# THE INFLUENCE ON RURAL COMMUNITIES OF INTERURBAN TRANSPORTATION SYSTEMS

## VOLUME II
## TRANSPORTATION AND COMMUNITY DEVELOPMENT: A MANUAL FOR SMALL COMMUNITIES
## CHAPTER VI: Evaluation

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# THE INFLUENCE ON RURAL COMMUNITIES OF INTERURBAN TRANSPORTATION SYSTEMS

VOLUME II

TRANSPORTATION AND COMMUNITY DEVELOPMENT:
A MANUAL FOR SMALL COMMUNITIES
CHAPTER VI: EVALUATION

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The set of planning guides contained in Volume II would be of interest to the community representatives. The guides are designed for the layperson and are written in non-technical language. The purpose of the manual is to promote a more informed participation in the national, state, and regional decision-making process as it relates to transportation, and to provide the basis for initiating and continuing comprehensive local planning for small urban places (cities and towns with a population of 25,000 or less).

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# PREFACE

## BACKGROUND

This document is one in a series developed as an outgrowth of research sponsored by the U. S. Department of Transportation, Office of University Research, through the Council for Advanced Transportation Studies, The University of Texas at Austin. The topic of this research project, "The Influence on Rural Communities of Interurban Transportation Systems," was one of five conducted under the general title, "Transportation to Fulfill Human Needs in a Rural/Urban Environment." The overall objective of this project was to investigate the nature of interurban transportation influence on small "rural" communities (below 25,000 in population) and to assess the relationship between changes in the interurban system and the potential for growth and development of small communities.

The project consisted of four basic stages:

(1) a review and analysis of transportation impact studies leading to the identification and investigation of areas deemed important to rural communities and intercity transportation systems,

(2) an investigation of high probability areas of impact to ascertain data availability and appropriateness of various methodological concepts in studying transportation impacts on rural communities,

(3) a detailed case study of selected rural communities in terms of their response, real and perceived, to changes in their intercity transportation systems and accessibility, and

(4) the development and field testing of a set of transportation planning guides designed for use by the layperson in the rural community and the regional planner.

The research is documented in two volumes:

Volume I: The Influence on Rural Communities of Interurban Transportation Systems, and

Volume II: Transportation and Community Development: A Manual for Small Communities.

The first volume is the description of the study process and the findings of the various research phases during the project. This document would be of interest to professional planners in regional governments having small, rural communities within their jurisdiction. The report may aid in facilitating their interactions with representatives of smaller cities and enhance their appreciation of the uniqueness of those areas as reflected in their needs and issues.

The set of planning guides contained in Volume II would be of interest to the community representatives. The guides are designed for the layperson and are written in non-technical language. The purpose of the manual is twofold:

(1) to promote a more informed participation in the national state, and regional decision-making process as it relates to transportation and

(2) to provide the basis for initiating and continuing comprehensive local planning for small urban places (cities and towns with a population of 25,000 or less).

The MANUAL is divided into an executive summary and seven chapters, each individually bound and designed for use separately or in conjunction with others. The seven chapters are:

Chapter I. The Transportation Planning Process,

Chapter II. Transportation Impact,

Chapter III. Goals and Objectives,

Chapter IV. Community Inventory,

Chapter V. Development of Alternatives and Preliminary Assessment,

Chapter VI. Evaluation, and

Chapter VII. Glossary and Bibliography.

The sixth chapter of the manual provides an overview of evaluation concepts and a step-by-step procedure for evaluating alternatives with a "Goal-Achievement" matrix. The goal-achievement matrix ranks alternative solutions against objectives that the community wishes to achieve. The alternative that comes closest to achieving the community objectives is the one that is selected. The advantage of this type of evaluation procedure is that it allows the community to rank alternatives against intangible or qualitative objectives on an equal basis with quantitative objectives.

The procedure involves six basic steps.

1) List objectives and alternatives on the matrix

2) Identify factors associated with each alternative

3) Develop a measure that expresses the probability that an alternative will satisfy a particular objective

4) Weight the relative importance of each objective

5) Adjust the values of each alternative according to the relative weight of each objective

6) Select the alternative with the highest adjusted value

The advantages and disadvantages of each evaluation concept is presented to facilitate an appreciation of the inherent characteristics of each. The Goal-Achievement matrix concept is used as an example.

CHAPTER VI: EVALUATION

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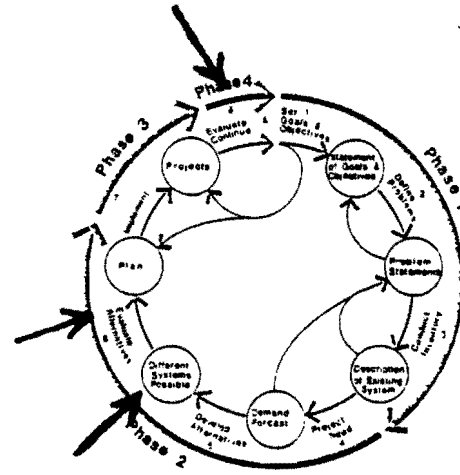
# CHAPTER VI

# EVALUATION

## *INTRODUCTION*




6.1 The evaluation of alternatives is a formal part of the planning process in three different places.

1) As a part of the preliminary assessment of alternatives described in Chapter V,

2) As a part of the final analysis of selected alternatives of a plan, and

3) As a part of the evaluation process after the implementation of a plan (set of alternatives).

The purpose of evaluation, in the case of 1 and 2 above, is to determine whether a particular alternative or set of alternatives will have a high degree of probability of satisfying objectives (see Chapter III, Developing Goals and Objectives). In the case of item 3, the purpose of the evaluation is to monitor the degree to which a particular plan is, in fact, accomplishing the objectives stated.

From time to time, the residents of a community may be called upon to provide their assessment of alternatives presented by an external planning agency.

As an example of 2 above, the State Highway Department may be considering three alternative alignments for a new highway, and the residents of a community will be asked to make a judgment about which of the three they prefer or to discuss what they perceive to be the probable impacts of each.

Or perhaps the community may have contracted with a planning consultant to develop a comprehensive master plan. In either case, the community will be involved in the evaluation of numerous alternatives addressing a range of community problems.

To accomplish this evaluation, a technique is required that can

1) Determine the degree of probability that a particular alternative will, to some extent, satisfy the primary objective;

2) Determine the probability that a particular alternative will, to some extent, satisfy secondary objectives; and

3) Provide a means by which the patterns of relationships between alternatives and objectives can be reassessed to yield new objectives and alternatives that are more compatible with community goals.

Since an objective is stated in performance terms, e.g., to achieve a change of x% in y time, data will have to be developed which can indicate the degree of probability that an alternative will indeed achieve a particular objective. In addition, data will have to be developed to ascertain the probability that a particular alternative will satisfy secondary objectives. (The degree to which an alternative satisfies secondary objectives might be considered indirect impacts - see Chapter II of the manual for a discussion of some of the indirect influences that may result from changes in transportation.)

*ALTERNATIVE EVALUATION*

6.2 There are two general approaches to evaluation of alternatives: 1) COST-BENEFIT, and

2) GOAL-ATTAINMENT.

Guidelines for selecting the appropriate concept and the specific technique depends upon the degree of complexity but would include;

1) the ability of the technique to incorporate a varied mix of seemingly incompatible evaluation criteria,

2) should be able to reflect GOALS and OBJECTIVES,

3) should be comprehensive and cover all factors,

4) should include criteria which can be measured, clearly developed, forecasted, and

5) evaluation criteria should reflect alternative feasibility, ease of implementation, legal, ethical, profitable, and be humane.

