1976

Recreation Matrix Study Manual

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RECREATION MATRIX STUDY

CURRICULUM IN COMMUNITY PLANNING AND AREA DEVELOPMENT

UNIVERSITY OF RHODE ISLAND

SPRING 1976

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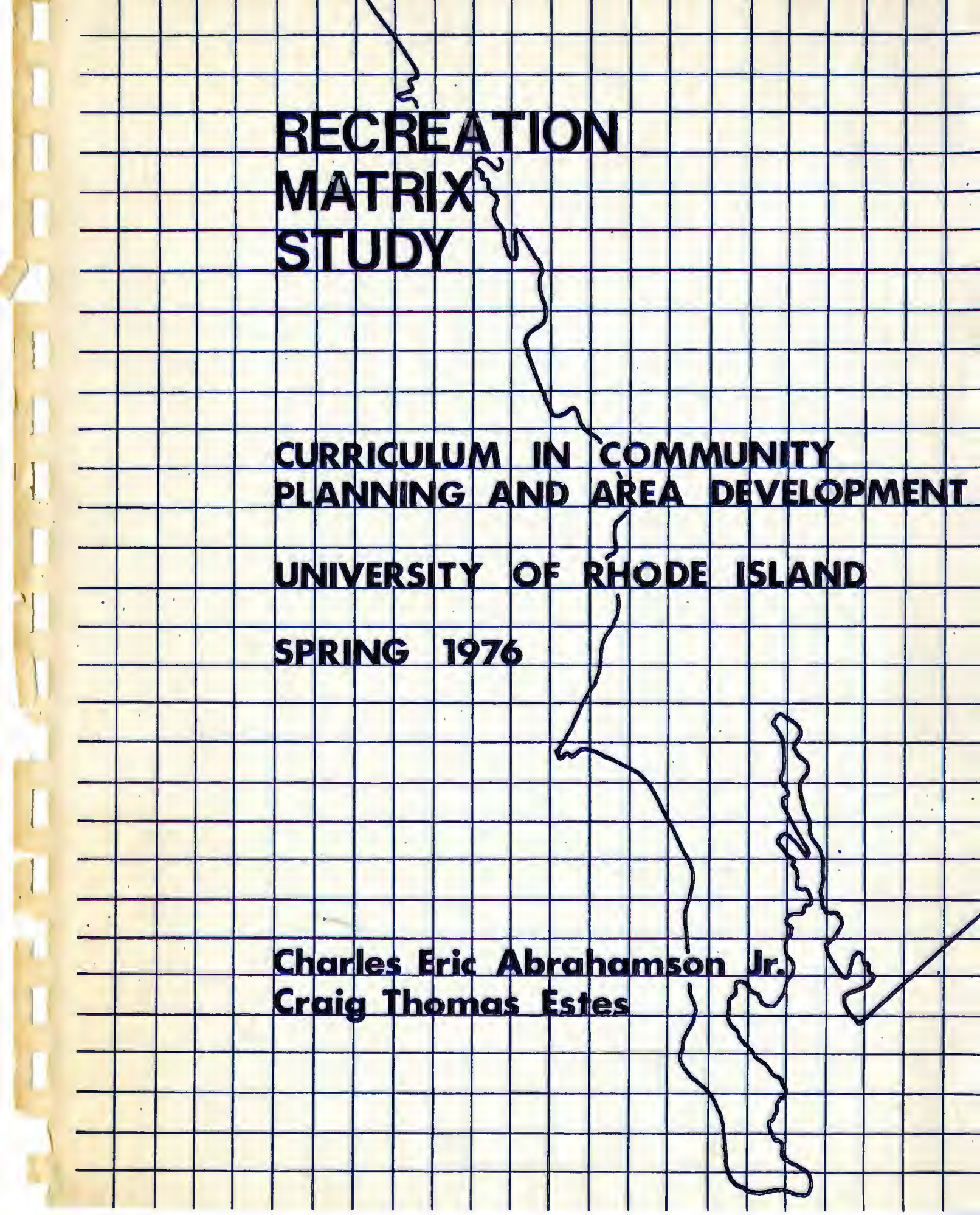

RECREATION MATRIX STUDY MANUAL

by

Charles Eric Abrahamson Jr.

and

Craig Thomas Estes

A THESIS OPTION PRESENTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF COMMUNITY PLANNING

CURRICULUM IN COMMUNITY
PLANNING & AREA DEVELOPMENT

UNIVERSITY OF RHODE ISLAND

SPRING 1976

THESIS OPTION ADVISORY COMMITTEE

Dr. John Kupa (Major Professor)

Professor Dieter Hammerschlag

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GLOSSARY

Adjacent grids - The eight grids immediately surrounding the grid being evaluated.

Deep cove - Greater than six feet deep.

Ecotones - An ecolgoical community of mixed vegetation formed by the overlapping of land types

Grid system - A system for analyzing spatially located data, through the use of a consistent grid matrix for associated data.

Intensive recreation development - Recreation support facilities such as access roads, buildings, parking lots, and on-site sewerage.

Jurisdiction Boundaries - The incorporated city or town limits.

Map reference points - Symbols (X's) located in the upper corners of each map, which serve as guides to matching map combinations in the overlay process.

Partially developed shore - Grids that contain shoreline that has both developed and undeveloped areas.

Potential Categories for recreation development

- High - A potential that offers the greatest opportunity for recreation development with the fewest limitations.
- Medium - A potential that offers an opportunity for recreation development with some limitations.
- Low - A potential offering the least opportunity for recreation development unless certain restrictive elements can be overcome

Pronounced stream/swale network - Contour lines that form streambeds and/or narrow drainage channels.

Semi-urbanized rivers - Grids that contain rivers with only one shore developed.

Shallow cove - Less than six feet deep.

SECTION ONE: INTRODUCTION

BACKGROUND

The problem of providing for adequate and diverse recreational opportunities and facilities, while at the same time preserving and protecting the State's unique and fragile ecosystems is a major issue facing Rhode Islanders. With the increasing demand for recreational activities resulting from greater mobility and more leisure time, recreators, both within the state and throughout the New England region, have come to view Rhode Island's intensive coastal areas and inland forests as prime locations for year round recreation.[1]

To meet the challange of this ever increasing demand for recreational opportunities, numerous local, state, regional, and federal agencies are endeavoring to develop plans and programs, which seek to balance needed recreational facilities within the limitations and capabilities of the State's natural environment. Because of Rhode Island's small size, increased dependence for planning and funding development has been allocated to the state level. At the state level, the agency, which has been given the primary responsibility for the overall development of Rhode Island's future land use planning and programing, is the Statewide Planning Program. This agency, working in coordination with other state departments and local, regional, and

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1. State of Rhode Island. Report of the Governor's Committee on the Coastal Zone. March, 1970. "The Bureau of Outdoor Recreation estimates that by the year 2000, marine recreation in the United States will quadruple in terms of user-days. In Rhode Island, it is estimated that tourist accommodations must double by 1972 to meet projevted demand." p. 91

federal agencies, is in the process of developing an overall state guide plan, which will include various land use, social, economic, and implementation and management elements including a state recreation element.

In January of this year the Statewide Planning Program published the third edition of their recreation element in a report entitled "Plan for Recreation, Conservation and Open Space".[2] The report incorporates an extensive inventory of existing outdoor recreational facilities for each of Rhode Islands 39 cities and towns, a study of anticipated recreation demand by activity, and a short term and long range implementation scheme for statewide recreation planning and development.

Although the report is quite specific in defining desired and required goals and objectives for development of recreation opportunities and their balance with environmental concerns, the report stops short of providing a mechanism by which specific recreational facility characteristics and environmental factors can be analyzed and evaluated in relationship to each other at the local level. The problem then is now to utilize the information already available in the form of existing facilities and data regarding each local jurisdiction's natural and man-made land uses as a guide to creating plans and programs for local recreation facility development.

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2. Report Number 28, "Plan for Recreation, Conservation and Open Space" (State Guide Plan Element 151). Prepared by the Rhode Island Statewide Planning Program and the Rhode Island Department of Natural Resources. January, 1976

STUDY OBJECTIVE

The objective of the RECREATION MATRIX STUDY is to create an evaluation system for analyzing recreation potentials for local communities. Prior to completion of the remaining elements of the State Guide Plan, the system may be applied manually. The system is also capable of being incorporated into the State Guide Plan computer bank when all elements of the state plan are functional.

The RECREATION MATRIX STUDY is designed to identify recreation opportunities for each selected recreation activity contained in Report 28 on a town wide scale and based on a mid-range level of site identification. Mid-range site identification is taken to mean that the location identified represents a level of land characteristic information of greater depth than is presented in the State Guide Plan or in the local master plan, but not as specific as could be achieved through actual on-site inspection and analysis. This level of identification provides, to the local jurisdiction, a guideline for evaluating potential recreation site areas.

In analyzing local recreation potentials at the mid-range level, certain important issues, such as the economic base of the jurisdiction; age, income levels, and occupations of the population served; and land ownership have not been addressed in the evaluation process.

This study makes no attempt to pin-point specific sites to be developed for recreation facilities. At the specific site level, the issues mentioned above become very important local considerations in determining the acquisition and development of recreation facilities. These issues are addressed in the local and state plans and policies and directly in the political process.

After completion of the RECREATION MATRIX STUDY for a jurisdiction, specific site evaluation is necessary prior to actual facility design. The Rhode Island Statewide Planning Program and the Rhode Island Department of Natural Resources have developed a "Recreation, Conservation, and Open Space Project Priority Rating System"[3] that is useful in evaluating recreation projects at the site specific level.

