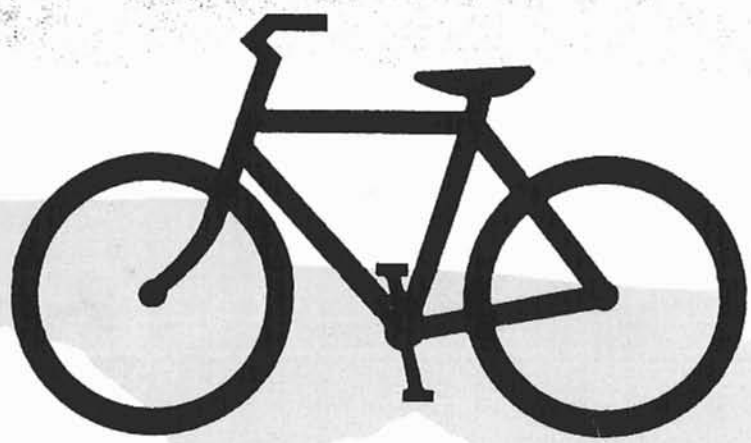

AREA AND CORRIDOR ANALYSIS TECHNIQUE

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

STATE OF FLORIDA BICYCLE PLAN AND PROGRAM

Kimley-Horn

AREA AND CORRIDOR ANALYSIS

TECHNIQUE MANUAL

ERRATA SHEET

P.5 - 2nd paragraph should read: "The remainder of this manual deals with detailed task descriptions in applying the ACAT for the stated purpose of identifying potential bicycle needs. However, no plan should be implemented....."

P.8 - Step 1a) should read: "Total the employment for all those zones having 10 or more employees."

P.9 - Step 5 should read: "All major employers and employment areas should now have been shaded red....."

P.13 - Step 14.c) Amplification:

Both of the listed techniques will actually apply in many areas. Use the first technique for centroids within 1/4 mile of one or more other centroids. Use the second technique for centroids spaced between 1/4 mile and 1 mile.

P.15 - Step 19) Amplification:

Skip to Step 21 only if the second technique in Step 14.c) was not used. If the second technique was used, consider only those centroids which have not been used and which are more than 1/4 mile from other centroids.

P.18 - Step 2 Correction: The diagonals of the template should be 4 miles; not 4 1/4 miles.

P.19 - Step 3.b) Correction: Contributory area is approximately 8 square miles; not 9 square miles.

P.19 - Step 5 should read: "Identify the contributory area for each selected school on mapping at a scale of about 1" = 300'. All work outlined in the following steps except Step 14 pertain to the 1" = 1/2 mile mapping. Step 14 uses the 1" = 300' mapping.

P.22 - Step 14 Amplification: Identify on 1" = 300' maps specific barriers or adverse conditions affecting streets within the identified corridors based on field investigation. Note the existence of traffic signals, stop signs, grade changes, rough or uneven pavement and any other barriers or street conditions which may inhibit bicycle use.

Kimley-Horn

P.22 - Step 15 Amplification: Based upon corridor classifications identified in Step 13 and on the inventory of street conditions and conflict points from Step 14, select approximate bicycle routes within each corridor segment. Also, identify possible conflict solutions. Use the criteria specified in the manual.

P.23 - Step 16 Add: "Type 5 - Improvements will vary depending on conditions in corridor. In many cases, bicycles may be permitted on the sidewalk due to the absence of suitable alternatives.

STATE OF FLORIDA

BICYCLE PLAN AND PROGRAM

AREA AND CORRIDOR ANALYSIS TECHNIQUE

A.C.A.T. MANUAL

PREPARED FOR:

THE FLORIDA DEPARTMENT OF TRANSPORTATION

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AUGUST, 1980

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INTRODUCTION

The Florida Department of Transportation has recently made a major commitment to bicycling in the State by beginning to develop a Statewide Plan and Program and by hiring a Statewide Bicycle Coordinator. These actions have been prompted by some rather striking developments:

- The use of the bicycle has grown so greatly in the past decade that the U.S. Bureau of Outdoor Recreation now lists cycling as the second most popular form of active outdoor recreation in America. Nationally, the number of bicycles has grown faster than the number of automobiles.

- The number of automobiles on Florida streets and highways has more than doubled since 1970 (twice the population growth rate), exposing cyclists to ever-increasing roadway hazards.

- A health-conscious adult population is turning increasingly to cycling, both recreational and commuting, as an outstanding form of aerobic exercise and cardio-vascular conditioning.

- The U.S. Consumer Products Safety Commission has identified the bicycle as one of the most hazardous products sold in America today.

- Traditional highway planning has given little consideration to the bicycle as a companion user of the public right-of-way; thus, planners have inadvertantly created numerous hazards and barriers to the effective use of the bicycle as a mode of transportation.

Furthermore, since Florida is considered the state with the greatest potential for expanded use of the bicycle due to its generally flat terrain and suitable climate, major importance has been attached to the development of this Statewide Plan.

The development of a Statewide Plan and Program and the hiring of a State Bicycle Coordinator emanated from recommendations contained in a report to the Governor on bicycling activities in October, 1979 (see Appendix E for references). Other efforts which are underway include the following:

- Analyses of bicycle accidents in Florida (included in this study).
- Study of bicyclist behavior (University of Florida Anthropology Department).
- Development of an Interagency Committee on Bicycling to integrate programs.
- Development of a Florida Bikeway Design Manual.
- Close examination of bicycle accident experience in Florida and the U.S., to aid in the development of bicycle standards and program elements such as education and enforcement.
- Study of existing bicycle standards in Florida and the U.S., for the development of recommendations.

The objectives of the Statewide Plan and Program are twofold:

To develop a plan to permit the integration of bicycles as an important part of the overall transportation system, thus providing for bicycling as a viable alternative mode of transportation.

To provide a safe and friendly bicycling environment in the State that meets the needs of the expert adult cyclist, the average adult cyclist and the young cyclist.

To accomplish these objectives, it is vitally important that local areas play an active role. It is well documented that local areas need funds to improve

conditions for cyclists. Such funding has been minimal to date in Florida, but the Statewide Plan provides a basis for increased funding. The success of such a plan and the future funding relies heavily on the participation and support of each local area in developing and implementing the Statewide Plan and Program. The work effort which each local area is to complete will identify the potential needs in each local area based on a common set of definable parameters. This process represents the state-of-the-art in bicycle planning. In this manner, the framework for possible future funding levels and allocations for bicycling needs will be determined.

The Area and Corridor Analysis Technique (ACAT) was developed to provide a uniform statewide basis for identification of potential bicycling needs in local areas. The technique is designed to minimize the overall work effort while providing the necessary data for development of a statewide plan. Provision is made through ACAT for local areas to input their vital recommendations while at the same time receiving technical assistance from bicycle planning teams. Thus, ACAT is a team solution to identify statewide bicycle needs systematically and uniformly.

Three separate elements or techniques of the Area and Corridor Analyses Technique are described in this manual. The first technique deals with the identification of potential bicycle work trip demands and the development of recommendations for urban corridors to meet these demands. Included in the analysis is the identification of corridors to meet potential elderly demands. A second technique addresses typical neighborhood bicycle needs through a focus on selected middle schools. The third effort involves the identification of regional recreational bicycle facilities. Local areas will utilize the techniques in this manual to assist in the implementation of these three tasks. During the month of September, consultant teams will work with each local area as needed to help the local areas complete their reponsibilities.

A fourth ACAT technique, not described herein, will also be implemented relative to rural corridor bicycle needs. The results of these and the other ACAT

analyses will be used to develop cost estimates for Florida's bicycle needs for presentation to the State Legislature.

The efforts described above provide an invaluable framework for identifying the costs of bicycle needs statewide. They are intended to reinforce local planning efforts, not duplicate or replace them. This study is an important first step, but several additional steps will ultimately be required to implement an effective statewide bicycle plan and program. Many of these later steps will build on the important work outlined in this ACAT Manual. The success of much of the Statewide Plan and Program therefore depends on the careful and timely completion of the tasks outlined herein.

THE ROLES OF PLAN AND PROGRAMMATIC ELEMENTS IN BICYCLE PLANNING

The purpose of this manual is to provide a systematic and uniform basis for statewide plan development at the local area level. Experience in Florida, the United States and other countries has clearly demonstrated that a plan must be supported by an adequate program of encouragement, education, engineering, and enforcement. These programs, when coordinated, will reinforce each other. To get maximum results, the Statewide Plan and Program will include recommended policies, practices and legislation to:

- Encourage Cycling -- If cycling is not encouraged, it can be expected to remain at its current low use, especially for purposeful trips.
- Educate Cyclists and Motorists -- Education is vital since many motorists and cyclists alike have incorrect perceptions of bicycle operating characteristics, techniques, and laws.
- Engineer Safe and Useful Facilities --- Adequate engineering is of paramount importance in providing a friendly environment for the cyclist.
- Enforce Cycle and Motor Vehicle Laws -- Enforcement is crucial to assuring a safe environment, and it provides an essential back up to the education program.

The remainder of this manual deals with detailed task descriptions in applying the ACAT for the stated purpose for identification. However, no planning should be implemented without the development and aggressive pursuit of parallel supportive programs. To this end, a major element of the Statewide Plan and Program study will include the identification of other successful practices in the United States. All such approaches will be considered in conjunction with existing Florida programs, so that the results of these ACAT tasks will provide maximum benefits.

DATA AND MATERIAL REQUIRED TO UNDERTAKE ACAT

The following data and mapping should be assembled prior to undertaking of the ACAT:

1. Mapping at a scale of about 1" = 1/2 mile of your local area (smaller scales will make implementation more difficult). The map should include the existing roadway network, divided into traffic zones, enumeration districts, or other divisions for which demographic data are available (referred to hereinafter as analysis zones). Three "blueprints" (blue or black lines on a white background) of this map are required.

2. Two blueprints of the same scale map, excluding analysis zones.

3. Three or more sheets of mylar large enough to overlay the above maps.

4. A map of your local area depicting location of all existing middle and junior high schools.

5. Mapping at a scale of about 1" = 300' for specific parts of your local area only. (Make no blueprints until analyses indicate which parts will be studied.)

6. Mapping of existing and planned bicycle facilities or routes.

7. Latest roadway functional classification map.

8. A listing of existing employment by analysis zone. (Use most recent data readily available.)

9. A listing of labor force by analysis zone. (Use most recent data readily available.) If labor force data are not available, use population by zone.

Other minor data assembly may be required during ACAT implementation, depending upon the knowledge of certain conditions in the local area.

DEVELOPING AN URBAN CORRIDOR FRAMEWORK

Purpose and Scope

This element of ACAT is a first-level effort by you, the local official, to identify those corridors within your local area which have the greatest long range potential for serving work trips if a significant shift from the automobile to bicycles occurs in Florida. This work effort begins addressing the following important questions:

- Where should we start in implementing such a network?
- What level of investment can be anticipated in the provision of a network to meet work trip travel needs?
- Which planned or programmed roadway construction projects warrant in-depth evaluation of bicycle needs?

In general terms, this technique uses areas of major employment and areas of labor force residence as indicators of work trip potential. Travel desire lines are developed between major employment areas and major residential areas for trip lengths of three miles or less. (Although bicycle work trips are often made at distances of five miles, a three-mile length represents potential trips of higher probability.) Corridors are then developed from the desire lines. The technique also identifies additional corridors needed to serve the elderly. Corridors are classified by general roadway characteristics within each corridor. The corridors will serve the purpose of identifying potential needs and will pinpoint areas where more detailed analysis should occur as a step toward implementation.

The following is a detailed step-by-step presentation of this technique. See the Appendices for definitions, a listing of some of the personnel who have participated in the program, and examples illustrating the processes of this and the next element of ACAT.

Develop Employment Characteristics

If employment by zone, district, etc. are not available, skip Steps 1-5.

1. Using a listing of the number of employees working within each zone, calculate the employment threshold level for your areas as follows:

   a) Total the employment for all those zones having more than 10 employees.

   b) Determine the number of zones having 10 or more employees.

   c) Divide answer a) by answer b) to obtain your employment threshold level.

   Eliminate zones with employment below the threshold level by striking through the zone numbers on the employment list.

2. Review each of the remaining zones, one at a time, using a 1" = 1/2 mile blueprint which depicts both street network and analysis zones. Generally, identify the areas within these zones where employment concentrations exist. In the CBD, this will usually be the full zone. Employment in suburban zones will usually be concentrated at one point or generally located along major arterials (strip commercial). As the employment concentrations are identified, depict the employment area by shading the appropriate area of each zone in red.

3. Calculate the average employment for the zones above your employment threshold as follows:

   a) Total the employment for zones not previously eliminated.

   b) Total the number of zones not previously eliminated.

   c) Divide answer a) by answer b).

   Circle the zone numbers on your list which have above-average employment, i.e., those above the answer c) obtained above.

4. Identify the approximate center of employment concentrations (red areas on map) with a black centroid symbol as follows:

   - ■ Above-average employment (the circled zone numbers only).
   - ● Average or below-average employment (the zone numbers not crossed off but not circled)

   Locate centroids within colored areas only. The centroid location should represent a best estimate of the weighted center of employment. If such an estimate cannot be made for a given area, use the geographic center of the colored area. Further, multiple centroids should be used if necessary such that no centroid represents an area of more than approximately one square mile.

5. All major employers and employment areas should now have been red on the map. However, as a check, the map should be reviewed for areas of known major employers which are not within the highlighted areas. Major employers are defined as those employers with employment levels exceeding the threshold level identified in Step 1.

   Be sure to locate any areas of major employment which were not included in employment data, such as recently developed areas. Any additional employers thus added should be identified with a black dot surrounded by a red ring.

   Two special situations should be checked. First, it is possible that the intersection of two major arterials is the common corner of three or four zones. If the combined commercial employment at the intersection is estimated to equal or exceed your employment threshold level, it should be considered as a significant employment concentration, even though on a zone-by-zone basis, no major employment area shows up. Since the area as a whole is significant it should be identified with a black dot surrounded by a red ring.

The second special case is that of multi-modal interface points. Park-and-ride facilities and other express bus transit or fixed rail transit stops should be identified with a black square surrounded with a red circle.

If Steps 1 through 5 have been completed, skip Step 6.

6. If employment data are not available by zone, this step will be used to identify employment concentrations.

   a) Locate major employers or employment areas and shade them red on a blue print of a 1" = 1/2 mile map.

      These areas would typically include:

      Regional shopping centers
      Major commercial areas
      Industrial areas
      Office parks
      Government office centers
      Universities and Colleges
      Hospitals
      Seaports
      Airports
      Multi-modal interface points, i.e., park-and-ride facilities or express transit stops.

   b) Calculate or estimate the average number of employees per employer in the area. Identify major employers or employment areas as follows:

      ■ Employment above this estimated average
      ● Employment at or below this estimated average

Develop Labor Force Characteristics

If labor force or population by zone, district, etc., are not available, skip Steps 7-10

7. Prepare a listing of the labor force residing in each analysis zone of your area. If no labor force data are available, convert population data to labor force using an areawide labor force to population ratio. This could be a City, County or State ratio as appropriate.

