.9
040	072	23.2
040	073	23.2
040	074	8.6
040	075	3.4
040	076	8.5
040	077	8.8
040	078	10.8
040	079	30.8
040	080	8.6
040	081	6.9
040	082	3.4
040	083	6.5
040	084	11.0
040	085	13.7
040	086	8.0
040	087	9.7
040	088	8.5
040	089	2.1
040	090	.8
040	091	3.1
040	092	9.2
040	093	17.9
040	094	11.3
040	095	16.2
040	096	17.6
040	097	9.0
040	098	14.0
040	099	16.1
040	100	7.5
040	101	8.3
040	102	9.4
040	103	5.8
040	104	9.6
040	105	1.1
040	106	1.3
040	107	13.7
040	108	.6
040	109	.8
040	110	3.5
040	111	20.3
041	041	15.4
041	042	39.5
041	043	16.1
041	044	47.5
041	045	32.1
041	046	30.8
041	047	34.7
041	048	93.4
041	049	28.7
041	050	26.2
041	051	52.4
041	052	43.0
041	053	59.7
041	054	21.6
041	055	32.9
041	056	44.0
041	057	32.8
041	058	31.2
041	059	24.3
041	060	16.9
041	061	77.3
041	062	20.2
041	063	39.5
041	064	24.2
041	065	49.3
041	066	6.4
041	067	31.2
041	068	43.7
041	069	32.9
041	070	25.9

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips
041	071	6.4
041	072	56.9
041	073	57.1
041	074	20.3
041	075	5.2
041	076	11.2
041	077	13.4
041	078	31.2
041	079	90.8
041	080	25.9
041	081	19.9
041	082	8.3
041	083	16.7
041	084	21.0
041	085	27.1
041	086	14.4
041	087	22.6
041	088	17.2
041	089	3.5
041	090	1.4
041	091	5.7
041	092	26.0
041	093	41.9
041	094	33.3
041	095	46.5
041	096	50.4
041	097	27.1
041	098	36.2
041	099	47.1
041	100	21.5
041	101	24.8
041	102	24.4
041	103	26.4
041	104	27.5
041	105	2.8
041	106	2.6
041	107	32.2
041	108	1.4
041	109	1.9
041	110	9.7
041	111	44.6
042	042	32.7
042	043	28.0
042	044	71.1
042	045	53.2
042	046	31.9
042	047	24.6
042	048	60.3
042	049	22.9
042	050	23.2
042	051	51.1
042	052	38.5
042	053	37.9
042	054	13.0
042	055	21.0
042	056	48.0
042	057	47.0
042	058	22.0
042	059	17.7
042	060	11.4
042	061	128.5
042	062	37.3
042	063	34.7
042	064	21.6
042	065	29.9
042	066	13.0
042	067	15.3
042	068	22.8
042	069	25.4
042	070	13.7
042	071	3.5
042	072	27.4
042	073	25.5
042	074	11.6
042	075	6.3
042	076	14.5
042	077	15.7
042	078	12.1
042	079	33.3
042	080	8.7
042	081	6.9
042	082	3.8
042	083	8.1
042	084	20.8
042	085	20.6
042	086	13.8
042	087	14.1
042	088	13.9
042	089	3.4
042	090	.9
042	091	5.4
042	092	13.6
042	093	26.3
042	094	14.6
042	095	20.6
042	096	22.6
042	097	11.1
042	098	18.0
042	099	20.0
042	100	11.0
042	101	10.8
042	102	12.8
042	103	11.6
042	104	13.5
042	105	2.6
042	106	2.8
042	107	14.1
042	108	1.1
042	109	1.0
042	110	4.4
042	111	17.8
043	043	11.9
043	044	45.2
043	045	22.9
043	046	22.5
043	047	19.7
043	048	50.9
043	049	18.9
043	050	21.5
043	051	54.8
043	052	53.6
043	053	64.3
043	054	25.8
043	055	35.7
043	056	42.8
043	057	27.2
043	058	26.7
043	059	18.5
043	060	10.8
043	061	73.6
043	062	19.7
043	063	38.2
043	064	21.3
043	065	35.8
043	066	4.4
043	067	22.1
043	068	30.4
043	069	27.0
043	070	20.3
043	071	5.2
043	072	28.2
043	073	30.7
043	074	10.0
043	075	2.8
043	076	5.8
043	077	6.9
043	078	15.7
043	079	51.3
043	080	13.9
043	081	9.9
043	082	4.3
043	083	9.5
043	084	12.1
043	085	13.7
043	086	7.2
043	087	11.1
043	088	8.8
043	089	1.4
043	090	.7
043	091	2.7
043	092	23.2
043	093	50.4
043	094	27.5
043	095	43.8
043	096	48.0
043	097	21.2
043	098	35.5
043	099	41.3
043	100	17.0
043	101	18.9
043	102	22.5
043	103	21.8
043	104	24.6
043	105	2.0
043	106	2.4
043	107	24.9
043	108	1.1
043	109	1.0
043	110	7.5
043	111	32.7
044	044	102.3
044	045	77.5
044	046	38.2
044	047	32.1
044	048	104.7
044	049	39.5
044	050	49.2
044	051	146.0
044	052	75.8
044	053	78.8
044	054	29.0
044	055	43.0
044	056	84.3
044	057	69.0
044	058	50.4
044	059	38.0
044	060	20.2
044	061	182.8
044	062	58.3
044	063	67.1
044	064	39.8
044	065	63.6
044	066	15.1
044	067	28.6
044	068	49.9
044	069	45.8
044	070	28.8
044	071	6.0
044	072	43.0
044	073	38.6
044	074	16.7
044	075	6.7
044	076	16.9
044	077	18.2
044	078	22.6
044	079	66.8
044	080	17.1
044	081	13.2
044	082	6.5
044	083	13.8
044	084	26.0
044	085	28.0
044	086	16.1
044	087	19.9
044	088	17.8
044	089	4.3
044	090	1.3
044	091	6.6
044	092	27.7
044	093	56.9
044	094	31.0
044	095	46.4
044	096	63.2
044	097	23.5
044	098	38.4
044	099	43.9
044	100	22.2
044	101	21.6
044	102	25.9
044	103	28.0
044	104	33.2
044	105	4.2
044	106	4.2
044	107	32.4
044	108	1.8
044	109	2.1
044	110	10.4
044	111	41.5
045	045	32.6
045	046	25.5
045	047	20.4
045	048	68.1
045	049	26.2
045	050	37.2
045	051	57.5
045	052	31.5
045	053	30.0
045	054	11.3
045	055	17.3
045	056	38.6
045	057	42.8
045	058	24.9
045	059	19.1
045	060	12.7
045	061	95.0
045	062	31.7
045	063	36.6
045	064	21.9
045	065	31.6