STUDY FORMAT

The format chosen for the RECREATION MATRIX STUDY is basically that of a manual. Each element of the study process is described in detail and includes a step-by-step procedure for its development. By utilizing this manual, a local community planner and/or a citizen advisory group should be able to complete a recreation potential study for their community. After completion of this study, the jurisdiction will be ready to initiate individual site evaluation for consideration in a final recreation and open space implementation program.

The RECREATION MATRIX STUDY process comprises the remaining sections of this manual. The process elements are presented as follows

SECTION TWO - DEVELOPMENT OF THE RECREATION MATRIX STUDY OVERLAY MAPPING SYSTEM

SECTION THREE - DEVELOPMENT OF THE RECREATION STUDY MATRIX

SECTION FOUR - DEVELOPMENT OF THE RECREATION VARIABLES

SECTION FIVE - PREPARATION OF THE RECREATION POTENTIAL MAPS

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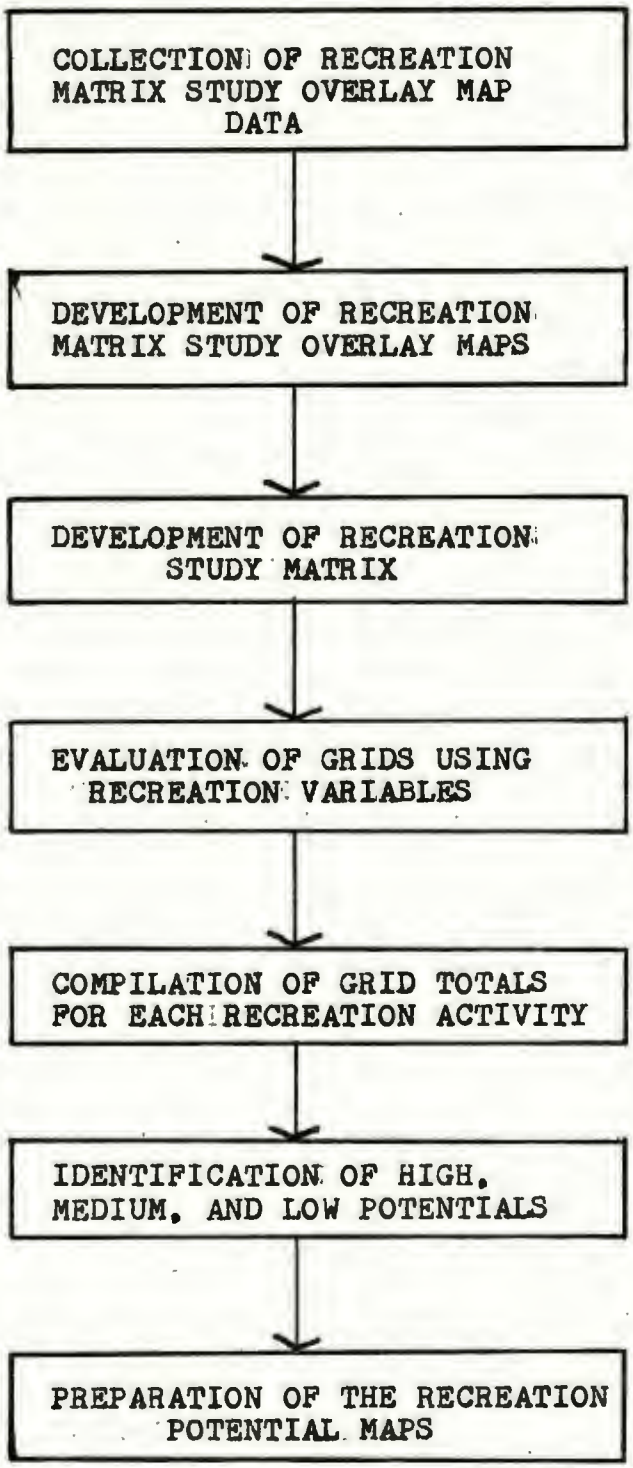
3. Report Number 18, Plan for Recreation, Conservation, and Open Space "Recreation, Conservation and Open Space Project Priority Rating System". Rhode Island Statewide Planning Program and the Rhode Island Dept. of Natural Resources. 1973. p. 8

RECREATION MATRIX STUDY
OPERATIONAL FLOW CHART



SECTION TWO

DEVELOPMENT OF THE RECREATION MATRIX STUDY OVERLAY MAPPING SYSTEM

The data base for the RECREATION MATRIX STUDY is derived from various natural and man-made characteristics, which make up the study area. These characteristics, which provide the criteria for the siting of the selected recreation activities are developed in map form and then used in combination with a grid map to develop the values for the MATRIX.

The overlay maps and the grid map are developed at a scale of 1 inch equals 2000 feet in order to directly incorporate U.S. Geological Survey data, which makes up much of the required information.

The graphic medium utilized in developing the overlay maps and the grid map is mylar. This material is clear and provides the opportunity to overlay combinations of maps without the need for a light table.

The maps developed for the RECREATION MATRIX STUDY are:

MAP #1 - SLOPE

MAP #2 - SURFACE WATER & WETLANDS

MAP #3 - SOIL SUITABILITY

MAP #4 - WATERSHED & DRAINAGE PATTERNS

MAP #5 - VEGETAGION DENSITY

MAP #6 - EDGE COMPATIBILITY

MAP #7 - RESIDENTIAL DENSITY

MAP #8 - INTENSIVE URBAN IMPACTS

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

MAP #10 - SECONDARY PATHWAYS

MAP #11 - LOCAL MASTER PLAN

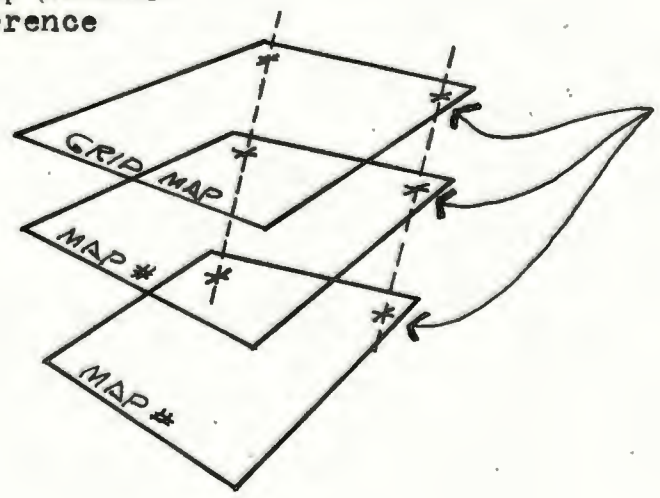
MAP #12 - STATE GUIDE PLAN

GRID MAP

The following pages of this section present a description of each RECREATION MATRIX STUDY OVERLAY MAP and the GRID MAP. A standard format is utilized, which presents the information objective and data categories of the map, its data source, and the procedure to be followed in its preparation.

Overlay Mapping Precedure:

Always place GRID Map on top and match map combinations with reference points



MAP #1 - SLOPE

INFORMATION OBJECTIVE

Slope is both a positive and negative factor in siting recreational activities. Negative aspects include limiting access for vehicles and pedestrians because of steepness of grade, lack of level ground for recreation facilities, and generation of surface water runoff, which can result in flooding and erosion. Positive aspects include provision for grade change required for winter sports such as skiing, development of vista points, and when combined with flat areas, protection from wind.

DATA CATEGORIES

- 0 to 5% slope
- 5.1 to 15% slope
- 15.1% and greater slope

DATA SOURCE

U.S. Geological Survey maps 7.5 Minute Series (topographic)

PROCEDURE

-Lay mylar sheet over USGS Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Deliniate 5% and 15% slope areas by measuring the distance between the ten foot contours. For a 15% and greater slope, the contour lines must be less than 66 and 2/3 USGS scale feet apart. For a 5% to 15% slope, the contour lines must be less than 200 and more than 66 and 2/3 USGS scale feet apart. The remaining portion of the study area is then less than 5% slope and is left clear.

MAP #2 - SURFACE WATER & WETLANDS

INFORMATION OBJECTIVE

Surface water and wetland areas are primary natural elements to be considered in siting recreational facilities. Water together with a natural landscape provides a visually dynamic transition between natural forms and is a required ingredient in many forms of recreation. Conversely, water forms have limiting factors that must be considered. Water and the natural land forms, vegetation, and wildlife, which both sustain it and are sustained by it, are fragile and as times have the capacity for only passive recreational use or, in the case of certain wetlands, no capacity for use other than sightseeing.

DATA CATEGORIES

- Saltwater coastline
- Freshwater lakes and ponds
- Rivers and streams
- Wetlands

DATA SOURCE

U.S. Geological Survey maps 7.5 Minute Series (topographic);

(Wetland location can also be derived from the Land Use and Vegetative Cover Maps of Rhode Island (Rhode Island Map-Down)prepared by the Department of Forestry and Wildlife Management, University of Massachusetts. Maps based on U.S. Geological Survey maps 7.5 Minute Series -topographic)

PROCEDURE

-Lay mylar sheet over USGS Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Deliniate coastal waters, likes, and ponds in solid shading, rivers and streams (the blue lines on the USGS Maps) in a dash-double dot line, and the wetlands (USGS symbol ⩙) in hashed lines.

MAP #3 - SOIL SUITABILITY

INFORMATION OBJECTIVE

Soil suitability is a major factor in the siting of those recreation activities, which require the construction of secondary facilities such as running water, restrooms, parking, and vehicle access roads. Only soils with good drainage characteristics and good structure weight carrying capacities have the ability to support such secondary facilities.