Since EVALUATION CRITERIA are essential to the investigation of alternatives, they should reflect measures from the following areas:

1) Social: e.g., community values, accessibility, community activities, disruption, or relocation.

2) Economic: e.g., cost-benefit analysis, selected cost-able elements, system costs, financial feasibility.

3) Objective Specific Performance Measures: e.g., level/quality of transportation service, operating costs, replacement/rehabilitation costs, safety, comfort, energy costs, etc.

5) Aesthetics: e.g., visual quality, open space, etc.

6) Physical: e.g., neighborhood effects, construction or operational aspects, historic landmarks, land use plan, natural features, etc.

As a recommendation, the assessment of these vital elements at the initial planning stages will greatly facilitate the evaluation process and the overall success of your activity. The following general phases are suggested:

1) Determine the Degree of "External" Investment Desired, e.g., community-wide input or technical staff only.

2) Selection of the Evaluation Technique based on your Specific Needs and Constraints.

3) Develop Clear and Concise Statement of GOALS and OBJECTIVES.

4) Develop Clear and Concise Statement of Evaluation Criteria and Performance Measures.

5) Perform Analysis, Evaluation, and include a Sensitivity Analysis.

6) Presentation of Findings to Appropriate Decission-Making Body.

The most common technique used to evaluate alternatives has been the COST-BENEFIT analysis procedure. The general concept is to compare the first and periodic costs of an alternative to the benefits to be accrued over the expected or effective "life" of the alternative. A very common example of this concept has been in highway construction programs where the direct costs of planning, design, right-of-way acquisition, construction, maintenance and rehabilitation are compared over time with the user and non-user effects. Generally, the benefits accrued to the "user" are a reduction in user costs which result from more direct access, better quality of service, fewer accidents, etc. Non-user effects and "indirect" effects are normally more difficult to isolate and less "costable." The literature pertaining to this approach in transportation planning and analysis alone is very extensive and often inconclusive. It is generally agreed that local input and local adaption of "quantified" effects is preferable to national or standard values.

The COST-BENEFIT ANALYSIS concept can be defined by four commonly used techniques:

1) Equivalent Annual Cost Method
2) Equivalent Present Worth Method
3) Rate-of-Return Method
4) Benefit-Cost Ratio Method

These widely used techniques have inherent advantages and disadvantages which suggest user awareness. The ANNUAL COST technique assumes an "interest or discount rate" to be used in amortizing the cash flow aspects of costs (and benefits if included). The techniques place all costs on an equivalent year-to-year basis assuming deterministic economic or service lives of all elements. The PRESENT WORTH method is essentially the same as the annual cost except that the costs are expressed in terms of equivalent present worth at the "base" or "present" year. The RATE-OF-RETURN method can be used to reflect the comparison of alternatives as expressed in the anticipated rate of return advantage of one alternative over another. In this technique the net cash flow of the alternatives is used to compute a "rate of return". The alternative yielding the highest and acceptable rate of return is selected. The BENEFIT-COST RATIO technique compares the difference in benefits of alternatives with the difference in their costs. In concept the value benefits divided by the value of costs must be greater than unity to be a feasible alternative. When there are multiple alternatives the alternative surviving multi-comparisons and yielding the highest ratio is given the highest priority or

ranking. This method requires that all costs and benefits be expressed in "annual" or "present worth" equivalents. For more detailed information on these techniques it is recommended that basic tests on ENGINEERING ECONOMY and FINANCIAL ANALYSIS be consulted.

There are many variations of the GOAL ATTAINMENT MATRIX concept. The main advantage of this concept is that it can include the cost-benefit approach in addition to the other, more elusive ramifications of an alternative. Generally, impacts associated with an alternative or pre-determined evaluation criteria are required to be measured in costs or other qualitative or quantitative terms. Although not a panacea, the Goals Attainment Concept is considered to provide a better approach to alternative evaluation for the more complex and involved programs.

Some examples of the Goal Attainment concept of alternative evaluation are;

1) Alternative Information
2) Value Profile
3) Rank Ordered Expected Value
4) Value Matrix
5) Planning Balance Sheet

The difference in the techniques rank from the degree of citizen or group involvement, analysis of performance measures, and sophistication. The simplist technique in the INFORMATION MATRIX, where no analysis or recommendation is made; only data relating

to specific performance measures is provided. The VALUE PROFILE procedure involves a subjective rating of alternatives based on discriptive performance measures. The rating is based on scaling concepts and can be as basic as rating "how well" or "how poor" the alternative reflects the performance meassure. The remaining techniques involve ranking and weighting of objectives, performance measures or evaluation criteria, and the calculation of a "score." The "score" can be used to prioritize the alternatives.

In general the matrix concept requires the following procedure:

1) Listing of Goals and Objectives reflecting Specific Goals,
2) Defining the Best Measure of Each Objective
3) Weighting Objectives in terms of their Relative Importance
4) Evaluate the Degree of Satisfaction Each Alternative Meets each Objection.
5) Selection of the "Best" Alternatives

The generalized GOAL ATTAINMENT matrix concept is presented in an example in the following sections. This is not an overriding endorsement of the concept but a more detailed description of its use. The main asset of this concept and its use to the audience as addressed by these documents is its flexibility.

*GOAL ACHIEVEMENT MATRIX*

6.3 The generalized goals achievement approach used hereafter has been adopted for this presentation and involves the development of a matrix (see Figure 6.1). This makes it possible to weight the probable nature of the relationship among alternatives and objectives.