045	066	10.3
045	067	16.4
045	068	24.4
045	069	26.1
045	070	12.2
045	071	3.2
045	072	22.9
045	073	20.9
045	074	9.7
045	075	5.3
045	076	11.2
045	077	11.6
045	078	11.4
045	079	30.1
045	080	7.5
045	081	6.2
045	082	3.2
045	083	6.5
045	084	15.5
045	085	15.9
045	086	11.5
045	087	11.5
045	088	10.8
045	089	3.2
045	090	.6
045	091	4.3
045	092	11.4
045	093	22.6
045	094	13.0
045	095	18.4
045	096	24.0
045	097	9.6
045	098	15.9
045	099	17.7
045	100	9.1
045	101	9.2
045	102	10.8
045	103	11.6
045	104	13.4
045	105	2.0
045	106	2.2
045	107	15.8
045	108	.5
045	109	.9
045	110	4.2
045	111	20.0
046	046	16.1
046	047	30.3
046	048	66.1
046	049	28.1
046	050	20.8
046	051	34.2
046	052	27.1
046	053	26.1
046	054	6.7
046	055	12.1
046	056	27.5
046	057	34.4
046	058	13.8
046	059	14.6
046	060	9.4
046	061	93.1
046	062	26.9
046	063	24.1
046	064	15.0
046	065	23.4
046	066	11.9
046	067	11.5
046	068	16.9
046	069	17.2
046	070	8.8
046	071	2.1
046	072	19.8
046	073	17.4
046	074	9.0
046	075	4.7
046	076	12.0
046	077	12.8
046	078	7.9
046	079	20.6
046	080	5.1
046	081	5.1
046	082	3.1
046	083	4.7
046	084	16.1
046	085	17.2
046	086	10.2
046	087	11.5
046	088	11.6
046	089	3.0
046	090	.6
046	091	4.7
046	092	8.9
046	093	13.6
046	094	9.4
046	095	10.5
046	096	14.0
046	097	7.0
046	098	9.8
046	099	12.2
046	100	7.2
046	101	7.2
046	102	7.1
046	103	7.2
046	104	8.8
046	105	2.0
046	106	2.0
046	107	9.8
046	108	.5
046	109	.8
046	110	3.1
046	111	12.1
047	047	15.2
047	048	51.2
047	049	19.1
047	050	16.5
047	051	29.1
047	052	22.1
047	053	19.6
047	054	5.6
047	055	9.5
047	056	24.9
047	057	31.9
047	058	11.4
047	059	11.8
047	060	9.0
047	061	86.7
047	062	26.0
047	063	20.9
047	064	13.2
047	065	19.0
047	066	13.4
047	067	11.4
047	068	16.8
047	069	18.7
047	070	7.6
047	071	2.2
047	072	17.3
047	073	16.0
047	074	8.4
047	075	5.7
047	076	12.4
047	077	12.6
047	078	8.1
047	079	20.6
047	080	4.8
047	081	4.2
047	082	2.6
047	083	5.3
047	084	16.3
047	085	15.5
047	086	11.4
047	087	10.1
047	088	11.5
047	089	3.7
047	090	.8
047	091	4.9
047	092	7.6
047	093	11.5
047	094	7.8
047	095	8.8
047	096	11.1
047	097	5.8
047	098	8.2
047	099	10.2
047	100	5.7
047	101	5.8
047	102	5.9
047	103	6.2
047	104	8.3
047	105	1.6
047	106	1.8
047	107	9.9
047	108	.8
047	109	.6
047	110	2.4
047	111	12.1
048	048	219.1
048	049	84.6
048	050	52.8
048	051	94.7
048	052	70.6
048	053	52.7
048	054	17.8
048	055	30.7
048	056	95.9
048	057	122.4
048	058	44.7
048	059	45.5
048	060	37.8
048	061	285.9
048	062	102.5
048	063	79.6
048	064	51.7
048	065	73.1
048	066	54.0
048	067	45.2
048	068	53.9
048	069	62.6
048	070	29.0
048	071	8.0
048	072	50.7
048	073	48.8
048	074	23.9
048	075	16.5
048	076	36.9
048	077	37.3
048	078	24.3
048	079	61.1
048	080	14.1
048	081	13.2
048	082	7.8
048	083	15.4
048	084	46.9
048	085	44.3
048	086	33.1
048	087	29.3
048	088	30.2
048	089	9.9
048	090	1.2
048	091	13.9
048	092	21.3
048	093	37.3
048	094	22.8
048	095	29.8
048	096	38.0
048	097	19.5
048	098	27.6
048	099	34.2
048	100	22.0
048	101	21.5
048	102	22.5
048	103	22.6
048	104	27.9
048	105	6.1
048	106	6.4
048	107	33.0
048	108	1.6
048	109	2.0
048	110	9.2
048	111	46.8
049	049	18.3
049	050	20.2
049	051	34.6
049	052	26.4
049	053	17.8
049	054	5.6
049	055	10.0
049	056	24.5
049	057	45.4
049	058	15.6
049	059	17.2
049	060	10.6
049	061	102.8
049	062	37.3
049	063	29.2
049	064	18.3
049	065	25.6
049	066	16.6
049	067	12.3
049	068	17.3
049	069	21.1
049	070	7.6
049	071	2.4
049	072	15.3
049	073	13.7
049	074	7.5
049	075	5.5
049	076	12.3
049	077	12.5
049	078	6.7
049	079	16.2
049	080	4.0
049	081	3.9
049	082	2.3
049	083	4.3
049	084	14.7
049	085	14.9
049	086	10.2
049	087	9.5
049	088	10.0
049	089	3.2
049	090	.5
049	091	4.5
049	092	6.6
049	093	12.0
049	094	5.6
049	095	8.6
049	096	11.6
049	097	5.6
049	098	8.2
049	099	10.2
049	100	6.0
049	101	6.6
049	102	6.8
049	103	7.0
049	104	8.6
049	105	2.1
049	106	1.9
049	107	10.0
049	108	.6
049	109	.5
049	110	2.7
049	111	11.3
050	050	15.2
050	051	67.4
050	052	26.8
050	053	24.4
050	054	7.4
050	055	14.0
050	056	42.7
050	057	40.2
050	058	25.6
050	059	19.9
050	060	12.8
050	061	109.7
050	062	38.3
050	063	40.1
050	064	23.6
050	065	31.4
050	066	12.0
050	067	15.7
050	068	23.1
050	069	27.2
050	070	11.5
050	071	3.1
050	072	16.9
050	073	17.1
050	074	7.6
050	075	4.6
050	076	10.0
050	077	10.1
050	078	8.1
050	079	21.6
050	080	5.4
050	081	4.4
050	082	2.6
050	083	4.7
050	084	13.1
050	085	13.1
050	086	9.9
050	087	8.9
050	088	8.9
050	089	2.9
050	090	.4
050	091	4.1
050	092	9.4
050	093	15.1
050	094	10.2

