

## **6. SURVEY RESULTS**

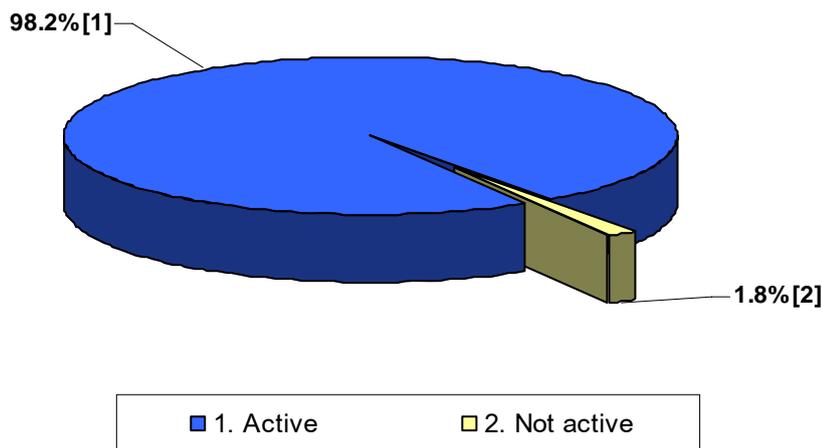
### **6.1. ECONOMIC ACTIVITY AND SIZES OF THE ORGANIZATIONS**

As it was already mentined, 114 organizations registered in the territory of the republic were covered by the sample survey on intraurban passenger transportation. 112 out of the mentioned organizations were active at the observation period (or 98.2% of total interviewed organizations) and 2 organizations (or 1.8%) were non-active. 2 non-active organizations were in Yerevan city and Aragatsotn marz.

In case of observation by marzes, the share of active organizations was higher in Yerevan city (62.5%). In the other marzes the share of active organizations to total was fluctuated within limits from 0.9 % (Gegharkunik marz) to 11.6 % (Lori marz) (*Annex 1, tables 1, 2 and 3*).

The economic activity of the surveyed organizations is reflected in the *Diagram 1*.

***Diagram 1. The distribution of organizations covered by the survey by the features of active and not active.***

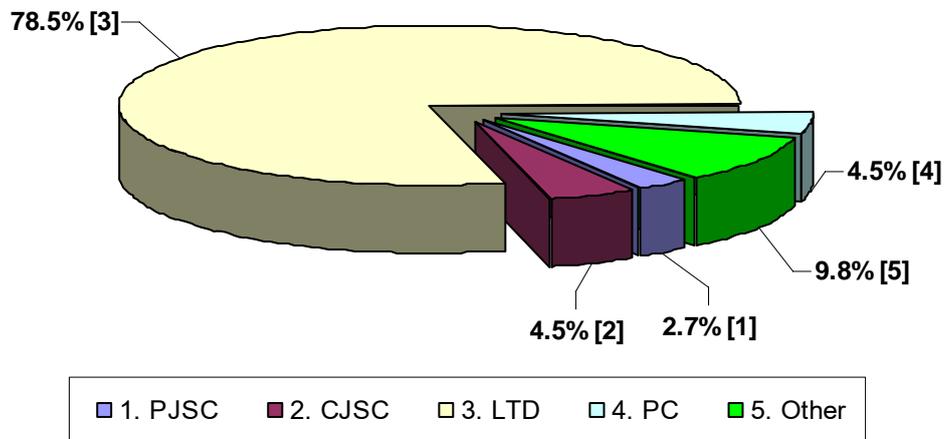


According to the survey results, a company with limited liabilities was an organizational and legal type for the prevailing part of active organizations, the share of which comprised 78.5% of total (or 88 organizations).

The share of joint stock companies (public and closed) comprised 7.2% of total or 8 organizations. By the way, the share of closed joint stock companies comprised 62.5% of total joint stock companies (or 5 organizations). It is obvious, that the organizations with «other» organizational and legal type are distinguished by the higher share in total number of organizations, 90.9% of which were located in Shirak marz. (*Annex 1, tables 4, 5 and 6*). The above mentioned is stipulated by the fact, that individual entrepreneurs comprised the prevailing part of economic entities in Shirak marz, that according to the RA Government Resolution N 762 dated 16 August 2001 “On Adoption of tender implementation order of organizations dealing with regular passenger transportation by general purpose road transport in the Republic of Armenia” are in the stage of reorganization and participation in new tender.

The distribution of active organizations by organizational and legal types is presented in the Diagram 2.

*Diagram 2. Distribution of active organizations covered by the survey, by organizational and legal types*

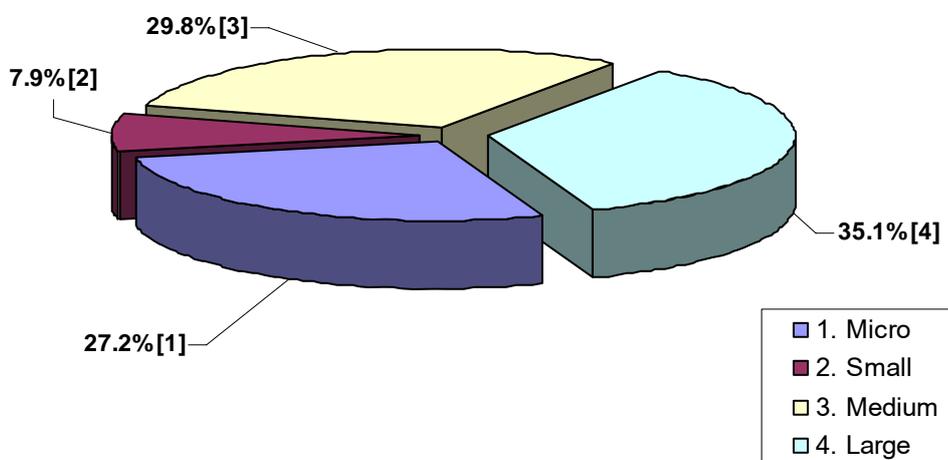


By observing of organizations by sizes, defined by the number of employees\*, it was cleaned up by the survey that 64.9% were medium and large (with the number of employees 16 and more). As regard the organizations with the number of employees less than 5 persons with the share 27.2 %, the situation is stipulated by the prevalence of number of individual entrepreneurs within economic entities in Shirak marz, which comprised 32.2% of the organizations with the number of employees less than 5 persons (or 10% out of 31%). In case of observation by marzes, the number of medium and large organizations was prevailing only in Yerevan city (95.8% of Yerevan total), while in the other marzes the number of micro and small organizations prevailed. By the way, it is obvious, that micro and small organizations have not been recorded in Aragatsotn, Armavir, Gegharkunik, Syunik and Tavush marzes. (*Annex 1, tables 7, 8 and 9*).

