Welfare Service Complexes Building Prioritizing Model Designing

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Abstract: In Transportation Ministry, several projects are running to build welfare service complexes now and systematic decision making in their prioritization due to the technical, economical and administrative restrictions in the country's transportation and its long-term effects is crucial. However, in this paper the matter is discussed. To define considered decision-making model, in this paper, first welfare service complexes plans' values criteria, which affect selecting process, are classified. To execute the model, 27 options are available, including research plans and plans under construction. Options evaluation accurate method in quality and quantity criteria and mentioned matter adjustment to multi-criteria problem solving models are examined, and to make the criteria bold, pair comparisons method, and for conclusive prioritizing, TOPSIS model are used in this paper. Eventually, it was concluded that complexes on Shiraz-Yassoj are priorities.

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1. Introduction

Ancient Iran history declares that they are pioneers of road and intercity facilities construction, and building caravansaries and related services is a proved example indeed. Today, due to transportation developments, especially intercity, vehicles update technology, and roads diversity and expansion, serving passengers and drivers along roads has been changed crucially, and their needs have been developed in variety, quantity and quality. Roads increasing in number and transportation significant expansion in Iran in one hand and unorganized spread facilities with deficiencies in services have arisen numerous problems for travelers and drivers. Millions of passengers and hundreds of vehicles commute along roadways and they need places for different services. Thus, a plan has been devised to fulfill mentioned needs from professional and expert angle. In this research, criteria have been gathered by laboratory method, internet and interviewing transportation ministry experts to prioritize welfare service complexes building, and criteria relation schematic model has been created also. Then, criteria weights have been measured by comparing matrix and research model has been presented by TOPSIS methods.

2. Material and Methods

Research Method

Studying same researches and interviewing experts in the field, this paper has tried to know present conditions, adapt discovered criteria, and find especial elements. After knowing the criteria, it is needed to know their weight and importance. To measure these weights, especial forms has been made and given to the field experts and they are asked to prioritize the factors. Then, every criterion weight is determined by especial vector method; in the end, model is prioritized by TOPSIS technique.

Methodology

Due to using TOPSIS algorithm in welfare service complexes building prioritizing, it is described briefly in this part.

Method Brief Description

TOPSIS algorithm is a technical and powerful decision making method to prioritize elements making them the same as ideal answer. In this method, chosen element should be nearest to the ideal and furthest from deficient answer. Also, this method makes decisions by quality and quantity combination and conflation method. Another advantage of this program is to distinguish and emphasize all indices based on profit and cost indices.

Totally, in TOPSIS method decision making m*n matrix, which has m elements and n measurement criteria, is examined. In this algorithm it is assumed that every index and criterion in decision making matrix has increasing desirability or is decreasing steadily; in other words, if the more amounts that criteria get in this matrix is profit, the higher it goes the higher desirability it gets, and if it is cost, it has a lower desirability. For mathematical calculations in this model all given amounts to criteria must be quantity one, and if it is quality one, they have to be converted to quantity ones in this table:

Table 1: Converting Quality Criteria to Quality

Quality Criterion	Very Low	Low	Average	High	Very High
Quality Criterion	1	3	5	7	9

Table 1: Converting Quality Criteria to Quality

Calculating Algorithm

Step One: (Model making) creating decision making matrix (D) and converting it to a quality matrix with no-element made criteria (N_D) by this formula:

$$n_{ij} = \frac{a_{ij}}{\sqrt{\sum_{i=1}^{m} a^2 ij}} \quad (1)$$

Step Two: Creating

$$V = \|d_{ij}\| \bullet \|W\| = N_D \otimes W_{mn} = [Vij]_{m \times n} \quad (2)$$

W_{n*n} is a matrix which its elements are zero but main diagonal, and in its main diagonal there are criteria weights.