DATA CATEGORIES

- Well drained soils (outwash plains and upland till)
- Rocky shallow to bedrock soils
- Imperfectly drained soils (swamp, tidal marsh, stream and river deposits

DATA SOURCE

Physical Conditions Affecting Urban Development Map prepared by the Rhode Island Development Council Planning Division.

PROCEDURE

-Deliniate map reference points on mylar sheet

-Deliniate jurisdiction boundaries

-Transfer soil charactistics onto the mylar using the data categories described above. Because the mylar map and the data map are at different scales, all data will have to be converted to USGS map scale.

MAP #4 - WATERSHED & DRAINAGE PATTERNS

INFORMATION OBJECTIVE

Identification of watersheds and drainage patterns is required to accertain the extent of surface water movement and its direction. The larger the watershed, the greater its capacity for providing permanent water bodies. This is a positive factor in the siting of water based recreation facilities. On the negative side, the larger the watershed, the greater the possibility of nutrient contamination of water bodies linked by drainage with those used for recreation. Carefull consideration must be given to the ratio of watershed size to the size of those water bodies proposed for recreational use and to the drainage patterns emanating from them.

DATA CATEGORIES

- Primary watersheds
- Major drainage patterns

DATA SOURCE

U.S. Geological Survey Maps, 7.5 Minute Series (topographic)

PROCEDURE

-Lay mylar sheet over USGS Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Deliniate primary watersheds by identifying the major ridgelines

-Deliniate major drainage patterns by down hill slope of the watersheds

MAP #5 - VEGETATION DENSITY

INFORMATION OBJECTIVE

Vegetation density relates to both the visual and spatial characteristics of recreational activities. Any outdoor recreational activity is heightened by views of colorful and diverse flora, but certain recreational activities, such as golf, field games, skiing, and certain types of camping require open areas. Dense vegetation is most appropriate where the recreation activity requires only a transition through it, such as hiking or horseback riding.

DATA CATEGORIES

- 0 to 50% tree/shrub density
- 50.1% to 80% tree/shrub density
- 80.1% to 100% tree/shrub density

DATA SOURCE

The Forest and Wetland Vegetation Types of Rhode Island Map Series prepared by the Agricultural Experiment Station, University of Rhode Island, Department of Forestry. Map series based on U.S. Geological Survey Maps, 7.5 Minute Series (topographic)

PROCEDURE

-Lay mylar sheet over the Forest and Wetland Vegetation Types of Rhode Island Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Deliniate vegetation density by identifying the tree and shrub density symbols om the vegetation map. Transfer the data onto the mylar with solid shading for 80.1% to 100% density, heavy hashed lines for 50.1% to 80% density, and light hashed lines for 0 to 50% density.

MAP #6 - EDGE COMPATIBILITY

INFORMATION OBJECTIVE

The transition from one land form to another is both visually exciting and ecologically productive when the interacting forms are compatible. Although a transition from an urban land use to open space or forest can be visually interesting, the most exciting transition, from a recreation standpoint, occurs between open space and forest and when either or both are combined to meet open water. The proliferation of wildlife is also heightened in natural edge areas.

DATA CATEGORIES

- Urban/open edges

-Urban/forest edges

-Forest/open edges

-12 foot coastal water depth

DATA SOURCE

The Land Use and Vegetative Cover Maps of Rhode Island (Rhode Island Map-Down) prepared by the Department of Forestry and Wildlife Management, University of Massachusetts. Maps based on U.S. Geological Survey Maps, 7.5 Minute Series (topographic)

PROCEDURE

-Lay mylar sheet over Land Use and Vegetative Cover Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Identify edge compatibility by combining urban types and mining and waste disposal types into the urban category; agricultural and open types and wetland types into the open category; and forest type into the forest category.

-Deliniate edges between urban and open areas with a solid line, between urban and forest areas with a dashed line, and between forest and open areas with a dot-dashed line.

-Deliniate the 12 foot coastal water depth.

MAP #7 - RESIDENTIAL DENSITY

INFORMATION OBJECTIVE

Local recreation best serves the community when it is located within walking distance of the residential areas. Although certain types of recreation are best suited to non-urbanized areas, the ability to site recreation facilities as close as possible to the user provides a greater potential for full enjoyment of the site.

DATA CATEGORIES

- High density
- Medium density
- Light density

DATA SOURCE

The Land Use and Vegetative Cover Maps of Rhode Island (Rhode Island Map-Down) prepared by the Department of Forestry and Wildlife Management, University of Massachusetts. Maps based on U.S. Geological Survey Maps, 7.5 Minute Series (topographic)

PROCEDURE

-Lay mylar sheet over the the Land Use and Vegetative Cover Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Identify high, medium, and light density residential areas. Transfer data onto the mylar with solid shade for high density, heavy hashed lines for medium density, and light hashed lines for light density.

MAP #8 - INTENSIVE URBAN IMPACTS

INFORMATION OBJECTIVE

Certain land uses such as freeways, heavy industry, mineral extraction, dumps, and junkyards are incompatible with recreational activities. In some cases, such uses are visually incompatible as with dumps and junkyards. In other cases additional incompatibility stems from excessive noise, air , and water pollution. Recreation facilities should be sited in areas that are visually and physically buffered from such incompatible land uses.

DATA CATEGORIES (one category)

- Freeways, industry, mineral extraction, dumps, and junkyards

DATA SOURCE

The Land Use and Vegetative Cover Maps of Rhode Island (Rhode Island Map-Down) prepared by the Department of Forestry and Wildlife Management, University of Massachusetts, Maps based on U.S. Geological Survey Maps, 7.5 Minute Series (topographic)

PROCEDURE

-Lay mylar sheet over the Land Use and Vegetative Cover Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Identify intensive urban impacts by locating the elements in the data category above. Transfer the data onto the mylar with solid shading.

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

INFORMATION OBJECTIVE

Existing recreation facilities offer not only locations for providing additional recreation opportunities, but also serve as integral elements in the development of new facilities, especially when located in close proximity to urban areas. The development of bikeways and hiking and horseback riding trails requires periodic comfort and open space activity interludes. The siting of new recreation areas, which can be linked to existing ones offers the opportunity to provide for continuous access to recreation over large areas.

The proximity of public circulation and rights-of-way to beaches is a major factor not only for ease of access, but also for getting recreation equipment to the site.

DATA CATEGORIES

- State recreation facilities
- Local public recreation facilities
- Local private recreation facilities
- Coastline rights-of-way
- Freeways
- Arterial roads
- Bus lines

DATA SOURCES

Recreation Facilities - Report Number 28, Plan for Recreation Conservation and Open Space (State Guide Plan Element 151). Prepared by the Rhode Island Statewide Planning Program and the Rhode Island Department of Natural Resources. January, 1976

Coastline rights-of-way - Public Rights-of-Way to the Shore prepared for the Commission on the Discovery and Utilization of Public Rights-of-way. Providence, R.I. 1970

Freeways and roads - U.S. Geological Survey Maps, 7.5 Minute Series (topographic)

Bus Lines - Rhode Island Statewide Planning Program. A Department of Transportation For Rhode Island. (Report #15)

PROCEDURE

-Lay mylar sheet over the USGS Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Identify and plot freeways and arterial roads from USGS Map (freeways are double solid lines and major arterials are single solid lines)

-Transfer recreation activities from Report Number 28 utilizing the same graphic symbols.

MAP #10 - SECONDARY PATHWAYS

INFORMATION OBJECTIVE

Secondary pathways such as lightly traveled roads, unimproved roads, and utility easements provide for the development of recreation trails and can serve as linkages between recreation facilities.

DATA CATEGORIES

- Local non-residential streets
- Unimproved roads
- Footpaths
- Powerline rights-of-way
- Water channel rights-of-way

DATA SOURCE

U.S. Geological Survey Maps, 7.5 Minute Series (topographic).

PROCEDURE

-Lay mylar sheet over the USGS Map

-Deliniate map reference points

-Deliniate jurisdiction boumdaries

-Identify data categories listed above and plot on mylar using solid lines for local non-residential streets, double dashed lines for unimproved roads, single dashed lines for footpaths, dash-double dot lines for powerline rights-of-way, and open dot lines for water channel rights-of-way.

-Do not plot local streets which fall within resedential areas. (refer to MAP #7 - RESIDENTIAL DENSITY)

MAP #11 - LOCAL MASTER PLAN

INFORMATION OBJECTIVE

The local master plan is the general guide for land use development. It identifies those areas, which are designated for recreation and open space and shows lands uses which may be incompatible with recreational activities.

DATA CATEGORIES

- High density residential areas
- Medium density residential areas
- Light density residential areas
- Commercial areas
- Industrial areas
- Recreation - open space areas
- State use areas

DATA SOURCE

If available from the city or town being analyzed, or in some cases, from the Department of Community Affairs, State of Rhode Island.

PROCEDURE

-Lay mylar sheet over local master plan. If local master plan is not at USGS Map scale, lay mylar sheet over USGS Map as a guide to scale the local master plan land uses to the study scale.

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Plot local master plan land uses onto mylar sheet

MAP #12 - STATE GUIDE PLAN

INFORMATION OBJECTIVE

The State Guide Plan depicts the land uses, which are forcast for 1990. It is much more general than the local master plan, but, as with the local plan, serves as a guide for siting recreational activities within compatible land use areas.