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips
050	095	12.3
050	096	19.2
050	097	8.8
050	098	12.8
050	099	16.9
050	100	8.9
050	101	8.4
050	102	8.7
050	103	10.8
050	104	13.2
050	105	1.8
050	106	2.4
050	107	14.2
050	108	.9
050	109	.6
050	110	3.4
050	111	16.4
051	051	74.0
051	052	75.8
051	053	67.5
051	054	19.6
051	055	47.0
051	056	119.6
051	057	104.6
051	058	58.5
051	059	44.8
051	060	22.3
051	061	283.9
051	062	98.6
051	063	86.9
051	064	40.8
051	065	70.8
051	066	23.8
051	067	29.6
051	068	52.6
051	069	59.0
051	070	30.6
051	071	7.0
051	072	34.6
051	073	35.0
051	074	14.4
051	075	9.5
051	076	20.2
051	077	20.2
051	078	19.0
051	079	53.4
051	080	13.9
051	081	10.8
051	082	5.8
051	083	11.4
051	084	26.3
051	085	27.1
051	086	19.7
051	087	17.6
051	088	16.8
051	089	5.7
051	090	.9
051	091	7.3
051	092	24.5
051	093	40.0
051	094	31.3
051	095	40.1
051	096	71.4
051	097	23.3
051	098	34.0
051	099	45.6
051	100	24.6
051	101	21.5
051	102	26.4
051	103	29.4
051	104	36.7
051	105	4.9
051	106	5.3
051	107	32.9
051	108	1.5
051	109	1.5
051	110	8.7
051	111	41.0
052	052	28.2
052	053	70.1
052	054	19.1
052	055	36.6
052	056	86.4
052	057	75.0
052	058	33.0
052	059	20.4
052	060	11.0
052	061	202.7
052	062	54.3
052	063	64.6
052	064	29.5
052	065	35.1
052	066	14.0
052	067	18.7
052	068	32.6
052	069	34.4
052	070	22.7
052	071	4.8
052	072	26.3
052	073	26.0
052	074	11.1
052	075	6.3
052	076	15.4
052	077	15.8
052	078	15.1
052	079	43.5
052	080	11.3
052	081	8.8
052	082	4.5
052	083	9.2
052	084	21.7
052	085	22.3
052	086	13.6
052	087	13.4
052	088	13.0
052	089	3.7
052	090	.6
052	091	5.5
052	092	23.0
052	093	38.5
052	094	24.0
052	095	38.0
052	096	54.1
052	097	17.8
052	098	30.6
052	099	43.2
052	100	19.2
052	101	16.6
052	102	20.4
052	103	18.8
052	104	22.6
052	105	3.6
052	106	4.1
052	107	24.6
052	108	1.3
052	109	1.6
052	110	6.7
052	111	25.9
053	053	56.5
053	054	24.5
053	055	51.3
053	056	85.3
053	057	88.6
053	058	20.0
053	059	17.8
053	060	9.3
053	061	303.1
053	062	68.8
053	063	48.2
053	064	29.6
053	065	29.6
053	066	16.8
053	067	14.8
053	068	25.2
053	069	34.4
053	070	15.8
053	071	5.6
053	072	25.7
053	073	22.0
053	074	13.7
053	075	9.7
053	076	22.4
053	077	23.3
053	078	12.9
053	079	36.5
053	080	8.9
053	081	8.2
053	082	5.3
053	083	9.1
053	084	34.3
053	085	30.0
053	086	21.0
053	087	17.1
053	088	19.4
053	089	5.3
053	090	1.3
053	091	7.6
053	092	30.1
053	093	50.6
053	094	27.0
053	095	43.6
053	096	68.5
053	097	19.2
053	098	28.4
053	099	38.9
053	100	19.8
053	101	18.4
053	102	19.8
053	103	21.6
053	104	22.6
053	105	5.4
053	106	5.2
053	107	14.4
053	108	1.6
053	109	1.7
053	110	5.5
053	111	17.6
054	054	2.2
054	055	12.4
054	056	25.6
054	057	28.1
054	058	5.8
054	059	5.3
054	060	2.6
054	061	93.4
054	062	23.2
054	063	17.2
054	064	9.3
054	065	8.0
054	066	6.2
054	067	4.2
054	068	6.9
054	069	11.8
054	070	5.2
054	071	2.4
054	072	7.9
054	073	6.9
054	074	4.5
054	075	3.7
054	076	8.5
054	077	8.1
054	078	4.8
054	079	12.0
054	080	2.9
054	081	2.7
054	082	1.6
054	083	2.9
054	084	11.7
054	085	10.9
054	086	8.2
054	087	5.6
054	088	6.5
054	089	2.4
054	090	.4
054	091	3.2
054	092	12.8
054	093	35.0
054	094	10.8
054	095	19.7
054	096	21.8
054	097	6.8
054	098	15.2
054	099	12.2
054	100	6.2
054	101	6.7
054	102	9.8
054	103	6.4
054	104	5.8
054	105	2.4
054	106	1.8
054	107	4.6
054	108	.5
054	109	.6
054	110	1.4
054	111	5.0
055	055	23.8
055	056	59.3
055	057	61.4
055	058	16.6
055	059	11.9
055	060	7.5
055	061	278.6
055	062	58.7
055	063	41.6
055	064	24.8
055	065	23.3
055	066	13.8
055	067	11.7
055	068	19.9
055	069	29.1
055	070	14.8
055	071	4.0
055	072	15.8
055	073	13.0
055	074	7.9
055	075	5.9
055	076	13.4
055	077	13.7
055	078	8.5
055	079	22.5
055	080	5.0
055	081	5.1
055	082	2.8
055	083	5.7
055	084	19.8
055	085	19.0
055	086	12.6
055	087	9.8
055	088	10.8
055	089	3.9
055	090	.8
055	091	4.8
055	092	15.8
055	093	33.9
055	094	18.0
055	095	29.5
055	096	69.5
055	097	15.2
055	098	24.0
055	099	34.2
055	100	17.0
055	101	14.7
055	102	16.3
055	103	18.0
055	104	19.4
055	105	4.4
055	106	3.9
055	107	11.8
055	108	1.3
055	109	1.1
055	110	3.8
055	111	13.7
056	056	137.7
056	057	136.0
056	058	55.9
056	059	42.0
056	060	22.4
056	061	369.8
056	062	122.6
056	063	140.4
056	064	57.7
056	065	71.0
056	066	23.0
056	067	37.5
056	068	67.1
056	069	65.6
056	070	46.1
056	071	9.2
056	072	39.6
056	073	37.1
056	074	15.9
056	075	8.2
056	076	18.0
056	077	18.6
056	078	23.1
056	079	68.4
056	080	16.3
056	081	12.6
056	082	6.7
056	083	14.0
056	084	27.7
056	085	27.2
056	086	18.4
056	087	18.9
056	088	17.1
056	089	4.9
056	090	1.1
056	091	7.0
056	092	30.7
056	093	63.4
056	094	40.4
056	095	65.0
056	096	92.3
056	097	35.6
056	098	52.3
056	099	74.1
056	100	40.9
056	101	31.8
056	102	33.5
056	103	37.6
056	104	60.6
056	105	6.4
056	106	7.0
056	107	51.8
056	108	2.0
056	109	2.8
056	110	13.2
056	111	63.6
057	057	61.8
057	058	74.5
057	059	42.6
057	060	29.6
057	061	244.8
057	062	72.3
057	063	115.6
057	064	64.9
057	065	92.9
057	066	14.5
057	067	49.8
057	068	74.8
057	069	72.0
057	070	49.4
057	071	9.4
057	072	47.1
057	073	48.9
057	074	16.9
057	075	5.6
057	076	13.7
057	077	16.0
057	078	27.8
057	079	84.9
057	080	22.1
057	081	16.0
057	082	7.3
057	083	16.3
057	084	23.8
057	085	27.7
057	086	14.4
057	087	19.7
057	088	15.8
057	089	3.4
057	090	1.6
057	091	5.6
057	092	34.0
057	093	54.8
057	094	46.1
057	095	58.0
057	096	75.6
057	097	41.3
057	098	57.6
057	099	79.7
057	100	41.1
057	101	36.6
057	102	44.7
057	103	51.0
057	104	69.5
057	105	9.4
057	106	6.2
057	107	58.4
057	108	3.1
057	109	3.0
057	110	18.4
057	111	74.8
058	058	17.8
058	059	29.4
058	060	12.5
058	061	204.8
058	062	75.2
058	063	98.8
058	064	39.6
058	065	40.8
058	066	23.0
058	067	14.8
058	068	26.8
058	069	42.9
058	070	13.4
058	071	3.8
058	072	15.6
058	073	13.5
058	074	7.4
058	075	5.7
058	076	13.0
058	077	12.7
058	078	7.7
058	079	19.8
058	080	4.3
058	081	4.0
058	082	2.4
058	083	5.1
058	084	17.0
058	085	16.3
058	086	12.0
058	087	10.1
058	088	11.0
058	089	3.9
058	090	.4
058	091	4.9
058	092	9.2
058	093	14.5
058	094	10.7
058	095	15.0
058	096	21.3
058	097	9.0
058	098	13.8
058	099	17.6
058	100	14.5
058	101	10.4
058	102	11.2
058	103	11.9
058	104	16.0
058	105	3.2
058	106	3.1
058	107	15.1
058	108	.6
058	109	.9
058	110	3.9
058	111	14.3
059	059	8.6
059	060	10.8
059	061	148.8
059	062	53.2
059	063	52.9
059	064	29.6
059	065	34.4
059	066	16.0
059	067	15.8
059	068	22.9
059	069	31.5
059	070	11.2
059	071	3.0
059	072	13.2
059	073	12.4
059	074	6.4
059	075	4.8
059	076	9.9
059	077	9.9
059	078	6.0
059	079	15.5
059	080	4.0
059	081	3.4
059	082	2.2
059	083	3.4
059	084	11.9
059	085	12.3
059	086	8.3
059	087	8.0
059	088	8.4
059	089	2.1
059	090	.5
059	091	3.8
059	092	6.8
059	093	10.8
059	094	9.6
059	095	11.6
059	096	15.0
059	097	8.4
059	098	12.1
059	099	10.4
059	100	9.4
059	101	7.8
059	102	9.9
059	103	10.2
059	104	13.9
059	105	2.7
059	106	2.6
059	107	12.8
059	108	1.0
059	109	.4
059	110	3.2
059	111	15.1
060	060	7.0
060	061	82.0
060	062	30.1
060	063	24.5
060	064	14.9
060	065	21.2
060	066	14.7
060	067	9.3
060	068	13.9
060	069	17.0
060	070	5.6
060	071	2.0
060	072	8.7
060	073	8.0
060	074	4.7
060	075	3.1
060	076	7.8
060	077	7.4
060	078	3.8
060	079	9.3
060	080	2.5
060	081	2.4
060	082	1.3
060	083	2.4
060	084	8.7
060	085	8.6
060	086	6.2
060	087	5.8
060	088	5.9
060	089	2.0
060	090	.4
060	091	2.6
060	092	3.7
060	093	6.5
060	094	4.8
060	095	5.4
060	096	7.3
060	097	4.0
060	098	6.0
060	099	7.8
060	100	4.2
060	101	4.6
060	102	5.0
060	103	5.6
060	104	6.8
060	105	1.3
060	106	1.4
060	107	7.6
060	108	.3
060	109	.3
060	110	2.2
060	111	8.6
061	061	585.4
061	062	236.7
061	063	444.5
061	064	232.0
061	065	322.2
061	066	45.9
061	067	164.0
061	068	315.3
061	069	245.3
061	070	207.7
061	071	27.5
061	072	128.3
061	073	120.4
061	074	45.9
061	075	14.4
061	076	33.1
061	077	37.5
061	078	77.2
061	079	233.6
061	080	54.6
061	081	39.8
061	082	20.0
061	083	44.7
061	084	62.7
061	085	68.0
061	086	38.8
061	087	53.5
061	088	43.4
061	089	9.3
061	090	3.7
061	091	15.4
061	092	108.2
061	093	226.6
061	094	180.2
061	095	242.4
061	096	340.9