4.3: Determining (A^+) ideal option and (A^-) non-ideal option:

$$A^+ = \left\{\left(\max V_{ij} \,|\, j \in J\right), \left(\min Vij \,|\, j \in J'\right) i = 1,2,...,m\right\} = \left\{V^+_1, V^+_2, ..., V^+_n\right\} \quad (3)$$

$$A^- = \left\{\left(\min V_{ij} \,|\, j \in J\right), \left(\max Vij \,|\, j \in J'\right) i = 1,2,...,m\right\} = \left\{V^-_1, V^-_2, ..., V^-_n\right\} \quad (4)$$

Here J is profit and….. is cost.

4.4: Step Four: Determining options metric distance from ideal (di^+) and from non-ideal option (di-) by Euclidean method

$$\left\{\sum_{j=1}^{n} (V_{ij} - V^+_J)^2\right\} ; i = 1,2,...,n \quad (5)$$

= The distance between Ith and ideal = di+

$$\left\{\sum_{j=1}^{n} (V_{ij} - V^-_J)^2\right\} ; i = 1,2,...,n \quad (6)$$

= The distance between Ith and non-ideal=- di

4.5: Step Five: Determining i_{th} comparative approximation to solution .

$$cl_i = \frac{d_i -}{(d_i +, d_i -)} ; i = 1,2,... , m \quad (7)$$

Step Six: Classifying options based on cli increasing order tells about dominant option.

5: Solving Problem by TOPSIS Algorithm

Now, due to known TOPSIS method and its methodology steps, matrix tables making is started and with their outcomes classifying will be done.

Table 2. Decision Making Matrix

	Indices Options	Location Safety	Volume of Traffic	Basic Accessibility Services	Road Quality	Scenery
1	50th kilometer (right) Shiraz- Sa'adat Shar	Very Good	14742	Very Good	Very Good	Very Good
2	18th kilometer (left) marvdasht-Sa'adat Shar	Very Good	11342	Very Good	Very Good	Very Good
3	43th kilometer (right) marvdasht-Sa'adat Shar	Very Good	14742	Very Good	Very Good	Very Good
4	10th kilometer (left) Sa'adat Shar-abadeh	Very Good	8754	Very Good	Approximately Quite Good	Very Good
5	113th kilometer (right) Shiraz- esfshan	Very Good	6988	Very Good	Approximately Quite Good	Very Good
6	20th kilometer (right) safa shahr-Shiraz	Very Good	8754	Very Good	Approximately Quite Good	Average
7	52th kilometer (right) saadat shahr-safa shahr	Very Good	6988	Very Good	Approximately Quite Good	Average
8	18th kilometer (left) shiraz-koar, jahrom	Very Good	11954	Good	Approximately Quite Good	Good

9	21th kilometer (right) shiraz-koar	Very Good	11954	Good		Very Good	Very Good
10	24th kilometer (right) shiraz-sarvestan	Very Good	6746	Good		Very Good	Very Good
11	15th kilometer (left) sarvestan- shiraz	Very Good	6746	Good		Very Good	Good
12	15th kilometer (right) sarvestan- shiraz	Very Good	7303	Approximately good		Very Good	Good
13	35th kilometer (right) fasa- shiraz	Very Good	7303	Average		Approximately good	Good
14	39th kilometer (left) fasa- darab	Very Good	4933	Approximately good		Approximately good	Good
15	2th kilometer (right) darab- fasa	Very Good	4933	Average		Approximately good	Good
16	21th kilometer (left) shiraz-sepidan	Very Good	24091	Approximately Good	Quite	Very Good	Very Good
17	46th kilometer (left) shiraz-sepidan	Very Good	24091	Approximately Good	Quite	Average	Very Good
18	21th kilometer (right) shiraz-dashte arjhan	Very Good	14992	Good		Very Good	Good
19	6th kilometer (right) dashte arjhan-ghaemiye	Very Good	14992	Good		Approximately good	Very Good
20	26th kilometer (right) Ghaemiye-kenar takhte	Very Good	10427	Good		Approximately good	Average
21	26th kilometer (left) Ghaemiye-kenar takhte	Very Good	10540	Good		Approximately good	Average
22	15th kilometer (right) Firoz abad-asaloye	Very Good	10953	Approximately Good	Quite	Approximately bad	Good
23	135th kilometer (right) Firoz abad-asaloye	Very Good	10953	Approximately Good	Quite	Good	Average
24	29th kilometer (right) Tree way of fasa-estahban	Very Good	4668	Good		Approximately good	Average
25	(60th -75th) kilometer (right) fasa-darab	Very Good	5879	Good		Approximately good	Average
26	8th kilometer (right) lar-bandar abbas	Good	2332	Average		Approximately good	Average
27	24th kilometer (right) lar-bandar abbas	Good	2332	Approximately good		Approximately good	Average