DATA CATEGORIES

- High density residential areas
- Medium density residential areas
- Light density residential areas
- Commercial areas
- Regional shopping center areas
- Industrial areas
- Governmental - Institutional areas
- Recreation areas
- Woodland - open land areas
- Water bodies

DATA SOURCE

Report Number 22, State Land Use Policies and Plan. Prepared by the Rhode Island Statewide Planning Program. January 1975

PROCEDURE

-Lay Mylar sheet over USGS Map

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Convert state grid system to study scale and use USGS Map as a guide for locating land use designations.

THE GRID MAP

INFORMATION OBJECTIVE

The GRID MAP is used as the guideline for interpreting the mapped data and is layed out in 200 meter grids. This grid scale is the same scale being utilized by the State of Rhode Island in the development of their land use computer data and mapping sytem. By utilizing the same grid scale, the data from both the RECREATION MATRIX STUDY and like data currently existing in the state computer bank can be cross referenced and data gaps in local information filled. At some time in the future, when the state computer bank is fully operational, all of the basic data required for map development can be derived directly form the computer bank.

PROCEDURE

-Lay mylar sheet over USGS Map so that sheet is positioned on a north-south axis.

-Deliniate map reference points

-Deliniate jurisdiction boundaries

-Draw two lines, one vertically along the left side of the sheet and one horizontally at the bottom of the sheet just outside of the jurisdiction boundaries.

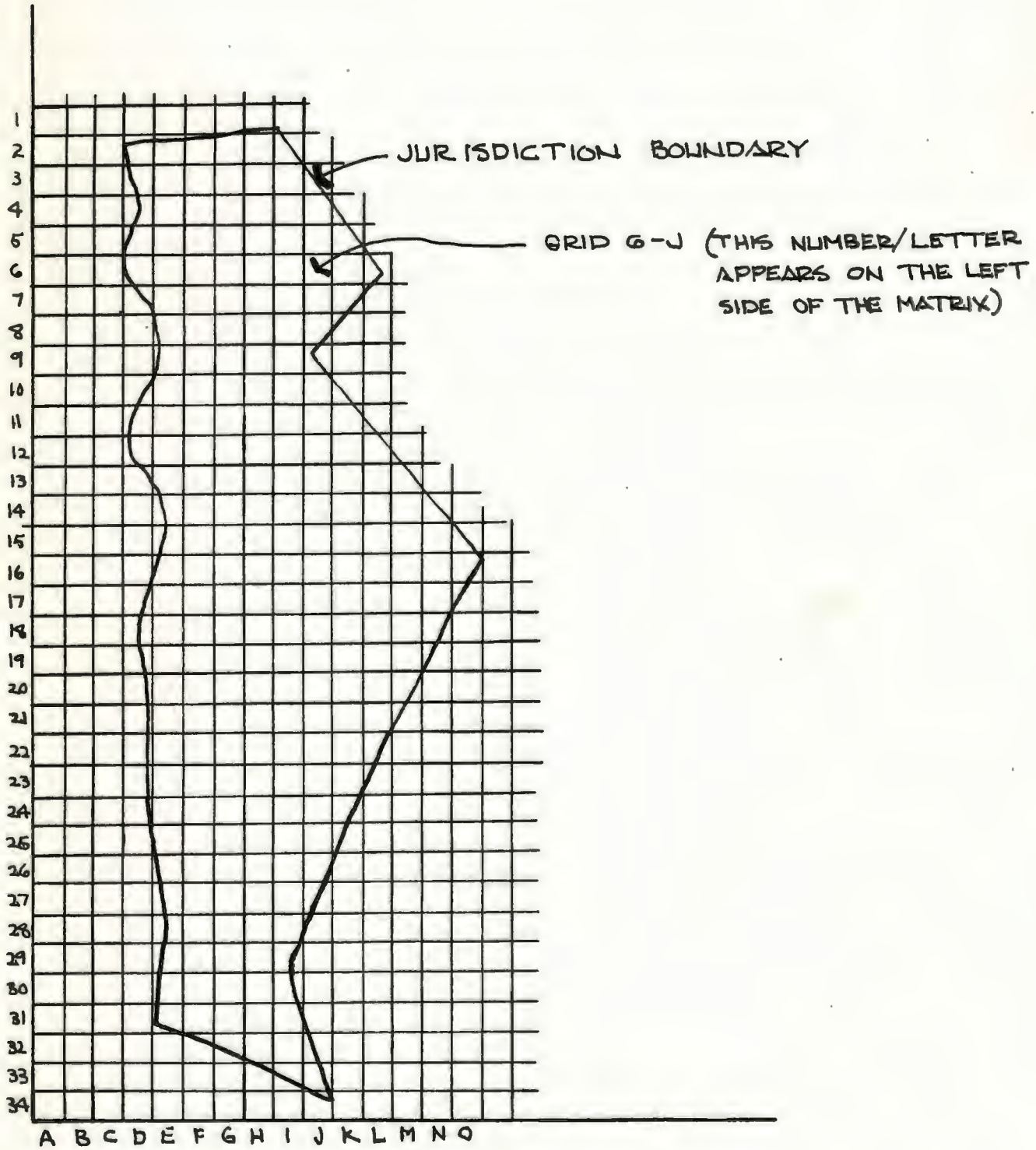
-Measure along the lines at 200 meter scale points and draw lighter lines from the points perpendicular to the first two lines.

-Number the left side grid spaces from the top to the bottom of the line. Begin numbering at the first space, which falls within any part of the jurisdiction boundary.

-Letter the horizontal bottom line grid spaces from left to right using single letters starting with "A" in the first space on the line and if need be doubling the letters to get to the last space which falls within the jurisdiction boundary.

(a schematic diagram of the GRID MAP is presented on page 22)

SCHEMATIC OF GRID MAP
(NOT TO SCALE)



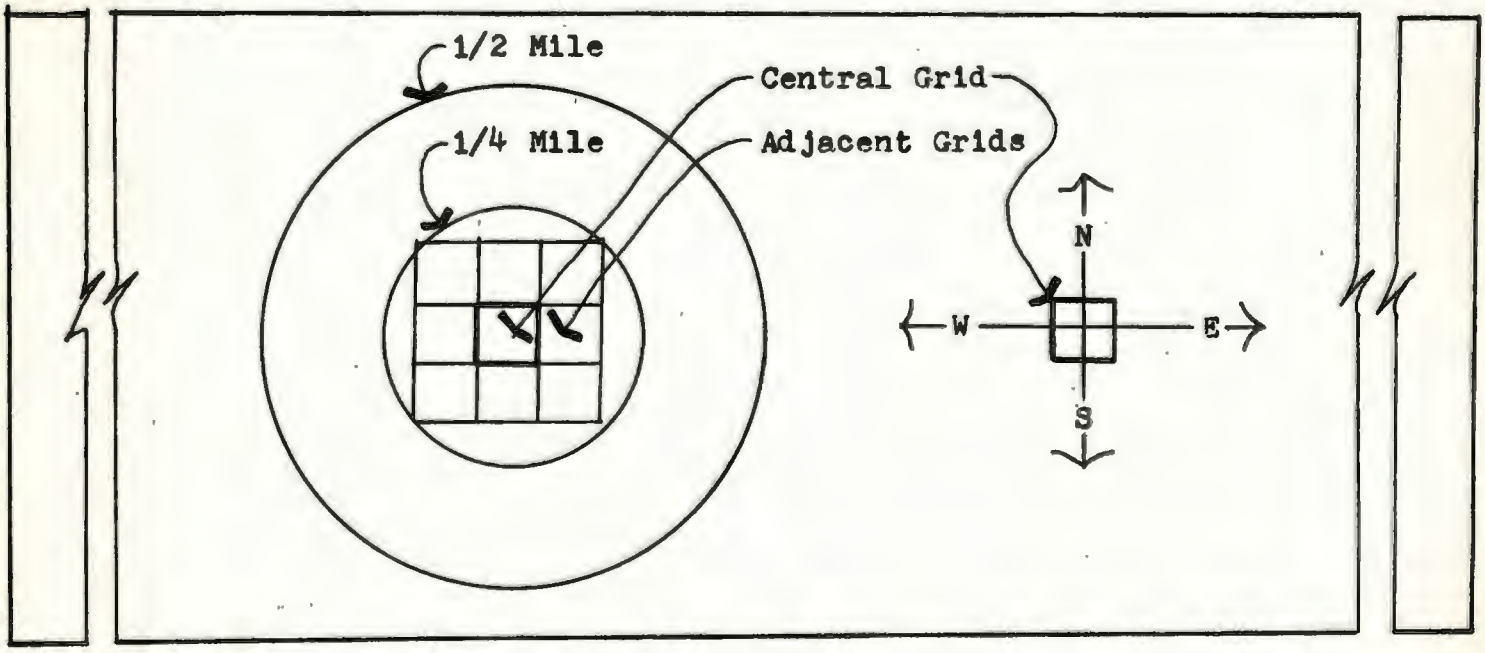
THE ADJACENCY TEMPLATE

Certain Recreation variables incorporate value rankings, which are derived by analyzing adjacent grids, the orientation of the grid, or distance from the grid. An easy way to interpret variables containing these value ranking factors is to use an ADJACENCY TEMPLATE. The template has a central 200 meter scale grid with scaled 1/4 and 1/2 mile circles around the central grid. The eight adjacent grids are drawn around the central grid.

On another portion of the template, a directional symbol depicting the north/south and east/west axis lines are drawn over a scaled grid.

An exmaple of the ADJACENCY TEMPLATE, at a true scale of one inch equals 2000 feet, is provided below.