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips
061	097	160.9	063	102	35.2	065	111	34.4	068	080	5.2	070	099	19.8	073	082	30.0
061	098	239.3	063	103	42.1	066	066	7.2	068	081	5.1	070	100	15.4	073	083	53.7
061	099	359.6	063	104	58.2	066	067	31.4	068	082	3.2	070	101	13.3	073	084	291.3
061	100	205.3	063	105	6.4	066	068	45.8	068	083	6.0	070	102	14.8	073	085	269.9
061	101	136.5	063	106	7.0	066	069	26.5	068	084	22.2	070	103	21.8	073	086	138.6
061	102	147.0	063	107	42.0	066	070	16.0	068	085	20.9	070	104	23.0	073	087	239.0
061	103	174.2	063	108	2.2	066	071	3.0	068	086	17.1	070	105	4.3	073	088	178.7
061	104	215.5	063	109	3.1	066	072	18.4	068	087	14.2	070	106	6.5	073	089	66.8
061	105	21.8	063	110	13.5	066	073	18.2	068	088	15.4	070	107	39.8	073	090	5.7
061	106	20.0	063	111	48.8	066	074	5.7	068	089	5.6	070	108	.8	073	091	87.4
061	107	194.9	064	064	31.0	066	075	1.4	068	090	.6	070	109	1.8	073	092	10.2
061	108	8.8	064	065	62.2	066	076	2.7	068	091	7.2	070	110	9.1	073	093	14.7
061	109	11.9	064	066	23.4	066	077	3.4	068	092	10.3	070	111	30.0	073	094	10.9
061	110	60.9	064	067	29.6	066	078	7.7	068	093	15.0	071	071	1.8	073	095	13.3
061	111	244.1	064	068	58.8	066	079	22.8	068	094	13.0	071	072	4.5	073	096	14.7
062	062	31.4	064	069	61.9	066	080	6.4	068	095	14.8	071	073	4.2	073	097	8.4
062	063	152.9	064	070	31.0	066	081	5.0	068	096	19.9	071	074	2.0	073	098	12.2
062	064	60.2	064	071	5.0	066	082	2.0	068	097	12.6	071	075	1.5	073	099	13.8
062	065	91.6	064	072	19.0	066	083	4.6	068	098	20.0	071	076	2.8	073	100	7.3
062	066	12.0	064	073	19.7	066	084	5.2	068	099	25.0	071	077	2.4	073	101	9.0
062	067	48.0	064	074	7.9	066	085	7.5	068	100	20.7	071	078	3.5	073	102	9.3
062	068	91.2	064	075	5.0	066	086	3.6	068	101	17.4	071	079	9.0	073	103	3.5
062	069	66.0	064	076	10.3	066	087	6.8	068	102	19.8	071	080	1.8	073	104	9.7
062	070	59.4	064	077	10.5	066	088	5.0	068	103	21.4	071	081	1.8	073	105	2.9
062	071	9.2	064	078	10.6	066	089	.9	068	104	31.2	071	082	.9	073	106	2.7
062	072	40.7	064	079	30.0	066	090	.4	068	105	6.6	071	083	1.7	073	107	12.0
062	073	42.3	064	080	7.7	066	091	1.5	068	106	7.6	071	084	4.5	073	108	.6
062	074	15.5	064	081	6.2	066	092	8.3	068	107	35.4	071	085	4.3	073	109	.8
062	075	3.8	064	082	3.3	066	093	13.4	068	108	1.0	071	086	3.0	073	110	3.6
062	076	8.8	064	083	6.3	066	094	11.9	068	109	1.9	071	087	2.6	073	111	15.0
062	077	10.5	064	084	14.0	066	095	16.8	068	110	6.7	071	088	2.4	074	074	60.7
062	078	25.5	064	085	14.1	066	096	21.6	068	111	36.5	071	089	1.0	074	075	43.0
062	079	77.3	064	086	9.4	066	097	12.2	069	069	62.6	071	090	.2	074	076	70.6
062	080	19.5	064	087	9.4	066	098	16.7	069	070	45.2	071	091	1.4	074	077	62.4
062	081	14.0	064	088	8.8	066	099	22.8	069	071	8.9	071	092	4.8	074	078	77.6
062	082	6.9	064	089	3.0	066	100	13.4	069	072	27.7	071	093	5.6	074	079	176.9
062	083	14.4	064	090	.4	066	101	14.0	069	073	26.8	071	094	7.6	074	080	40.3
062	084	18.0	064	091	3.7	066	102	14.7	069	074	11.6	071	095	5.6	074	081	45.2
062	085	20.9	064	092	11.7	066	103	16.9	069	075	6.6	071	096	6.1	074	082	18.8
062	086	11.2	064	093	22.0	066	104	19.4	069	076	13.7	071	097	7.8	074	083	41.9
062	087	17.9	064	094	17.8	066	105	1.5	069	077	13.5	071	098	6.8	074	084	124.9
062	088	12.9	064	095	22.0	066	106	1.7	069	078	14.2	071	099	7.5	074	085	159.1
062	089	2.2	064	096	28.6	066	107	28.8	069	079	39.8	071	100	3.1	074	086	97.0
062	090	1.3	064	097	15.6	066	108	.8	069	080	10.3	071	101	10.6	074	087	145.2
062	091	4.0	064	098	27.4	066	109	1.0	069	081	8.3	071	102	7.6	074	088	108.2
062	092	32.0	064	099	38.4	066	110	7.2	069	082	4.2	071	103	5.4	074	089	21.8
062	093	52.2	064	100	30.3	066	111	35.0	069	083	8.5	071	104	4.8	074	090	4.2
062	094	44.6	064	101	19.6	067	067	17.1	069	084	17.7	071	105	1.5	074	091	34.8
062	095	69.2	064	102	21.4	067	068	49.6	069	085	18.9	071	106	1.1	074	092	6.1
062	096	93.2	064	103	24.6	067	069	43.8	069	086	14.0	071	107	5.8	074	093	8.8
062	097	40.2	064	104	31.8	067	070	16.2	069	087	13.8	071	108	.4	074	094	6.8
062	098	68.0	064	105	4.2	067	071	4.7	069	088	12.7	071	109	.3	074	095	8.4
062	099	98.5	064	106	5.0	067	072	14.6	069	089	4.4	071	110	2.7	074	096	9.5
062	100	51.6	064	107	34.0	067	073	13.9	069	090	.7	071	111	8.6	074	097	5.3
062	101	40.9	064	108	1.0	067	074	7.9	069	091	5.3	072	072	206.9	074	098	7.5
062	102	42.9	064	109	1.6	067	075	6.7	069	092	16.8	072	073	436.6	074	099	8.3
062	103	49.2	064	110	8.2	067	076	13.9	069	093	27.3	072	074	129.0	074	100	4.3
062	104	76.3	064	111	32.7	067	077	12.9	069	094	22.3	072	075	81.7	074	101	5.9
062	105	5.6	065	065	47.5	067	078	6.6	069	095	32.6	072	076	126.3	074	102	5.2
062	106	6.2	065	066	63.7	067	079	15.3	069	096	42.5	072	077	128.7	074	103	5.4
062	107	71.6	065	067	40.8	067	080	3.5	069	097	22.8	072	078	97.1	074	104	6.2
062	108	2.5	065	068	58.9	067	081	4.1	069	098	33.2	072	079	229.8	074	105	1.0
062	109	3.2	065	069	67.4	067	082	2.4	069	099	44.6	072	080	49.0	074	106	1.3
062	110	18.2	065	070	26.3	067	083	4.3	069	100	30.8	072	081	57.3	074	107	7.5
062	111	90.6	065	071	6.5	067	084	15.5	069	101	28.2	072	082	28.8	074	108	.3
063	063	138.2	065	072	23.6	067	085	16.2	069	102	30.9	072	083	60.0	074	109	.5
063	064	78.7	065	073	22.2	067	086	12.2	069	103	46.6	072	084	212.0	074	110	2.0
063	065	109.3	065	074	12.4	067	087	9.7	069	104	45.9	072	085	198.7	074	111	10.1
063	066	33.1	065	075	9.3	067	088	10.9	069	105	5.9	072	086	153.6	075	075	10.8
063	067	50.1	065	076	20.4	067	089	4.6	069	106	7.1	072	087	158.9	075	076	18.4
063	068	72.6	065	077	20.0	067	090	.8	069	107	49.6	072	088	156.1	075	077	16.6
063	069	80.2	065	078	11.4	067	091	5.4	069	108	1.9	072	089	43.1	075	078	64.5
063	070	39.1	065	079	27.4	067	092	6.0	069	109	2.1	072	090	7.6	075	079	154.3
063	071	8.0	065	080	6.7	067	093	10.7	069	110	12.3	072	091	61.5	075	080	37.4
063	072	28.3	065	081	6.3	067	094	8.0	069	111	58.4	072	092	11.2	075	081	36.4
063	073	28.1	065	082	3.6	067	095	10.7	070	070	14.6	072	093	17.3	075	082	10.6
063	074	12.2	065	083	7.3	067	096	11.8	070	071	5.6	072	094	11.7	075	083	31.6
063	075	7.1	065	084	25.7	067	097	7.9	070	072	11.4	072	095	13.8	075	084	36.6
063	076	15.8	065	085	24.6	067	098	11.8	070	073	11.7	072	096	15.7	075	085	62.8
063	077	16.1	065	086	19.2	067	099	14.6	070	074	6.1	072	097	9.2	075	086	34.7
063	078	15.8	065	087	15.2	067	100	10.8	070	075	5.3	072	098	13.9	075	087	55.8
063	079	45.5	065	088	16.9	067	101	10.5	070	076	11.3	072	099	14.9	075	088	32.3
063	080	10.9	065	089	6.2	067	102	13.6	070	077	10.7	072	100	8.0	075	089	8.4
063	081	8.7	065	090	.8	067	103	15.0	070	078	6.9	072	101	10.6	075	090	1.8
063	082	4.7	065	091	8.3	067	104	16.5	070	079	18.1	072	102	10.4	075	091	11.5
063	083	9.8	065	092	11.7	067	105	3.6	070	080	4.2	072	103	10.2	075	092	4.8
063	084	23.9	065	093	30.0	067	106	4.0	070	081	4.0	072	104	11.8	075	093	8.1
063	085	22.8	065	094	15.5	067	107	25.0	070	082	2.1	072	105	3.1	075	094	6.4
063	086	15.6	065	095	21.0	067	108	1.0	070	083	4.7	072	106	3.2	075	095	8.6
063	087	14.3	065	096	23.2	067	109	1.0	070	084	15.0	072	107	13.2	075	096	9.0
063	088	15.6	065	097	12.7	067	110	6.3	070	085	13.0	072	108	1.2	075	097	5.2
063	089	4.3	065	098	23.0	067	111	26.3	070	086	10.6	072	109	.8	075	098	7.0
063	090	.8	065	099	29.4	068	068	36.0	070	087	7.4	072	110	3.7	075	099	8.0
063	091	6.2	065	100	24.1	068	069	117.4	070	088	8.1	072	111	16.9	075	100	3.3
063	092	21.7	065	101	17.2	068	070	39.7	070	089	3.1	073	073	561.1	075	101	5.8
063	093	35.2	065	102	19.0	068	071	6.5	070	090	.4	073	074	169.8	075	102	4.8
063	094	33.4	065	103	20.0	068	072	20.6	070	091	3.9	073	075	113.7	075	103	4.8
063	095	43.2	065	104	27.3	068	073	18.1	070	092	7.5	073	076	162.0	075	104	5.2
063	096	61.6	065	105	6.1	068	074	11.1	070	093	11.1	073	077	159.9	075	105	.5
063	097	28.7	065	106	5.7	068	075	9.2	070	094	10.2	073	078	113.6	075	106	.5
063	098	44.3	065	107	31.0	068	076	18.5	070	095	12.0	073	079	240.7	075	107	7.2
063	099	64.6	065	108	1.6	068	077	17.7	070	096	15.5	073	080	55.1	075	108	.4
063	100	58.6	065	109	1.4	068	078	9.2	070	097	9.6	073	081	64.1	075	109	.3
063	101	30.9	065	110	6.8	068	079	23.6	070	098	15.6				075	110	1.8