The distribution of active organizations covered by the survey defined by the number of employees is presented in the Diagram 3.

\* According to the article 2 of the RA Law “On state support of small and medium entrepreneurship” the criteria on number of employees defined for different activity types have been accepted as a basis. In accordance with those criteria: “SME units in the Republic of Armenia are classified into micro (average payroll number of employees less than 5 persons), small (average payroll number of employees less than...15 in transport, trade and services), medium (average payroll number of employees less than...30 in transport, trade and services).

*Diagram 3. Distribution of active organizations covered by the survey defined by the number of employees.*



## **6.2. ROLLING-STOCK OF MINIBUSES AND THEIR TECHNICAL INDICES**

The volume of passenger transportation by road transport surely depends on the number and models of rolling-stock vehicles and their technical indices – operation period, seating capacity and etc.

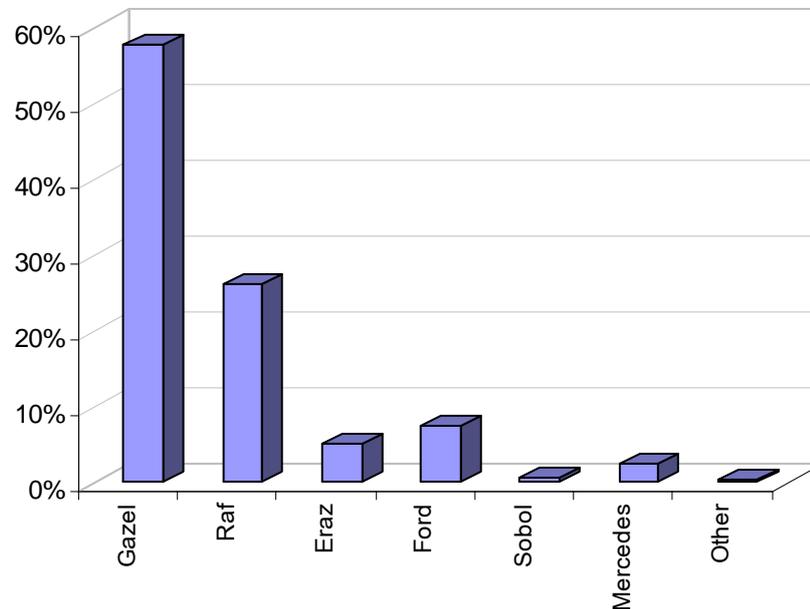
According to the data of the questionnaires completed by organizations, at the survey period, the rolling-stock of the organizations dealing with intraurban passenger transportation comprised 3474 units, of which 3202 minibuses and 272 buses.

94.0 % out of the mentioned number of minibuses operated in Yerevan city. By higher share, Lori marz (4.1%) and Kotayk marz (0.9%) followed Yerevan city, and share of the other marzes was fluctuated within limits from 0.1% (Gegharkunik marz) to 0.3% (Syunik marz).

It is obvious, that in respect of observation by models: “Gazel” and “Raf” models of minibuses prevailed in Yerevan city, Armavir, Lori and Syunik marzes, “Raf” and “Ford” – in Aragatsotn marz, “Raf” and “Eraz” – in Kotayk marz and “Raf” – in Aragatsotn, Gegharkunik and Tavush marzes. (*Annex 1, tables 10, 11 and 12*).

The distribution structure of minibus rolling-stock of road transport organizations by models is reflected in the Diagram 4.

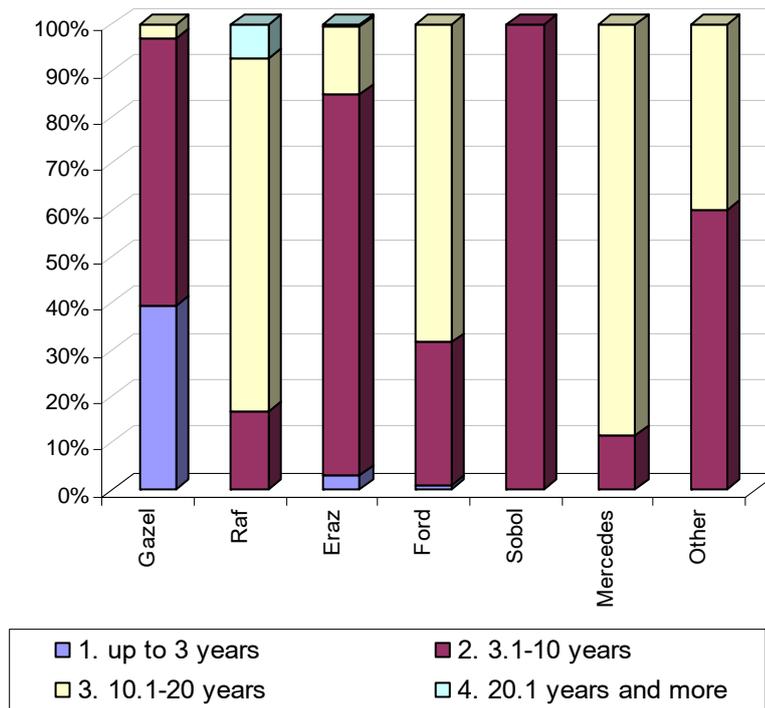
**Diagram 4. Distribution structure of minibus rolling-stock of road transport organizations by models**



As it is supposed, such distribution of minibus models had significant influence on results of rolling-stock operation periods and distribution. Thus, according to the results, the most of minibuses were used from 3 to 20 years (3.1-10 years – 44.3% and 10.1-20 years – 31.3%). By the way, the specified circumstance was influenced by the distribution characteristics of the minibuses “Gazel” and “Raf” models peculiarities. For example, if the 72.8% of minibuses used 3.1-10 years was “Gazel”, then “Raf”-s (68.9%) were prevalent among motor vehicles used 10.1-20 years. It is also notable, that used motor vehicles of russian production were comparatively “new” (less than 10 years), while motor vehicles with operation period 10.1-20 years were prevailed among “Ford” and “Mercedes” models. (*Annex 1, tables 13, 14 and 15*).