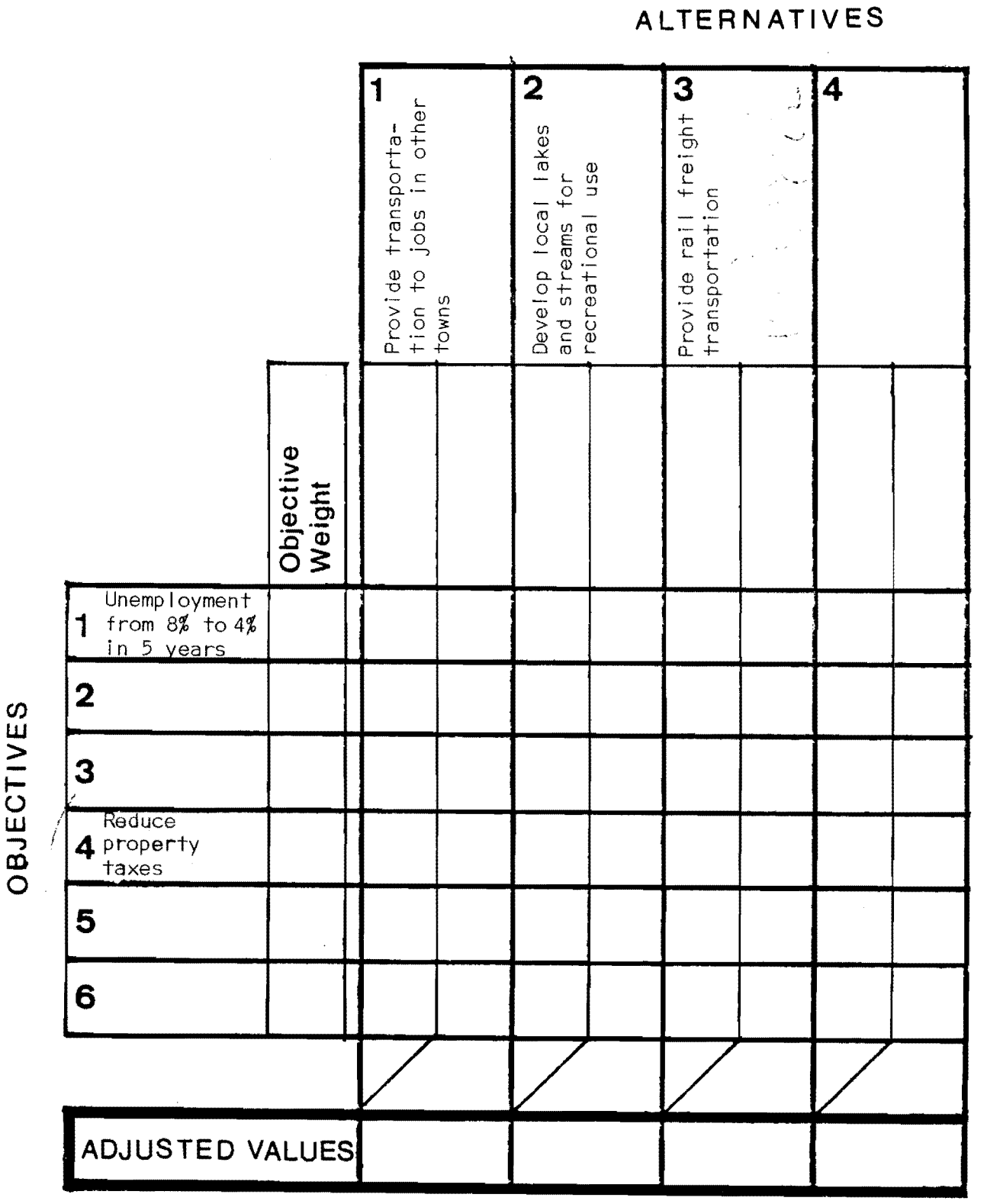



Figure 6.1
Step 1

The creation of the matrix involves six basic steps.

1) List community objectives desired and alternatives to be considered.

2) Identify the factors associated with each alternative. An understanding of these factors is necessary to determine the probability that an alternative will satisfy a specific objective, or the degree to which an alternative has produced the desired result.

3) Utilizing the above factors, develop a measure or index that is a numerical expression of the probability that alternatives are likely to satisfy or are satisfying each objective.

4) Weight the relative importance of each objective.

5) Adjust the values of each alternative according to the relative weight of each objective.

6) Recommend those alternatives with the highest adjusted values.

*STEP ONE*

6.4 List goals, objectives and alternatives to be considered. The community's goals and objectives will have been identified through the process described in Chapter III. Alternatives may have been developed as part of a local planning activity as described in Chapter IV or may have had their origin in external planning agencies, e.g., the State Highway Department. Enter this information in the matrix as shown in Figure 6.1.

*STEP TWO*

6.5 When this technique is used to select and develop alternatives, prior to the development of the Plan, it is necessary to identify those factors that may contribute to determining the probability to which each alternative will satisfy each objective. (See Figure 6.2.) What is the risk involved? What will be the measure of success?

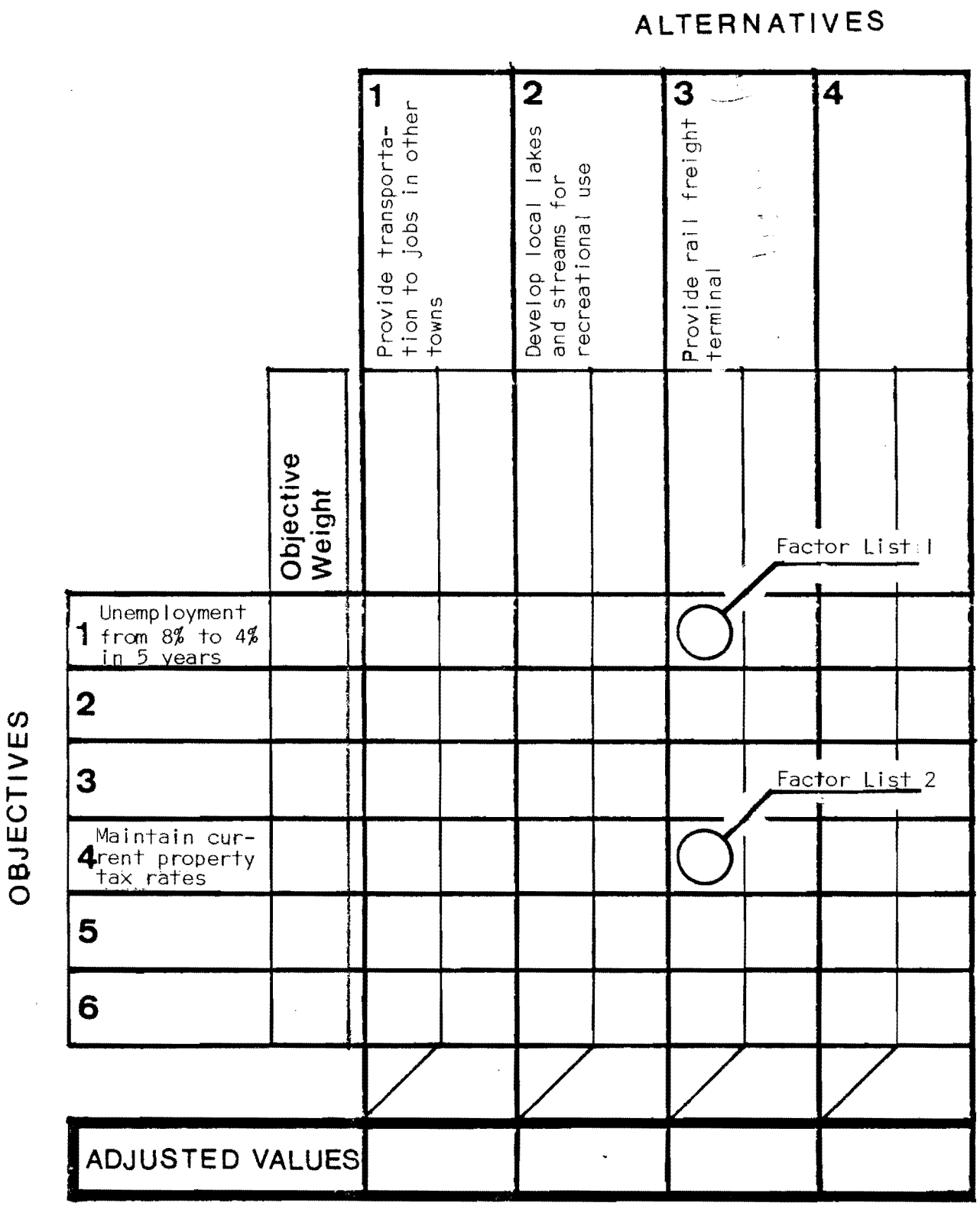



Figure 6.2
Step 2

For example, an expressed objective is to reduce unemployment from 8% to 4% in five years. One possible means to obtain this objective is to provide an adequate rail freight terminal to meet the needs of a potential industry. Some of the factors that might be considered would be: *FACTOR ONE*

1) The degree of commitment that has been made by the industry to locate if the required rail freight terminal is available.
2) The characteristics of the employment opportunities that would be available.
3) The degree to which these employment opportunities will meet the employment needs of the industry.
4) The level of commitment that the industry has expressed to fit their employment needs with the needs of the unemployed.

Let us assume that another objective of the community is not to increase property taxes during the next three years. Additional factors to be considered might be; *FACTOR TWO*

1) The cost of the new rail freight terminal and commuting rail lines.
2) ~~Is~~ present city income sufficient to cover this cost?
3) Will bonds have to be sold? If so, what monies will be used to pay off these bonds?
4) Will this new industry pay city property taxes?