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips	Low Zone	High Zone	Total Vehicle Trips
075	111	10.1	078	109	.4	082	086	27.7	085	105	2.6	089	110	1.0	095	096	60.3
076	076	17.5	078	110	2.0	082	087	22.9	085	106	1.9	089	111	6.1	095	097	21.5
076	077	50.5	078	111	8.0	082	088	21.7	085	107	14.7	090	090	.5	095	098	60.3
076	078	91.6	079	079	410.6	082	089	5.6	085	108	1.3	090	091	6.9	095	099	41.6
076	079	239.1	079	080	161.8	082	090	1.5	085	109	1.0	090	092	.8	095	100	15.0
076	080	59.7	079	081	173.1	082	091	8.4	085	110	4.9	090	093	.6	095	101	19.0
076	081	53.5	079	082	58.1	082	092	2.2	085	111	21.8	090	094	.5	095	102	23.4
076	082	21.4	079	083	163.3	082	093	3.6	086	086	39.4	090	095	.5	095	103	20.0
076	083	49.1	079	084	670.5	082	094	2.8	086	087	156.0	090	096	1.0	095	104	13.1
076	084	65.9	079	085	457.8	082	095	2.9	086	088	76.8	090	097	.4	095	105	5.5
076	085	96.5	079	086	331.6	082	096	3.5	086	089	16.9	090	098	.4	095	106	4.1
076	086	48.3	079	087	217.3	082	097	2.2	086	090	5.6	090	099	.6	095	107	10.2
076	087	81.1	079	088	201.0	082	098	3.0	086	091	28.4	090	100	.2	095	108	1.2
076	088	56.1	079	089	70.9	082	099	3.5	086	092	10.2	090	101	.6	095	109	1.0
076	089	9.0	079	090	9.8	082	100	1.5	086	093	15.6	090	102	.3	095	110	3.0
076	090	4.2	079	091	97.3	082	101	2.7	086	094	12.8	090	103	.4	095	111	11.4
076	091	16.2	079	092	18.0	082	102	2.0	086	095	16.9	090	104	.5	096	096	62.4
076	092	10.7	079	093	28.0	082	103	2.1	086	096	18.5	090	105	.1	096	097	17.9
076	093	16.4	079	094	18.8	082	104	2.2	086	097	10.5	090	106	.1	096	098	45.0
076	094	13.7	079	095	21.6	082	105	.4	086	098	14.2	090	107	.2	096	099	70.5
076	095	18.0	079	096	24.3	082	106	.5	086	099	16.3	090	108	.1	096	100	23.5
076	096	19.5	079	097	14.3	082	107	2.4	086	100	7.5	090	109	0	096	101	16.7
076	097	11.3	079	098	22.2	082	108	.1	086	101	10.7	090	110	.3	096	102	26.3
076	098	14.8	079	099	21.5	082	109	.2	086	102	9.8	090	111	.5	096	103	16.8
076	099	18.7	079	100	11.5	082	110	.8	086	103	9.9	091	091	36.6	096	104	18.6
076	100	8.4	079	101	17.1	082	111	2.8	086	104	10.5	091	092	4.0	096	105	5.8
076	101	10.4	079	102	17.0	083	083	27.0	086	105	1.2	091	093	5.9	096	106	5.5
076	102	10.1	079	103	13.2	083	084	144.7	086	106	1.4	091	094	4.9	096	107	13.4
076	103	10.7	079	104	15.8	083	085	102.4	086	107	12.6	091	095	5.9	096	108	1.0
076	104	10.9	079	105	5.1	083	086	70.1	086	108	.8	091	096	6.3	096	109	.9
076	105	1.1	079	106	4.6	083	087	64.1	086	109	.5	091	097	4.2	096	110	4.0
076	106	1.2	079	107	16.3	083	088	45.5	086	110	3.3	091	098	5.3	096	111	15.4
076	107	13.6	079	108	.8	083	089	14.8	086	111	17.4	091	099	6.3	097	097	36.7
076	108	.7	079	109	1.3	083	090	3.9	087	087	86.4	091	100	3.1	097	098	24.2
076	109	.6	079	110	4.8	083	091	25.3	087	088	128.4	091	101	4.1	097	099	18.8
076	110	4.2	079	111	18.5	083	092	4.6	087	089	31.2	091	102	4.0	097	100	9.6
076	111	20.5	080	080	39.7	083	093	7.1	087	090	5.9	091	103	3.5	097	101	46.4
077	077	30.2	080	081	28.0	083	094	4.9	087	091	52.8	091	104	3.9	097	102	20.2
077	078	93.7	080	082	12.3	083	095	6.0	087	092	7.3	091	105	.6	097	103	13.0
077	079	242.6	080	083	28.6	083	096	6.3	087	093	11.3	091	106	.6	097	104	11.4
077	080	58.6	080	084	116.2	083	097	3.8	087	094	9.0	091	107	5.2	097	105	7.1
077	081	53.2	080	085	88.3	083	098	5.6	087	095	11.1	091	108	.2	097	106	3.3
077	082	22.7	080	086	78.4	083	099	5.6	087	096	12.0	091	109	.4	097	107	8.7
077	083	50.5	080	087	50.4	083	100	2.7	087	097	7.1	091	110	1.5	097	108	1.2
077	084	79.0	080	088	50.4	083	101	4.7	087	098	9.4	091	111	6.8	097	109	.9
077	085	111.8	080	089	16.9	083	102	4.0	087	099	10.8	092	092	40.1	097	110	3.2
077	086	54.7	080	090	2.0	083	103	3.6	087	100	5.1	092	093	37.6	097	111	11.6
077	087	72.6	080	091	21.8	083	104	3.8	087	101	7.5	092	094	51.0	098	098	61.6
077	088	54.7	080	092	4.3	083	105	1.0	087	102	7.1	092	095	33.2	098	099	70.3
077	089	9.9	080	093	6.5	083	106	1.0	087	103	7.2	092	096	25.8	098	100	16.1
077	090	4.3	080	094	4.2	083	107	4.3	087	104	7.6	092	097	20.2	098	101	39.4
077	091	18.7	080	095	5.1	083	108	.4	087	105	1.7	092	098	19.2	098	102	54.4
077	092	10.4	080	096	5.4	083	109	.2	087	106	1.3	092	099	20.6	098	103	31.8
077	093	15.8	080	097	3.4	083	110	1.0	087	107	9.5	092	100	8.0	098	104	18.4
077	094	13.1	080	098	5.0	083	111	5.6	087	108	.5	092	101	17.2	098	105	6.4
077	095	16.9	080	099	4.9	084	084	283.1	087	109	.8	092	102	12.8	098	108	4.9
077	096	18.2	080	100	2.9	084	085	381.7	087	110	2.7	092	103	11.2	098	107	13.9
077	097	10.7	080	101	3.8	084	086	183.0	087	111	12.7	092	104	8.1	098	108	1.4
077	098	13.9	080	102	3.5	084	087	192.0	088	088	96.9	092	105	3.7	098	109	1.2
077	099	17.4	080	103	3.2	084	088	116.2	088	089	25.9	092	106	2.7	098	110	3.9
077	100	7.9	080	104	3.9	084	089	19.6	088	090	9.8	092	107	6.9	098	111	16.1
077	101	10.3	080	105	1.1	084	090	11.5	088	091	51.0	092	108	.8	099	099	68.3
077	102	9.9	080	106	1.4	084	091	40.6	088	092	8.7	092	109	.7	099	100	36.8
077	103	10.1	080	107	3.8	084	092	15.1	088	093	13.7	092	110	2.8	099	101	29.4
077	104	10.5	080	108	.4	084	093	24.6	088	094	10.0	092	111	9.9	099	102	38.8
077	105	1.6	080	109	.4	084	094	18.7	088	095	13.2	093	093	68.0	099	103	50.4
077	106	1.2	080	110	1.2	084	095	23.5	088	096	14.0	093	094	43.5	099	104	25.7
077	107	12.7	080	111	4.4	084	096	25.7	088	097	8.3	093	095	64.8	099	105	7.6
077	108	.8	081	081	68.7	084	097	15.2	088	098	10.7	093	096	47.7	099	106	7.0
077	109	1.0	081	082	28.6	084	098	21.5	088	099	12.4	093	097	19.8	099	107	16.9
077	110	4.0	081	083	62.1	084	099	22.6	088	100	6.1	093	098	33.0	099	108	1.8
077	111	19.3	081	084	179.8	084	100	10.6	088	101	9.3	093	099	35.4	099	109	1.4
078	078	62.3	081	085	119.5	084	101	17.1	088	102	8.0	093	100	13.1	099	110	4.8
078	079	242.8	081	086	84.8	084	102	15.6	088	103	7.9	093	101	17.6	099	111	16.0
078	080	50.6	081	087	55.2	084	103	13.3	088	104	8.8	093	102	20.6	100	100	16.9
078	081	49.8	081	088	50.1	084	104	15.7	088	105	1.3	093	103	18.0	100	101	11.3
078	082	20.5	081	089	14.9	084	105	2.3	088	106	1.7	093	104	15.2	100	102	13.6
078	083	47.9	081	090	2.7	084	106	2.3	088	107	11.1	093	105	4.7	100	103	16.6
078	084	163.3	081	091	23.6	084	107	17.3	088	108	.5	093	106	4.0	100	104	27.2
078	085	148.7	081	092	4.2	084	108	1.1	088	109	.7	093	107	10.6	100	105	3.6
078	086	140.9	081	093	5.6	084	109	1.3	088	110	3.2	093	108	1.2	100	106	4.0
078	087	93.9	081	094	4.4	084	110	5.3	088	111	14.9	093	109	1.2	100	107	14.4
078	088	77.0	081	095	5.2	084	111	23.6	089	089	4.2	093	110	3.6	100	108	.8
078	089	27.0	081	096	5.5	085	085	195.8	089	090	2.5	093	111	12.9	100	109	1.2
078	090	2.8	081	097	3.2	085	086	205.6	089	091	20.4	094	094	53.5	100	110	3.8
078	091	37.2	081	098	4.8	085	087	263.9	089	092	3.0	094	095	26.2	100	111	12.0
078	092	7.0	081	099	5.2	085	088	148.9	089	093	5.0	094	096	21.9	101	101	49.7
078	093	10.5	081	100	2.7	085	089	30.2	089	094	3.6	094	097	47.9	101	102	32.9
078	094	7.3	081	101	3.8	085	090	10.8	089	095	4.9	094	098	29.2	101	103	20.5
078	095	8.7	081	102	3.5	085	091	55.9	089	096	5.6	094	099	22.6	101	104	16.6
078	096	9.7	081	103	3.0	085	092	14.6	089	097	3.1	094	100	11.4	101	105	10.8
078	097	5.6	081	104	3.9	085	093	21.9	089	098	4.8	094	101	26.3	101	106	5.5
078	098	8.9	081	105	1.2	085	094	17.8	089	099	5.2	094	102	18.2	101	107	11.8
078	099	8.6	081	106	.8	085	095	20.5	089	100	2.4	094	103	12.4	101	108	1.7
078	100	4.2	081	107	3.4	085	096	22.7	089	101	3.2	094	104	11.2	101	109	1.3
078	101	6.7	081	108	.2	085	097	14.4	089	102	3.2	094	105	6.5	101	110	6.2
078	102	6.6	081	109	.5	085	098	18.8	089	103	3.0	094	106	3.1	101	111	16.2
078	103	5.0	081	110	1.0	085	099	22.1	089	104	3.0	094	107	9.0	102	102	41.7
078	104	6.3	081	111	4.7	085	100	10.6	089	105	.2	094	108	1.1	102	103	40.0
078	105	1.6	082	082	8.5	085	101	14.8	089	106	.2	094	109	1.0	102	104	20.1
078	106	1.6	082	083	25.4	085	102	13.7	089	107	4.5	094	110	3.5	102	105	14.3
078	107	6.9	082	084	55.6	085	103	13.2	089	108	.3	094	111	12.0	102	106	6.4
078	108	.2	082	085	43.8	085	104	13.6	089	109	.1	095	095	50.0	102	107	13.7