   Using this listing of the labor force by zone, calculate the labor force threshold level for your area as follows:

   a) Total the labor force for all zones having a labor force of 10 or more workers.

   b) Total the number of zones with a labor force of 10 or more.

   c) Divide answer a) by answer b) to obtain your labor force threshold level.

   Eliminate zones with a labor force below the threshold level by striking through the zone numbers on the labor force list.

8. Using the same map as for the employment analysis, review each of the remaining zones individually and generally identify residential areas within the zones. The street network can often be helpful in this identification. Shade in yellow the residential areas of each remaining analysis zone.

9. Calculate the average labor force for the zones above your labor force threshold as follows:

   a) Total the labor force for zones not previously eliminated.

   b) Total the number of zones which have not been eliminated.

   c) Divide the results in a) by the results in b).

Circle the zone numbers on your list which have a labor force above the average value obtained above.

10. Identify the geographic center of each of the residential areas identified in yellow on the base map. Where more than one distinct area is identified in a zone, identify the centers of each area. Indicate the centers as follows:

    ■ A labor force above the average calculated in Step 9c.
    ● A labor force at or below the average calculated in Step 9c.

If Steps 7 through 10 have been completed, skip Steps 11-12.

11. If neither labor force nor population data are available, this step can be used to identify labor force areas. Using local knowledge and the street system on the base map, identify all residential areas which are not predominately elderly. Shade these areas yellow on the same map used for the employment analysis.

12. Indicate the geographic centers of the residential areas identified in yellow as follows:

    ■ Primarily multi-family units
    ● Primarily single family units

Develop Desire Lines

13. Throughout the State of Florida, it is anticipated that the maximum potential exists for bicycle work trips of three miles or less. Therefore, "desire lines" should be connected between pairs of employment centroids and residential centroids less than three miles apart (desire lines are straight lines). To accomplish this, construct a template having a square opening 4-1/4 miles on each side (producing diagonals of six miles), using the scale of the base map used so far. The actual size of the template will vary from one local area to another due to the actual scale of mapping used.

14.a) Place one of the mylar overlay sheets over the map with employment and labor force data plotted. Call this Mylar A.

14.b) Center the template thus constructed on each employment centroid, one at a time. Turn the template so that the diagonals generally parallel the roadway network. Sketch desire lines on the mylar from the employment centroid being considered to all residential centroids which fall within the template. Carry out this procedure successively for each employment zone until all desire lines are constructed. Relatively high, medium or low potential desires should be depicted by three different line patterns as follows:

Combination			Desire Line Pattern
Employment ■	and Labor Force ■	=	———————
Employment ●	and Labor Force ●	=	— — — — — — —
Other combinations		=	—— —— ——

14.c) In order to minimize desire line overlap and to avoid confusion, you may use one of the following techniques:

Where one or more employment centroids are located within 1/4-mile of another, consider these centroids as one larger employment concentration. Select only the one employment centroid which most closely represents the locus of these centroids. Mark through those not used.

Where employment centroids are close together, select only certain centroids such that you do not use two employment centroids which are closer than one mile. Indicate the centroids used in this step; those not used here will be used in a later step.

Now continue with Steps 15 through 19.

Develop Corridors

15. Remove the desire line overlay (Mylar A) and register it to a map of the same scale as the previous base but without zones. Overlay Mylar A with a clean sheet of mylar (Mylar B). On Mylar B, identify all physical barriers intersected by the desire lines. These include the following:

    - Expressways, with overpasses and interchanges noted
    - Railroads, with crossings noted
    - Waterways and canals, with crossing points noted

    These should be marked in blue and should be readily identified.

16. Working on Mylar B, identify corridors to serve desire lines with a wide tip marker or grease pencil as follows:

    - Begin at each employment centroid and develop corridors as required to serve residential areas.
    - Corridors should generally parallel existing streets and should be located to restrict out-of-direction travel to 1/4 mile.
    - Corridors should be located to minimize barrier conflicts, utilizing existing crossings.
    - Common corridors should be used to serve multiple desire lines when possible.

17. In dense urban areas, the desire lines may be quite dense, making it difficult to develop corridors as described above. In these cases (and in

these cases only), the need for a grid network of corridors is indicated. The spacing between corridors in a grid should be about 1/2 mile.

18. Corridor segments identified in Steps 16 and 17 should be connected, where appropriate, to complete the corridor network. Maximum length of connectors should be approximately one mile. Label connectors (C).

19. If congested employment centers are combined as in the first method of Step 14c), skip to Step 21. If the second method is used, place a clean mylar overlay (Mylar C, D, etc.) over the original shaded base map. Repeat Step 14 for the employment centroids not previously used.

20. Overlay the corridor overlay, Mylar B, over the new desire lines. Complete Steps 15 through 18 for any corridors not previously identified, then go to Step 21.

Develop Elderly Characteristics

Note: Steps 21-23 can be accomplished concurrently with Steps 1-20.

21. On a separate blueprint of the traffic zone/street map, identify major elderly residential concentrations. Shade these areas in yellow. Identify the centers of these areas with black dots.

22. Center the template previously used for work trips on each residential centroid with the diagonals generally parallel to the street network. Identify major business/commercial areas which fall within the template with a black square (■). This process will locate major elderly attractions witin a three-mile trip length.

23. Draw desire lines on the blue print between the circles and squares using the solid line pattern (——)

24. Overlay this map with Mylar B and add any additional corridors needed to serve these desire lines. Label these (E).

25. The corridors now developed must be classified to aid in the assessment of implementation costs. For each corridor section using existing streets, indicate the appropriate class from the following list. This classification should be made on a mile-by-mile level of refinement for this planning process.

A- Arterial facility only, no local through streets.

AL- Arterial facility with one or more parallel local through streets.

L- Local through streets only, no arterial.

N- No through streets.

26. For classifications A, AL, or L, follow the symbol with the typical arterial pavement width in feet and a symbol denoting the cross-section type:

U- Urban section (with curb and gutter)

R- Rural section (without curb and gutter)

If the pavement width and cross-section type symbol are omitted for local streets, a 24-foot pavement rural section will be assumed.

Typical classifications might be:

A-36-U	L-34-R
AL-36-U	L

27. Lay the corridor transparency (Mylar B) over your existing bikeway route map (if any) and identify corridors with existing facilities by circling the classification of that corridor (A, AL, L or N). Thus, someone referring to the corridor mylar can identify the routes already existing by the symbols that are encircled.

Work Product

The work product from this element of the ACAT is primarily the corridor overlay plan (Mylar B) and secondarily the various work sheets used to develop that plan.

DEVELOPING TYPICAL NEIGHBORHOOD CORRIDOR FRAMEWORKS

Purpose and Scope

This element of ACAT is used to identify typical neighborhood bicycle needs. This analysis is focused on the middle and junior high schools in your area, and it accounts for school trips as well as shopping and recreational trips related to the schools. The consultant will use the data provided to develop cost estimates for neighborhood bicycle needs.

The following steps detail the analysis technique.

Identify Typical Neighborhoods for Analysis

1. Locate all middle and junior high schools with a red dot on a blueprint map of the same scale used in the urban corridor analysis. This map should include analysis zones and the street network.

2. Make a template with a square having sides of three miles (the diagonals will be 4-1/4 miles). Using this template, outline a "contributory area" for each school with the school in the center. The diagonals of the squares should be oriented parallel to the major road system at each school.

3.a) Select one to three of these school areas for study to represent the significantly different conditions (i.e., dense urban, urban, suburban) which are typical of other school-centered areas in your urban area. Possible significant differences are listed below:

- Street network configuration
- Typical street cross sections (i.e, swale or curb and gutter; 20-foot pavement or 24-foot pavement; a sidewalk present versus not present)
- Single family (low density) versus multi-family (high density)

Typically, a dense urban area will be a downtown area with significant non-residential development mixed with high and medium density residential land uses. Arterials and other major roads will be closely spaced. By contrast, a suburban area will be residentially developed primarily. Commercial activities will be limited to those activities serving the needs of the immediate area. Residential densities will be relatively low and arterials will be more widely spaced. The urban setting is one which falls between the dense urban and suburban definitions and is typified by the built-up, high-activity areas outside the urban core areas.

3.b) Estimate the population within each contributory 9 square mile area at these schools.

4. List the number of middle or junior high schools in your area which are typified by each of the selected typical study schools.

5. Identify the contributory area for each selected school on mapping at a scale of about 1" = 300'. All work outlined in the following steps pertain to this mapping.

Develop Desire Lines

6. Within each of the selected study school squares, identify potential major vehicular conflict and barrier points where bicycles could experience safety or operational problems. These include the following:

- Arterials and other major roads
- Traffic signals
- Railroad crossings
- Bridges
- Expressways

7. Highlight parks or other recreational facilities within or immediately adjacent to each contributory area.

8. Highlight neighborhood commercial facilities within or immediately adjacent to each neighborhood.

9. Highlight other schools in the contributory area.

10.a) Within the contributory area of each school, determine homogeneous residential areas. A homogeneous residential area in this case meets the following criteria:

- Similar residential land use within area.
- Generally one square mile or less in area.
- Physical barriers may define boundaries of these areas but there would be no physical barriers within a residential area.

10.b) Construct desire lines from the center of each homogeneous residential area to the school center.

Develop Corridors

11. Identify corridors required to serve the desire lines. In most cases corridors can be defined as existing streets. These should meet the following criteria:

- Begin at school and develop corridors as required to serve residential areas
- Corridors will be generally parallel to existing streets and should be located to minimize out-of-direction travel
- Use common corridors to serve desire lines when possible

- Maximum out-of-direction travel should be 2 blocks

- Low-volume collectors and local streets with minimum barriers are preferred.

12. Review the locations of parks and shopping facilities adjacent to residential areas. Extend or shift corridors to make logical connections.

Analyze and Classify Corridors

13. Classify each corridor as one of the following and identify unique conditions by field checks.

Type 1 - Corridors which contain numerous streets which have low traffic volumes and existing lane widths sufficient to permit bicycle use.

Type 2 - Corridors which contain only one street which has low traffic volume and adequate lane width to permit bicycle use.

Type 2A- Corridors which would qualify as Type 2 if on-street parking were removed.

Type 3 - Corridors not qualifying as Type 1 or 2 which contains at least one street without curbs and gutters which has low traffic volume but do not have adequate lane width for bicycle use.

Type 4 - Corridors not qualifying as Type 1, 2, or 3 which contain at least one street characterized by low traffic volume and excess right-of-way but also having

curbs and gutters and inadequate lane width for bicycle use.

Type 5 - Corridors which contain none of the above conditions. Such conditions will include corridors served only by arterial streets or which are not suited to modification for bicycle use.

14. Identify from the map and itemize in tabular form specific vehicular and barrier conflict points by corridor.

15. Identify and tabulate possible solutions to conflict points. The following are some typical considerations:

- Use existing low volume facilities where possible. To encourage use of these facilities, provide minor traffic operational adjustments such as change of stop sign control or other signing measures. Where useful to concentrate cyclists, provide bicycle route signing.

- Where high-volume facilities are closely spaced and they present frequent conflict points, a bicycle lane should be provided on the lowest-volume-lowest-speed facility which intersects these arterials at signalized locations.

- Separate paths may be provided where Type 4 conditions exist and where such a path would eliminate a barrier or vehicle conflicts.

- In certain limited cases, conditions may warrant addition of a special bicycle signal.

- Where it is necessary for bikeways to cross railroads at grade, check that the bikeway is nearly perpendicular to the

tracks. If this is not the case, an alternate alignment of the bikeway may be required.

- Where interchanges or bridges are involved, provide sufficient lateral operating area for bicycles.

16. Identify the class of bicycle facility and physical improvements required, based on corridor conditions, as follows:

Corridor	Potential Bikeway Designation and Improvements
Type 1	Suitable as a Bike Route (Class 3) without improvements or mapping and signing.
Type 2	Suitable as a Bike Route (Class 3) with mapping and signing or as a Bike Lane (Class 2) with striping additionally. (Remove on-street parking for Type 2A.)
Type 3	Suiable as a Bike Route (Class 3) with edge paving for increased width, mapping and signing. Suitable as a Bike Lane (Class 2) with striping additionally.
Type 4	Suitable as a Bike Path (Class 1) with the construction of a separate path, mapping and signing.

17. Measure and tabulate the length in miles or linear feet of each improvement category above.

18. Identify and tabulate traffic control devices or other physical improvements necessary to correct special barrier conflicts.

Work Product

The work product from this element of the ACAT is primarily the tabulations of Steps 5 and 13 through 18. These are to be suitable for the consultant to use in estimating the cost of providing neighborhood bicycle facilities in your area. Secondary work products consist of the work sheets and maps used to derive the data at the typical sites.

DEVELOPING A REGIONAL RECREATIONAL CORRIDOR FRAMEWORK

Purpose and Scope

This element of the ACAT provides for the regional non-destinational or recreational trip. In broad terms, recreational cycling needs can be met by two types of facilities: the separated bike path and the existing roadway system. Historically, the greatest amount of recreational cycling has occurred on local streets and country roads or on sidewalks within neighborhoods and community parks. Recent growth in cycling popularity has, however, forced local officials to develop separated bike paths as an answer to public needs for safe routes beyond their own neighborhoods, even though paths are very expensive and pose other safety problems in urban areas.

The purpose of this element of the ACAT is to suggest several potential locations for on-street and separated recreational cycling facilities in your area. It is likely that in your area a very large number of potential locations for both types exist. This makes it necessary to limit this identification effort within the following restrictions:

- Limit the identification of bike paths (separated) facility locations to those areas of exceptional environmental quality, such as lake or ocean fronts, and/or to locations which represent unusual geographic opportunities, such as railroad rights-of-way.

- Describe areas as well as corridors where on-street recreational riding can occur (such as in-town historic districts).

The consultant will use the information provided above to develop cost estimates for regional facilities.

The steps in this identification process are detailed below.

Develop Supplementary Corridor Maps

1. Prepare a blue print of the urban corridor map developed for work trips, showing corridors for purposeful trips that might be useful likewise for recreational trips.

2. Identify routes and areas where recreational cycling currently exists through the use of roadways or pathways.

Identify Candidate Roadway Corridors

3.a) Identify other candidate routes and areas where recreational cycling could exist through the use of existing roadways or pathways. Quality of environment is the principal consideration, though it may not be possible that an entire route will be "highly pleasurable". It is often satisfactory to provide a sequence of pleasurable features or environments that are linked by shorter segments of "average" or undistinguished areas.