When one uses this technique to ascertain the degree to which the implementation of a particular alternative or set of alternatives has satisfied each objective, the relevant factors are generally provided by the performance standards of the objectives. (See Chapter III.) However, there may be instances when performance measures will only provide clues as to whether an objective is being satisfied.

For example, assume that an objective is to increase community participation in local governance. An alternative is to provide sidewalks on all street ~~with~~ shade trees on new and existing streets based on the premise that increased pedestrian movement will encourage community awareness and involvement through increased personal communication. Indices can certainly be developed to indicate increased community involvement such as,

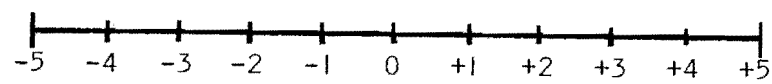
1) increased attendance at public meetings, and
2) increased attendance at P.T.A. meetings.

On the other hand, a lack of attendance at these meetings would not necessarily indicate a lack of community awareness and involvement. The residents may just be very satisfied with the status quo. Perhaps the improved pedestrian system is having other impacts such as stimulating the community's concern for its physical appearance as manifested in an increase in house paint sales.

*STEP THREE* : 6.6 Utilizing the factors identified in Step 2, the next step is to formulate a numerical index that accounts for the probability an alternative will satisfy each goal. This step in the process transforms "subjective" measurements of the possibility of impact to more "objective" measurements expressed by a numerical scale. This step should be taken very cautiously, taking into account supporting information and informed opinions concerning the possible impacts.

An index scale should be developed to indicate possible impacts of the proposed alternative.

Index



For example, a prospective industry will locate in a town if a rail freight terminal is available. This industry will be able to employ 40 of the unemployed persons in the town during the next 2 years. The objective to achieve is a reduction of the current 8% unemployment rate (100 persons) to 4% (50 persons) over the next 5 years. The industry will employ 40 of the 50 persons and therefore achieves 80% of the desired objective ($\frac{40}{50}$ x 100). Using the scale above, this translates to a (+4).

If, on the other hand, rail freight terminal will increase property taxes by 15% then this might receive a negative 3 rating on the index. This number should be established by consultation among the persons evaluating the possible impacts. The decision to rank the alternative as (-3) in this case was based on the possibility that the taxes could increase as much as 25% (based on the rates experienced in other growing communities.)

The above examples take into account only one element in determining the index, measure of probable objective satisfaction. In some cases, more than one element will need to be considered to weight eight factor.

For example, take the four factors listed in the example on page 6.11 that will bear on evaluating the alternatives to expand the rail freight terminal to attract employment as a way to satisfy the objective to reduce unemployment.

Let us assume that there is a fairly firm commitment on the part of the management of the firm to locate in the city. A local site is available at an acceptable price. The required transportation services would be available and the other attributes of the community which are considered important are satisfactory. However, an investment group from another community within the region has approached the management of the business and has offered a site at a lower cost than is available locally. Conversation with

management has indicated that even though the other site is less expensive, this community is preferred because of its recreational amenities.

In this case, there are few hard data that can be employed in developing an index, rather, good judgment will have to be relied on. Let us assume that, after some discussion, it is decided that the firm's commitment is fairly high and is assigned a value of 4.5. Factors 2 and 3, employment opportunities, were discussed in the previous example (6-10). Relative to these factors, a value of 4 is assigned. Factor 4 is job training. The industry is willing to play a role in job training programs so that the unemployed can better fit the employment needs of the industry. However, their willingness extends only so far as to participate in a state program for job finding. This program requires that they provide the instructors; the community provide space and administration, and the state will pick up the costs other than administrative. Again a judgment is going to have to be made. The industry is willing to participate in job training but, since their participation is contingent upon local and state resources, a value of 1.5 is assigned this factor.

Once each of the factors is accounted for and a value assigned indicating the relationship between various aspects of the alternative and a particular objective, these must be combined into a single value that is a numerical expression of the relationship between alternative and objective.

For example, from the above example there are three values:

1) From factor 1 4.5
2) From factors 2 & 3 4.0
3) From factor 4 1.5

A simple averaging of these values would indicate that 3.33 would be the numerical value that would express the possibility that the alternative to expand the rail freight terminal would satisfy the objective to reduce unemployment from 8% to 4% in five years. However, a simple averaging may not be appropriate.

For example, factor 3 may not carry as much weight as the others since from factors 1 and 3 it has been determined that 80% of the unemployed would be able to find employment. In addition, the costs involved for job training are minimal and the State Board of Education is prepared to coordinate the job training program.

A judgment should be made to weight the importance of each factor and its associated value should be adjusted accordingly. Weight the importance of each factor and assign an adjusted value.

Factor 4 is considered the least important and is assigned a value of 0.5 rather than 1.5; factors 2 and 3 are considered very important and are assigned a value of 5.0 rather than 4.0; factor 1 is considered somewhat important and is assigned a value of 4.8 rather than 4.5.

Combine these weighted values. Multiply each unweighted value by its corresponding weighted value. Add these products. Divide this sum by the sum of the weighted values.

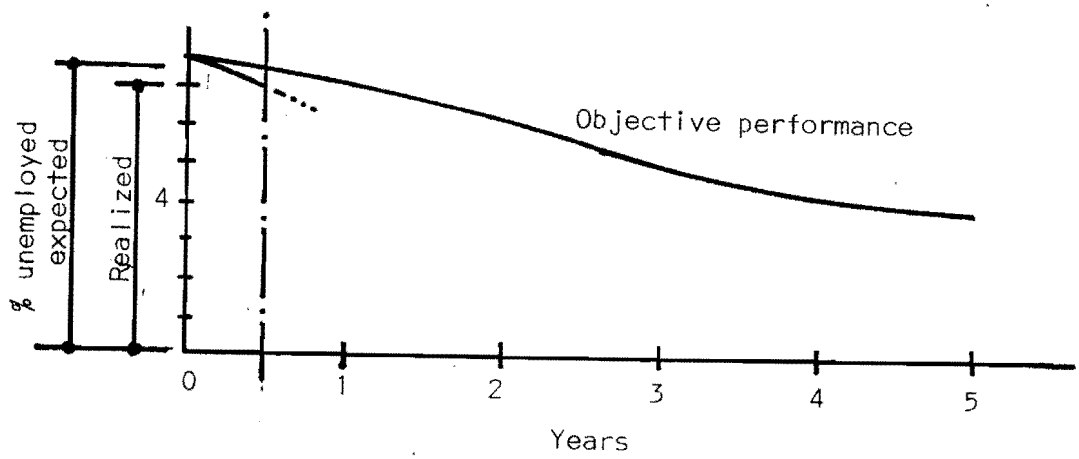
| | unweighted value | x | weighted value | = | |
|---|---|---|---|---|---|
| factor 1 | 4.5 | x | 4.8 | = | 21.6 |
| factors 2 & 3 | 4.0 | x | 5.0 | = | 20.0 |
| factor 4 | 1.5 | x | 0.5 | = | 0.75 |
| | | | 10.3 | | 42.35 |

$42.35 \div 10.3 = 4.11$

In this case, then, the appropriate numerical value that would express the possibility that the alternative to provide a rail freight terminal would be 4.11 on a scale from +5 to -5. This value is entered in the matrix (see Figure 6.3).

*STEP 3 (ALTERNATIVE)* When utilizing the goal-achievement technique to evaluate the success of various implemented solutions (item 3), a numerical value will need to be established which expresses the degree to to which actual changes relate to stated performance objectives.