TRIPS BETWEEN INTERNAL ZONES - 1990
(continued)

24-Hour Period

Low Zone	High Zone	Total Vehicle Trips
102	108	1.5
102	109	1.6
102	110	4.8
102	111	15.4
103	103	31.9
103	104	37.6
103	105	9.0
103	106	8.3
103	107	14.7
103	108	1.4
103	109	1.2
103	110	5.1
103	111	15.8
104	104	37.0
104	105	6.3
104	106	6.1
104	107	21.6
104	108	1.4
104	109	1.6
104	110	5.4
104	111	22.6
105	105	3.2
105	106	1.7
105	107	4.8
105	108	.8
105	109	.8
105	110	2.0
105	111	7.2
106	106	2.7
106	107	5.6
106	108	.5
106	109	.9
106	110	2.5
106	111	8.4
107	107	47.4
107	108	1.0
107	109	1.0
107	110	7.7
107	111	46.8
108	108	.9
108	109	.3
108	110	.4
108	111	1.4
109	109	.7
109	110	.8
109	111	2.0
110	110	5.0
110	111	22.2
111	111	86.8
Total		197,050.1

TRIPS BETWEEN EXTERNAL STATIONS AND INTERNAL ZONES - 1990

24-Hour Period

External Station	Internal Zone	Total Vehicle Trips
112	001	.9
112	002	.4
112	003	.4
112	004	10.6
112	005	5.1
112	006	.6
112	007	1.8
112	008	4.2
112	009	1.2
112	010	2.2
112	011	1.8
112	012	1.2
112	013	1.4
112	014	11.2
112	015	2.5
112	016	2.3
112	017	2.2
112	018	4.4
112	019	2.2
112	020	1.6
112	021	2.4
112	022	2.8
112	023	2.0
112	024	1.8
112	025	2.4
112	026	.5
112	027	1.1
112	028	1.9
112	029	1.4
112	030	1.0
112	031	3.0
112	032	1.2
112	033	1.6
112	034	3.8
112	035	3.3
112	036	1.6
112	037	2.6
112	038	1.4
112	039	2.6
112	040	.4
112	041	1.4
112	042	1.2
112	043	.9
112	044	1.5
112	045	1.0
112	046	.6
112	047	.4
112	048	1.9
112	049	.4
112	050	.4
112	051	1.3
112	052	1.2
112	053	1.2
112	054	.6
112	055	.8
112	056	1.4
112	057	1.6
112	058	.6
112	059	.4
112	060	.4
112	061	4.6
112	062	1.3
112	063	1.0
112	064	.8
112	065	.8
112	066	.4
112	067	.4
112	068	1.0
112	069	.7
112	070	.4
112	071	.2
112	072	1.5
112	073	1.4
112	074	.5
112	075	.1
112	076	1.1
112	077	.8
112	078	1.0
112	079	3.0
112	080	.7
112	081	.5
112	082	.4
112	083	.4
112	084	1.8
112	085	1.4
112	086	.9
112	087	.9
112	088	.9
112	089	.3
112	090	0
112	091	.4
112	092	1.0
112	093	.8
112	094	.8
112	095	1.0
112	096	.6
112	097	.6
112	098	.9
112	099	.6
112	100	.6
112	101	.8
112	102	.7
112	103	.4
112	104	.5
112	105	.1
112	106	.1
112	107	.6
112	108	.1
112	109	.1
112	110	.2
112	111	.5
113	001	68.4
113	002	26.1
113	003	18.5
113	004	217.6
113	005	280.7
113	006	27.9
113	007	118.5
113	008	166.1
113	009	49.9
113	010	86.1
113	011	63.7
113	012	36.7
113	013	43.9
113	014	210.6
113	015	40.1
113	016	41.6
113	017	56.6
113	018	106.4
113	019	53.6
113	020	38.7
113	021	55.3
113	022	65.5
113	023	46.3
113	024	49.9
113	025	63.4
113	026	22.1
113	027	33.5
113	028	47.5
113	029	30.1
113	030	30.3
113	031	63.2
113	032	37.3
113	033	48.7
113	034	110.2
113	035	86.1
113	036	50.3
113	037	77.8
113	038	28.2
113	039	70.2
113	040	16.1
113	041	39.5
113	042	27.8
113	043	27.1
113	044	50.5
113	045	24.2
113	046	18.1
113	047	17.3
113	048	49.9
113	049	16.3
113	050	18.3
113	051	45.0
113	052	37.5
113	053	51.7
113	054	22.6
113	055	31.0
113	056	52.7
113	057	54.1
113	058	20.7
113	059	15.5
113	060	9.5
113	061	170.7
113	062	53.1
113	063	40.0
113	064	28.0
113	065	33.5
113	066	13.5
113	067	21.2
113	068	34.0
113	069	39.0
113	070	24.1
113	071	14.5
113	072	42.2
113	073	38.4
113	074	20.0
113	075	12.2
113	076	23.9
113	077	25.4
113	078	28.1
113	079	80.5
113	080	19.5
113	081	15.7
113	082	8.6
113	083	17.1
113	084	42.5
113	085	39.6
113	086	24.9
113	087	23.9
113	088	22.2
113	089	5.9
113	090	1.8
113	091	9.4
113	092	45.1
113	093	53.9
113	094	47.9
113	095	42.4
113	096	41.6
113	097	35.5
113	098	34.4
113	099	38.6
113	100	15.3
113	101	44.9
113	102	36.3
113	103	28.5
113	104	25.6
113	105	8.3
113	106	5.5
113	107	25.3
113	108	2.2
113	109	2.2
113	110	9.9
113	111	40.8
114	001	429.4
114	002	97.8
114	003	33.2
114	004	205.5
114	005	448.6
114	006	40.1
114	007	228.6
114	008	326.1
114	009	91.6
114	010	169.6
114	011	137.4
114	012	79.3
114	013	69.2
114	014	260.8
114	015	56.3
114	016	73.7
114	017	97.6
114	018	200.1
114	019	120.3
114	020	68.0
114	021	104.7
114	022	134.6
114	023	90.7
114	024	102.4
114	025	144.7
114	026	57.5
114	027	67.8
114	028	99.3
114	029	60.1
114	030	56.0
114	031	122.0
114	032	67.0
114	033	90.8
114	034	206.2
114	035	175.8
114	036	95.0
114	037	146.9
114	038	55.0
114	039	139.5
114	040	34.2
114	041	71.6
114	042	59.9
114	043	45.0
114	044	103.6
114	045	56.9
114	046	40.4
114	047	41.4
114	048	122.9
114	049	40.0
114	050	43.6
114	051	101.4
114	052	77.3
114	053	114.2
114	054	55.2
114	055	75.4
114	056	111.1
114	057	104.6
114	058	57.4
114	059	38.2
114	060	24.8
114	061	323.4
114	062	101.5
114	063	83.9
114	064	63.9
114	065	85.8
114	066	23.9
114	067	65.2
114	068	97.1
114	069	95.9
114	070	67.7
114	071	34.3
114	072	112.6
114	073	123.7
114	074	47.4
114	075	24.5
114	076	48.9
114	077	53.5
114	078	74.8
114	079	224.8
114	080	58.9
114	081	44.6
114	082	20.6
114	083	45.7
114	084	85.4
114	085	79.8
114	086	49.0
114	087	53.5
114	088	44.3
114	089	11.5
114	090	3.1
114	091	18.3
114	092	89.9
114	093	122.7
114	094	108.9
114	095	107.2
114	096	118.6
114	097	86.0
114	098	99.0
114	099	111.2
114	100	43.8
114	101	99.2
114	102	81.7
114	103	77.3
114	104	63.5
114	105	13.3
114	106	9.8
114	107	77.8
114	108	4.0
114	109	4.9
114	110	28.1
114	111	114.8
115	001	1.0
115	002	1.1
115	003	.5
115	004	1.6
115	005	3.1
115	006	.4
115	007	1.8
115	008	3.3
115	009	1.0
115	010	1.4
115	011	1.2
115	012	.8
115	013	.4
115	014	2.6
115	015	.6
115	016	.6
115	017	1.0
115	018	1.8
115	019	.8
115	020	.7
115	021	1.0
115	022	1.0
115	023	.8
115	024	1.0
115	025	1.4
115	026	.4
115	027	.8
115	028	1.1
115	029	.7
115	030	.5
115	031	1.4
115	032	.7
115	033	.8
115	034	2.4
115	035	2.0
115	036	.9
115	037	1.8
115	038	.6
115	039	1.6
115	040	.4
115	041	1.0
115	042	.8
115	043	.8
115	044	1.1
115	045	.8
115	046	.4
115	047	.4
115	048	1.2
115	049	.6
115	050	.3
115	051	1.2
115	052	.8
115	053	1.4
115	054	.8
115	055	.7
115	056	1.6
115	057	1.5
115	058	.7
115	059	.4
115	060	.3
115	061	4.1
115	062	1.4
115	063	1.0
115	064	.6
115	065	.8
115	066	.4
115	067	.3
115	068	.8
115	069	.8
115	070	.8
115	071	0
115	072	1.0
115	073	.9
115	074	.2
115	075	.3