Notice:
- Four out of five evaluation parameters are quality and the last one is quantity
- All parameter are for profit

Quantity Criteria Calculation

To calculate quantity criteria, these data must be provided by the same measurement method for all. In this research just one criterion is in quantity which is: Volume of Traffic.

Data for volume of traffic is about the peak in 1389.

7: Converting Quality Criteria to Quantity Criteria: Quality criteria are converted to quantity one by the chart below:

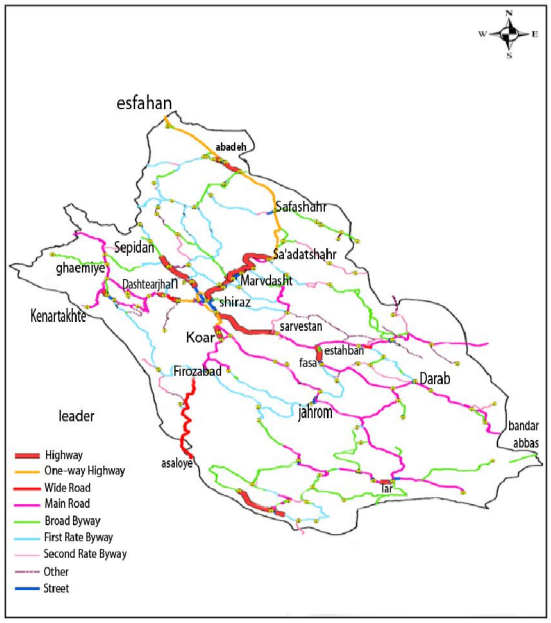


figure 1: Fars State Road Map

Table 3: Converting Quality Criteria to Quantity And also road map in Fars State is prepared in Picture 1.

Quality Criterion	Very Low	Low	Average	High	Very High
Quality Criterion	1	3	5	7	9

Road sort index is numbered due to road priority:

Table 4: Road Priority

Road Sort	**Score**	**Road Sort**	**Score**	**Road Sort**	**Score**
Highway	9	Main Road	6	Second Rate Byway	3
One-way Highway	8	Broad Byway	5	Other	2
Wide Road	7	First Rate Byway	4	Street	1

Gathered data in table 1 will be decision making matrix 2 by changing quality criteria to quantity ones, so:

Table 5: Decision Making Matrix

	Indices Options	**Location Safety**	**Volume Traffic**	**of**	**Basic Accessibility**	**Services**	**Road Quality**	**Scenery**
1	50th kilometer (right) Shiraz- Sa'adat Shar	9	14742		9		9	9
2	18th kilometer (left) marvdasht- Sa'adat Shar	9	11342		9		9	9
3	43th kilometer (right) marvdasht- Sa'adat Shar	9	14742		9		9	9
4	10th kilometer (left) Sa'adat Shar-abadeh	9	8754		9		8	9
5	113th kilometer (right) Shiraz- esfshan	9	6988		9		8	9
6	20th kilometer (right) safa shahr-Shiraz	9	8754		9		8	5
7	52th kilometer (right) saadat shahr-safa shahr	9	6988		9		8	5
8	18th kilometer (left) shiraz-koar, jahrom	9	11954		7		8	7
9	21th kilometer (right) shiraz-koar	9	11954		7		9	9
10	24th kilometer (right) shiraz-sarvestan	9	6746		7		9	9
11	15th kilometer (left) sarvestan- shiraz	9	6746		7		9	7
12	15th kilometer (right) sarvestan- shiraz	9	7303		6		9	7
13	35th kilometer (right) fasa- shiraz	9	7303		5		6	7
14	39th kilometer (left) fasa- darab	9	4933		6		6	7
15	2th kilometer (right) darab- fasa	9	4933		5		6	7
16	21th kilometer (left) shiraz-sepidan	9	24091		8		9	9
17	46th kilometer (left) shiraz-sepidan	9	24091		8		5	9
18	21th kilometer (right) shiraz-dashte arjhan	9	14992		7		9	7
19	6th kilometer (right) dashte arjhan-ghaemiye	9	14992		7		6	9
20	26th kilometer (right) Ghaemiye-kenar takhte	9	10427		7		6	5
21	26th kilometer (left) Ghaemiye-kenar takhte	9	10540		7		6	5
22	15th kilometer (right) Firoz abad-asaloye	9	10953		8		4	7
23	135th kilometer (right) Firoz abad-asaloye	9	10953		8		7	5
24	29th kilometer (right) Tree way of fasa-estahban	9	4668		7		6	5
25	(60th -75th) kilometer (right) fasa- darab	9	5879		7		6	5
26	8th kilometer (right) lar-bandar abbas	7	2332		5		6	5
27	24th kilometer (right) lar-bandar abbas	7	2332		6		6	5