**For example:**
**Objective: Reduce unemployment from 8% to 4% in five years.**
**Alternative: Provide rail freight terminal.**
**The terminal has been constructed and the industry is in operation. After six months of operation the unemployment rate is 7%. Compare this performance with that anticipated.**



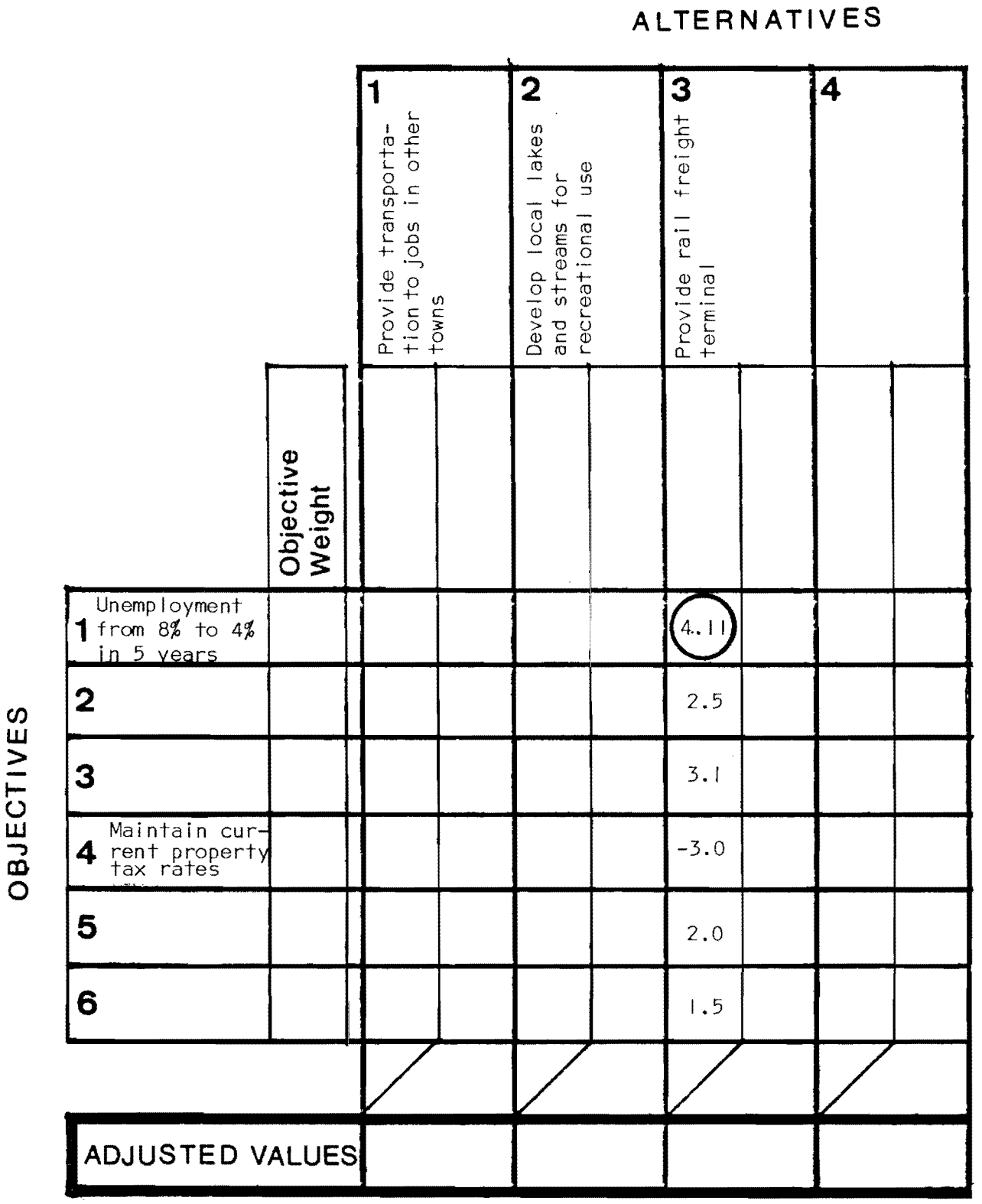



Figure 6.3
Step 3 -

ALTERNATIVES

OBJECTIVES

| | Objective Weight | 1 Provide transportation to jobs in other towns | | 2 Develop local lakes and streams for recreational use | | 3 Provide rail freight terminal | | 4 | |
|---|---|---|---|---|---|---|---|---|---|
| 1 Unemployment from 8% to 4% in 5 years | | | | | | | 5.35 | | |
| 2 | | | | | | | 1.0 | | |
| 3 | | | | | | | 2.0 | | |
| 4 Maintain current property tax rates | | | | | | | 2.6 | | |
| 5 | | | | | | | 3.2 | | |
| 6 | | | | | | | 0 | | |
| ADJUSTED VALUES | | | | | | | | | |

Figure 6.4
Step 3 (Alt.)

In this case, the unemployment rate is dropping faster than expected. The expected unemployment rate by this time was expected to be about 7.5%. In this case the numerical value might be expressed as

$$5 \times \frac{7.5}{7} \text{ or } 5.35$$

The difference between this evaluation and the previous two is that this evaluation is being performed after implementation. Theoretically this should make the evaluation easier, but the presence of other influences presents the same problem of causality discussed earlier.

*STEP FOUR*

6.7 The next step to complete the alternative evaluation process is to weight the relative importance of each objective and assign this weight an appropriate numerical value.

Look at objectives on the left side of the matrix. Are all objectives of equal importance?

For example, is the objective to lower the unemployment rate equally as important as reducing property taxes? Is the objective to decrease the travel time to City A more or less important than any of the above?

Choose a convenient scale, say 0 to 10, 10 being the most important and 0 the least important. Make a judgment and place a value beside each (Figure 6.5) that expresses their relative importance.

Objective . . . . . .1 10

Objective . . . . . .2 3

Objective . . . . . .3 4

Objective . . . . . .m x

ALTERNATIVES

| OBJECTIVES | Objective Weight | 1 Provide transportation to jobs in other towns | | 2 Develop local lakes and streams for recreational use | | 3 Provide rail freight terminal | | 4 | |
|---|---|---|---|---|---|---|---|---|---|
| 1 Unemployment from 8% to 4% in 5 years | 10 | | | | | 4.11 | | | |
| 2 | 3 | | | | | 2.5 | | | |
| 3 | 4 | | | | | 3.1 | | | |
| 4 Maintain current property tax rates | 6 | | | | | -3.0 | | | |
| 5 | 2 | | | | | 2.0 | | | |
| 6 | 4 | | | | | 1.5 | | | |
| | | | | | | | | | |
| ADJUSTED VALUES | | | | | | | | | |

Figure 6.5
Step 4

6.8 The next step is to adjust the numerical values that express the possibility that an alternative will satisfy a particular objective according to the weight of that objective. This can be done by multiplying the numerical value by the weight of the objective and entering this new value as shown in Figure 6.6. *STEP FIVE*

6.9 The column under the alternative that contains the adjusted values is added. The sum of these values should provide an index of the degree to which each alternative is likely to satisfy the array of objectives (see Figure 6.7). This information should provide a basis upon which it will be possible to select those alternatives that will become a part of the plan, eventually leading to projects and implementation. *STEP SIX*

There is the possibility that the results of this evaluation may show that each alternative has about the same relative merit. It may be necessary to reexamine the alternatives proposed and the objectives stated. It may be that there are other alternatives possible or the objective performance statement has not been realistic.