3.b) Examine your area for the typical types of features:

- Agricultural districts, particularly orchards or groves and truck gardening areas where colors, textures, and fragrances offer contrast to urban areas.

- Water bodies, particularly lakes, beaches and rivers where border or perimeter roads offer unique views and vistas. Also, such special features as streams, waterfalls, and springs can be worthy of a side-trip or route modification to include them.

- Federal or State Forest and Wildlife Preserves, usually offering unique environments with opportunities to include interpretive displays and signage to add another dimension to the cycling experience.

- Water management areas and flood plains, being prime candidates for natural environments with long term protection from urban encroachment.

- Mature forested areas, whether in urban or rural areas, the scale and complexity of dense stands of trees affording a unique, high-quality cycling experience. Analysis of aerial infrared and standard photographs can be a quick technique for identification.

- Historic districts and sites, offering unique opportunities for lengthy cycling trips within compact areas. Many older urban sections, though not historic, per se, offer similar attractions that are well-suited to the slower pace of the bicycle, e.g., an environment of architectural and landscaping details, infinite variability, and unpredictable highlights that are hard to find in newer subdivisions and strip commercial areas.

- Golf courses and other open green space. Usually quite beautiful, in themselves, they are often circled by city streets that have little cross traffic.

- Ethnic settlements, possessing concentrations of ethnic shops and services and architecture or industry. Such areas, including Latin districts, fishing camps or marinas, or unique manufacturing plants can provide varied and interesting environments with substantial opportunities to stop and sample goods or cultural curiosities.

- College campuses, usually with ready made bicycle "paths" and controlled traffic roadways, offering a popular alternative for the recreational cyclist.

3.c) Consider several factors for recreational cycling routes utilizing existing urban or rural roadways:

- Total route length should be a minimum of three to five miles, since shorter routes are too quickly traversed and less likely to be revisited.

- For urban streets, traffic speeds of 35 mph or less are desirable and for rural roads a limit of 45 mph is optimum, although it is recognized that 55 mph is common and often acceptable.

- For two-lane roadways, a maximum average daily traffic volume of 4,000 vehicles is desirable.

- If possible, it is desirable for major arterial intersections to average at least one mile apart.

- Two-lane roads should have a minimum of 12-foot lanes (preferably 14-foot), particularly for higher speed rural or higher volume urban roadways.

- Additional considerations, including roadway surface (coarse aggregate or unpaved roads are usually unacceptable); bridges (narrow bridges 100 feet or more in length are major barriers); railroad crossings (multiple tracks are special hazard); on-street parking (an acceptable width is 46 feet for a two lane road with parking on both sides); and sight distances (lack of visibility is the major safety problem for cyclists).

Identify Candidate Separated Corridors

3.a) Identify additional areas (or corridors) to be developed with separate bicycle facilities (bike paths) for recreational cycling. Again, environmental quality is a key ingredient in the selection of corridors but for

separated facilities, the additional and often critical consideration is availability of right-of-way. The cost and legal difficulties involved in securing bike path right-of-way is an important and sometimes over-riding factor in route selection.

3.b) Examine your area for the following possible types of geographic opportunities:

- Abandoned railroad right-of-way, particularly within urban areas. An increasing number of railroad spurs, sidings and trunk lines have been abandoned and are potential corridors for recreational routes. Although not always environmentally attractive, railroad lines often connect major generators of bicycle trips, such as regional or local parks and entertainment areas, and may be desirable due to limited street crossings.

- Canals and Waterways. Florida has numerous irrigation and flood control projects that could provide opportunities for bike facilities which are often overlooked. The proximity to water is an enriching factor that is otherwise difficult to achieve. Government ownership can also be an important advantage in implementation of these routes.

- Major regional parks. The opportunity to drive to a recreation area and then switch to the bicycle mode is a simple but effective means of expanding the service potential of bike paths. A regional park is often large enough to incorporate a self-contained pathway system that precludes the need to deal with multiple land owners.

- State and Federal Forest and Wildlife Preserves. These areas provide similar opportunities to regional parks but have the added advantage of additional funding possibilities.

- Major new subdivisions and communities. Increasingly, there are large developments of entirely new communities or sizeable subdivisions near existing communities that offer the potential for easements or dedications for public recreational pathways. Often, these can be a low-cost means of obtaining pathways, especially if dedication of the land can be obtained as a condition for subdivision approval.

- Limited access roadways. Although use of bicycles on such facilities is generally prohibited, the opportunity exists for use of segments of right-of-way, particularly between interchanges. Consideration of these possibilities may become important as a means of linking discontinuous sections of pathways or as a way to get around an expressway barrier.

- Utility Right-Of-Way. Power line right-of-way can afford a simple and cost-effective corridor of substantial length.

- Causeways. Although causeways are relatively rare, they are among the most dramatic experiences available for recreational riding. The right-of-way is generally extra wide, making implementation easier than in many other urban situations.

- Waterfronts and Beaches. The need to provide service drives for emergency vehicles in public recreation areas often presents an ideal opportunity for use as a bike path.

3.b) Use the following criteria as guidelines in selecting candidate corridors for separated bicycling paths:

- Route length should ideally be no less than two miles to provide a reasonably diverse cycling experience.

- Roadway intersections should not exceed four per mile on the average.

- Maximum grade should not exceed 5 percent (up to 8 percent for distances less than 500 feet). Ten percent grades for less than 50 feet are acceptable. Generally, use contours as a guide for determining alignment.

- Minimum average right-of-way width desirable is 12 feet (with an 8 foot surfaced path).

- Bridges are serious obstacles to two-way bike paths. The full eight-foot path should be maintained with a physical barrier separating the path and vehicular lanes.

Evaluate and Select Candidate Corridors

4. Briefly itemize the characteristics of each regional facility indicating reasons for selection.

5. Connect these regional facilities to the urban corridor system on the base map. Use a maximum connector length of five miles. Label these connector segments (C).

6. Connect regional facilities to each other. Use a maximum connector length of five miles. Label these connector segments (C).

Work Product

The primary work product from this element of the ACAT includes the map showing the selected corridors proposed for separate recreational trips. The work sheets with all candidate paths, their description, and evaluation comprise a secondary work product to assist in estimating costs and other aspects of implementation.

WHAT'S NEXT?

Analysis by Consultant

The participation of each local area in the Statewide Plan should come from two extremely important sources. First, the expertise and understanding of local conditions is needed from local planners and officials to address local needs from the standpoint of the local government. However, a second and equally important need is the participation by local cyclists. These individuals know cycling needs as users and through association with other users. In larger areas, there may even be other government officials or individual citizens whose assistance would be needed to represent the entire area adequately.

Clearly the development of the Statewide Plan is an ambitious task. However, it is the State's full intention to develop legislative recommendations and estimates of cost for bicycle needs statewide for the upcoming legislative session. This goal has dictated an intense schedule, calling for implementation of ACAT during the next month. Thus, your timely effort to expedite this project at the local level will help assure that the necessary data are not delayed another year in coming before the State Legislature.

Once the ACAT is completed in each local area, the consultant will develop cost estimates and integrate the elements into the Statewide Plan. There is much work to be done before implementation of the Plan can or should be done. Improvements will be given priorities based upon methodologies to be developed later in the study. Plan and program elements will require integration. As implementation is more closely studied in any given corridor, current demand must be identified as opposed to ultimate potential demand. These factors will affect the timing of implementation.

Subsequent Steps

A design manual is currently under development in another study which will deal with actual implementation criteria which can then be applied to the corridors identified in ACAT. The Florida DOT has made a major commitment to planning,

designing, and implementing bicycle facilities. These commitments will be demonstrated through the Statewide Bicycle Coordinator, the Governor's Advisory Committee on Bicycling, and the Interagency Committee on Bicycling. The finished product of the current study - a Statewide Plan and Program - is only the beginning of the expression of Florida's long-term commitment to cycling.

APPENDIX A

HELPFUL DEFINITIONS

DEFINITIONS

ACAT: Area and Corridor Analysis Technique.

Bicycle Lane: A marked lane reserved for bicycles only on a street, with no physical barrier or separation between the roadway surface and the bike lane. (Also known as a Class 2 Bikeway.)

Bicycle Path or Trail: A path, trail, or other surface reserved for bicycle use only, or sometimes shared between bicycles and pedestrians or joggers. (Also known as a Class 1 Bikeway).

Bicycle Route: An existing street which is used by both bicycles and motor vehicles and which has been designated and signed as a bicycle route, but which has no designated bike lanes. (Also known as Class 3 Bikeway).

Bikeway: Any type of bicycle facility, including bike routes, bike lanes, bike paths, or bike trails.

CBD: Central Business District, or downtown area.

Centroid: Point representing the center of concentration of employment, the weighted center of residential units, the geographic center of a zone, etc., as appropriate.

Corridor: An approximate linear path which is designated to satisfy, at least in part, one or more travel desire lines. A corridor is to be considered in a planning (general) rather than a design (detailed) context.

Desire Line: Line connecting a residential area to a destination (employment, school, shopping), indicating a desire or potential desire for travel between the two points.

Destinational: Travel related to a specific destination, such as a work trip to a place of employment.

Elderly: Person(s) aged 60 years or older.

Employment: Number of persons employed and working within a specified zone.

Employment Threshold Level: The level of employment in an analysis zone above which the zone is significant to the analysis techniques of this study. This threshold varies from one local area to another.

Functional Roadway Classification: Classification of streets by functional type, such as local, collector, arterial, or freeway.

Labor Force: Persons currently working or seeking work, classified by zone of residence.

Labor Force Threshold Level: The level of labor force in an analysis zone above which the zone is significant to the analysis techniques of this study. This threshold varies from one local area to another.

Mode Shift: Substitution of one mode of transportation for another, such as a mode shift from auto to bicycle.

APPENDIX B

PERSONNEL INVOLVED IN STATEWIDE PLAN AND PROGRAM DEVELOPMENT

Governor

Bob Graham

Florida Department of Transportation

Secretary	William N. Rose
Director, Division of Transportation Planning	Earnest W. Elliot
Bureau Chief	Ray G. L'Amoreaux
Bicycle Coordinator	Dan Burden
Project Manager	Nap Ellis
Grants Coordinator	Lennon Langston
District 1 Liaison	Fred Stanley
District 2 Liaison	James Dees
District 3 Liaison	Royace Pitts
District 4 Liaison	Doug O'Hara
District 5 Liaison	John Kuhl
District 6 Liaison	H.D. Martinez

Kimley-Horn and Associates

Principal-in-charge	Harold Vick, P.E.
Project Manager	Steven Godfrey, P.E.
Support Personnel	Larry Meisner, P.E., AICP Dick Pugh, P.E. Roger Parenteau Jerry Ingram, P.E. Michael Sexton

Wallace, Roberts and Todd

Neighborhood Plan Director	John Fernsler
Support Personnel	Chuck Stratman

Special Consultants

Jack Luft, AICP	Ralph Hirsch

APPENDIX C

EXAMPLE ANALYSIS
DEVELOPING AN URBAN FRAMEWORK

INTRODUCTION

The following example may be used to illustrate the step-by-step procedure for the Urban Corridor Framework. A portion of the Palm Beach County MPO Area was used in developing the appendices figures. This procedure specifically keys in on Zone 88 and its relationship to the different elements of the procedure.

Steps Referenced	Description
Step 1	Figure C-1 lists the employment data by zone. Zones 57, 73, 74, 82, 83, 84, 87, 88, 98, were not crossed off since they exceed the calculated employment threshold of 350. All the other zones in the sample area fall below the threshold level.
Step 2	Figure C-2 depicts the zones which are above the employment threshold. These zones are shaded in red only in the general area of employment concentration.
Step 3	The average employment per zone for those zones which exceed the employment threshold was calculated. The total number of employees (83,886) was divided by the total zones (93) which resulted in an average of 902 employees per zone. Figure C-3 lists those sample zones which have above average employment with the zone number circled.
Step 4	Figure C-4 depicts the centroids of all the employment concentrations. All above average concentrations are depicted with a solid black square. Zone 88 which has 942 employees is an example of above average employment. Below average centroids are shown with solid circles.
Step 5	Zones 44, 55 and 56 depict an area where the intersection of two major arterials are the common corner of combined commercial activity. These zones would not, on their own, be significant employment areas but would be if added together. It is estimated that Zones 44, 55 and 56 will have a combined employment greater than 350 in a concentrated area near the intersection. Figure C-4, therefore, depicts a black dot surrounded by red at this intersection.

Step 7

Figure C-5 lists the resident labor force by zone. Zones 54 thru 57, 59, 62 thru 67, 71, 75 thru 78, 81, 82, 84, 85, 89 thru 91, 94, 97 and 99 were not crossed off since they were above the calculated labor force threshold level of 557. All other zones fall below the threshold.

Step 8

Figure C-6 depicts the zones where resident labor force levels are above the 550 threshold. Residential areas in the zones are shaded yellow.

Step 9

The average resident labor force per zone for those zones which were above the labor force threshold was calculated. The total resident labor force (170,439) was divided by the total zones (189) which resulted in an average labor force of 902. Figure C-7 lists an example of the zones which have above average resident labor force. These zones have been circled.

Step 10

Figure C-8 shows the centroids of residential areas with significant resident labor force levels. All zones with above average resident labor force are depicted with a solid black square. Zone 63 which has a resident labor force of 1,269 and is an example of above average resident labor force. Zone 56 has a below average resident labor force. This centroid is therefore shown as a solid circle.

Steps 11, 12

No graphics.

Steps 13,14 and 20

Figure C-9 depicts an area which represents a maximum trip length of three miles to the employment area in Zone 88. The area is square with six-mile diagonals oriented parallel to the roadway network. Desire lines are shown from the employment centroid to all resident labor force centroids

which fall within the template. The desire lines were defined as high, medium or low potential by three different line patterns.

Employment centroids which fall within 1/4 mile of one another should not be considered separately. An example of this is represented by Zones 73 and 76 shown in Figure C-10. Note that Zone 76 is crossed out.

Any employment centroids which fall within one mile of one another should have desire lines plotted on separate overlays. Figure C-10 depicts desire line for only those employment zones which fall outside the mile criteria.

Step 15

Figure C-11 depicts the street map base (without traffic zones) overlayed by desire lines and a second overlay showing physical barriers which are intersected by desire lines.

Steps 16,18, 21

Figure C-12 shows the corridors needed to serve the desire lines. They have been located with minimal barrier conflicts and with maximum out-of-direction travel of less than 1/4 mile.

Steps 17, 19, 20

No graphics.

Steps 21, 22, and 23

Figure C-13 depicts the traffic zone and street map with major elderly concentrations shaded in yellow. These areas were not previously identified and were not previously shaded in yellow. Figure C-13 depicts a portion of Zone 78 which is predominantly elderly.

Also depicted is a major commercial area in Zone 74 which has been shaded in red. A desire line is shown connecting the two centroids.