TRIPS BETWEEN EXTERNAL STATIONS AND INTERNAL ZONES - 1990
(continued)

24-Hour Period

External Station	Internal Zone	Total Vehicle Trips	External Station	Internal Zone	Total Vehicle Trips	External Station	Internal Zone	Total Vehicle Trips	External Station	Internal Zone	Total Vehicle Trips	External Station	Internal Zone	Total Vehicle Trips
115	076	.5	116	069	88.6	117	062	11.6	118	055	4.5	119	048	30.2
115	077	.5	116	070	71.7	117	063	18.6	118	056	9.3	119	049	8.9
115	078	.5	116	071	20.7	117	064	12.0	118	057	11.6	119	050	9.4
115	079	1.8	116	072	29.8	117	065	20.6	118	058	4.3	119	051	18.6
115	080	.4	116	073	25.1	117	066	4.8	118	059	3.7	119	052	14.3
115	081	.1	116	074	13.2	117	067	16.9	118	060	2.6	119	053	15.7
115	082	.2	116	075	7.6	117	068	25.4	118	061	28.4	119	054	5.3
115	083	0	116	076	18.4	117	069	17.6	118	062	10.0	119	055	9.4
115	084	.8	116	077	19.8	117	070	21.6	118	063	7.5	119	056	18.6
115	085	1.0	116	078	16.6	117	071	3.6	118	064	5.1	119	057	22.3
115	086	.4	116	079	47.5	117	072	10.2	118	065	7.0	119	058	8.9
115	087	.4	116	080	11.9	117	073	11.5	118	066	3.9	119	059	7.3
115	088	.6	116	081	9.8	117	074	3.6	118	067	4.1	119	060	5.2
115	089	.1	116	082	5.4	117	075	1.5	118	068	5.7	119	061	60.5
115	090	0	116	083	10.6	117	076	2.5	118	069	6.9	119	062	19.3
115	091	.1	116	084	28.5	117	077	2.8	118	070	3.4	119	063	14.8
115	092	1.2	116	085	26.3	117	078	5.8	118	071	1.2	119	064	10.1
115	093	1.4	116	086	17.0	117	079	16.7	118	072	262.7	119	065	14.5
115	094	1.1	116	087	15.9	117	080	4.1	118	073	122.0	119	066	7.1
115	095	110	116	088	15.7	117	081	3.0	118	074	32.1	119	067	8.3
115	096	1.2	116	089	4.2	117	082	1.6	118	075	17.9	119	068	12.3
115	097	1.0	116	090	1.3	117	083	3.1	118	076	31.1	119	069	13.2
115	098	1.0	116	091	6.7	117	084	3.4	118	077	32.3	119	070	7.0
115	099	1.1	116	092	32.9	117	085	4.5	118	078	27.0	119	071	2.5
115	100	.6	116	093	40.3	117	086	3.0	118	079	65.4	119	072	123.4
115	101	.8	116	094	45.3	117	087	3.9	118	080	15.6	119	073	154.1
115	102	.8	116	095	37.7	117	088	2.9	118	081	15.2	119	074	80.4
115	103	.6	116	096	41.2	117	089	.8	118	082	8.4	119	075	38.7
115	104	.6	116	097	49.3	117	090	.2	118	083	18.6	119	076	67.4
115	105	.1	116	098	47.2	117	091	.8	118	084	55.4	119	077	71.9
115	106	.2	116	099	52.7	117	092	8.5	118	085	53.2	119	078	66.1
115	107	.6	116	100	40.7	117	093	9.3	118	086	40.3	119	079	187.9
115	108	0	116	101	81.9	117	094	9.4	118	087	39.6	119	080	37.6
115	109	.2	116	102	64.5	117	095	11.7	118	088	42.6	119	081	44.2
115	110	.5	116	103	44.5	117	096	12.6	118	089	10.7	119	082	21.6
115	111	.8	116	104	59.9	117	097	9.5	118	090	1.8	119	083	64.1
116	001	41.4	116	105	15.8	117	098	11.7	118	091	16.3	119	084	154.9
116	002	16.7	116	106	14.2	117	099	15.1	118	092	3.2	119	085	149.3
116	003	9.6	116	107	73.8	117	100	8.4	118	093	5.2	119	086	91.9
116	004	77.5	116	108	5.1	117	101	13.6	118	094	3.7	119	087	121.6
116	005	130.3	116	109	12.2	117	102	11.8	118	095	4.2	119	088	126.5
116	006	16.0	116	110	51.0	117	103	13.5	118	096	4.5	119	089	42.6
116	007	61.4	116	111	106.5	117	104	13.4	118	097	2.8	119	090	16.7
116	008	107.6	117	001	4.2	117	105	1.4	118	098	3.8	119	091	147.6
116	009	38.3	117	002	2.5	117	106	2.2	118	099	4.3	119	092	7.4
116	010	54.3	117	003	.8	117	107	34.3	118	100	2.4	119	093	10.5
116	011	36.0	117	004	10.1	117	108	.6	118	101	3.0	119	094	8.4
116	012	19.9	117	005	18.2	117	109	1.0	118	102	2.9	119	095	8.9
116	013	24.8	117	006	1.7	117	110	21.8	118	103	2.6	119	096	10.1
116	014	105.1	117	007	13.3	117	111	111.5	118	104	3.1	119	097	6.5
116	015	23.4	117	008	18.9	118	001	6.3	118	105	.8	119	098	8.7
116	016	24.9	117	009	4.9	118	002	2.0	118	106	.6	119	099	9.6
116	017	33.9	117	010	12.3	118	003	1.4	118	107	4.0	119	100	4.9
116	018	64.1	117	011	10.8	118	004	24.9	118	108	.2	119	101	7.1
116	019	31.2	117	012	5.3	118	005	19.5	118	109	.2	119	102	6.5
116	020	23.5	117	013	2.3	118	006	2.4	118	110	1.1	119	103	6.1
116	021	35.8	117	014	12.8	118	007	9.0	118	111	5.2	119	104	6.9
116	022	37.6	117	015	2.7	118	008	21.2	119	001	14.1	119	105	1.5
116	023	31.8	117	016	3.3	118	009	8.0	119	002	5.3	119	106	1.6
116	024	38.6	117	017	3.8	118	010	11.1	119	003	2.5	119	107	8.1
116	025	45.6	117	018	7.9	118	011	7.4	119	004	51.8	119	108	.6
116	026	16.5	117	019	7.4	118	012	4.1	119	005	45.8	119	109	.8
116	027	29.5	117	020	3.5	118	013	6.0	119	006	5.5	119	110	2.3
116	028	42.3	117	021	6.4	118	014	31.1	119	007	20.0	119	111	11.0
116	029	26.3	117	022	8.4	118	015	7.9	119	008	43.8	120	001	1.2
116	030	26.6	117	023	6.4	118	016	7.8	119	009	15.5	120	002	.5
116	031	50.9	117	024	7.4	118	017	9.8	119	010	23.5	120	003	.2
116	032	30.1	117	025	12.4	118	018	17.3	119	011	16.6	120	004	4.4
116	033	37.8	117	026	4.5	118	019	7.9	119	012	9.7	120	005	4.1
116	034	93.5	117	027	6.4	118	020	6.7	119	013	11.9	120	006	.7
116	035	79.3	117	028	9.3	118	021	11.2	119	014	61.4	120	007	2.1
116	036	43.3	117	029	4.2	118	022	11.8	119	015	15.5	120	008	4.6
116	037	60.7	117	030	4.2	118	023	9.4	119	016	16.2	120	009	1.4
116	038	28.1	117	031	6.8	118	024	10.5	119	017	20.5	120	010	2.4
116	039	71.1	117	032	4.4	118	025	10.2	119	018	39.4	120	011	1.6
116	040	17.8	117	033	5.4	118	026	3.1	119	019	18.7	120	012	1.0
116	041	39.6	117	034	11.9	118	027	5.3	119	020	14.0	120	013	1.1
116	042	32.0	117	035	11.2	118	028	8.6	119	021	26.3	120	014	6.0
116	043	30.3	117	036	6.6	118	029	6.9	119	022	26.9	120	015	1.4
116	044	57.7	117	037	9.5	118	030	7.9	119	023	21.4	120	016	1.6
116	045	26.0	117	038	4.4	118	031	17.7	119	024	21.2	120	017	2.2
116	046	19.5	117	039	13.1	118	032	11.4	119	025	23.1	120	018	3.8
116	047	19.0	117	040	4.0	118	033	13.4	119	026	7.6	120	019	1.8
116	048	68.4	117	041	5.5	118	034	28.7	119	027	12.3	120	020	1.5
116	049	20.3	117	042	6.8	118	035	24.9	119	028	21.3	120	021	2.6
116	050	24.6	117	043	3.9	118	036	16.4	119	029	14.3	120	022	2.6
116	051	64.1	117	044	11.0	118	037	25.4	119	030	16.1	120	023	2.0
116	052	48.5	117	045	6.2	118	038	13.1	119	031	36.2	120	024	2.1
116	053	42.4	117	046	5.9	118	039	25.5	119	032	21.9	120	025	2.2
116	054	16.7	117	047	6.2	118	040	5.8	119	033	27.4	120	026	.6
116	055	33.0	117	048	25.0	118	041	13.2	119	034	64.2	120	027	1.2
116	056	92.4	117	049	8.3	118	042	7.4	119	035	50.8	120	028	1.9
116	057	92.2	117	050	6.6	118	043	6.3	119	036	30.7	120	029	1.5
116	058	33.5	117	051	16.4	118	044	11.2	119	037	47.4	120	030	1.4
116	059	27.2	117	052	9.5	118	045	6.1	119	038	20.7	120	031	3.3
116	060	15.1	117	053	11.0	118	046	5.5	119	039	49.5	120	032	2.0
116	061	307.8	117	054	4.1	118	047	5.1	119	040	9.9	120	033	2.5
116	062	107.9	117	055	9.4	118	048	14.5	119	041	25.9	120	034	6.7
116	063	83.5	117	056	16.0	118	049	4.5	119	042	14.0	120	035	5.5
116	064	64.9	117	057	14.1	118	050	4.7	119	043	11.5	120	036	2.9
116	065	67.6	117	058	11.6	118	051	9.1	119	044	19.5	120	037	4.7
116	066	25.5	117	059	8.1	118	052	7.0	119	045	11.3	120	038	1.9
116	067	40.9	117	060	6.7	118	053	7.4	119	046	10.5	120	039	5.3
116	068	77.2	117	061	43.5	118	054	2.5	119	047	10.4	120	040	.8