Use mylar to make the ADJACENCY TEMPLATE



Width of the RECREATION MATRIX STUDY OVERLAY MAPS

SECTION THREE

DEVELOPMENT OF THE RECREATION MATRIX

Upon completion of the RECREATION MATRIX STUDY OVERLAY MAPS, the next step in the RECREATION MATRIX STUDY process is the development of the MATRIX. Since the use of 200 meter grids results in a large number of grids (over 1000 grids in each of the two jurisdictions studied), the MATRIX must be developed on pages instead of one large sheet. By utilizing 8 and 1/2 by 11 inch sheets of grid paper with 5 grids to the inch and then splicing two of these sheets together to form each MATRIX page, the MATRIX can be prepared as follows:

1. Begin by transferring the grid numbers on the GRID MAP to the leftland side vertical column of the MATRIX. Start with line one and enter the number/letters of the grids in which any part of the jurisdiction boundary of the study area falls. For example, in East Providence, the only grids in line one that contained part of the city were 1X and 1Y. Again, these number/letters are listed vertically in the left column.

2. The 35 variable numbers are then entered horizontally along the top of each MATRIX sheet beginning with 1A.1 and ending with 13B.

3. Skipping a few columns, the 12 recreational activity titles are also entered horizontally on each MATRIX sheet.

4. The MATRIX formate is now complete and ready for the evaluation of each grid for each for each recreation variable. Beginning with Variable 1A.1 each grid is evaluated for each variable according to the procedure set forth in the next section (DEVELOPMENT OF THE RECREATION VARIABLES) entering the variable ranking number into the appropriate column. Each variable is completed for the entire study area before proceeding to the next variable. Remember that certain grid rows will not be evaluated and left blank. These are the grids that have been deleted on the GRID MAP due to existing urban development.

5. With the completion of Variable 13B, the evaluation portion of the process is complete and the next step is the totaling of the values for each recreation activity. To facilitate

this step in the process, a guide can be made as follows:

a. First, each recreation activity is listed with the variables that are considered in developing the activity's recreation potential.

BICYCLING - 1A.1, 3A, 4A, 4B.1, 5A.2, 6A, 6B, 6D, 7A, 7B, 7C, 8A, 10A, 11A, 12A, 13A, 13B

BOATING - 1A.1, 2A, 2B, 2C, 2D, 3A, 4A, 6A, 6D, 7A, 7B, 7C, 8A, 9A, 11A, 12A, 13B

CAMPING - 1A.1, 1B, 2A, 2B, 3A, 4A, 4B.1, 4D, 5A.1, 6A, 6B, 6D, 7A, 7B, 7C, 8A, 9B, 10A, 11A, 12A, 13A, 13B

FISHING - 1A.1, 2A, 2B, 2C, 2D, 2E, 3A, 4A, 4B.2, 5A.2, 6A, 6D, 7A, 7B, 7C, 8A, 9A, 9B, 9C, 11A, 12A, 13A, 13B

GOLF - 1A.1, 1B, 2A, 2B, 3A, 4A, 4B.1, 4D, 5A.2, 6B, 7A, 7B, 7C, 8A, 10A, 11A, 12A, 13B

HIKING - 1A.1, 1B, 2A, 2B, 3A, 4A, 4B.1, 5A.2, 6A, 6B, 6D, 7A, 7B, 7C, 8A, 9A, 9B, 10A, 11A, 12A, 13A, 13B

HORSEBACK RIDING - 1A.1, 1B, 2A, 2B, 3A, 4A, 4B.1, 4D, 5A.2, 6A, 6B, 6D, 7A, 7B, 7C, 8A, 9B, 10A, 11A, 12A, 13A, 13B

OUTDOOR GAMES - 1A.1, 2B, 3A, 4A, 4B.1, 5A.2, 7A, 7B, 7C, 8A, 10A, 11A, 12A, 13B

PICNICKING - 1A.1, 1B, 2A, 2B, 3A, 4A, 4B.1, 4D, 5A.1, 6A, 6B, 6D, 7A, 7B, 7C, 8A, 9A, 9B, 10A, 11A, 12A, 13A, 13B

SWIMMING - 1A.1, 2A, 2B, 2F, 2G, 3A, 4A, 6A, 6D, 7A, 7B, 7C, 8A, 9A, 9B, 11A, 12A, 13B

WINTER SPORTS - 1A.2, 1B, 3A, 4A, 4B.1, 4C, 5A.2, 6B, 7A, 7B, 7C, 8A, 10A, 11A, 12A, 13A, 13B

WILDLIFE HABITATS - 2E, 4B.2, 5A.2, 6A, 6C, 6D, 7A, 7B, 7C, 8A, 11A, 12A, 13A, 13B

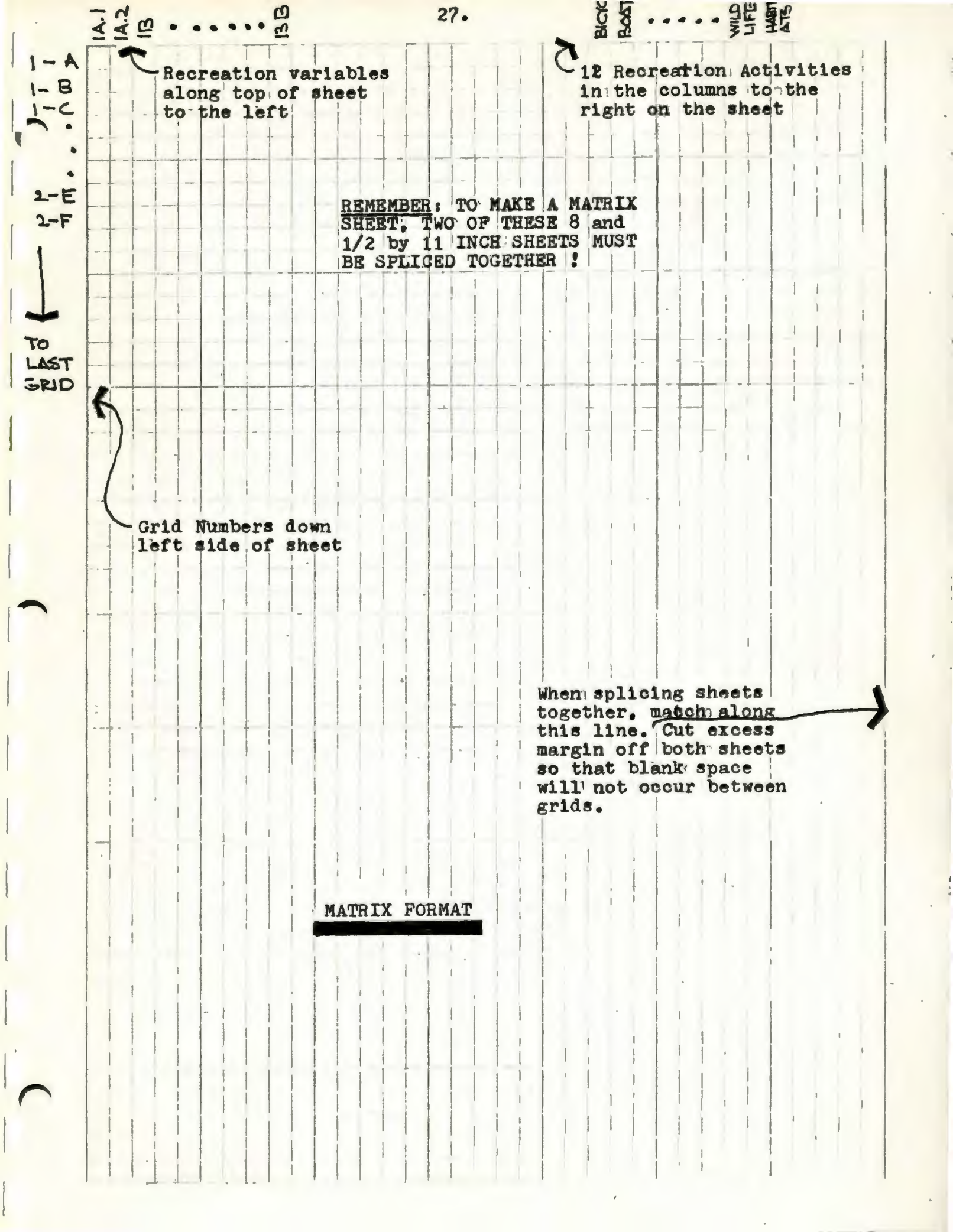
b. Taking a spliced blank sheet of grid paper, the 12 recreation activities are listed vertically on the lefthand side of the sheet. The 35 variables are

repeated horizontally at the top, keeping the same columns as in the original MATRIX.

c. Utilizing the variable/recreation activity combinations listed above, X's are placed in the corresponding columns in each recreation activity row. Those columns that contain X's in each recreation activity row are circled and when added together form the base number for each grid.

d. Each grid row is then totaled, adding only those numbers that fall into the circled columns. This base number is then entered into one of the blank columns to the left of the recreation activities on the MATRIX.

e. After completing the base numbers for each grid, compute the total recreation potential number for each activity. To get this total, place the guide under each grid row and add those numbers that fall into the X'd comumns (outside of the circled columns). This is done for each of the 12 recreational activities and the totall is entered into the appropriate recreation activity column on the MATRIX.


IA.1
IA.2
IB
13B
BICK
BOAT
WILD LIFE
HUNT ATS
1-A
1-B
1-C
2-E
2-F
TO LAST GRID
Recreation variables along top of sheet to the left
12 Recreation Activities in the columns to the right on the sheet
REMEMBER: TO MAKE A MATRIX SHEET, TWO OF THESE 8 and 1/2 by 11 INCH SHEETS MUST BE SPLICED TOGETHER !
Grid Numbers down left side of sheet
When splicing sheets together, match along this line. Cut excess margin off both sheets so that blank space will not occur between grids.
MATRIX FORMAT

SECTION FOUR

DEVELOPMENT OF THE RECREATION VARIABLES

This study has been designed to evaluate the recreation potential for 12 different recreation activities; Bicycling, Boating (salt and fresh water), Camping, Fishing (salt and fresh water), Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming (salt and fresh water), Winter Sports, and Wildlife Habitats (areas with potential for hunting, nature study, photography and birdwatching.