Step 24

Figure C-13 also depicts the elderly desire line as it relates to previously recommended corridors.

Step 25, 26, and 27

Figure C-14 shows the recommended corridor network which has been classified by roadway types within the corridor. These classifications generally identify arterial and local streets within the corridor as well as corridors which are not aligned with through streets. Also shown is a classification of arterial pavement width and cross-section type.

Step 28

Figure C-15 depicts the recommended urban corridor in relationship to an existing bicycle route map. The recommended corridors which are identical to existing facilities have been circled.

APPENDIX C LEGEND


EMPLOYMENT CONCENTRATION

ABOVE AVERAGE CENTROID

BELOW AVERAGE CENTROID

RESIDENT LABOR FORCE CONCENTRATION *

HIGH POTENTIAL DESIRE LINE

MEDIUM POTENTIAL DESIRE LINE

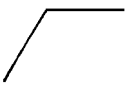
LOW POTENTIAL DESIRE LINE


ANALYSIS AREA BOUNDARY FOR ZONE 88


WATER BARRIER

EXPRESSWAY OR RAILROAD BARRIER

CORRIDOR



ARTERIAL CLASSIFICATION

RURAL CROSS-SECTION

PAVEMENT WIDTH

EXISTING BICYCLE FACILITY

*THIS AREA REPRESENTS AN ELDERLY POPULATION IN FIGURE C-13.

FIGURE C-1

EMPLOYMENT DATA TABLE

TRAFFIC ANALYSIS ZONE	TOTAL EMPLOYMENT
~~51~~	97
~~52~~	150
~~53~~	165
~~54~~	66
~~55~~	157
~~56~~	330
57	554
~~58~~	86
~~59~~	97
~~60~~	0
~~61~~	11
~~62~~	10
~~63~~	246
~~64~~	229
~~65~~	16
~~66~~	294
~~67~~	191
~~68~~	2
~~69~~	46
~~70~~	80
~~71~~	80
~~72~~	45
73	684
74	765
~~75~~	118
76	450
~~77~~	192
~~78~~	147
~~79~~	86
80	365
~~81~~	24
82	659
83	512
84	371
~~85~~	17
~~86~~	36
87	492
88	942
~~89~~	329
90	549
~~91~~	231
~~92~~	25
~~93~~	48
~~94~~	230
~~95~~	201
~~96~~	165
97	711
98	1415
~~99~~	199
~~100~~	2

FIGURE C-2

EMPLOYMENT CONCENTRATIONS

FIGURE C-3

ABOVE AVERAGE EMPLOYMENT

TRAFFIC ANALYSIS ZONE	TOTAL EMPLOYMENT
~~51~~	97
~~52~~	150
~~53~~	165
~~54~~	66
~~55~~	157
~~56~~	330
57	554
~~58~~	86
~~59~~	97
~~60~~	0
~~61~~	11
~~62~~	10
~~63~~	246
~~64~~	229
~~65~~	16
~~66~~	294
~~67~~	191
~~68~~	2
~~69~~	46
~~70~~	80
~~71~~	80
~~72~~	45
73	684
74	765
~~75~~	118
76	450
~~77~~	192
~~78~~	147
~~79~~	86
80	365
~~81~~	24
82	659
83	512
84	371
~~85~~	17
~~86~~	36
87	492
88	942
~~89~~	329
90	549
~~91~~	231
~~92~~	25
~~93~~	48
~~94~~	230
~~95~~	201
~~96~~	165
97	711
98	1415
~~99~~	199
~~100~~	2

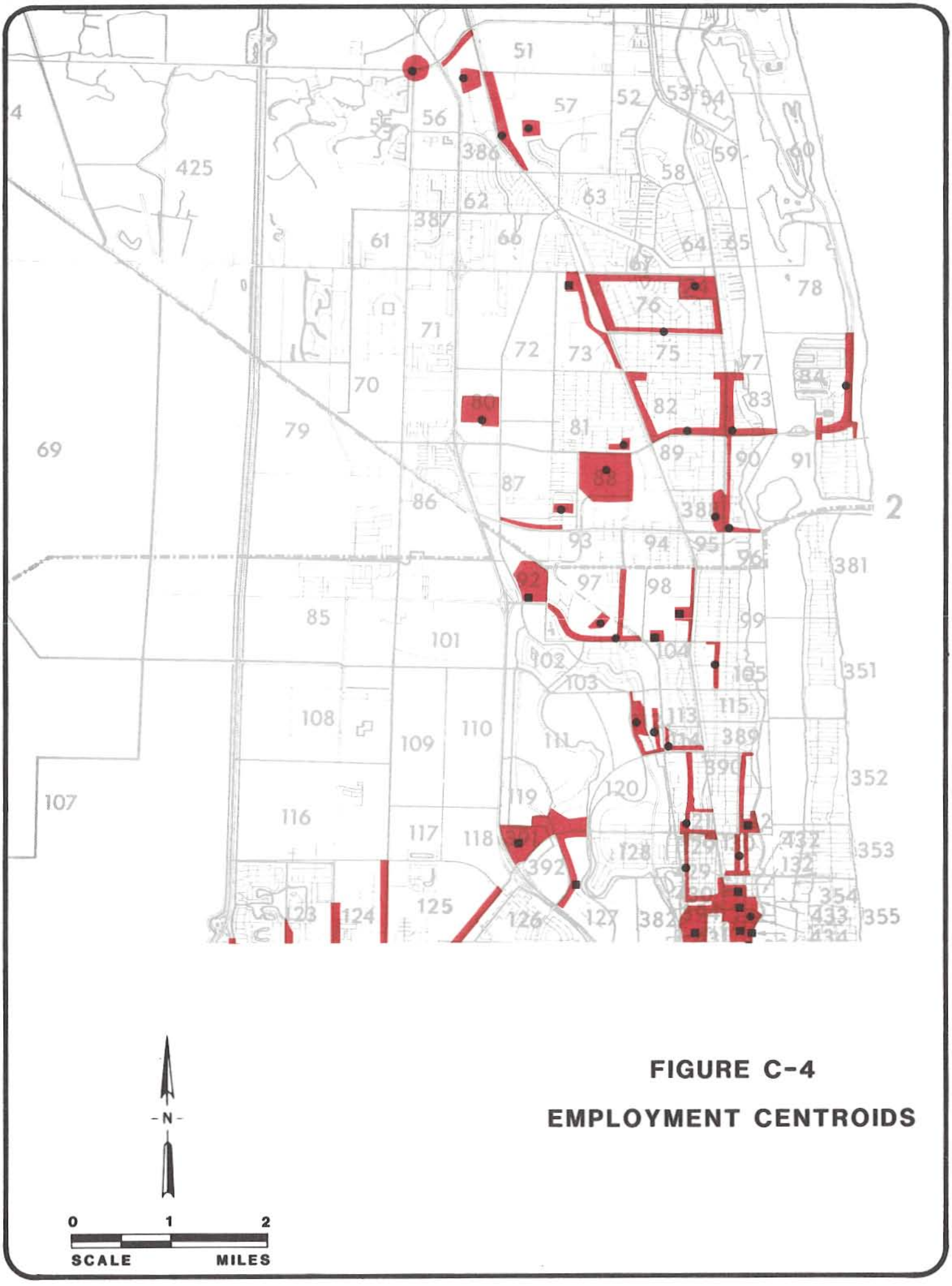


FIGURE C-4

EMPLOYMENT CENTROIDS

FIGURE C-5

RESIDENT LABOR FORCE TABLE

TRAFFIC ANALYSIS ZONE	RESIDENT LABOR FORCE
~~51~~	293
~~52~~	304
~~53~~	456
54	601
55	1027
~~56~~	368
57	567
~~58~~	112
59	771
~~60~~	0
~~61~~	34
62	1363
63	1269
64	764
65	597
66	1494
67	1027
~~68~~	36
~~69~~	41
~~70~~	286
71	930
~~72~~	165
~~73~~	0
~~74~~	0
75	907
76	2479
77	854
78	922
~~79~~	180
~~80~~	297
81	1874
82	1580
~~83~~	554
84	1963
85	814
~~86~~	286
~~87~~	340
~~88~~	54
89	854
90	821
91	756
~~92~~	0
~~93~~	363
94	1346
~~95~~	140
~~96~~	65
97	692
~~98~~	2
99	2206
~~100~~	296

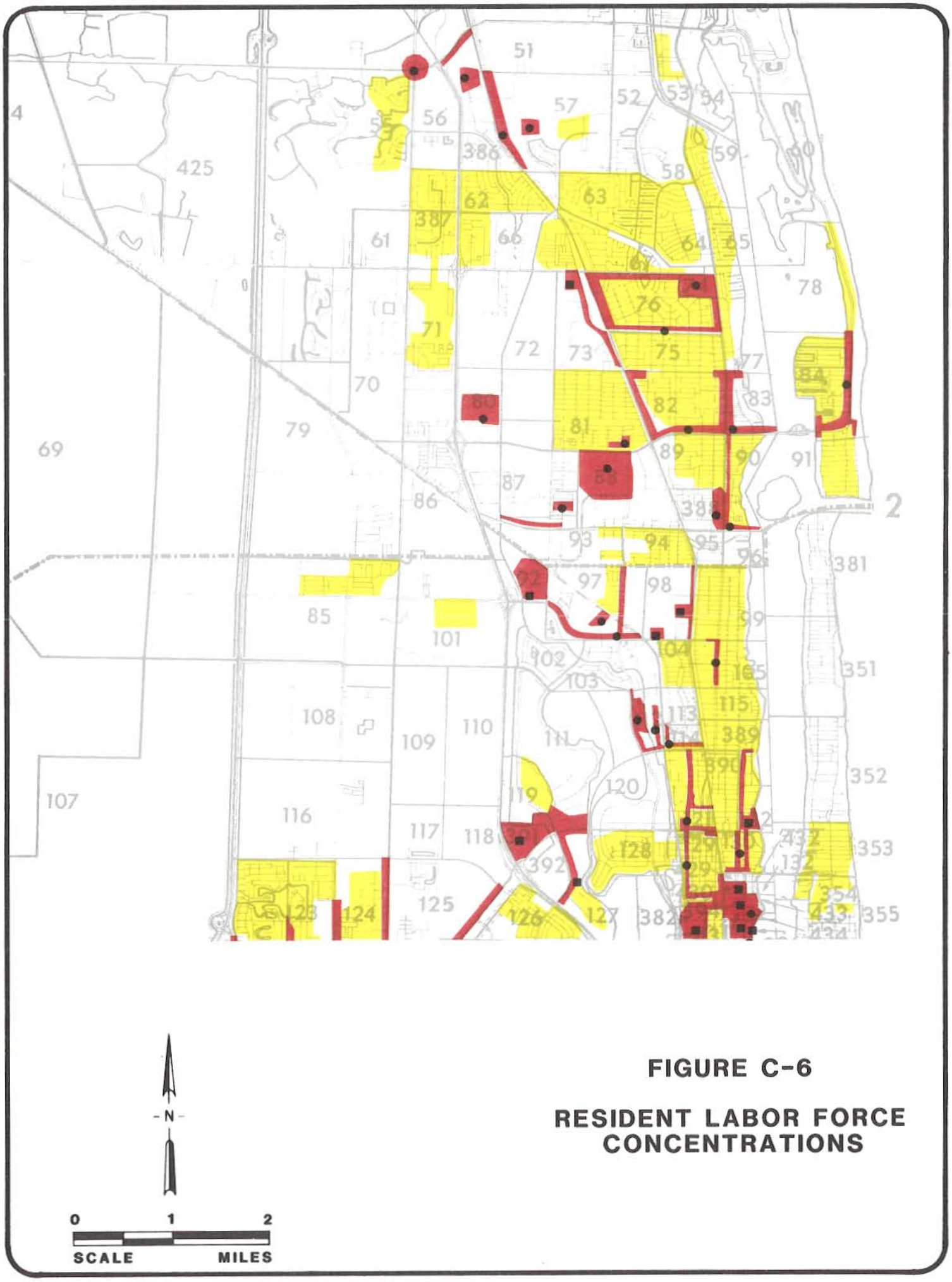


FIGURE C-6

RESIDENT LABOR FORCE CONCENTRATIONS

FIGURE C-7

ABOVE AVERAGE RESIDENT LABOR FORCE

TRAFFIC ANALYSIS ZONE	RESIDENT LABOR FORCE
~~51~~	293
~~52~~	304
~~53~~	456
54	601
(55)	1027
~~56~~	368
57	567
~~58~~	112
59	771
~~60~~	0
~~61~~	34
(62)	1363
(63)	1269
64	764
65	597
(66)	1494
(67)	1027
~~68~~	36
~~69~~	41
~~70~~	286
71	930
~~72~~	165
~~73~~	0
~~74~~	0
(75)	907
(76)	2479
77	854
(78)	922
~~79~~	180
~~80~~	297
(81)	1874
(82)	1580
~~83~~	554
(84)	1963
85	814
~~86~~	286
~~87~~	340
~~88~~	54
89	854
90	821
91	756
~~92~~	0
~~93~~	363
(94)	1346
~~95~~	140
~~96~~	65
97	692
~~98~~	2
(99)	2206
~~100~~	296