6.10 The specific example presented in this chapter is for illustrative purposes only. The advantage of the GOAL ATTAINMENT is its flexibility. One may devise their own procedure tailored to their specific needs. In many cases the COST BENEFIT analysis process is more efficient and is normally recommended for less complex and controversial activities. *CONCLUSION*

ALTERNATIVES

OBJECTIVES

| | Objective Weight | 1 Provide transportation to jobs in other towns | | 2 Develop local lakes and streams for recreational use | | 3 Provide rail freight terminal | | 4 | |
|---|---|---|---|---|---|---|---|---|---|
| 1 Unemployment from 8% to 4% in 5 years | 10 | | | | | 4.11 | 41.1 | | |
| 2 | 3 | | | | | 2.5 | 7.5 | | |
| 3 | 4 | | | | | 3.1 | 12.4 | | |
| 4 Maintain current property tax rates | 6 | | | | | -3.0 | -18.0 | | |
| 5 | 2 | | | | | 2.0 | -4.0 | | |
| 6 | 4 | | | | | 1.5 | 6.0 | | |
| | | | | | | | | | |
| ADJUSTED VALUES | | | | | | | | | |

Figure 6.6
Step 5

ALTERNATIVES

OBJECTIVES

| | Objective Weight | 1 Provide transportation to jobs in other towns | | 2 Develop local lakes and streams for recreational use | | 3 Provide rail freight terminal | | 4 | |
|---|---|---|---|---|---|---|---|---|---|
| 1 Unemployment from 8% to 4% in 5 years | 10 | | | | | 4.11 | 41.1 | | |
| 2 | 3 | | | | | 2.5 | 7.5 | | |
| 3 | 4 | | | | | 3.1 | 12.4 | | |
| 4 Maintain current property tax rates | 6 | | | | | -3.0 | -18.0 | | |
| 5 | 2 | | | | | 2.0 | 4.0 | | |
| 6 | 4 | | | | | 1.5 | 6.0 | | |
| ADJUSTED VALUES | | 25.0 | | 37.0 | | 50.0 | | 40.2 | |

Figure 6.7
Step 6

The evaluation procedure discussed in this chapter should be applicable to those situations where a systematic evaluation is required. A systematic evaluation may be desirable even if one alternative or accomplishment seems to be clearly superior to another. A personal bias or limited knowledge of all the objectives may make one alternative seem superior. It is suggested, therefore, that one may desire the evaluation to be conducted by a group of community members at appropriate places in the planning process.

In conclusion, the selection of recommended alternatives is only the beginning. The development of an IMPLEMENTATION PLAN is a blend of the communities capital improvements projects, financial resources, non-transportation programs, jurisdictional responsibility, and an incremental phasing plan for more involved programs. An essential element in the overall planning and programming process is the FEEDBACK and MONITORING plan which provides "post-implementation" information on the program. This allows for spot corrections, short-term modifications, and long-term lessons. In all, a coordinated, comprehensive, continuous, and cooperative (4C) process can lead toward the attainment of the communities' goals.