The distribution structure of minibus rolling-stock of road transport organizations by models and operation periods is presented in the Diagram 5.

**Diagram 5. The distribution structure of minibus rolling-stock of road transport organizations by models and operation periods.**



### **6.3 ROLLING-STOCK OF BUSES AND THEIR TECHNICAL INDICES**

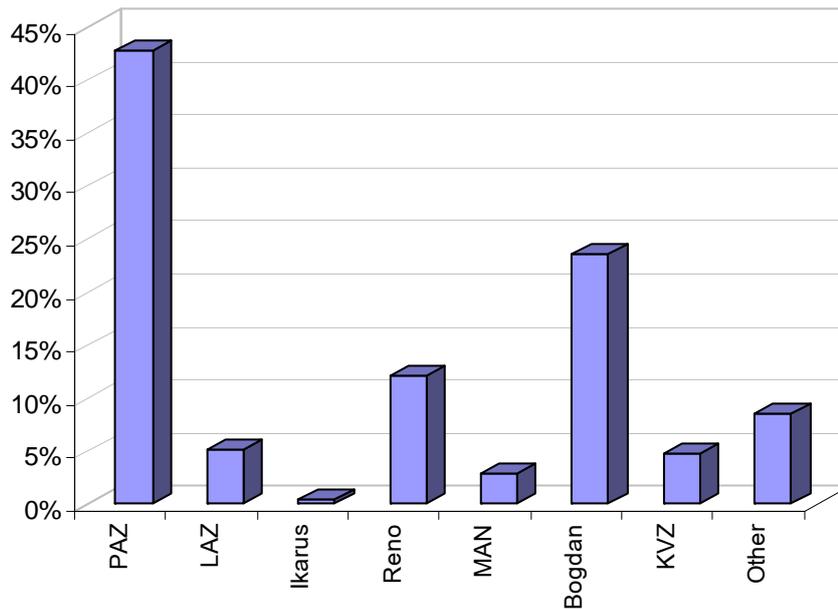
As it was mentioned, according to the survey results, the number of buses operating on a route served by organizations comprised 272, 72.8% of which operated in Yerevan city. By higher share, Shirak marz (11.0%), Lori marz (7.4%) and Kotayk marz (3.3%) followed Yerevan city, and share of the other marzes was fluctuated within limits of 0.4%- 0.7%.

In general, buses of “PAZ” (42.7%), “Bogdan” (23.5%) and “Reno” (12.1%) models were prevalent among the buses belonging to organizations and comprised 78.3% of total. By the way, if the models of buses “PAZ” (32.3%) and “Bogdan” (32.3%) were prevalent in Yerevan city, the following picture was in the other marzes: there were models “PAZ” (75.0% and 66.7% correspondingly) and “LAZ” (25.0% and 22.7% correspondingly) - in Lori and Syunik marzes, “PAZ” (22.2% and 83.3% correspondingly) and “KVZ” (66.7% and 16.7% correspondingly) - in Kotayk and Shirak marzes and there was a model of buses in each of the other marzes.

It is remarkable, that the cases of intraurban passenger transportation by “Ikarus” and “KVZ” buses have not been recorded in Yerevan city. On the other hand, intraurban passenger transportations by “Reno”, “MAN” and “Bogdan” models were recorded only in Yerevan city and by “Ikarus” model – only in Tavush marz (*Annex 1, tables 10, 11 and 12*).

The distribution structure of bus rolling-stock of road transport organizations by models is reflected in the Diagram 6.

**Diagram 6. The distribution structure of bus rolling-stock of road transport organizations by models**



The proportions on operation periods of minibuses in some way were also typical for buses. However, it is necessary to take into account, that the availability of buses with big seating capacity, which were imported or provided as a humanitarian aid in preceding years had great importance for renewal of bus rolling-stock of Yerevan city. Thus, according to the information provided by organizations, number of buses with operation period 10 and over years was prevailed in total number of buses used by road transport organizations and comprised 57.4% of total. It should be mentioned, that like the case of minibuses, significant quantitative difference of buses used especially in Yerevan city has influenced on bus distribution by marzes.

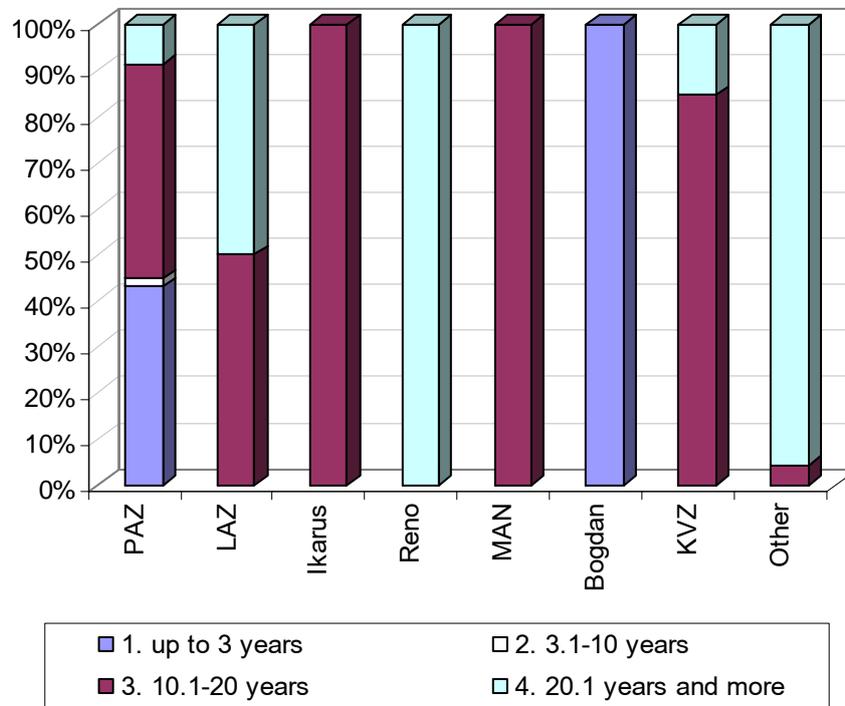
Thus, according to the survey results, totality of buses used in Yerevan city was characterized by availability of “new” (less than 3 years) and “old” (20.1 and more years) buses and absence of buses used 3.1-10 years. Completely “new” were buses of “Bogdan” model, and operation period of all rolling-stock of buses “LAZ”, “Reno” and other models was 20.1 and more years. In the same context, the significant share also had “PAZ” model buses, 78.1% out of which - with operational period less than 3 years.