To evaluate the grids for their potential for these recreation activities, a set of 35 variables has been developed. These variablbs have been devised after extensive research into the many natural and man-made factors that effect the location and quality of recreation activities. (see list of references at the end of this manual) As described in the INFORMATION OBJECTIVE section for each RECREATION MATRIX STUDY OVERLAY MAP, various natural and man-made factors have both positive and negative effects on recreation activities. The suitibility of areas for use as recreation sites depends on various natural characteristics, such as slope, surface and subsurface soil suitibility, sun orientation, and the presence of water and vegetation. Man-made factors that effect the suitability of an area for recreation use include ease of access, distance from population concentrations, nearness to conflicting land uses, and compatibility to future governmental plans for the area.

The Recreation Variables were developed to reflect many of these factors and to enable a jurisdiction to identify the limiting natural and man-made characteristics in locating areas that are best suited for various recreation activities.

The Recreation Variables developed for the RECREATION MATRIX STUDY are;

1A.1 SLOPE LIMITATION (slight slope to steep slope)

1A.2 SLOPE LIMITATION (steep slope to slight slope)

1B VARIED TOPOGRAPHY

2A WATER AVAILABLE FOR RECREATION

2B RIPARIAN LANDS OF WATER FEATURES

2C SALT WATER BOATING (direct shelter access)

2D FRESH WATER BOATING

2E PONDS FOR FISHING

2F MAXIMUM SUN EXPOSURE FOR BEACHES

2G BEACH CHARACTERISTICS (coastline)

3A SOIL SUITIBILITY FOR INTENSIVE DEVELOPMENT

4A DOWNHILL DRAINAGE EFFECTS OF RECREATIONAL FACILITIES

4B.1 SURFACE DRAINAGE (no surface water to surface water)

4B.2 SURFACE DRAINAGE (surface water to no surface water)

4C HILL ORIENTATION FOR WINTER RECREATION

4D HILL ORIENTATION FOR CAMPING

5A.1 VEGETATION DENSITY (greatest density to lowest density)

5A.2 VEGETATION DENSITY (lowest density to greatest density)

6A STREAMSIDE RECREATION

6B VARIED LAND TYPES

6C VEGETATION FOR WILDLIFE

6D SHORE CHARACTERISTICS (freshwater ponds and lakes)

7A POPULATION DENSITY WITHIN 1/4 MILE

7B POPULATION DENSITY WITHIN 1/2 MILE

7C ACCESSIBILITY TO CONCENTRATION OF POPULATION

8A PROXIMITY TO INTENSIVE URBAN IMPACT AREAS

9A ACCESS TO COASTAL SHORE

9B ACCESS TO FRESHWATER RESOURCES

9C ACCESS FOR MARINAS (salt water boating)

10A VIEWS FROM HILLS

10B MINIMUM ACREAGE FOR GOLF COURSES

11A COMPATIBILITY WITH LOCAL MASTER PLAN

12A COMPATIBILITY WITH STATE GUIDE PLAN

13A CORRIDORS FOR TRAILS

13B EXISTING FACILITIES

The following pages present a description of each Recreation Variable. A standard format is utilized, which presents the ranking criteria, the value ranking evaluation (3,2, and 1), the RECREATION MATRIX STUDY OVERLAY MAPS utilized the evaluation, the recreation activities considered with the variable, and a detailed procedure to be followed in evaluating the grids for the variable

1A.1 SLOPE LIMITATION

RANKING CRITERIA - slight slope to steep slope

VALUE RANKING

3. Slopes - 0 to 5%

2. Slopes - 5% to 15%

1. Slopes - 15% and greater

MAPS UTILIZED

MAP #1 - SLOPE

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking Horseback Riding, Outdoor Games, Picnicking, Swimming

PROCEDURE

-Place GRID MAP over MAP #1 - SLOPE

-Identify the slope characteristics for each grid by selecting the category of slope that equals or exceeds 50% of the grid area.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 1A.1 column.

1A.2 SLOPE LIMITATION

RANKING CRITERIA - steep slope to slight slope

VALUE RANKING

3. Slopes - 15% and greater

2. Slopes - 5% to 15%

1. Slopes - 0 to 5%

MAPS UTILIZED

MAP #1 - SLOPE

RECREATION ACTIVITIES CONSIDERED

Winter Sports

PROCEDURE

-Place GRID MAP over MAP #1 - SLOPE

-Identify the slope characteristics for each grid by selecting the category of slope that equals or exceeds 50% of the grid area.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 1A.2 Column.

(a shortcut method is to reverse the numbers in Column 1A.1, 3's become 1's, 2's remain 2's, and 1's become 3's.)

1B VARIED TOPOGRAPHY

RANKING CRITERIA - most diverse to least diverse

VALUE RANKING

3. Grids with mixed topography.

2. Grids of one slope category with adjacent grids varied

1. Grids of one slope category with adjacent grids similar

MAPS UTILIZED

MAP #1 - SLOPE

RECREATION ACTIVITIES CONSIDERED

Camping, Golf, Hiking, Horseback Riding, Picnicking, Winter Sports

PROCEDURE

-Place GRID MAP over MAP #1 - SLOPE

-Overlay the ADJACENCY TEMPLATE with the center grid on the grid being analyzed.

-Identify the topographic characteristics for each grid based on the vlaue ranking above

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 1B Column.

2A WATER AVAILABLE FOR RECREATION

RANKING CRITERIA - largest body of water to smallest body of water

VALUE RANKING

3. Ocean and salt water bays

2. Lakes, ponds, and rivers

1. Streams and wetlands

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

RECREATION ACTIVITIES CONSIDERED

Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Picnicking, Swimming

PROCEDURE

-Place GRID MAP over MAP #2 - SURFACE WATER & WETLANDS

-Identify the water available for recreation for each grid based on the value ranking above.

-The higher water value takes precedent (i.e. a grid containing both ocean and wetland receives a 3)

-Those grids not containing any type of water are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 2A Column.

2B RIPARIAN LANDS OF WATER FEATURES

RANKING CRITERIA - least vulnerable to most vulnerable

VALUE RANKING

3. Ocean and salt water bays

2. Lakes, ponds, and rivers

1. Streams and wetlands

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS;

RECREATION ACTIVITIES CONSIDERED

Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming

PROCEDURE

-Place GRID MAP over MAP #2 - SURFACE WATER & WETLANDS

-Identify the water available for recreation for each grid based on the value ranking above.

-The lower water value takes precedent (i.e. a grid containing both ocean and wetland receives a 1)

-Those grids not containing any type of water are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 2B Comumn.

2C SALT WATER BOATING (Direct Sheltered Access)

RANKING CRITERIA - deepest sheltered area to shallowest sheltered area

VALUE RANKING

3.. Deep cove along ocean or bay

2.. Deep cove along river

1.. Shallow cove or straight shoreline

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLAND (check USGS map for water depths of coves)

RECREATION ACTIVITIES CONSIDERED

Boating, Fishing

PROCEDURE

-Place GRID MAP over MAP #2 - SURFACE WATER & WETLANDS

-Identify salt water boating access for each grid based on the value ranking above.

-Those grids not containing shoreline on coast are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 2C Column.

2D FRESH WATER BOATING

RANKING CRITERIA - largest body of water to smallest body of water

VALUE RANKING

3. 50 Acres and greater (lakes and Ponds)

2. 20 to 50 Acres (lakes and Ponds)

1. Less than 20 Acres (Lakes, Ponds, Rivers, and Streams)

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

RECREATION ACTIVITIES CONSIDERED

Boating, Fishing

PROCEDURE

-Place GRID MAP over MAP #2 - SURFACE WATER & WETLANDS

-Identify fresh water boating opportunities for each grid based on the value ranking above.

-Those grids not containing any of the water types listed in the value ranking are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 2D Column.

2E PONDS FOR FISHING

RANKING CRITERIA - best ponds for fishing to worst ponds for fishing

VALUE RANKING

3. Ponds fed by rivers or streamfed pond system

2. Ponds depending on surface runoff with 30 to 1 watershed to pond ratio.

3. Ponds depending on surface runoff with less than a 30 to 1 watershed to pond ratio.

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS; MAP #4 - WATERSHED & DRAINAGE PATTERNS

RECREATION ACTIVITIES CONSIDERED

Fishing, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAP #2 - SURFACE WATER & WETLANDS and MAP #4 - WATERSHED & DRAINAGE PATTERNS

-Identify ponds for fishing for each grid based on value ranking above.

-To identify the 30;1 watershed/pond ratio, measure size of pond and totall watershed area in which the pond is contained..

-Those grids not containing any fresh water ponds are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 2E Column.

2F MAXIMUM SUN EXPOSURE FOR BEACHES (Coast, ponds of 20 acres plus)

RANKING CRITERIA - best orientation to worst orientation

VALUE RANKING

3. South, Southwest, West

2. Southeast, East

1. Northwest, North, Northeast

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

RECREATION ACTIVITIES CONSIDERED

Swimming

PROCEDURE

-Place GRID MAP over MAP #2 - SURFACE WATER & WETLANDS

-Overlay Directional Finder (on ADJACENCY TEMPLATE) on the grid being analyzed

-Identify sun exposure characteristics for each grid based on the value ranking above.