8: Six steps are needed to solve the problem:

8.1: Step One: Providing normalized matrix

As it was mentioned in earlier, to solve matrix one information data, the formula below is used:

$$n_{ij} = \frac{d_{ij}}{\sqrt{\sum_{i=1}^{m} d^2 ij}} \qquad (8)$$

Table 6: Normalized Matrix

Number	Indices Options	Location Safety	Volume of Traffic	Basic Accessibility	Services	Road Quality	Scenery
1	50th kilometer (right) Shiraz- Sa'adat Shar	0.1953	0.2498	0.2327		0.2325	0.2363
2	18th kilometer (left) marvdasht- Sa'adat Shar	0.1953	0.1922	0.2327		0.2325	0.2363
3	43th kilometer (right) marvdasht- Sa'adat Shar	0.1953	0.2498	0.2327		0.2325	0.2363
4	10th kilometer (left) Sa'adat Shar-abadeh	0.1953	0.1483	0.2327		0.2066	0.2363
5	113th kilometer (right) Shiraz- esfshan	0.1953	0.1184	0.2327		0.2066	0.2363
6	20th kilometer (right) safa shahr-Shiraz	0.1953	0.1483	0.2327		0.2066	0.1313
7	52th kilometer (right) saadat shahr-safa shahr	0.1953	0.1184	0.2327		0.2066	0.1313
8	18th kilometer (left) shiraz-koar, jahrom	0.1953	0.2025	0.1810		0.2066	0.1838
9	21th kilometer (right) shiraz-koar	0.1953	0.2025	0.1810		0.2325	0.2363
10	24th kilometer (right) shiraz-sarvestan	0.1953	0.1143	0.1810		0.2325	0.2363
11	15th kilometer (left) sarvestan- shiraz	0.1953	0.1143	0.1810		0.2325	0.1838
12	15th kilometer (right) sarvestan- shiraz	0.1953	0.1237	0.1551		0.2325	0.1838
13	35th kilometer (right) fasa- shiraz	0.1953	0.1237	0.1293		0.1550	0.1838
14	39th kilometer (left) fasa- darab	0.1953	0.0836	0.1551		0.1550	0.1838
15	2th kilometer (right) darab- fasa	0.1953	0.0836	0.1293		0.1550	0.1838
16	21th kilometer (left) shiraz-sepidan	0.1953	0.4082	0.2068		0.2325	0.2363
17	46th kilometer (left) shiraz-sepidan	0.1953	0.4082	0.2068		0.1291	0.2363
18	21th kilometer (right) shiraz-dashte arjhan	0.1953	0.2540	0.1810		0.2325	0.1838
19	6th kilometer (right) dashte arjhan-ghaemiye	0.1953	0.2540	0.1810		0.1550	0.2363
20	26th kilometer (right) Ghaemiye-kenar takhte	0.1953	0.1767	0.1810		0.1550	0.1313
21	26th kilometer (left) Ghaemiye-kenar takhte	0.1953	0.1786	0.1810		0.1550	0.1313
22	15th kilometer (right) Firoz abad-asaloye	0.1953	0.1856	0.2068		0.1033	0.1838
23	135th kilometer (right) Firoz abad-asaloye	0.1953	0.1856	0.2068		0.1808	0.1313
24	29th kilometer (right) Tree way of fasa-estahban	0.1953	0.0791	0.1810		0.1550	0.1313
25	(60th -75th) kilometer (right) fasa- darab	0.1953	0.0996	0.1810		0.1550	0.1838
26	8th kilometer (right) lar-bandar abbas	0.1519	0.0395	0.1293		0.1550	0.1313
27	24th kilometer (right) lar-bandar abbas	0.1519	0.0395	0.1551		0.1550	0.1313