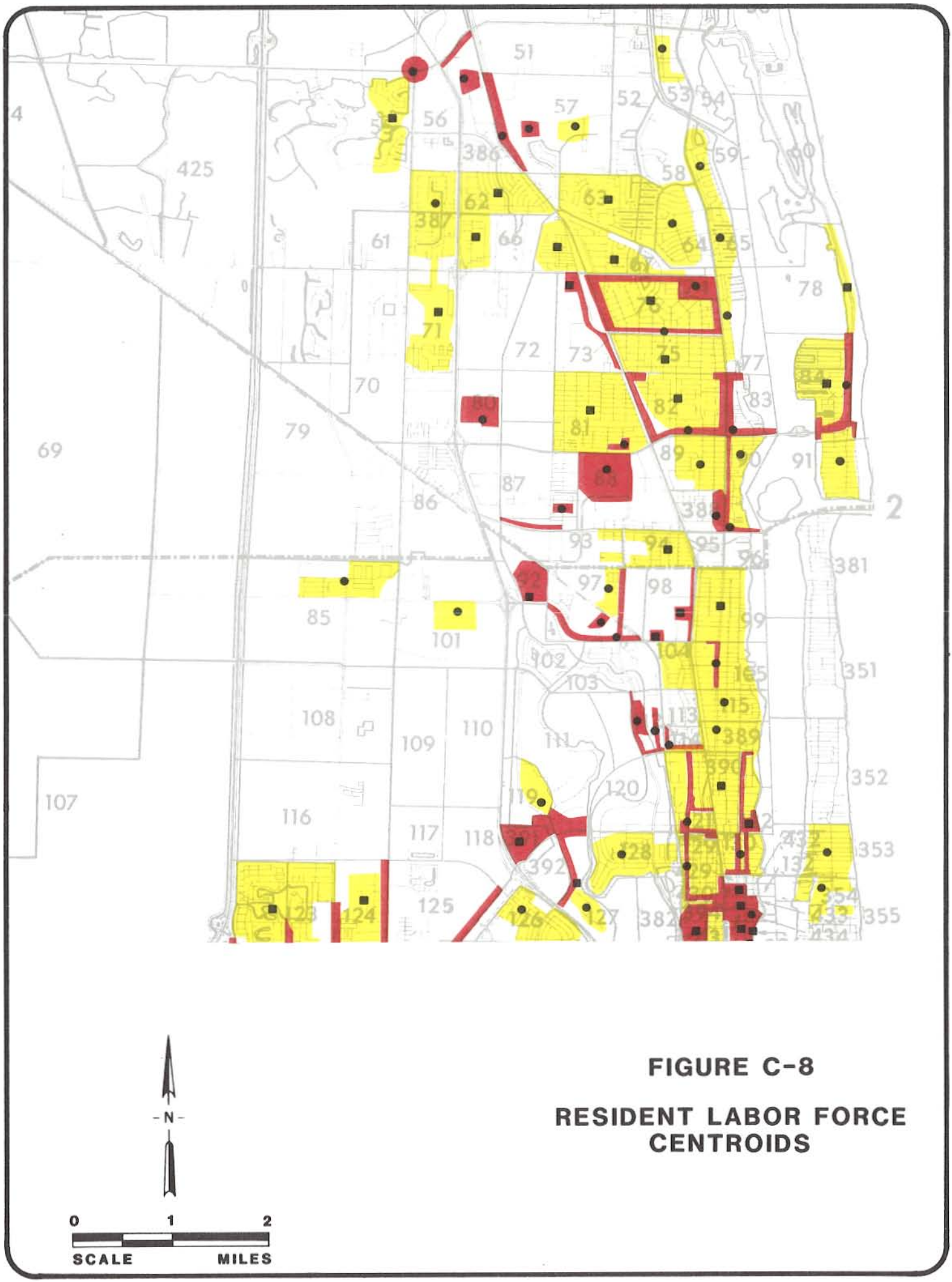


FIGURE C-8

RESIDENT LABOR FORCE CENTROIDS

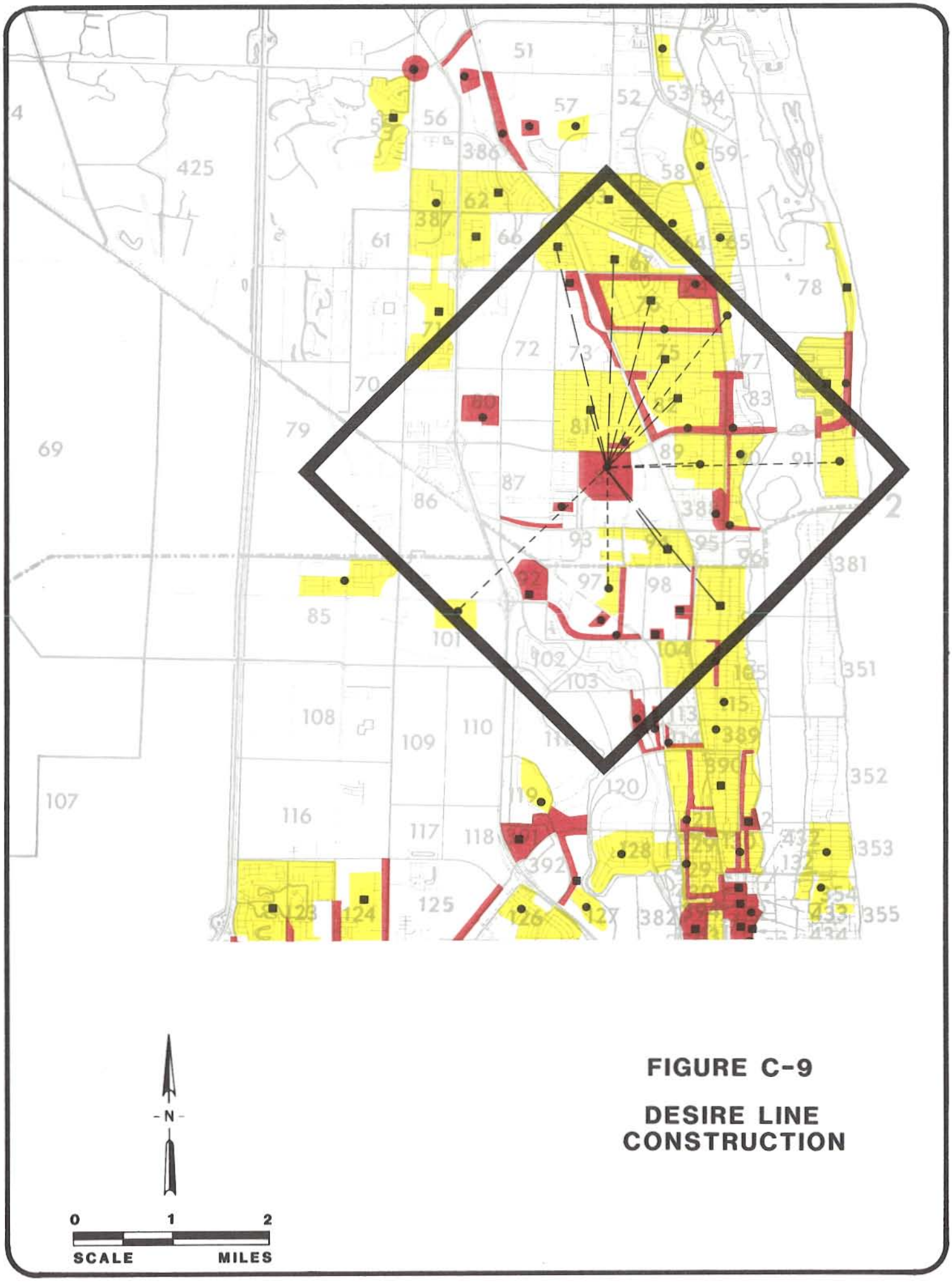


FIGURE C-9

DESIRE LINE CONSTRUCTION

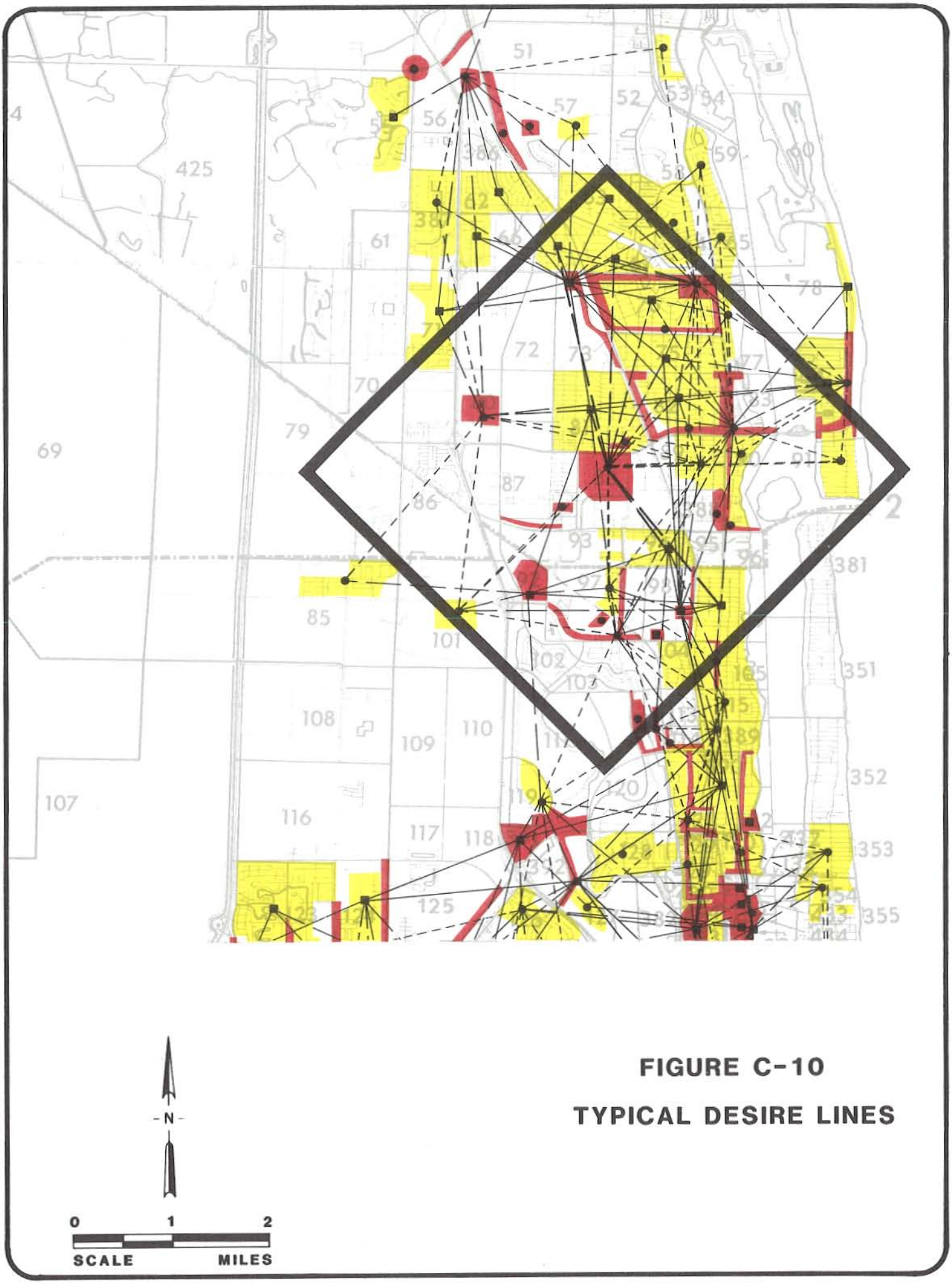


FIGURE C-10

TYPICAL DESIRE LINES

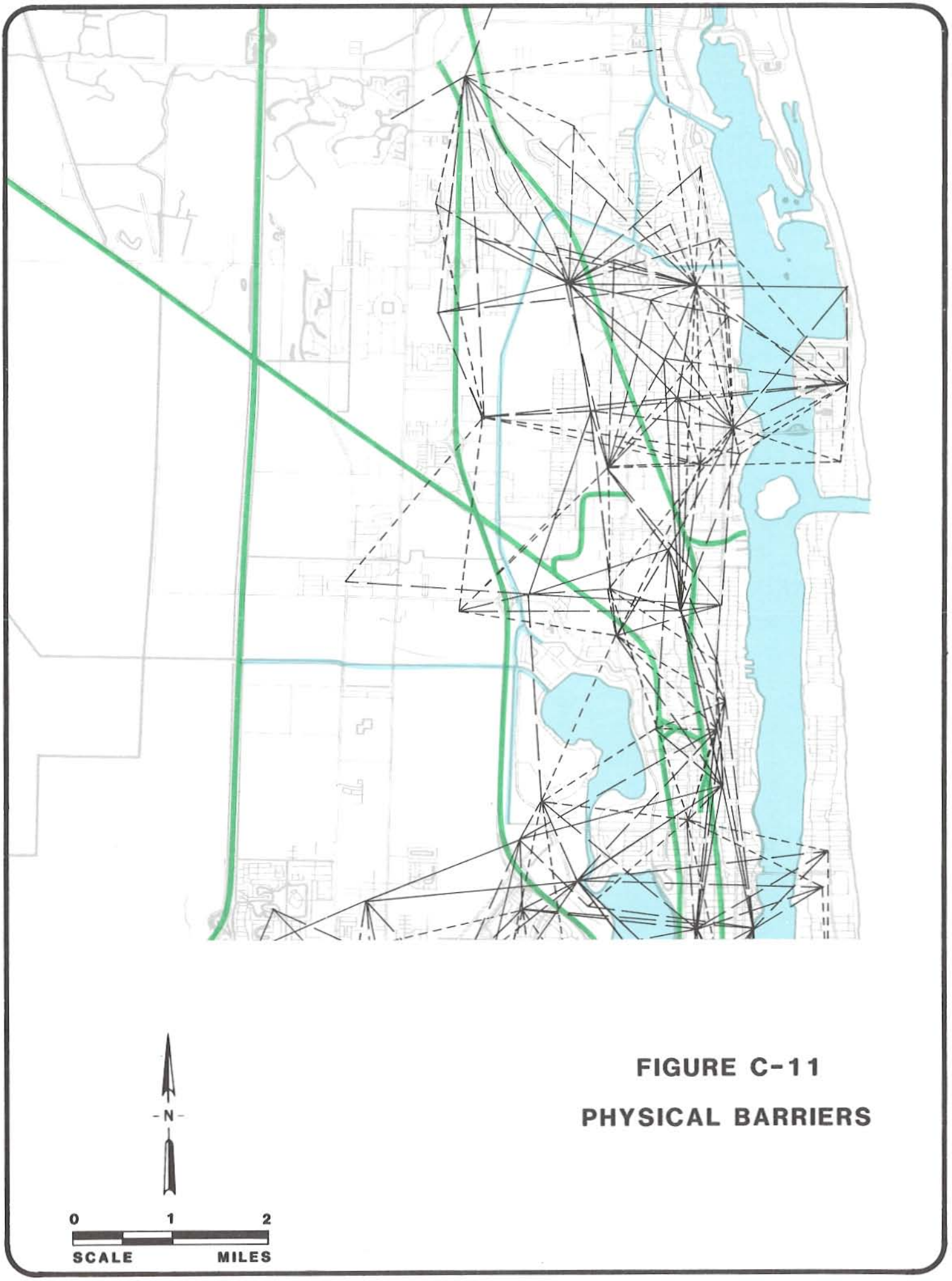


FIGURE C-11

PHYSICAL BARRIERS

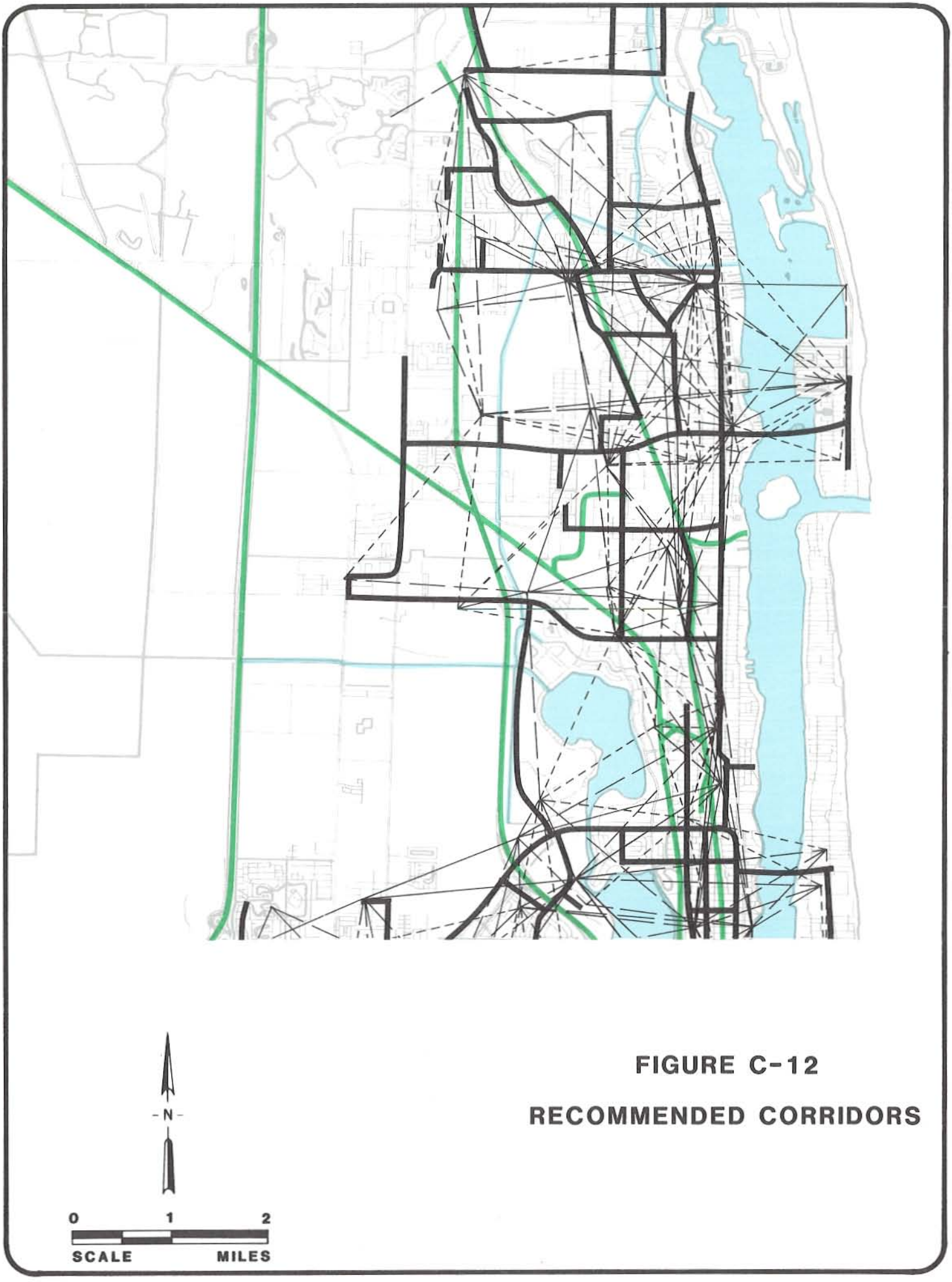


FIGURE C-12

RECOMMENDED CORRIDORS

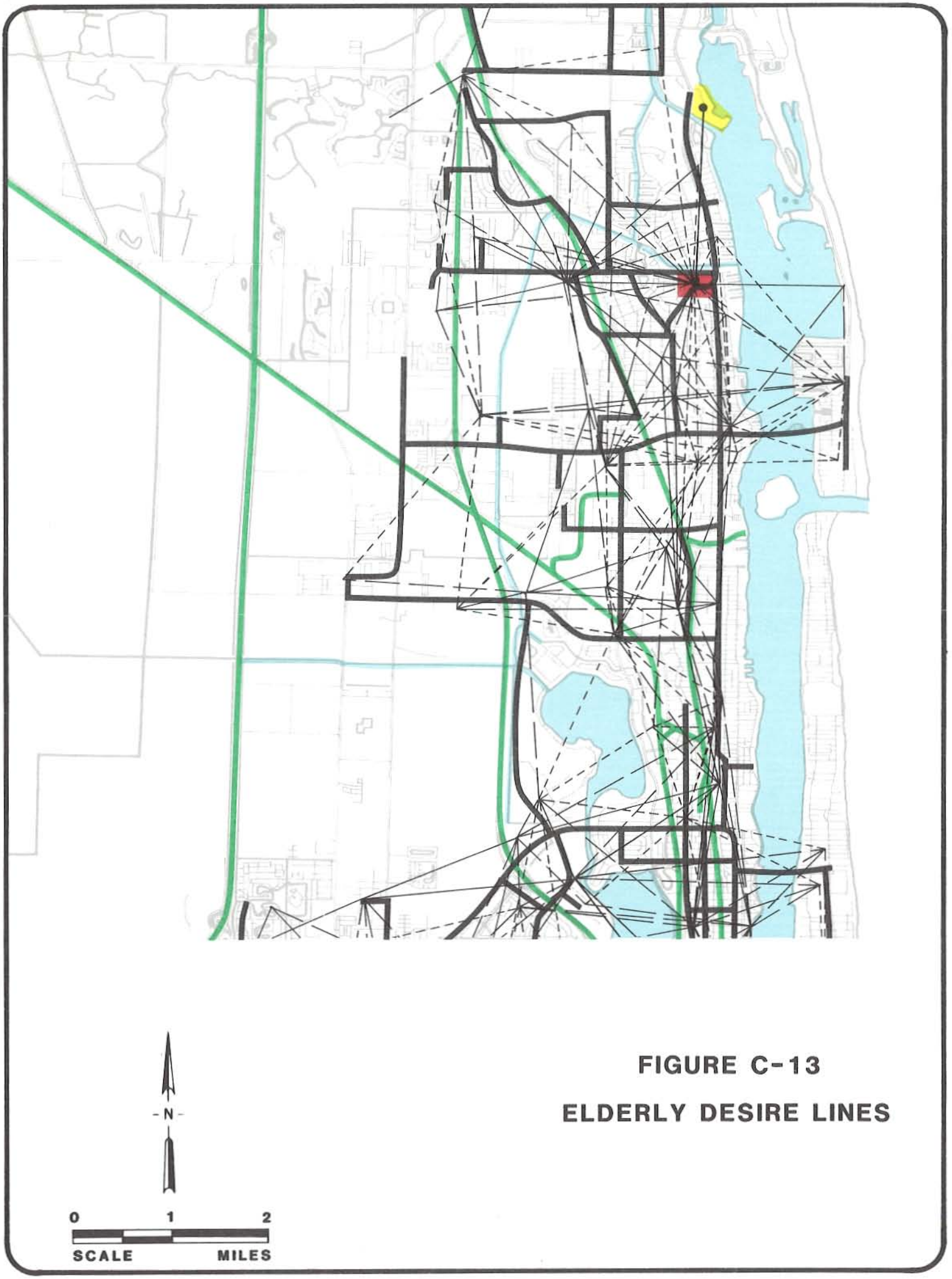


FIGURE C-13

ELDERLY DESIRE LINES

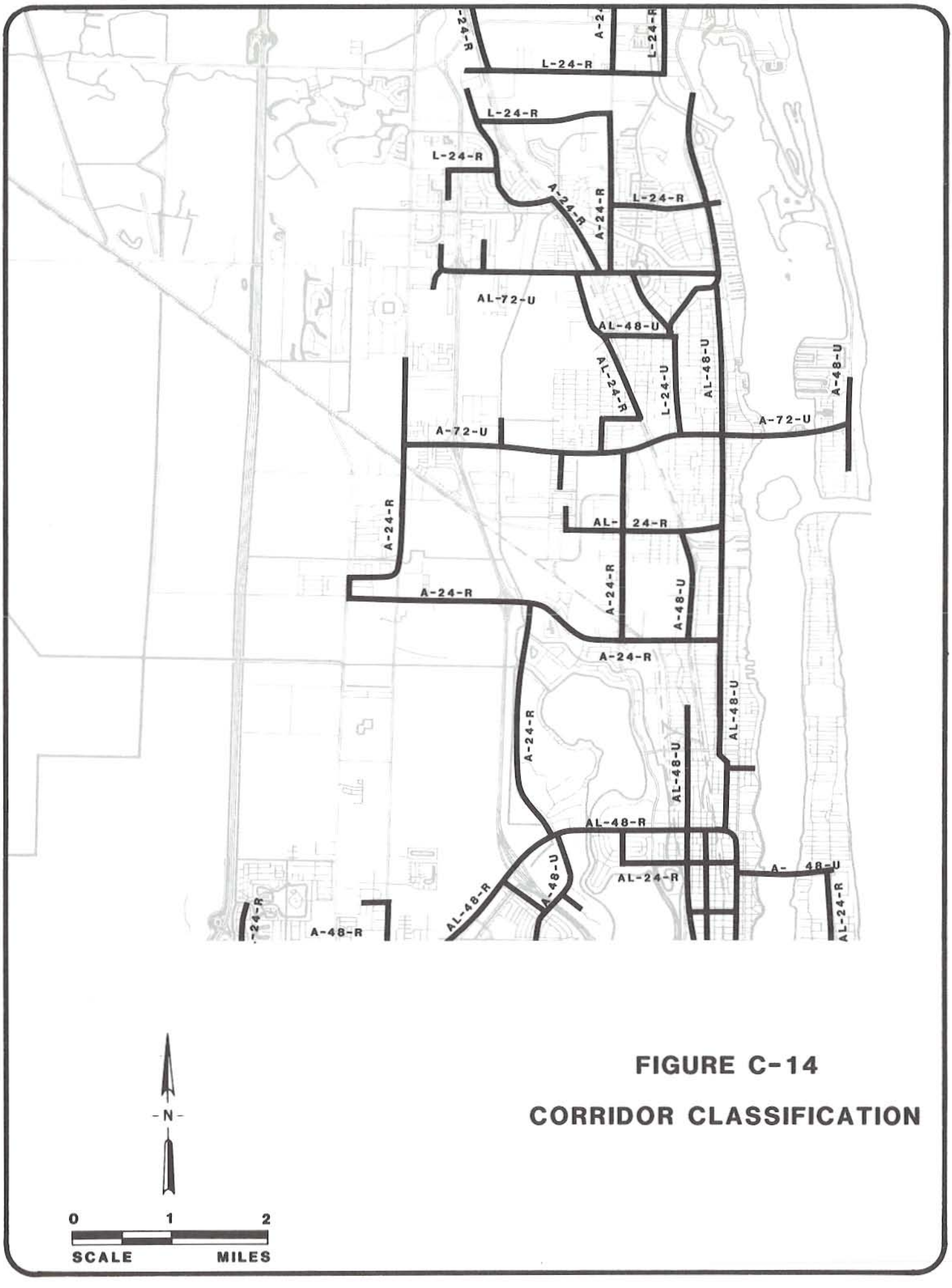