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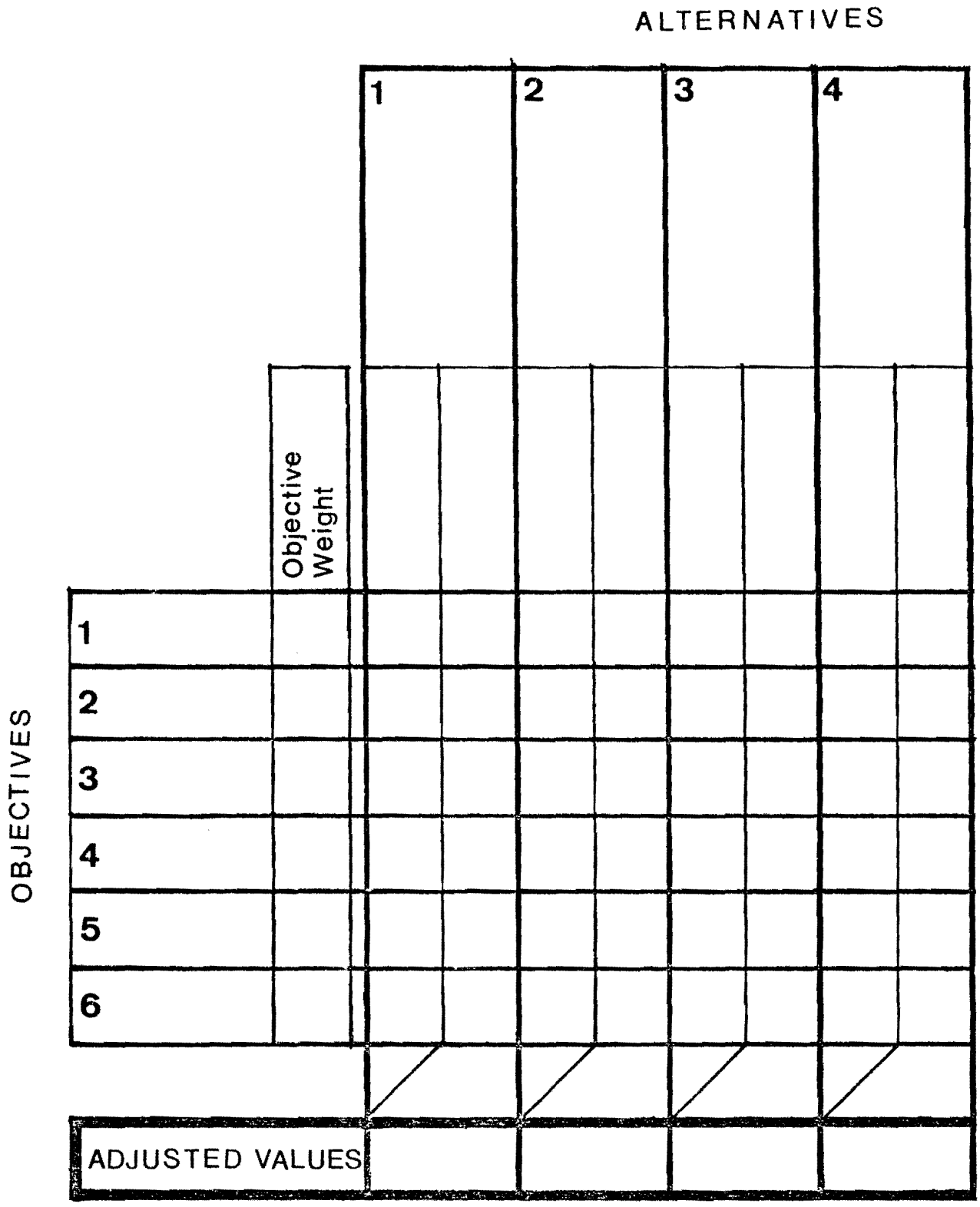
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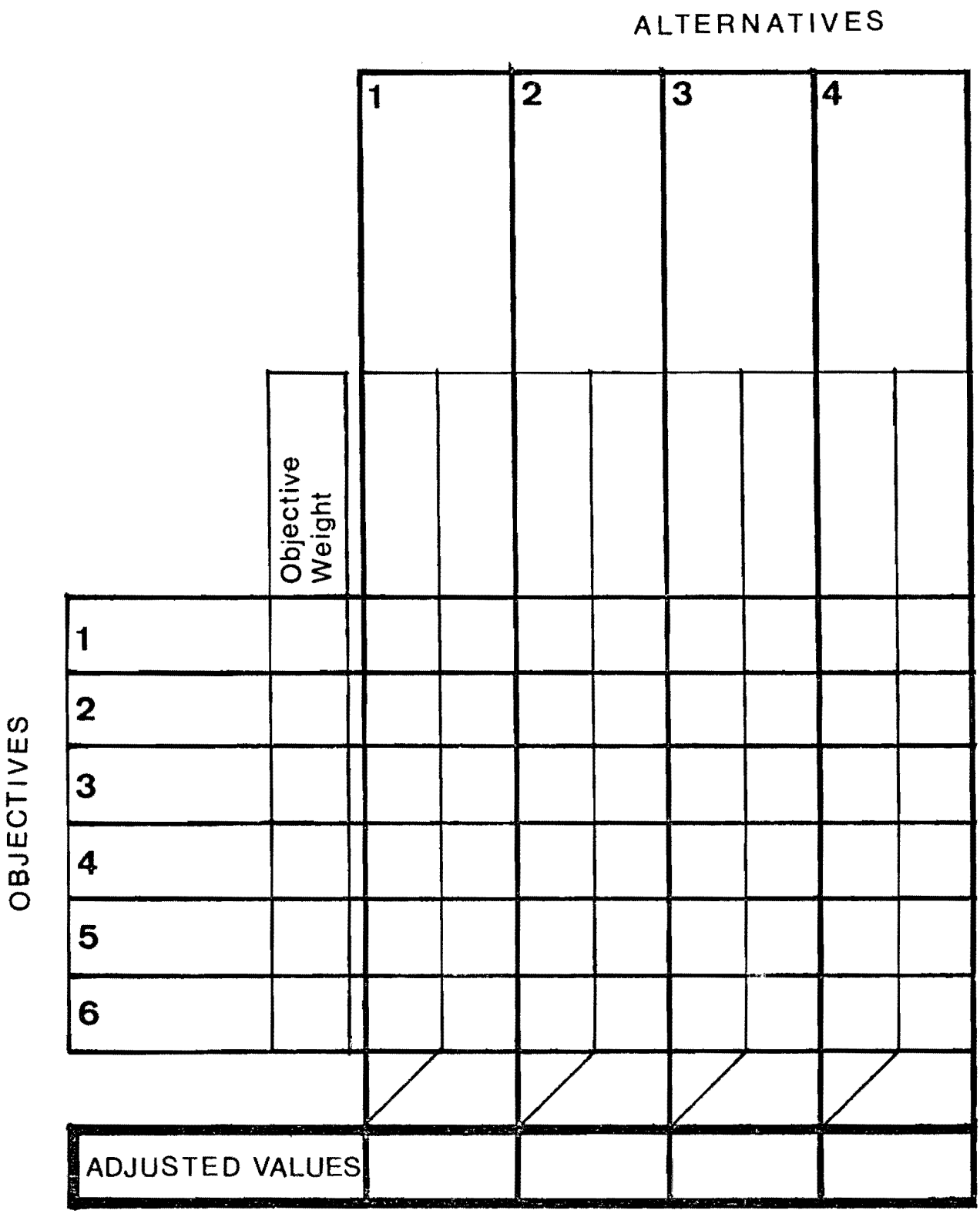
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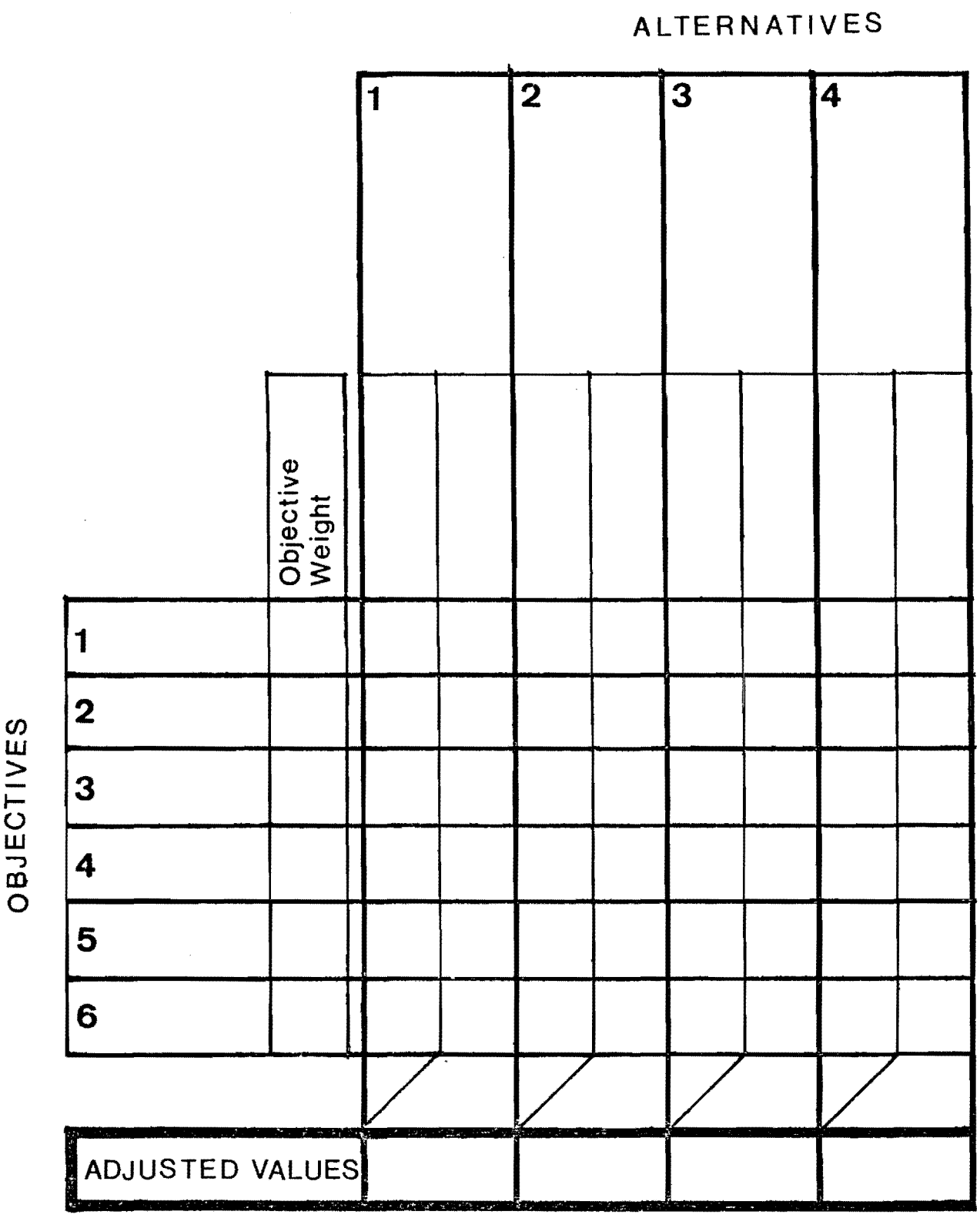