8.2: Step Two: Creating وزيـن مقيـاسبـي مـاتريس (V):

8.2.1: Determining Criteria Weights

In most multi criteria decision making problem, to decision makers, criteria are not the same to measure their desirability. To measure criteria approximate weights there has to be decisions maker's idea, because criteria weights are quality ones and telling their desirability has to do with decision maker;

with defining them by weight measures this paper wants to make them quantity ones.

Criteria weights are measured by comparing method. To do this, a questionnaire was given to decision makers. The most suitable mixing method in group AHP, known by Eksel, level geometric method, was used to mix decision makers' ideas.

After measuring criteria approximate weights by comparing, it is needed to evaluate their adaptability. Classified analyzing process evaluated judgments, and if all judgments be related together, they would be adaptable. If they are too inadaptable, weights and evaluating will be revised, and after that, criteria normalized weights are calculated. In this research, ideas mixing results inadaptability was 0.01 and revising was not necessary, although people's ideas were too inadaptable (0.1).

8.2.2: Decision Making Matrix Inadaptability Measuring Algorithm

Each A matrix measure is calculated by steps below.

1: Create comparing matrix,

2: Define (W) weight vector,

3: Is the biggest amount in A matrix (λ_{max})specified? If yes, go to step 4, if no, it is estimated below:

3.1: With multiplying W vector by A matrix, a λ_{max} W desirable estimation is determined. (A*W= λ_{max} W),

3.2: With dividing determined amounts for λ_{max} W, calculate some estimations of λ_{max} ,

3.3: Calculate λ_{max} Averages,

4: Inadaptability criterion amount (I.I.) is calculated:

$$I.I. = \frac{\lambda_{max} - n}{n - 1} \quad (9)$$

5: (I.R.) Inadaptability value is calculated by the formula:

$$I.R. = \frac{I.I.}{I.I.R} \quad (10)$$

8.2.3: Final Criteria and Each Weight

W1=Location Safety, W2=Volume of Traffic, W3=Basic Services Accessibility, W4= Road Quality, W5= Scenery

$$W=\{W_1=0.331, W_2=0.247, W_3=0.192, W_4=0.188, W_5=0.042\}$$

$$\sum W_i=1 \quad (11)$$

Multiply decision making matrix 3 by diagonal matrix W. Decision making matrix 4 is the result which is shown in the table below:

Table 7: Decision Making Matrix 4

Number	Indices Options	Location Safety	Volume of Traffic	Basic Services Accessibility	Road Quality	Scenery
1	50th kilometer (right) Shiraz- Sa'adat Shar	0.0647	0.0617	0.0447	0.0437	0.0099
2	18th kilometer (left) marvdasht- Sa'adat Shar	0.0647	0.0475	0.0447	0.0437	0.0099
3	43th kilometer (right) marvdasht- Sa'adat Shar	0.0647	0.0617	0.0447	0.0437	0.0099
4	10th kilometer (left) Sa'adat Shar-abadeh	0.0647	0.0366	0.0447	0.0388	0.0099
5	113th kilometer (right) Shiraz- esfshan	0.0647	0.0292	0.0447	0.0388	0.0099
6	20th kilometer (right) safa shahr-Shiraz	0.0647	0.0366	0.0447	0.0388	0.0055
7	52th kilometer (right) saadat shahr-safa shahr	0.0647	0.0292	0.0447	0.0388	0.0055
8	18th kilometer (left) shiraz-koar, jahrom	0.0647	0.0500	0.0347	0.0388	0.0077
9	21th kilometer (right) shiraz-koar	0.0647	0.0500	0.0347	0.0437	0.0099
10	24th kilometer (right) shiraz-sarvestan	0.0647	0.0282	0.0347	0.0437	0.0099
11	15th kilometer (left) sarvestan- shiraz	0.0647	0.0282	0.0347	0.0437	0.0077
12	15th kilometer (right) sarvestan- shiraz	0.0647	0.0306	0.0298	0.0437	0.0077
13	35th kilometer (right) fasa- shiraz	0.0647	0.0306	0.0248	0.0291	0.0077
14	39th kilometer (left) fasa- darab	0.0647	0.0206	0.0298	0.0291	0.0077
15	2th kilometer (right) darab- fasa	0.0647	0.0206	0.0248	0.0291	0.0077
16	21th kilometer (left) shiraz-sepidan	0.0647	0.1008	0.0397	0.0437	0.0099
17	46th kilometer (left) shiraz-sepidan	0.0647	0.1008	0.0397	0.0243	0.0099
18	21th kilometer (right) shiraz-dashte arjhan	0.0647	0.0627	0.0347	0.0437	0.0077

19	6th kilometer (right) dashte arjhan-ghaemiye	0.0647	0.0627	0.0347	0.0291	0.0099
20	26th kilometer (right) Ghaemiye-kenar takhte	0.0647	0.0436	0.0347	0.0291	0.0055
21	26th kilometer (left) Ghaemiye-kenar takhte	0.0647	0.0441	0.0347	0.0291	0.0055
22	15th kilometer (right) Firoz abad-asaloye	0.0647	0.0458	0.0397	0.0194	0.0077
23	135th kilometer (right) Firoz abad-asaloye	0.0647	0.0458	0.0397	0.0340	0.0055
24	29th kilometer (right) Tree way of fasa-estahban	0.0647	0.0195	0.0347	0.0291	0.0055
25	(60th -75th) kilometer (right) fasa- darab	0.0647	0.0246	0.0347	0.0291	0.0077
26	8th kilometer (right) lar-bandar abbas	0.0503	0.0098	0.0248	0.0291	0.0055
27	24th kilometer (right) lar-bandar abbas	0.0503	0.0098	0.0298	0.0291	0.0055

Step Three: Calculate TOPSIS technique by decision making matrix V.

For ideal and non-ideal options there are:

$$A_i^+ = \{\max V_{i1} = 0.0319, \max V_{i2} = 0.0659, \max V_{i3} = 0.0256, \max V_{i4} = 0.0249, \max V_{i5} = 0.0056\} \quad (12)$$

$$A_i^- = \{\min V_{i1} = 0.0248, \min V_{i2} = 0.0025, \min V_{i3} = 0.0085, \min V_{i4} = 0.0083, \min V_{i5} = 0.0019\} \quad (13)$$

Step Four: Determining metric options distance from ideal options (di+) and non-ideal options (di-) by Euclidean method.

$$= \left\{ \sum_{j=1}^{n} (V_{ij} - V_J^+)^2 \right\}^{0.5} ; i = 1,2,3,...,n \quad (14)$$

The distance between Ith and ideal = d_i^+

$$= \left\{ \sum_{j=1}^{n} (V_{ij} - V_J^-)^2 \right\}^{0.5} ; i = 1,2,3,...,n \quad (15)$$

The distance between Ith and non-ideal= d_i^-

How near is ith to the solution?