FIGURE C-14

CORRIDOR CLASSIFICATION

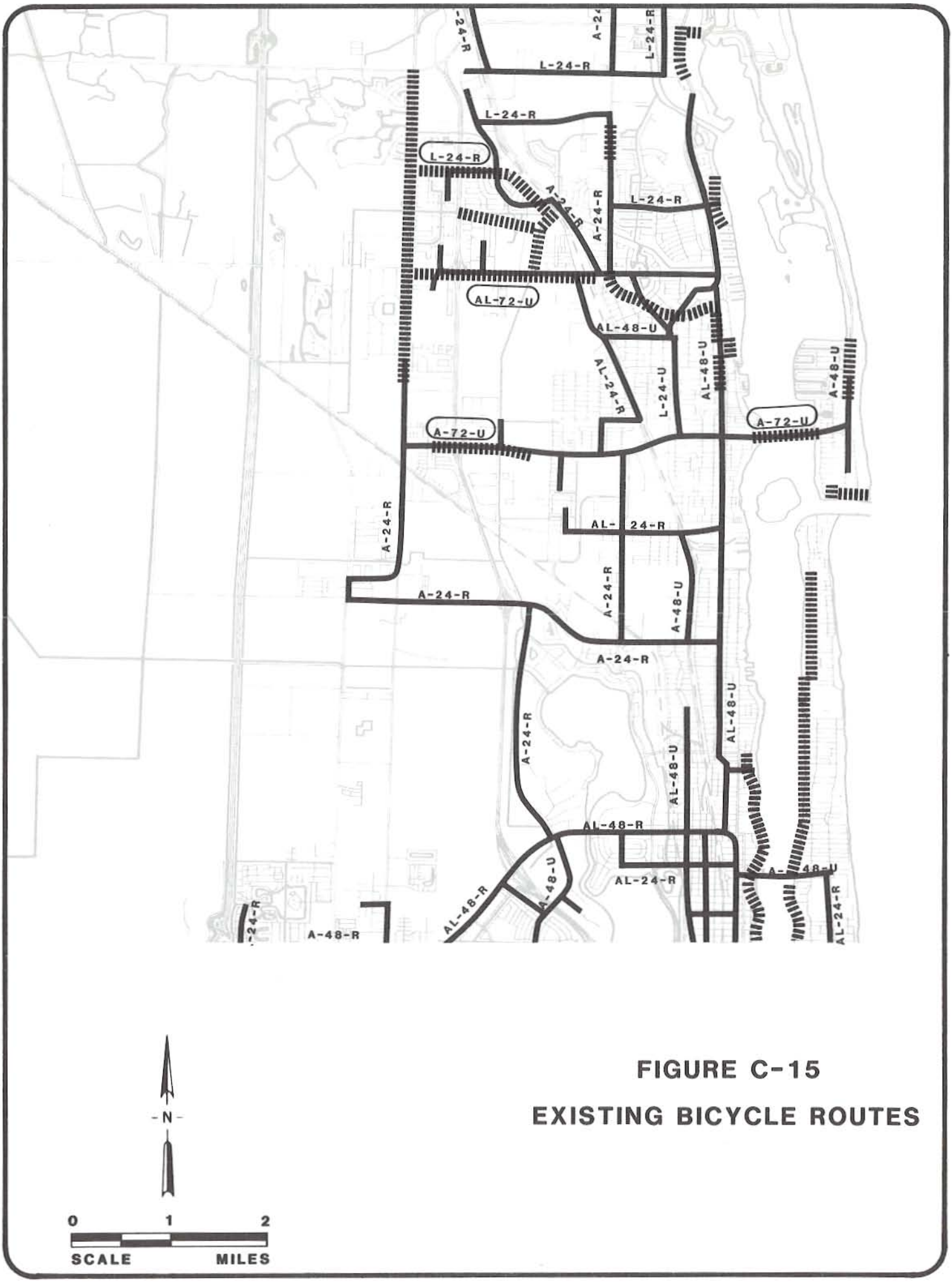


FIGURE C-15

EXISTING BICYCLE ROUTES

APPENDIX D

EXAMPLE ANALYSIS
DEVELOPING TYPICAL NEIGHBORHOOD CORRIDOR FRAMEWORKS

INTRODUCTION

The following example may be used to illustrate the step-by-step procedure for the Neighborhood Corridor Framework. A portion of the Palm Beach County MPO Area was selected as an example for the use of this procedure. The example is based on the neighborhood surrounding a typical junior high school.