It is obvious, that in marzes in comparison with Yerevan city mainly “old” buses were used for intraurban passenger transportation. Armavir marz was an exception, where 2 buses implementing intraurban passenger transportation had operation period 3.1-10 years; in the other marzes operation period of used buses was 10.1 and more years (buses with operation period 10.1-20 years comprised 88.9% of marz total). The mentioned circumstance become obvious also from analysis of models, as “old” buses of “PAZ” model are mainly used in the RA marzes. (*Annex 1, tables 16, 17 and 18*).

Summing up, it is necessary to mention the following: bus rolling-stock belonging to the organizations dealing with intraurban passenger transportations in Yerevan city mainly consists of “new” and “comparatively new” buses, and in other marzes – “comparatively old” and “old” buses.

The distribution structure of bus rolling-stock of road transport organizations by models and operation periods is presented in the Diagram 7.

**Diagram 7. The distribution structure of bus rolling-stock of road transport organizations by models and operation periods.**



## **6.4 MINIBUS ROUTES AND THEIR CHARACTERISTIC**

As it was already mentioned, the sample survey of intraurban passenger transportation covered two different components, which were directed, on one hand, to the study and analysis of the indicators provided by the organizations and, on the other hand, to the observation of corresponding separate routes served by the organizations and, therefore, to deriving the coefficients for calculation of the official statistical indicators imputations.

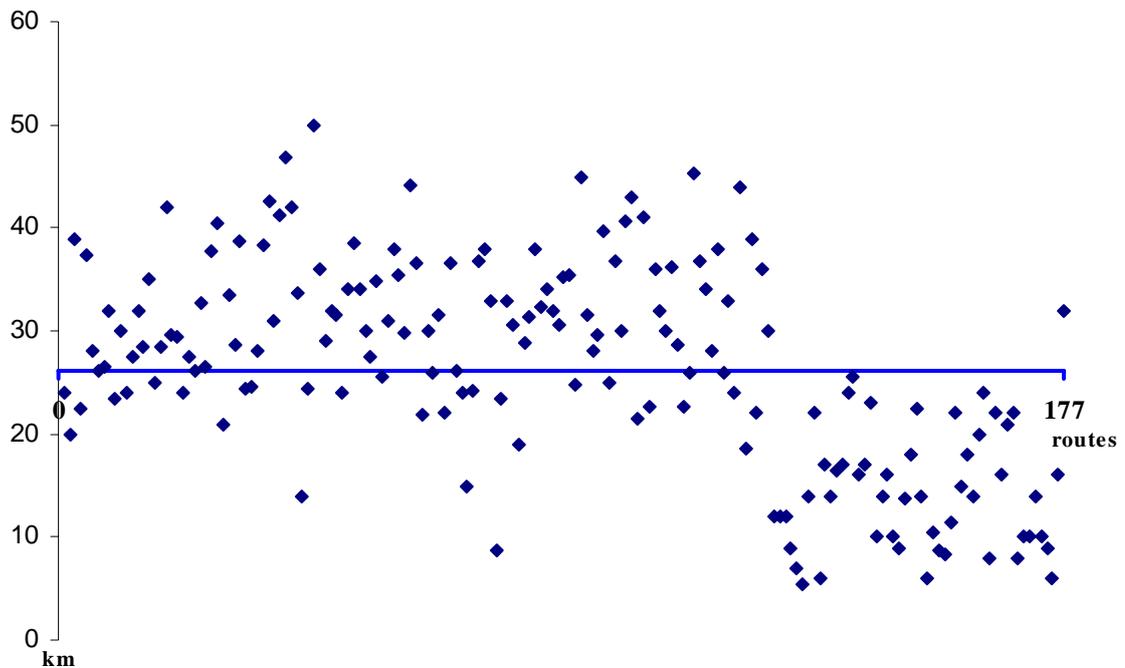
Thus, according to the results received through individual questionnaires the number of minibus routes served by organizations comprised 177, 70.6% of which was in Yerevan city. By higher share, Lori marz (12.4%), Shirak marz (5.7%), Syunik marz (3.4%) and Kotayk marz (2.8%) followed Yerevan city, and Gegharkunik marz was distinguished by the lowest share – 0.6%. (*Annex 2, tables 1, 2 and 3*).

By observing the routes by length distribution, it should be mentioned, that in Yerevan city the routes with length of circular route 20.1-40 km were prevalent (which comprised 84.0% of total), in Shirak marz – routes with length of circular route 10.1-30 km and in other marzes - routes with length of circular route up to 20 km. Surely, territory of urban settlements and number of population of the appropriate marz have influenced on the mentioned indicators. According to the calculated average indicators, average length of circular routes of minibus

intraurban routes comprised 26.2 km (of which in Yerevan city - 31.0 km).

The distribution of minibus routes number by average length of circular route is reflected in the Diagram 8.