TRIPS BETWEEN EXTERNAL STATIONS AND INTERNAL ZONES - 1990
(continued)

24-Hour Period

External Station	Internal Zone	Total Vehicle Trips
120	041	2.3
120	042	1.6
120	043	1.0
120	044	1.8
120	045	1.2
120	046	1.0
120	047	.8
120	048	2.8
120	049	1.0
120	050	1.0
120	051	1.8
120	052	1.3
120	053	1.5
120	054	.4
120	055	.7
120	056	2.1
120	057	2.2
120	058	.8
120	059	.6
120	060	.6
120	061	6.4
120	062	1.9
120	063	1.5
120	064	1.0
120	065	1.4
120	066	.7
120	067	.8
120	068	1.1
120	069	1.0
120	070	.7
120	071	.6
120	072	11.4
120	073	14.0
120	074	7.7
120	075	4.8
120	076	6.8
120	077	7.6
120	078	7.2
120	079	20.4
120	080	3.8
120	081	5.0
120	082	2.0
120	083	5.9
120	084	15.8
120	085	14.5
120	086	8.9
120	087	11.7
120	088	12.1
120	089	5.3
120	090	1.4
120	091	14.9
120	092	.7
120	093	.8
120	094	.7
120	095	1.0
120	096	.8
120	097	.6
120	098	.7
120	099	1.1
120	100	.2
120	101	.8
120	102	.8
120	103	.3
120	104	.6
120	105	.1
120	106	0
120	107	.8
120	108	0
120	109	0
120	110	.3
120	111	.9
121	001	3.0
121	002	1.0
121	003	.8
121	004	9.6
121	005	8.8
121	006	1.3
121	007	3.9
121	008	9.0
121	009	3.2
121	010	4.7
121	011	2.9
121	012	1.9
121	013	2.7
121	014	12.9
121	015	3.4
121	016	3.8
121	017	4.6
121	018	8.6
121	019	3.5
121	020	3.2
121	021	5.8
121	022	5.5
121	023	4.5
121	024	4.4
121	025	4.5
121	026	1.3
121	027	2.8
121	028	4.1
121	029	3.0
121	030	2.9
121	031	7.4
121	032	4.2
121	033	5.5
121	034	11.8
121	035	10.2
121	036	6.3
121	037	9.4
121	038	3.5
121	039	8.6
121	040	1.6
121	041	4.5
121	042	2.4
121	043	2.5
121	044	4.2
121	045	1.9
121	046	1.8
121	047	1.5
121	048	4.4
121	049	1.3
121	050	1.4
121	051	3.3
121	052	2.6
121	053	3.3
121	054	1.0
121	055	1.9
121	056	3.7
121	057	4.4
121	058	1.4
121	059	1.1
121	060	1.0
121	061	12.3
121	062	4.1
121	063	2.7
121	064	1.6
121	065	2.4
121	066	1.3
121	067	1.5
121	068	1.7
121	069	2.4
121	070	1.2
121	071	.5
121	072	17.5
121	073	18.2
121	074	12.5
121	075	6.4
121	076	13.6
121	077	13.3
121	078	13.0
121	079	17.2
121	080	7.2
121	081	21.8
121	082	9.6
121	083	18.9
121	084	40.3
121	085	30.0
121	086	18.1
121	087	15.1
121	088	14.5
121	089	3.1
121	090	1.0
121	091	5.2
121	092	1.6
121	093	2.2
121	094	1.5
121	095	1.9
121	096	2.0
121	097	1.3
121	098	1.5
121	099	1.8
121	100	.8
121	101	1.5
121	102	1.1
121	103	1.2
121	104	1.1
121	105	.5
121	106	.4
121	107	1.3
121	108	.2
121	109	.1
121	110	.4
121	111	1.4
122	001	16.0
122	002	5.0
122	003	3.0
122	004	49.7
122	005	45.9
122	006	5.6
122	007	21.9
122	008	45.5
122	009	15.4
122	010	23.3
122	011	16.2
122	012	9.3
122	013	13.0
122	014	61.9
122	015	15.4
122	016	17.1
122	017	23.4
122	018	41.0
122	019	18.9
122	020	14.6
122	021	27.0
122	022	27.4
122	023	22.7
122	024	21.9
122	025	25.1
122	026	7.7
122	027	12.8
122	028	21.2
122	029	15.0
122	030	17.1
122	031	33.8
122	032	21.2
122	033	27.3
122	034	62.7
122	035	53.4
122	036	31.6
122	037	48.8
122	038	17.6
122	039	41.5
122	040	9.3
122	041	22.3
122	042	11.6
122	043	10.6
122	044	19.5
122	045	10.3
122	046	8.8
122	047	8.1
122	048	21.9
122	049	7.1
122	050	7.2
122	051	17.8
122	052	13.2
122	053	14.9
122	054	5.3
122	055	8.2
122	056	19.9
122	057	22.9
122	058	7.2
122	059	6.0
122	060	4.2
122	061	63.4
122	062	23.1
122	063	13.4
122	064	10.1
122	065	10.8
122	066	6.1
122	067	6.6
122	068	8.9
122	069	12.3
122	070	6.2
122	071	3.0
122	072	83.7
122	073	90.9
122	074	60.2
122	075	40.3
122	076	69.2
122	077	75.3
122	078	68.3
122	079	187.6
122	080	36.4
122	081	108.9
122	082	60.1
122	083	70.9
122	084	191.6
122	085	137.9
122	086	88.0
122	087	72.4
122	088	64.0
122	089	14.6
122	090	4.2
122	091	24.1
122	092	7.2
122	093	10.1
122	094	8.1
122	095	8.4
122	096	9.7
122	097	6.1
122	098	8.2
122	099	9.3
122	100	4.5
122	101	6.8
122	102	6.4
122	103	5.9
122	104	6.5
122	105	1.7
122	106	1.6
122	107	6.3
122	108	.6
122	109	.5
122	110	2.2
122	111	8.0
Total		30,592.8

TRIPS BETWEEN EXTERNAL STATIONS - 199

24-Hour Period

Low Station	High Station	Total Vehicle Trips
112	116	2.0
112	122	6.5
113	114	270.2
113	115	8.0
113	116	1,835.2
113	117	9.1
113	118	84.0
113	119	482.0
113	120	4.0
113	121	6.0
113	122	27.2
114	116	773.2
114	117	2.1
114	118	116.0
114	119	1,659.0
114	120	6.0
114	121	18.0
114	122	114.2
115	116	6.0
115	117	.1
115	120	.1
115	122	.1
116	117	1.2
116	118	18.0
116	119	102.0
116	120	4.0
116	121	9.0
116	122	121.2
117	118	2.0
117	119	2.0
117	122	6.2
118	119	12.0
118	120	4.0
118	121	6.0
118	122	48.3
119	120	4.0
119	121	6.0
119	122	94.3
120	122	6.3
121	122	15.6
Total		5,861.1