Steps Referenced	Description
Steps 1,2 and 3	No graphics.
Step 4	Figure D-1 shows the location of a typical school surrounded by a square with a 4.25-mile diagonal. This would be one of several areas selected for study, the example one representing a typical urban neighborhood.
Step 5	No graphics.
Step 6	Major conflict points or barriers are shown on Figure D-2. These include an expressway and arterial streets, with traffic signals indicated. Canals, railroad crossings, and bridges are also shown. Note that the scale of this map is sufficient to allow for detailed analyses.
Steps 7, 8, 9	Recreation areas, shopping areas, and other schools were added to the map, as shown on Figure D-3.
Step 10	Desire lines have been drawn from the center of each homogeneous residential area to the school, as shown on Figure D-4. Note that no barriers fall within one of these residential areas.
Step 11	Figure D-5 shows the corridors developed to serve the desire lines. They are parallel to existing streets, serve the residential areas, and are relatively direct.
Steps 12,13,14, 15 and 16	The corridors having been defined, the next step is shown: the analysis of the local street system and the

classifications of the corridors. Figure D-6 lists general classification criteria which were applied in this example.

Figure D-7 depicts the resulting neighborhood bicycle facilities.

APPENDIX D LEGEND


SCHOOL LOCATION


ANALYSIS AREA BOUNDARY

ARTERIAL, EXPRESSWAY, RAILROAD BARRIER

WATER BARRIER


INTERSECTION BARRIER


PARKS


OTHER SCHOOLS


SHOPPING

NEIGHBORHOOD CENTROID WITH DESIRE LINE


CORRIDOR

CLASSIFICATION

TYPE 2

TYPE 2A


TYPE 3

TYPE 5

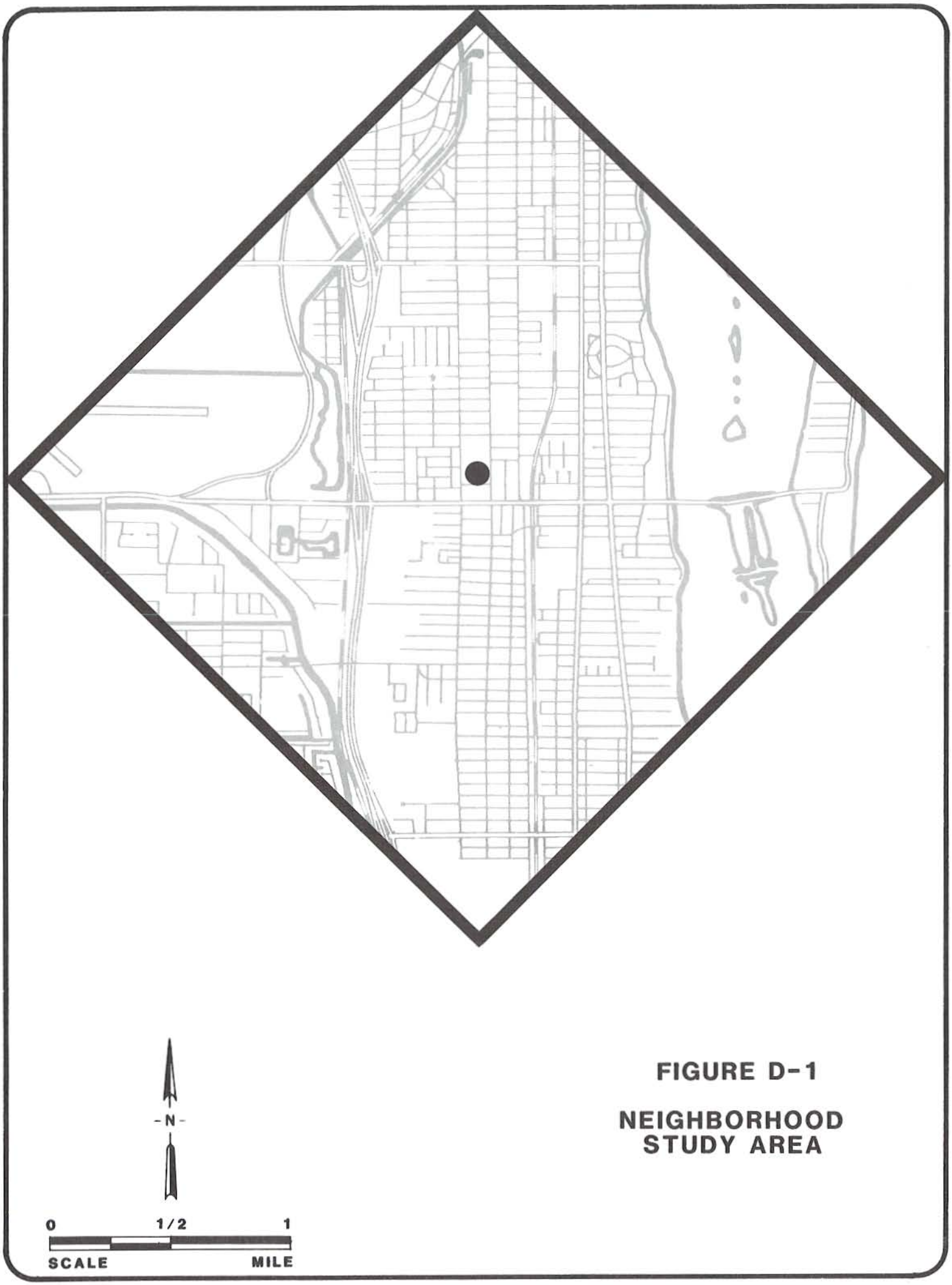


FIGURE D-1

NEIGHBORHOOD STUDY AREA

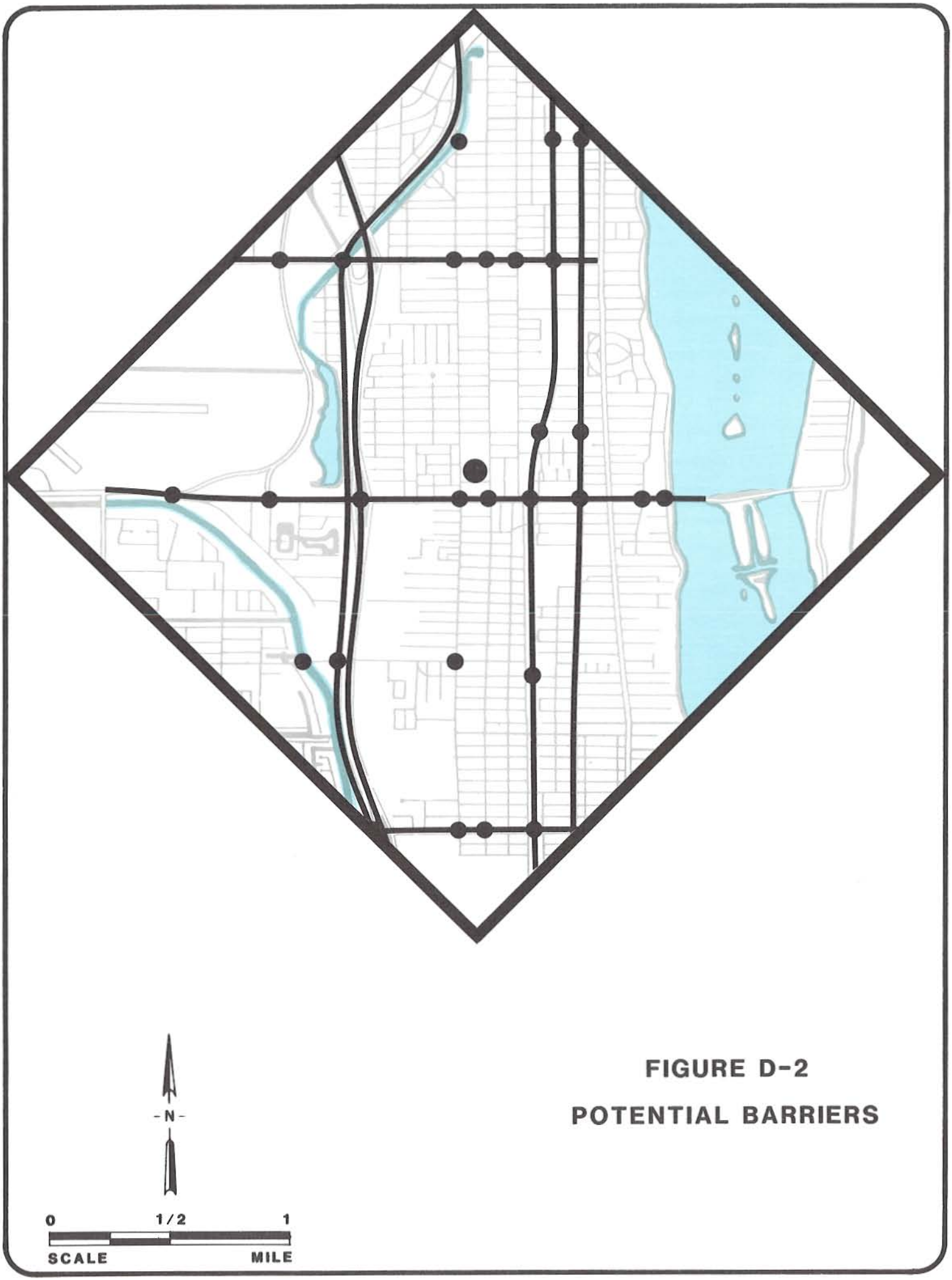


FIGURE D-2

POTENTIAL BARRIERS

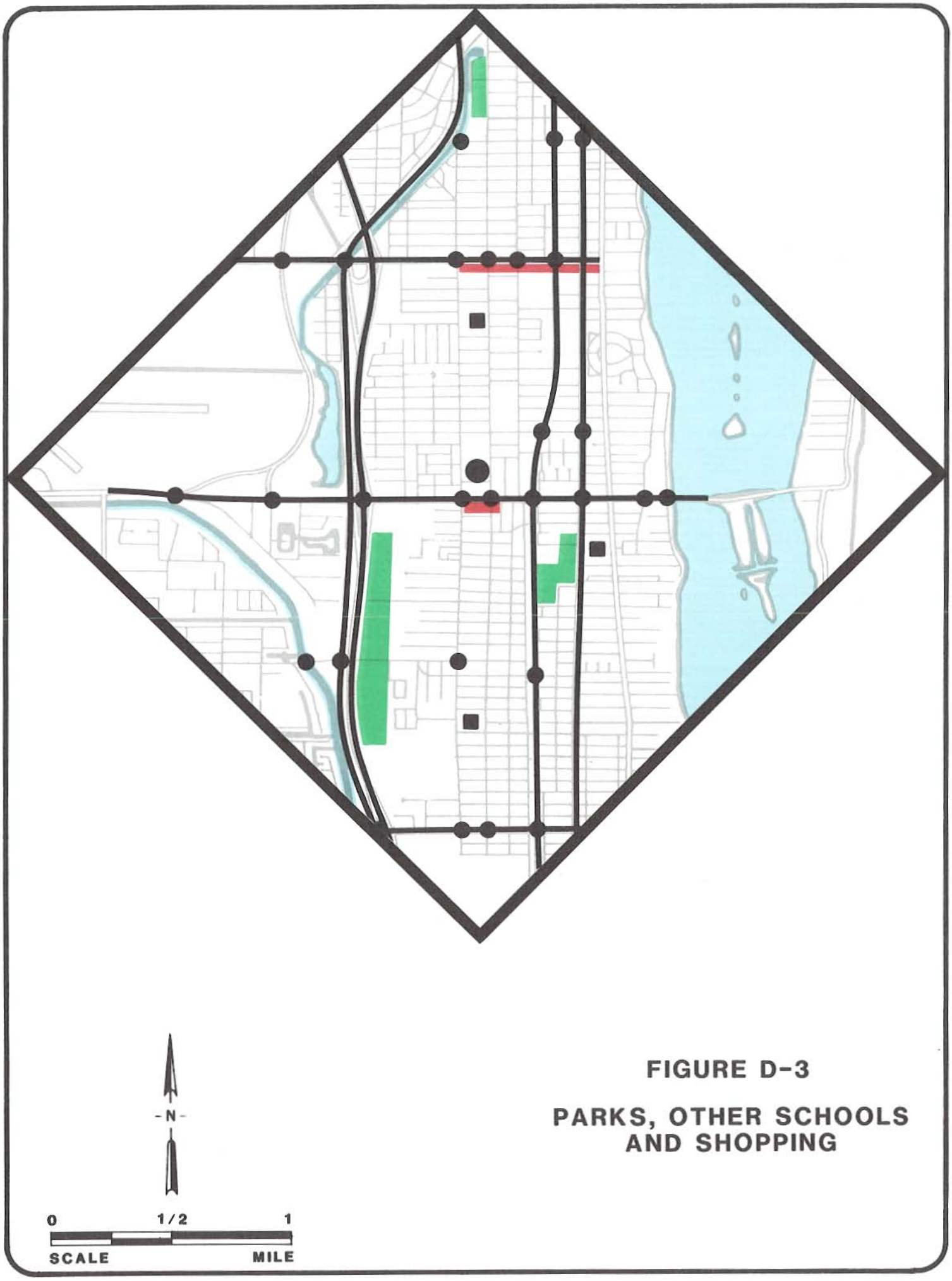


FIGURE D-3

PARKS, OTHER SCHOOLS AND SHOPPING

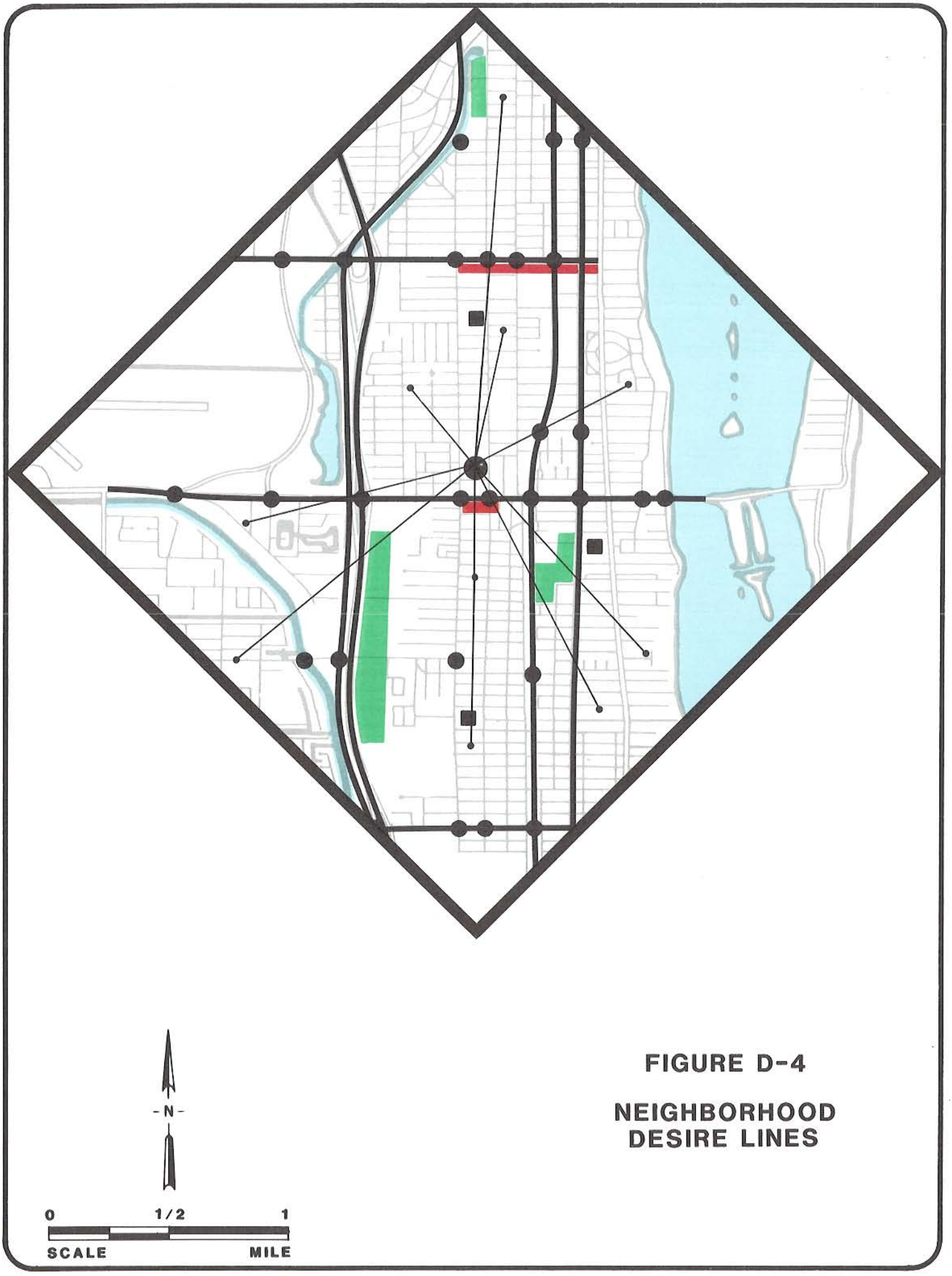


FIGURE D-4

NEIGHBORHOOD DESIRE LINES

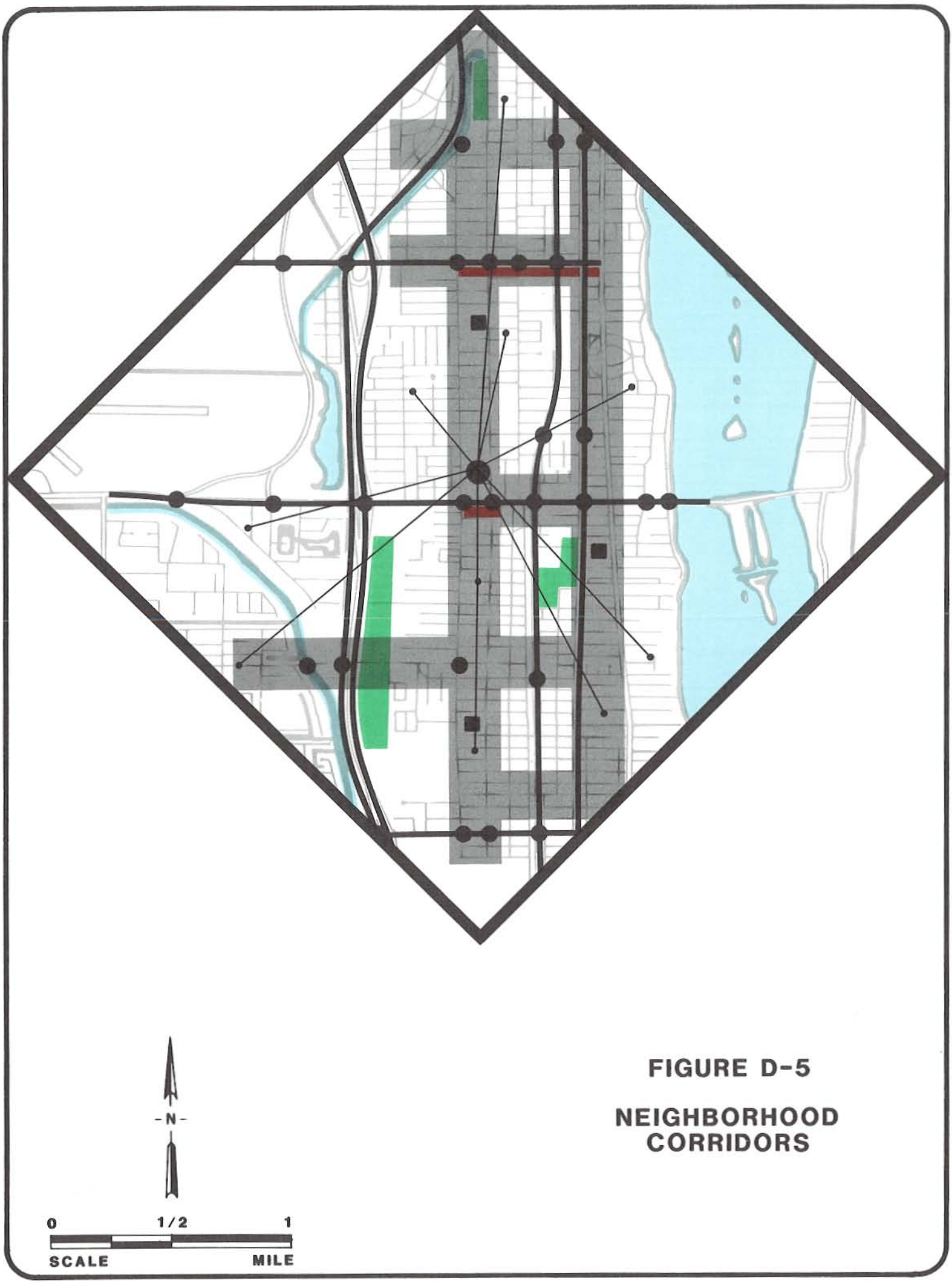


FIGURE D-5

NEIGHBORHOOD CORRIDORS

FIGURE D-6

CLASSIFICATION CRITERIA

TYPE 1 CHARACTERISTICS

- ADEQUATE LANE WIDTH TO PERMIT ON-STREET BICYCLE USE.
- NUMEROUS LOW VOLUME ALTERNATIVES WITHIN CORRIDOR.

IMPROVEMENTS

- NONE REQUIRED

TYPE 2 CHARACTERISTICS

- ADEQUATE LANE WIDTH TO PERMIT ON-STREET BICYCLE USE.
- NO LOW VOLUME ALTERNATIVES WITHIN CORRIDOR.