-Those grids not containing shoreline on the coast or ponds larger than 20 acres are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 2F Column.

2G BEACH CHARACTERISTICS (coastline)

RANKING CRITERIA - best beach characteristics to worst beach characteristics

VALUE RANKING

3. Less than 5% slope; maximum water depth 12' @ 150' from shore.

2. Less than 5% slope; maximum water depth less than 12' @ 150' from shore.

1. Slope 5% and greater or coastal wetlands

MAPS UTILIZED

MAP #1 - SLOPE; MAP #2 - SURFACE WATER & WETLANDS; MAP #6 - EDGE COMPATIBILITY

RECREATION ACTIVITIES CONSIDERED

Swimming

PROCEDURE

-Place GRID MAP over MAPS #1, #2, and #6

-Identify beach characteristics of each grid based on the value ranking above.

-Those grids not containing shoreline on coast are left blank.

-Transfer the value ranking number to the MATRIX to the right of the grid number in the 2G Column.

(a shortout method is to check numbers in Column 1A.1 for slope characteristics)

3A SOIL SUITIBILITY FOR INTENSIVE DEVELOPMENT

RANKING CRITERIA - slight limitation to severe limitation

VALUE RANKING

3. Slight limitation

2. Moderate limitation

1. Severe limitation

MAPS UTILIZED

MAP #3 - SOIL SUITIBILITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports

PROCEDURE

-Place GRID MAP over MAP #3 - SOIL SUITIBILITY

-Identify the soil suitibility for intensive development of each grid by selecting the category in the value ranking that equals or exceeds 50% of the grid area.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 3A Column.

4A DOWNHILL DRAINAGE EFFECTS OF RECREATIONAL FACILITIES

RANKING CRITERIA - least effect to most effect

VALUE RANKING

3. Slight soil, 0 to 15% slope, and no water areas in adjacent grids

2. Moderate soil, 0 to 15% slope, and no water areas in adjacent grids

1. Severe soil, or 15% and greater slope, or water areas in adjacent grids

MAPS UTILIZED

MAP #1 - SLOPE

MAP #2 - SURFACE WATER & WETLANDS

MAP #3 - SOIL SUITIBILITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports

PROCEDURE

-Place GRID MAP over MAPS #1, #2, and #3

-Overlay the ADJACENCY TEMPLATE with the center grid on the grid being analyzed.

-Identify the downhill drainage effects of recreational facilities of each grid based on the value ranking above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 4A Column.

(a shortcut method is to check Columns 1A.1 and 3A; any 1's in Columns 1A.1 or 3A will be a 1 in Column 4A)

4B.1 SURFACE DRAINAGE

RANKING CRITERIA - no surface water to surface water

VALUE RANKING

3. No pronounced stream/swale network

2. Pronounced stream/swale network

1. Wetlands or open water

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

MAP #4 - WATERSHED & DRAINAGE PATTERNS

RECREATION ACTIVITIES CONSIDERED

Bicycling, Camping, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Winter Sports

PROCEDURE

-Place GRID MAP over MAPS #2 and #4

-Identify the surface drainage of each grid based on the value ranking above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 4B.1 Column.

4B.2 SURFACE DRAINAGE

RANKING CRITERIA - surface water to no surface water

VALUE RANKING

3. Wetlands or open water

2. Pronounced stream/swale network

3. No pronounced stream/swale network

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

MAP #4 - WATERSHED & DRAINAGE PATTERNS

RECREATION ACTIVITIES CONSIDERED

Fishing, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAPS #2 and #4

-Identify the surface drainage of each grid based on the value ranking above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 4B.2 Column.

(a shortcut method is to reverse the numbers in Column 4B.1; 3's become 1's, 2's remain 2's, and 1's become 3's)

4C HILL ORIENTATION FOR WINTER RECREATION

RANKING CRITERIA - best orientation to worst orientation

VALUE RANKING

3. North, Northwest, or Northeast

2. West or East

1. South, Southwest, or Southeast

MAPS UTILIZED

MAP #4 - WATERSHEDS & DRAINAGE PATTERNS

RECREATION ACTIVITIES CONSIDERED

Winter Sports

PROCEDURE

-Place GRID MAP over MAP #4 - WATERSHEDS & DRAINAGE PATTERNS

-Overlay Directional Finder (on ADJACENCY TEMPLATE) on the grid being analyzed.

-Identify the hill orientation for winter sports of each grid based on the value ranking above.

-Those grids not containing hill complexes are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 4 C Column.

4D HILL ORIENTATION FOR CAMPING

RANKING CRITERIA - best orientation to worst orientation

VALUE RANKING

3. East

2. South, Southeast, Southwest, West

1. North, Northwest, Northeast

MAPS UTILIZED

MAP #4 - WATERSHEDS & DRAINAGE PATTERNS

RECREATION ACTIVITIES CONSIDERED

Camping, Golf, Horseback Riding, Picnicking

PROCEDURE

-Place GRID MAP over MAP #4 - WATERSHEDS & DRAINAGE PATTERNS

-Overlay Directional Finder (on ADJACENCY TEMPLATE) on the grid being analyzed.

-Identify the hill orientation for camping of each grid based on the value ranking above.

-Those grids not containing hill complexes are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 4D Column.

5A.1 VEGETATION DENSITY

RANKING CRITERIA - greatest density to lowest density

VALUE RANKING

3. 80.1% to 100% dense

2. 50.1% to 80% dense

1. 50% and less dense

MAPS UTILIZED

MAP #5 - VEGETATION DENSITY

RECREATION ACTIVITIES CONSIDERED

Camping, Picnicking

PROCEDURE

-Place GRID MAP over MAP #5 - VEGETATION DENSITY

-Identify the vegetation density of each grid by selecting the category of vegetation density that equal or exceeds 50% of the grid area.

-Those grids not containing any type of vegetation are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 5A.1 Column.

5A.2 VEGETATION DENSITY

RANKING CRITERIA - lowest density to greatest density

VALUE RANKING

3. 50% and less dense

2. 50.1% to 80% dense

1. 80.1% to 100% dense

MAPS UTILIZED

MAP #5 - VEGETATION DENSITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAP #5 - VEGETATION DENSITY

-Identify the vegetation density of each grid by selecting the category of vegetation density that equals or exceeds 50% of the grid area.

-Those grids not containing any type of vegetation are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 5A.2 Column.

(a shortcut method is to reverse the numbers in Column 5A.1; 3's become 1's, 2's remain 2's, and 1's become 3's)

6A STREAMSIDE RECREATION

RANKING CRITERIA - most streamside urbaniztion to least streamside urbanization

VALUE RANKING

3. Non-urbanized rivers

2. Semi-urbanized rivers and streams (urbanization on one side)

1. Urbanized rivers and streams (urbanization on both sides)

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

MAP #6 - EDGE COMPATIBILITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Hiking, Horseback Riding, Picnicking, Swimming, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAPS #2 and #6

-Identify the streamside recreation characteristics of each grid based on the value ranking above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 6A Column.

6B VARIED LAND TYPES

RANKING CRITERIA - most varied to least varied

VALUE RANKING

3. Grids with varied (two or more) land types

2. Grids of one land type with adjacent grids varied

1. Grids of one land type with adjacent grids the same

MAPS UTILIZED

MAP #6 - EDGE COMPATIBILITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Camping, Golf, Hiking, Horseback Riding, Picnicking, Winter Sports

PROCEDURE

-Place GRID MAP over MAP #6 - EDGE COMPATIBILITY

-Overlay the ADJACENCY TEMPLATE with the center grid on the grid being analyzed.

-Identify the land type characteristics for each grid based on the value ranking above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 6B Column.

6C VEGETATION FOR WILDLIFE

RANKING CRITERIA - most diverse edges to least diverse edges

3. Grids with diverse natural ecotones and edge with water

2. Grids with diverse natural ecotones without edge with water; or grids with no ecotones, but on water

1. Grids with no ecotones, or grids with urban edges

MAPS UTILIZED

MAP #2 - SURFACE WATER AND WETLANDS

MAP #6 - EDGE COMPATIBILITY

RECREATION ACTIVITIES CONSIDERED

Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAPS #2 and #6

-Identify the vegetation for wildlife of each grid based on the value ranking above

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 6C Column.

6D SHORE CHARACTERISTICS (fresh water ponds and lakes)

RANKING CRITERIA - best characteristics to worst characteristics

VALUE RANKING

3. Undeveloped or developed for recreation; 0 to 5% slope

2. Parially developed; 5% to 15% slope

1. Developed; 15% and greater slope; or wetlands on shore

MAPS UTILIZED

MAP #1 - SLOPE

MAP #2 - SURFACE WATER & WETLANDS

MAP #6 - EDGE COMPATIBILITY

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Hiking, Horseback Riding, Picnicking, Swimming, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAPS #1, #2, #6, and #9

-Identify the shore characteristics of freshwater lakes and ponds of each grid based on the value ranking above.

-Those grids not containing freshwater lakes and ponds are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 6D Column.

(a shortcut method is to check numbers in Column 1A.1 for slope characteristics)

7A POPULATION DENSITY WITHIN 1/4 MILE

RANKING CRITERIA - highest density to lowest density

VALUE RANKING

3. High density areas

2. Moderate density areas

1. Low density areas

MAPS UTILIZED

MAP #7 - RESIDENTIAL DENSITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAP #7 - RESIDENTIAL DENSITY

-Overlay the ADJACENCY TEMPLATE with the center grid on the grid being analyzed.