*Diagram 8. The distribution of minibus routes number by average length of circular route.*



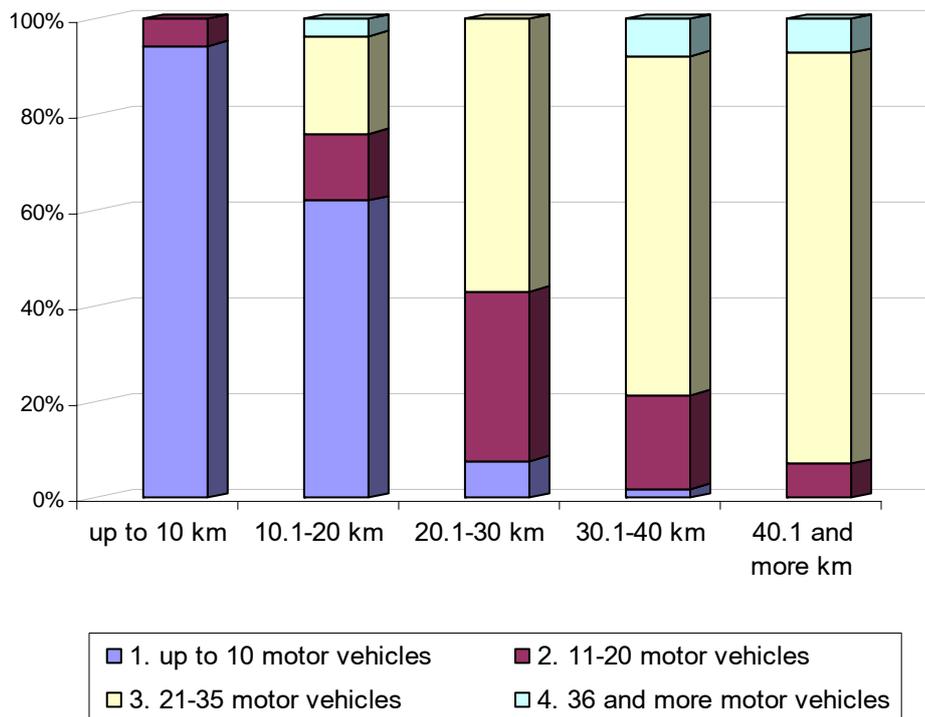
By observing the subject-matter indicator by marz distribution it is clear, that Lori and Syunik marzes (27.7% each of them correspondingly) were distinguished by higher share in the total routes with length of circular route up to 10 km, Lori marz (41.1%) – in total routes with length of circular route 10.1-20 km and Yerevan city (by the way, all 14 routes with length 40.1 km and more were operated in Yerevan city) – in total routes with length of circular route 20.1 and more km.

The survey results enabled to study also the length of minibus circular route by the number of motor vehicles operationg on a route, which proved the fact, that the “shorter” a route, the “less” a number of motor vehicles operationg on a route.

It should be mentioned, that if the proportion “length of circular route 20.1 and more km and routes with 11 and more motor vehicles” was typical for Yerevan city, then in marzes the proportion was “length of circular route up to 20 km and up to 20 motor vehicles”. By the way, it also should be mentioned, that besides Yerevan city, routes with 36 and more motor vehicles were in Shirak marz, and routes with 21-35 motor vehicles – in Shirak and Lori marzes, which is clarified by the fact, that the biggest by the population number urban settlements of the republic– Gyumri and Vanadzor are located in the mentioned marzes. (*Annex 2, tables 7, 8 and 9*).

The distribution of minibus routes by length of circular route and number of motor vehicles operation on a route is reflected in the Diagram 9.

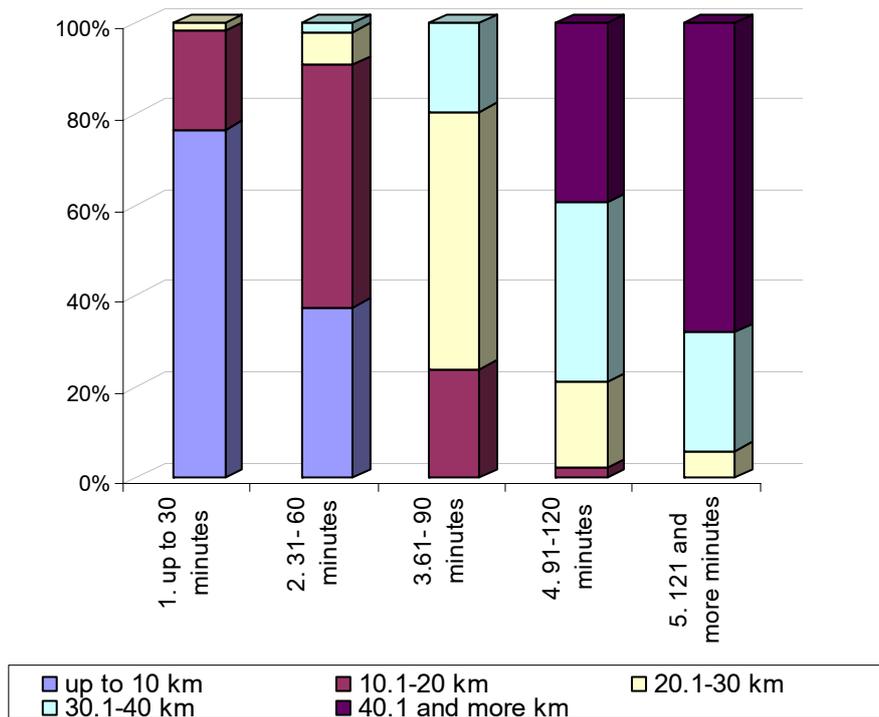
**Diagram 9. The distribution of minibus routes by length of circular route and number of motor vehicles operating on a route.**



According to the survey results: minibuses mainly pass routes with length up to 10 km till 30 minutes (61.1%), routes with length 10.1-20 km – from 30 to 60 minutes (55.3%). 20.1-30 km – 61-90 minutes (56.9%) and routes with length 30.1-40 km and 40.1 and more km– mainly in 91-120 minutes (64.7% and 64.3% correspondingly). By the way, routes with duration 121 and more minutes were recorded only in Yerevan city, 91-120 minutes – in Yerevan city, Lori, Kotayk and Shirak marzes. (*Annex 2, tables 13, 14 and 15*).

The distribution of minibus routes by length and average duration of circular route is reflected in the Diagram 10.