IMPROVEMENTS

- SIGNING, STRIPING (OPTIONAL)

TYPE 2-A CHARACTERISTICS

- ADEQUATE LANE WIDTH TO PERMIT ON-STREET BICYCLE USE.
- NO LOW VOLUME ALTERNATIVES WITHIN CORRIDOR.
- EXISTING ON-STREET PARKING CONFLICT.

IMPROVEMENTS

- REMOVE PARKING OR OTHER OPERATIONAL CHANGES.
- SIGNING, STRIPING (OPTIONAL)

TYPE 3 CHARACTERISTICS

- NO TYPE 1, 2, ON 2-A CONDITIONS.
- NO LOW VOLUME ALTERNATIVES.
- INADEQUATE LANE WIDTH TO PERMIT ON-STREET BICYCLE USE.
- NO CURB OR SIDEWALK

IMPROVEMENTS

- WIDEN EXISTING LANE WIDTH.
- SIGNING, STRIPING (OPTIONAL)

TYPE 4 CHARACTERISTICS

- NO 1, 2,2-A OR 3 CONDITIONS.
- NO LOW VOLUME ALTERNATIVES.
- INADEQUATE LANE WIDTH TO PERMIT ON-STREET BICYCLE USE.
- FEW INTERSECTING STREETS.
- EXISTING CURB AND GUTTER.
- EXCESS RIGHT-OF-WAY.

IMPROVEMENTS

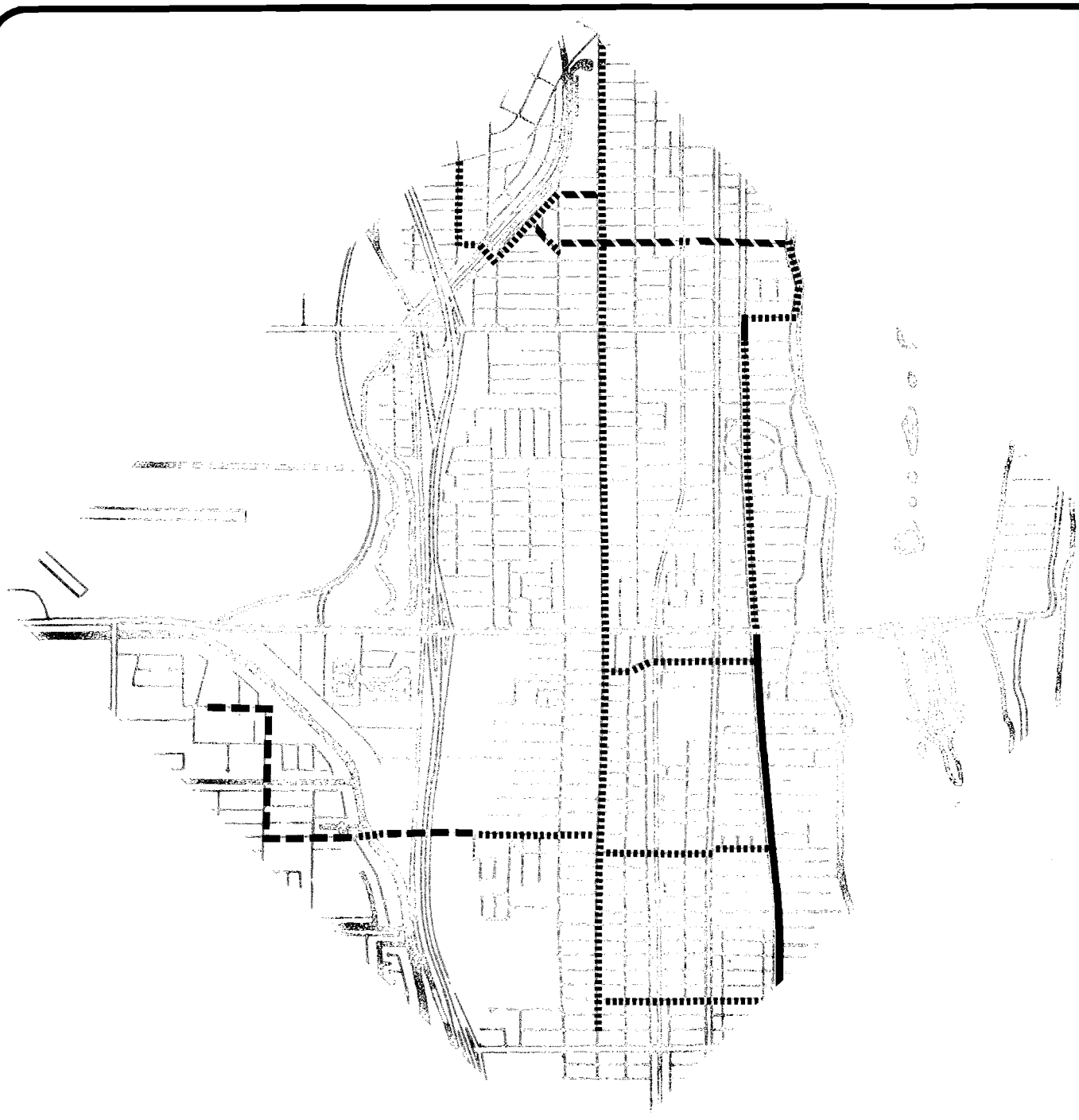
- SEPARATE BIKE PATH.

TYPE 5 CHARACTERISTICS

- CONDITIONS UNSUITABLE FOR ON-STREET BICYCLE USE OR FOR A SEPARATE PATH.

IMPROVEMENTS

- VARIES



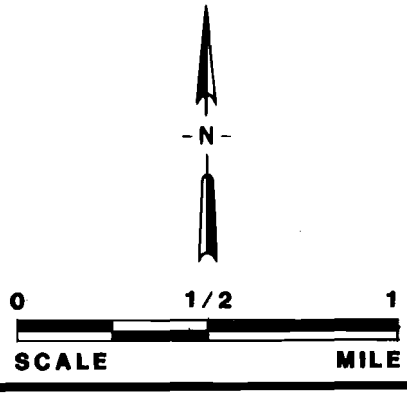


FIGURE D-7

NEIGHBORHOOD BICYCLE FACILITIES

APPENDIX E

SELECTED REFERENCES

GOVERNOR'S BICYCLING ACTIVITIES ADVISORY COMMITTEE REPORT
October, 1979

BICYCLE TRANSPORTATION FOR ENERGY CONSERVATION
US Department of Transportation
Office of the Secretary
April, 1980

BICYCLE SAFETY EDUCATION - FACTS AND ISSUES
Kenneth D. Cross, PhD
Anacapa Sciences, Inc.
Santa Barbara, CA
August, 1978

BICYCLE PROGRAM GUIDE (Draft dated April, 1979)
Bicycle Federation Information Clearing House of Bicycling Programs
Soon to be published by U.S. Department of Transportation, Office of the Secretary and Office of Environment and Safety

SOME MYTHS AND ERRORS IN THE FIELD OF BICYCLE AND PROGRAM DEVELOPMENT
John Williams
1979

PLANNING AND DESIGN CRITERIA FOR BIKEWAYS IN CALIFORNIA
June 30, 1978
State of California Business and Transportation Agency, Department of Transportation (CalTran)

DEVELOPMENT OF NON-MOTORIZED TRANSPORTATION FACILITIES
March, 1979
State of California Business and Transportation Agency, Department of Transportation, Division of Highways, Office of Bicycle Facilities.

BICYCLING AND AIR QUALITY INFORMATION DOCUMENT
U.S. Environmental Protection Agency
September, 1979

PATTERNS AND PROBLEMS OF BICYCLE USE IN GAINESVILLE, FLORIDA
Paul L. Doughty, PhD
Department of Anthropology
University of Florida
July, 1980