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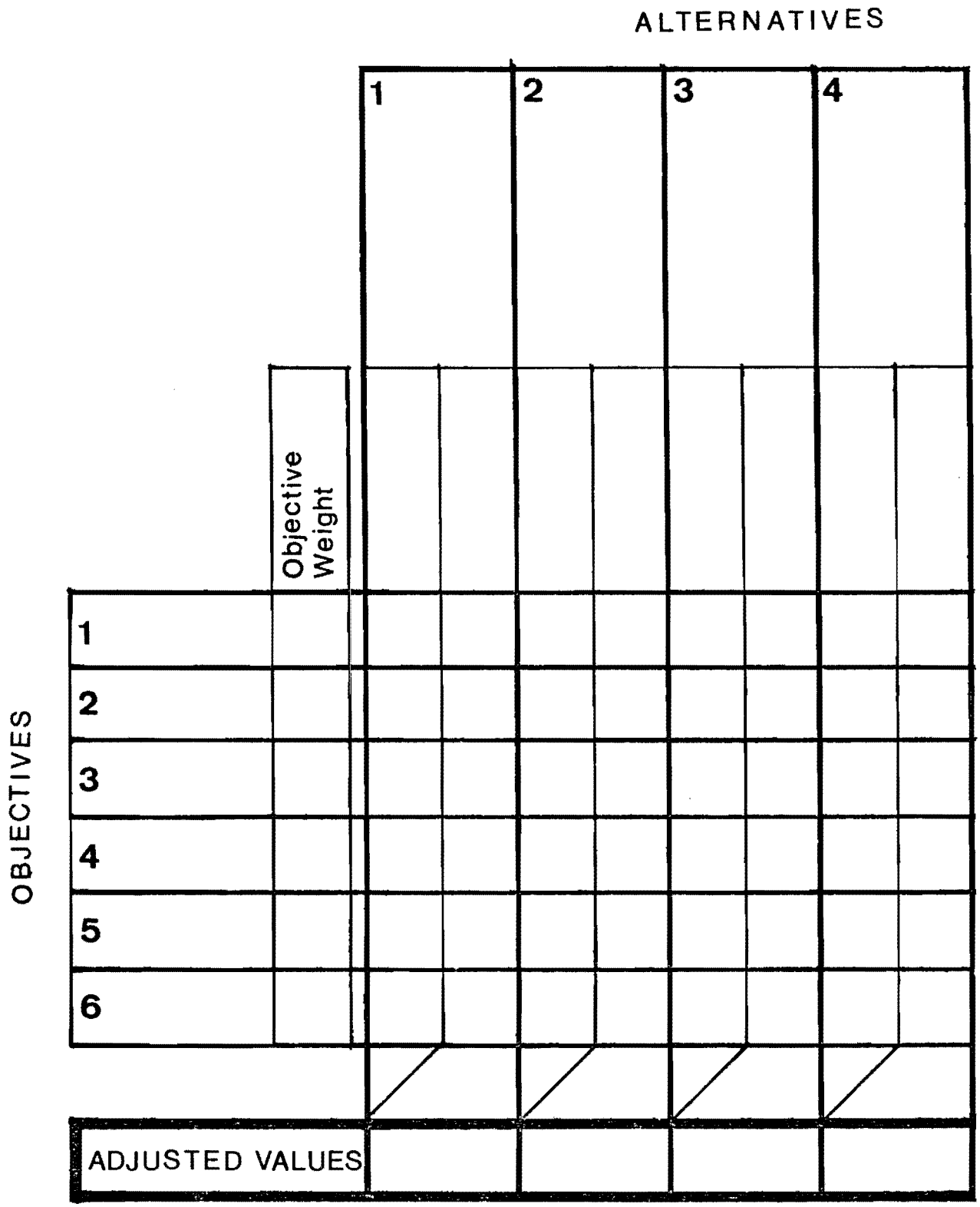
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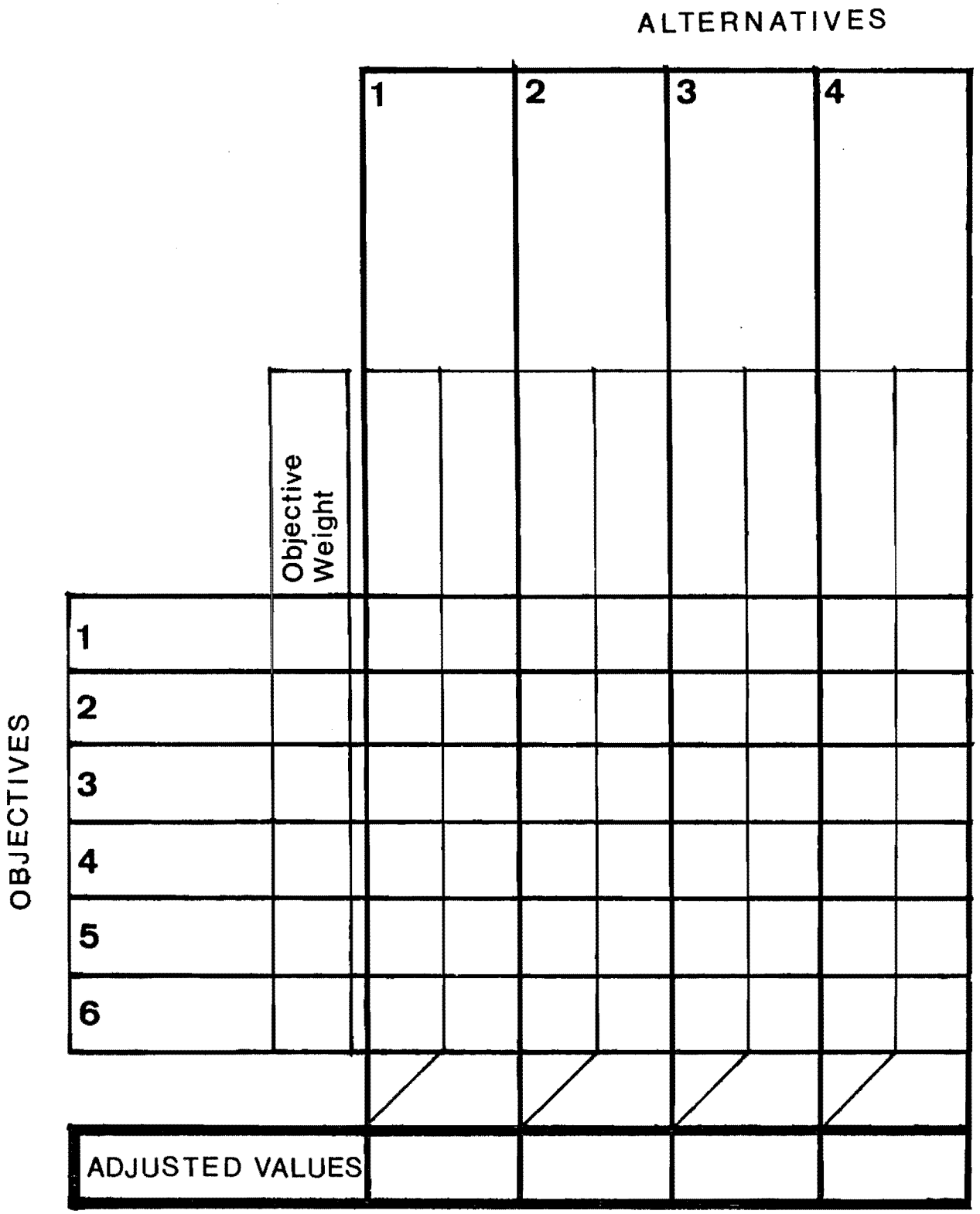
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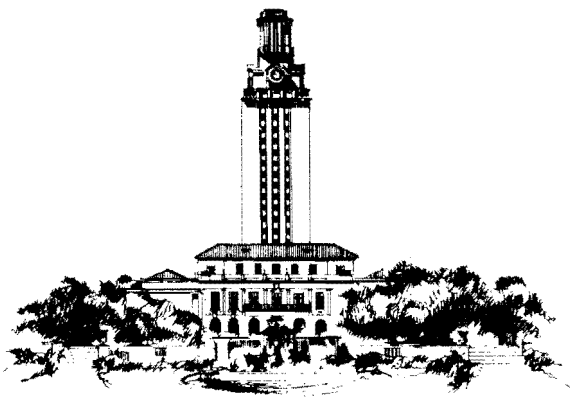

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