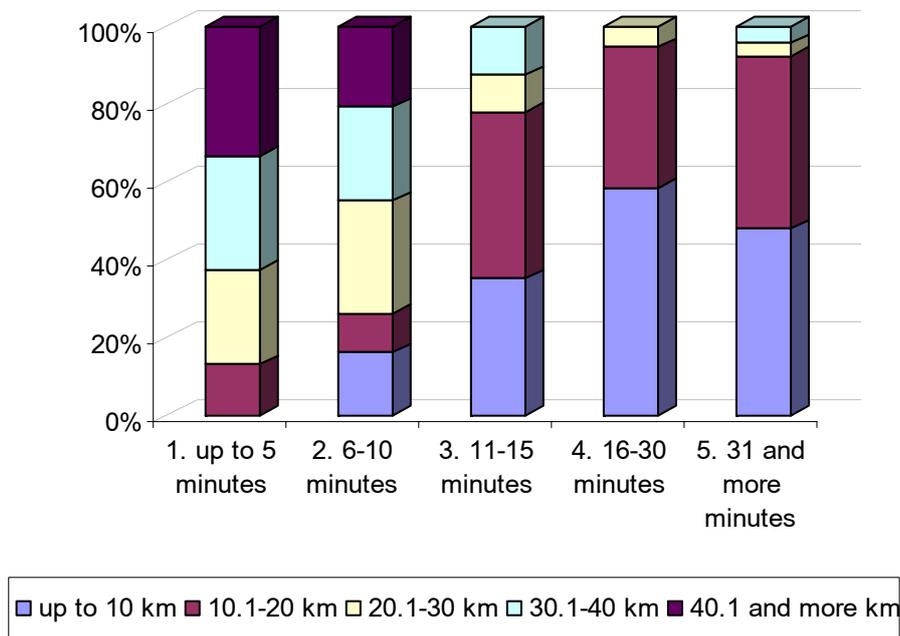
**Diagram 10. The distribution of minibus routes by length and average duration of circular route.**



The survey results also enabled to receive information on movement interval of motor vehicles operating on a route. In general, up to 10 minutes interval was typical as a movement interval for minibuses, the share of which to total comprised 78.5%. It is necessary to take into account that the corresponding share (98.4%) of Yerevan city influenced on the mentioned indicator, while high movement intervals had been particularly typical to other marzes. Thus, 16-30 minutes movement interval of motor vehicles was typical for routes of Aragatsotn, Armavir and Gegharkunik marzes that comprised 100% for each of the mentioned marzes, 16-30 minutes and 30.1 minutes and more intervals – for Lori and Syunik marzes (68.2% and 100% correspondingly). As regard Kotayk and Tavush marzes, in spite of the fact, that the movement intervals were different, interval up to 5 minutes was not recorded. In the given context, it should be also mentioned, that besides Yerevan city the routes with motor vehicles movement interval up to 5 minutes were also recorded in Shirak and Lori marzes. (*Annex 2, tables 19, 20 and 21*).

The distribution of minibus routes by length of circular route and movement average interval is presented below in the Diagram 11.

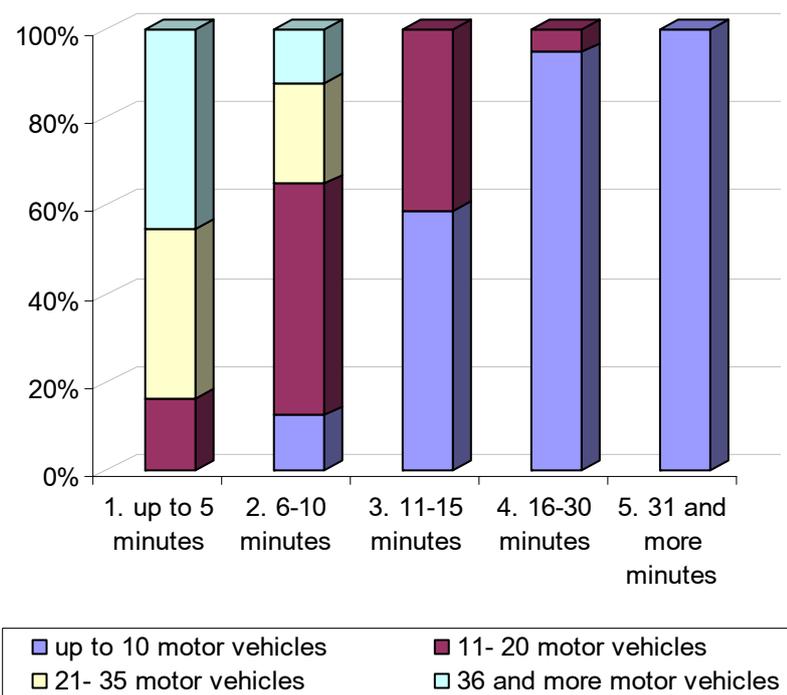
**Diagram 11. The distribution of minibus routes by length of circular route and movement average interval.**



It is obvious, that movement average interval is closely related to the number of motor vehicles operating on a route. According to the survey results, in routes with up to 10 motor vehicles movement interval comprised 16-30 minutes, in routes with 11-20 motor vehicles – 6-10 minutes, in routes with 21-35 and 36 and more motor vehicles – up to 5 minutes. In other words, as many the number of motor vehicles in a route as more intensive their movement interval. By the way, such intensity is more typical for Yerevan city, where in the majority of routes (73.6%) with 21 and more motor vehicles, the motor vehicles have operated at 5 minute movement interval and in routes with 11-20 motor vehicles - mainly at 6-10 minutes interval. In spite of the fact, that the number of routes in other marzes was not enough for similar conclusions, nevertheless it should be mentioned, that Shirak marz was distinguished by intensive movement, where motor vehicles have operated at interval up to 10 minutes. In the given context, routes with motor vehicles operating at 31 and more minutes interval were in Lori, Kotayk, Syunik and Tavush marzes (*Annex 2, tables 25, 26 and 27*).

The distribution of minibus routes by number of motor vehicles and movement average interval is reflected below in Diagram 12.