-Identify the population density within the 1/4 mile circle of each grid based on the value ranking above.

-The higher density value takes precedent (i.e. within a 1/4 mile circle containing high and low density areas, the grid gets a 3.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 7A Column.

7B POPULATION DENSITY WITHIN 1/2 MILE

RANKING CRITERIA - highest density to lowest density

VALUE RANKING

3. High density areas

2. Moderate density areas

1. Low density areas

MAPS UTILIZED

MAP #7 - RESIDENTIAL DENSITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAP #7 - RESIDENTIAL DENSITY

-Overlay the ADJACENCY TEMPLATE with the center grid on the grid being analyzed.

-Identify the population density within the 1/2 mile circle of each grid based on the value ranking above.

-The higher density value takes precedent (i.e. within a 1/2 mile circle containing high and low density areas, the grid gets a 3.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 7B Column.

7C ACCESSIBILITY TO CONCENTRATIONS OF POPULATION

RANKING CRITERIA - most access to least access

VALUE RANKING

3. Grids containing access along major highways or bus routes

2. Grids containing access along arterial roads

1. Grids containing access along local street network

MAPS UTILIZED

MAP #7 - RESIDENTIAL DENSITY

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

MAP #10 - SECONDARY PATHWAYS

RECREATIONAL ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAPS #7, #9, and #10

-Identify the accessibility to concentrations of population of each grid based on the value ranking above

-Those grids not containing any road access are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 7C Column.

8A PROXIMITY TO INTENSIVE URBAN IMPACT AREAS

RANKING CRITERIA - no proximity to direct proximity

VALUE RANKING

3. No intensive urban impact areas within adjacent grids

2. Intensive urban impact areas within adjacent grids

1. Intensive urban impact areas within grid

MAPS UTILIZED

MAP #8 - INTENSIVE URBAN IMPACTS

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAP #8 - INTENSIVE URBAN IMPACTS

-Overlay the ADJACENCY TEMPLATE with the center grid on the grid being analyzed.

-Identify the proximity to intensive urban impact areas of each grid based on the value rankings above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 8A Column.

9A ACCESS TO COASTAL SHORE

RANKING CRITERIA - development of public right-of-way (ROW) to no ROW development

VALUE RANKING

3. Grids containing ROW recommended for future recreation development; or containing existing recreation use.

2. Grids containing ROW recommended for use of local residents or no further action.

1. Grids not containing any ROW.

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

RECREATION ACTIVITIES CONSIDERED

Boating, Fishing Hiking, Picnicking, Swimming

PROCEDURE

-Place GRID MAP over MAPS #2 and #9

-Identify the access points to the coastal shore of each grid based on the value rankings above.

-Recommendations for the value rankings are found in the report numbered in the Reference section at the end of this mannul.

-Those grids not containing shoreline on coast are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 9A Column.

9B ACCESS TO FRESHWATER RESOURCES

RANKING CRITERIA - best access to none

VALUE RANKING:

3. Access by paved roads

2. Access by unimproved dirt roads

1. No direct access by roads

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

MAP #7 - RESIDENTIAL DENSITY

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

MAP #10 - SECONDARY PATHWAYS

RECREATION ACTIVITIES CONSIDERED

Boating, Camping, Fishing, Hiking, Horseback Riding, Picnicking, Swimming

PROCEDURE

-Place GRID MAP over MAPS #2, #7, #9, and #10

-Identify the access to freshwater resourves of each grid based on the value ranking above.

-Those grids not containing any freshwater resources are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 9B Column.

9C ACCESS FOR MARINAS (salt water boating)

RANKING CRITERIA - best access to worst access

VALUE RANKING

3. Grid containing highway, slight soil limitation

2. Grid containing highway, moderate soil limitation
   Grid containing arterial road, slight or moderate soil limitation

1. Grid containing local streets

MAPS UTILIZED

MAP #2 - SURFACE WATER & WETLANDS

MAP #7 - RESIDENTIAL DENSITY

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

MAP #10 - SECONDARY PATHWAYS

RECREATION ACTIVITIES CONSIDERED

Boating, Fishing

PROCEDURE

-Place GRID MAP over MAPS #2, #7, #9, and #10

-Identify the access points for marinas on the coastal shore of each grid based on the value rankings above.

-Those grids not containing shoreline on coast are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 9C Column.

10A VIEWS FROM HILLS

RANKING CRITERIA - best vantage point to least

VALUE RANKING

3. Uphill edge of slope map (steep or moderate)

2. Major ridge lines (watershed lines)

1. Grids without topographic contour lines

MAPS UTILIZED

MAP #1 - SLOPE

MAP #4 - WATERSHED & DRAINAGE PATTERNS

RECREATION ACTIVITIES CONSIDERED

Bicycling, Camping, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Winter Sports

PROCEDURE

-Place GRID MAP over MAPS #1 and #4

-Identify the views from hills of each grid based on the value rankings above.

-Ridge lines take precedent, (i.e. a grid containing both uphill edge of slope and ridgeline will recieve a 2)

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 10A Column.

10B MINIMUM ACREAGE FOR GOLF COURSES

RANKING CRITERIA - contigous grids

VALUE RANKING

3. 5 or 11 contigous grids with High Potential

2. 5 or 11 contigous grids with Medium Potential

1. 5 or 11 contigous grids with Low Potential

MAPS UTILIZED

None

RECREATION ACTIVITIES CONSIDERED

Golf

PROCEDURE

-This column is left blank until all of the grid lines are totalled and the Recreation Potential Map is completed.

-The final step in the evaluation of golf course potential is based on identifying high, medium, low value ranked areas which have 5 contigous grids (the minimum size for a 9-hole course or 11 contigous grids (the minimum size for an 18-hole course.

11A COMPATIBILITY WITH LOCAL MASTER PLAN

RANKING CRITERIA - most compatible to least compatible

VALUE RANKING

3. Proposed open space, recreation areas, and state use

2. Within proposed residential areas

1. Within proposed commercial or industrial areas

MAPS UTILIZED

MAP #11 - MASTER PLAN

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports, Wildlife habitats

PROCEDURE

-Place GRID MAP over MAP #11

-Identify the compatibility with the local master plan of each grid based on the value rankings above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 11A Column.

12A COMPATIBILITY WITH STATE GUIDE PLAN

RANKING CRITERIA - most compatible to least compatible

VALUE RANKING

3. Within open space, commercial recreation, or government/institution.

2. Within residential areas

1. Within commercial or industrial areas

MAPS UTILIZED

MAP #12 - STATE GUIDE PALN

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAP #12

-Identify the compatibility with the state land use plan of each grid based on the value rankings above.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 12A Column.

13A CORRIDORS FOR TRAILS

RANKING CRITERIA - best potential corridors to least

VALUE RANKING

3. Existing dirt roads, trails, abandoned canal and railroad ROW's, and utility ROW's

2. Uphill edges of steep and moderate slope, shorelines

1. Areas containing none of the above

MAPS UTILIZED

MAP #1 - SLOPE

MAP #2 - SURFACE WATER & WETLANDS

MAP #10 - SECONDARY PATHWAYS

RECREATION ACTIVITIES CONSIDERED

Bicycling, Camping, Fishing, Hiking, Horseback Riding, Picnicking, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAPS #1, #2, and #10

-Identify the corridors for trails of each grid based on the value rankings above.

-The higher value takes precedent (i.e. a grid containing dirt road and shoreline recieves a 3)

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 13A Column.

13B EXISTING FACILITIES

RANKING CRITERIA - state recreation to private recreation

VALUE RANKING

3. State owned facilities

2. Local public facilities

1. Private facilities

MAPS UTILIZED

MAP #9 - EXISTING RECREATION FACILITIES & MAJOR ACCESSIBILITY

RECREATION ACTIVITIES CONSIDERED

Bicycling, Boating, Camping, Fishing, Golf, Hiking, Horseback Riding, Outdoor Games, Picnicking, Swimming, Winter Sports, Wildlife Habitats

PROCEDURE

-Place GRID MAP over MAP #9

-Identify the existing facilities of each grid based on the value rankings above.

-Those grids not containing any existing facilities are left blank.

-Transfer the value ranking number onto the MATRIX to the right of the grid number in the 13B Column.

SECTION FIVE

PREPARATION OF THE RECREATION POTENTIAL MAPS

Identification of The High, Medium, and Low Value Grids

In order to prepare the final RECREATION POTENTIAL MAPS, each recreation activity must be separated into a high, medium, and low potential. This is accomplished by finding the lowest grid total and the highest grid total on the MATRIX for each recreation activity. These numbers are then subtracted to get the range for all of the grid totals, which correspond to the activity. This range is then divided by three and the resulting number is added to the lowest grid total to get the range of low potential. Next, subtract the number from the highest grid total to get the range of high potential. The remaining numbers below the high range and above the low range equal the range of medium potential.

Example: The low grid total for an activity equals 11 and the the high grid total for the same activity equals 44. 44 minus 11 equals 33 divided by 3 equals 11. 11 plus 11 equals 22, therefore 11 to 22 is the range of low potential. 44 minus 11 equals 33, therefore 33 to 44 is the range of high potential. the range between 23 and 32 equals the medium potential.

Preparation of the Map

The RECREATION POTENTIAL MAP for each recreation activity is based on the mylar GRID MAP used throughout the course of the study. Black or blue line prints are reproduced for each recreation activity. Each map contains the title of the recreation activity being

presented and a legend deliniating the symbols (color or solid shade and line variations) for the high, medium, and low potential categories. The grid numbers are then transferred from the MATRIX to the appropriate grid and depicted by the symbol, which represents the range of that number's value ranking.

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