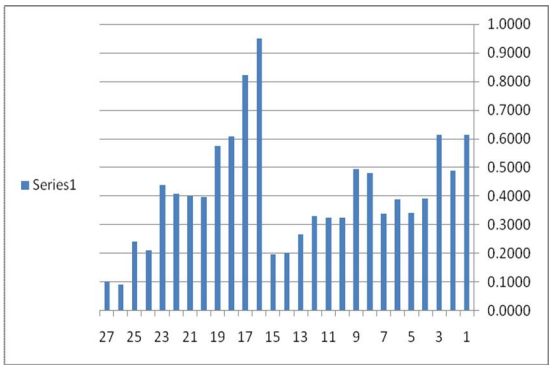
$$cl_i = \frac{d_{i-}}{(d_{i+}, d_{i-})} ; \; i = 1,2,3,...,m \quad (16)$$

CL1=0.6151	CL2=0.4902	CL3=0.6151	CL4=0.3918	CL5=0.3410	CL6=0.3899
CL7=0.3389	CL8=0.4801	CL9=0.4931	CL10=0.3260	CL11=0.3246	CL12=0.3305
CL13=0.2671	CL14=0.2035	CL15=0.1970	CL16=0.9509	CL17=0.8235	CL18=0.6070
CL19=0.5750	CL20=0.3958	CL21=0.4001	CL22=0.4082	CL23=0.4393	CL24=0.2108
CL25=0.2420	CL26=0.0925	CL27=0.1036			

Step Six: Classifying options is based on cli rising order tells about top option.

1. 21th kilometer (left) shiraz-sepidan
2. 46th kilometer (left) shiraz-sepidan
3. 50th kilometer (right) Shiraz- Sa'adat Shar
4. 43th kilometer (right) marvdasht- Sa'adat Shar
5. 21th kilometer (right) shiraz-dashte arjhan
6. 6th kilometer (right) dashte arjhan-ghaemiye
7. 21th kilometer (right) shiraz-koar
8. 18th kilometer (left) marvdasht- Sa'adat Shar
9. 18th kilometer (left) shiraz-koar, jahrom
10. 135th kilometer (right) Firoz abad-asaloye
11. 15th kilometer (right) Firoz abad-asaloye
12. 26th kilometer (left) Ghaemiye-kenar takhte
13. 26th kilometer (right) Ghaemiye-kenar takhte
14. 10th kilometer (left) Sa'adat Shar-abadeh
15. 20th kilometer (right) safa shahr-Shiraz
16. 113th kilometer (right) Shiraz- esfshan
17. 52th kilometer (right) saadat shahr-safa shahr
18. 15th kilometer (right) sarvestan- shiraz
19. 24th kilometer (right) shiraz-sarvestan
20. 15th kilometer (left) sarvestan- shiraz
21. 35th kilometer (right) fasa- shiraz
22. (60th -75th) kilometer (right) fasa- darab
23. 29th kilometer (right) Tree way of fasa-estahban
24. 39th kilometer (left) fasa- darab
25. 2th kilometer (right) darab- fasa
26. 24th kilometer (right) lar-bandar abbas
27. 8th kilometer (right) lar-bandar abbas

Figure 2. Showing Options Classifying On Chart



3. Results

Due to the results reached by applied models in action during the study it is possible to declare:

1: Locations 16 and 17, located in Shiraz-Sepidan road, due to the high volume of traffic comparing other roads and having highest score in other criteria is the priority.

2: Locations 1, 3, 18, and 19 are in the second position cause their high volume of traffic and having high score in other criteria.

3: Locations 2, 8, and 9 are in the third position due to their high volume of traffic and high scores in other criteria.

4: Locations 23, 22, 21, 20, 4, and 6 are in the next priority based on their average volume of traffic (high average).

5: Locations 5, 7, 10, 11, and 12 are in the middle of list based on their average volume of traffic, road sort, basic services accessibility and scenery.

6: Locations 13, 24, 25, 14, and 15 are at the low parts of the list cause of their low volume of traffic, average services, no scenery and road sort.

7: Locations 26 and 27 are at the bottom of the list cause of their low volume of traffic, no desirable services, no scenery and road sort.

4. Discussions

It is hoped that this research will help a little to make better and more organized decisions in building welfare service complexes and use limited budget more appropriate. With the help of people in charge, supplementing and applying these researches and organizing national decision makings the points below could be reachable:

Long-term scientific planning in transportation.

Focusing on transportation costs and dimensions.

Executing social and national benefits in transportation .

Investment expansion optimized consuming.

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