**Diagram 12. The distribution of minibus routes by number of motor vehicles and movement average interval.**



## **6.5 BUS ROUTES AND THEIR CHARACTERISTIC**

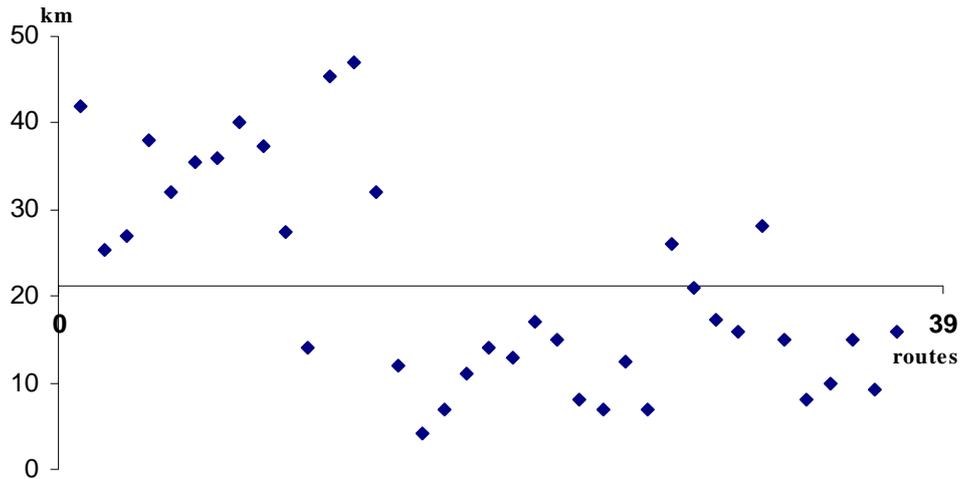
Unlike the minibus routes, bus routes by length of circular route had equal distribution and in comparison with total number of routes were fluctuated within limits of 15.4-35.9%.

In case of observation by marzes, routes of Yerevan city comprised 35.9% of total, and shares of bus routes implementing intraurban passenger transportation in urban settlements of Lori, Shirak and Syunik marzes – 20.5%, 12.8% and 12.8 % correspondingly. The lower share had bus routes implementing intraurban passenger transportation in Aragatsotn, Armavir and Tavush marzes, by 2.6% each. Syunik (44.5%) and Lori (22.2%) marzes were distinguished by share of routes with length of circular route up to 10 km, Lori (43.0%) and Shirak (21.5%) marzes – by share of routes with length of circular route 10.1-20 km and Yerevan city – by routes with length of circular route 20.1-30 km and 30.1 and more km (50.0% and 100.0% correspondingly). It is remarkable, that in Yerevan city bus routes with length of circular route up to 10 km were not recorded, while the number of routes 10.1 km and more tends to increase depending on circular route length - in case of routes with length 30.1 km and more comprising 100.0% (in other marzes routes with length of circular route 30.1 km and more were not recorded). By the way, it should be also mentioned, that routes with length of circular route 20.1-30 km were recorded only in Yerevan city, Kotayk and Shirak marzes (*Annex 2, tables 4, 5 and 6*).

According to the calculated average indicators, average length of circular route of intraurban bus routes comprised 21.3 km (of which in Yerevan city 34.2 km).

The distribution of bus routes by average length of circular route is reflected below in Diagram 13.

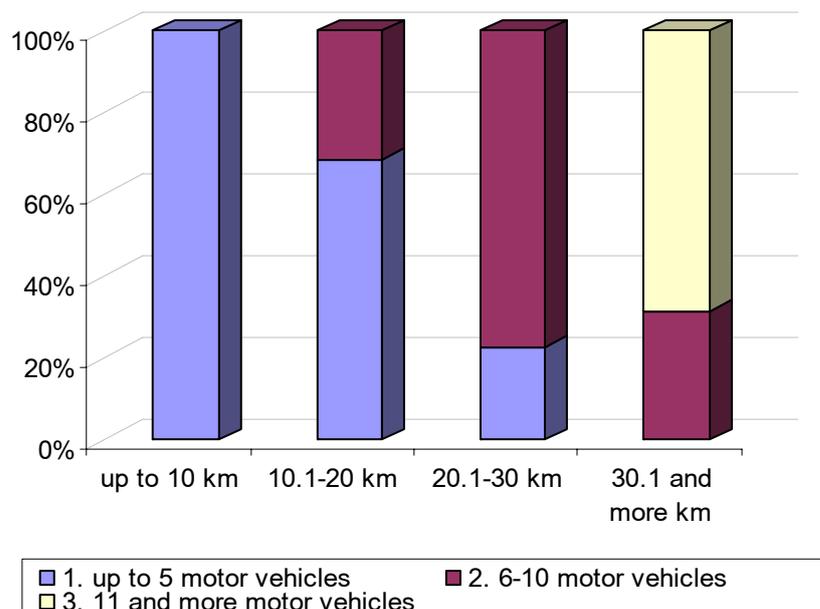
**Diagram 13. The distribution of bus routes to average length of circular route.**



In total number of routes the higher share had routes with 5 motor vehicles, which comprised 56.4%. The mentioned number of buses mainly operated in routes with length of circular route up to 10 km and 10.1-20 km and comprised 40.9% and 50.0% correspondingly. It is remarkable, that routes with 11 and more motor vehicles were not recorded in marzes, while route with 6-10 motor vehicles were recorded in Kotayk, Shirak and Syunik marzes, by the way, in Shirak marz – 3. It is interesting, that in Yerevan city there were many routes with length 30.1 km and more and correspondingly to that - routes with 6-10 and 11 and more motor vehicles. (Annex 2, tables 10, 11 and 12).

The distribution of bus routes by length of circular route and number of motor vehicles operating on a route is reflected below in the Diagram 14.

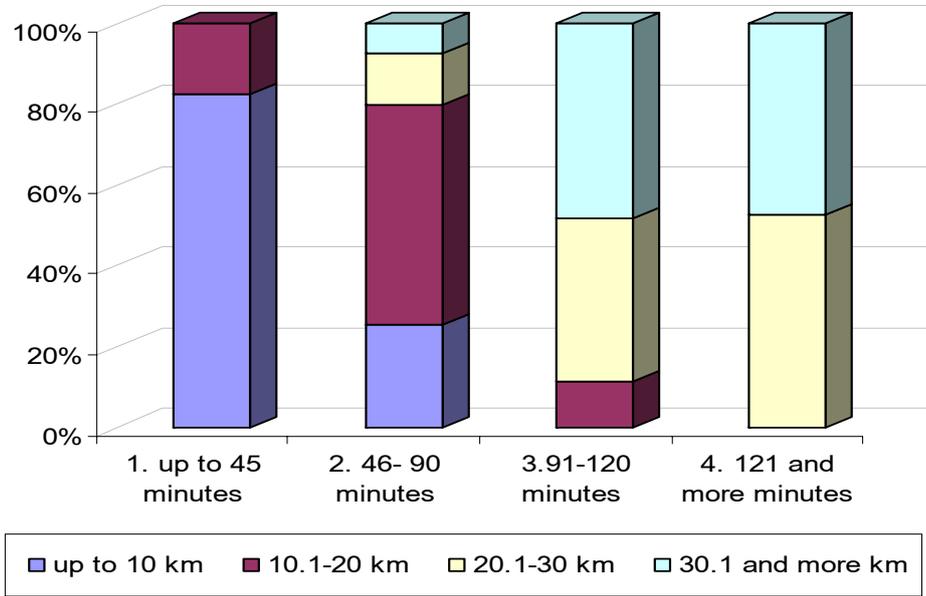
**Diagram 14. The distribution of bus routes by length of circular route and number of motor vehicles operating on a route**



It is reasonable, that in comparison with minibuses, bus movement speed and, as a consequence, duration of circular route should concede to the same indicator for minibuses. According to the survey results, buses mainly pass route with length of circular route up to 10 km in up to 45 minutes (75.0% of total), routes with length of circular route 10.1-20 km – in 46-90 (66.7%), and 20.1-30 km and 30.1 km and more – in 121 and more minutes. In general circular route in 46 and more minutes interval was typical for the buses operating in Yerevan city, while in other marzes circular route up to 45 minutes interval was more prevailing, although 2 circular routes in 121 minutes and more interval have been recorded for the routes with length of 20.1-30 km in Shirak marz (*Annex 2, tables 16, 17 and 18*).

The distribution of bus routes by length and average duration of circular route is reflected below in the Diagram 15.

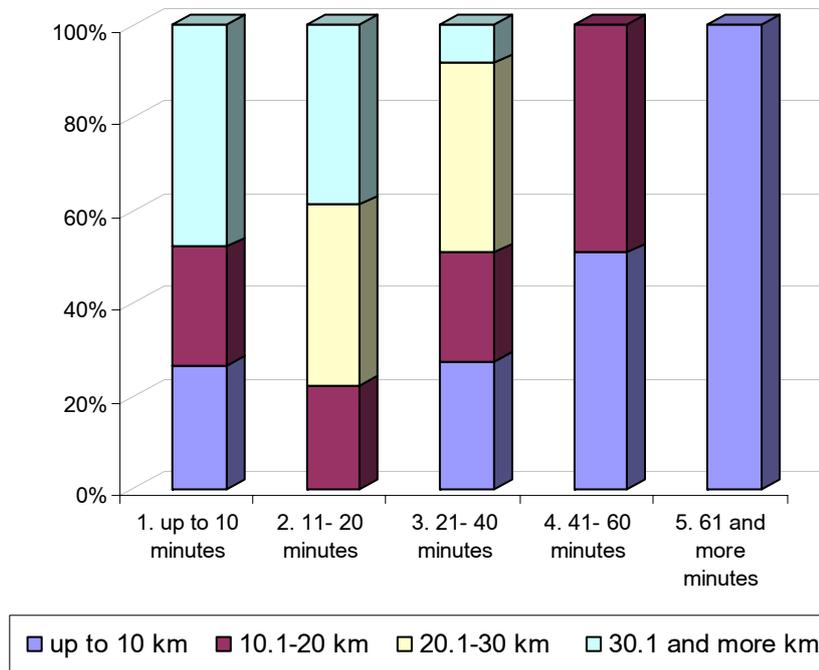
**Diagram 15. The distribution of bus routes by length and average duration of circular route.**



In general, motor vehicles movement interval up to 40 minutes is typical for buses that comprised 82.1% of total. It is remarkable that, unlike minibuses, the length of bus routes doesn't depend on movement interval that can be explained also by the fact, that there are not so many bus routes, as minibus ones. However, according to the observation results, the routes with motor vehicles operating at 61 and more minutes movement interval were in Syunik marz only. On the other hand, bus routes with movement interval up to 40 minutes were not recorded in Aragatsotn, Armavir and Gegharkunik marzes, bus routes with movement interval 21 and more minutes – in Shirak marz, bus routes with movement interval up to 20 minutes and 41 and more minutes – in Kotayk marz and 11 and more minutes – in Tavush marz. (*Annex 2, tables 22, 23 and 24*).

The distribution of bus routes by length of circular route and average movement interval is reflected below in the Diagram 16.

**Diagram 16. The distribution of bus routes by length of circular route and average movement interval**



In case of observation of buses by movement average interval the picture is following: buses mainly operate every 11-40 minute that comprised 59.0% of total. By the way, it is interesting, that the “less” a number of motor vehicles, the “more” their average movement interval. Thus, the number of routes with motor vehicles operating at 21-40 minutes and 41-60 minutes intervals was prevailing in the bus routes, which are operated by up to 5 motor vehicles, those operating up to 40 minutes interval – among the routes operated by 6-10 motor vehicles and those operating up to 20 minutes interval – among routes with 11 and more motor vehicles. On the other hand, the routes with motor vehicles operating at 61 and more minutes movement interval were in Syunik marz only and routes with motor vehicles operating at 41-60 minutes interval – in Aragatsotn, Armavir, Gegharkunik and Lori marzes. (*Annex 2, tables 28, 29 and 30*).

The distribution of bus routes by number of motor vehicles and movement average interval is presented in the Diagram 17.

*Diagram 17. The distribution of bus routes by number of motor vehicles and movement average interval.*

