MFM Project

REVIEW AND ASSESSMENT OF PUBLIC TRANSPORT IN VLADIVOSTOK

By
Development Group International

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1. INTRODUCTION

In response to the request of the city of Vladivostok, USAID is providing technical assistance to the city's public transportation sector through the Research Triangle Institute (RTI). Vladivostok is a major port on the Pacific Ocean, located opposite Japan on the western coast of the Sea of Japan. Public transportation in Vladivostok is provided by the city. While several recent transport studies have been undertaken by western consulting firms, funded by the World Bank, as part of an overall transport loan program, there are no current surveys, studies, or assessments of transport issues on the subject city. This report summarizes the findings of Joel R. Washington, transit operations specialist; Zeki Avci, financial analyst, and Olgun Ersenkal, transport policy specialist during their visits to the city over the period from November 19 to December 10, 1994.

The purpose of this assignment was to:

- Undertake a preliminary assessment of the municipal transport issues in Vladivostok;
- Develop an initial strategy to improve the quality and quantity of transport services in the city; and
- Recommend options for reducing municipal subsidies to the transport companies.

The data and information upon which the report is based, were obtained through a series of meetings with various departments of the city, the management of transport companies and through field observations. Numerous discrepancies were apparent among the data given to the consultants, suggesting that in some cases the quality of the data was poor or that the various enterprises and municipal departments used different methodologies in calculating and presenting the statistics. Nevertheless, the consultants were able to reconcile most of the differences and develop a set of reasonable statistics that are included in this report.

While in Vladivostok, the consultants met with senior officials and staff of the Department of Public Transit, the Department of Finance of the City, the Department of Economic Planning, the Tram and Trolley Company, Northern and Southern Garages, and the Vladivostok Commercial Port Corporation, to identify issues to be examined and to discuss prevailing plans and strategies for municipal transport in the city.

At the conclusion of the visit, Olgun Ersenkal made a presentation on consultant's findings and recommendations to the Deputy Mayor Valery Sugak. Tonya Safranova, the Director of the Department of Public Transit, Mr. James Alloway and RTI Resident Advisor and Project Manager of the Municipal Finance Project (MFP) were also present at the meeting.

Subsequently, a separate meeting was held with the Director of the Department of Public Transit to discuss possible areas of future USAID technical assistance. These included the following:

1. Institutions and effective organizational structures to manage cost, promote financial independence, enhance accountability and efficiency of urban public transport enterprises;

2. Strategies for improving collection efficiency and other means of cost recovery in order to provide sustainable sources of funds for increasing the quality and level of municipal passenger transport service;

3. Programs to reduce the cost of service by rationalizing routes among all modes of public transport, increasing vehicle maintenance productivity, reducing staffing levels through automation and reorganization, and introducing cost accounting and computerization;

4. Training programs in management operations and maintenance to achieve the objectives described above; and

5. Options and strategies for alternative transport enterprises.

This report describes the current situation of public transport in the city. The institutional and organizational setting is described in Section 2 followed by an analysis of the demand and supply for transport services in Vladivostok. An analyses of the financial condition of each transport enterprise and discussions on the fare and subsidy polices are presented in Section 4. Finally, discusses on options for improving service levels and recommendations for a future steps are presented in Section 5.

The consultants would like to express their appreciation to the officials and the staff of the Department of Public Transit, the Department of Finance of the City, the Department of Economic Planning, the Tram and Trolley Company, Northern and Southern Garages, the Vladivostok Commercial Port Corporation and the management and the staff of the RTI field offices in Vladivostok for the assistance and support provided during their visit.

2.0 INSTITUTIONAL AND ORGANIZATIONAL SETTING

In order to adequately assess the provision of transport services in the city, it is quite helpful to first understand the institutional and organizational framework within which the services are administered. This is especially true in Russia where administration and management of public transport services varies from republic to republic, and from oblast to oblast.

2.1 Institutional Setting

Prior to the dissolution of the Soviet Union, public transport services were regulated, administered, and managed by the central government through the Ministry of Transport. In the present era of de-centralization and the movement toward a market economy, local control and responsibility for provision of municipal services, including for public transport, was transferred to the city of Vladivostok. This is in contrast to other regions in Russia where the oblast or krai was given responsibility for inter-city and some urban bus service.

In Vladivostok, all modes of public transport including intra and inter-city bus, tram, trolleybus, and water transport are controlled and regulated by the Municipality of Vladivostok. However, commuter and inter-city rail services are managed, regulated, and provided by the Ministry of Rail Transport, a central government ministry. The provincial Primorskii Krai government has no regulatory powers or service jurisdiction on public transport, with the exception of a contract for ferry services between the various islands.

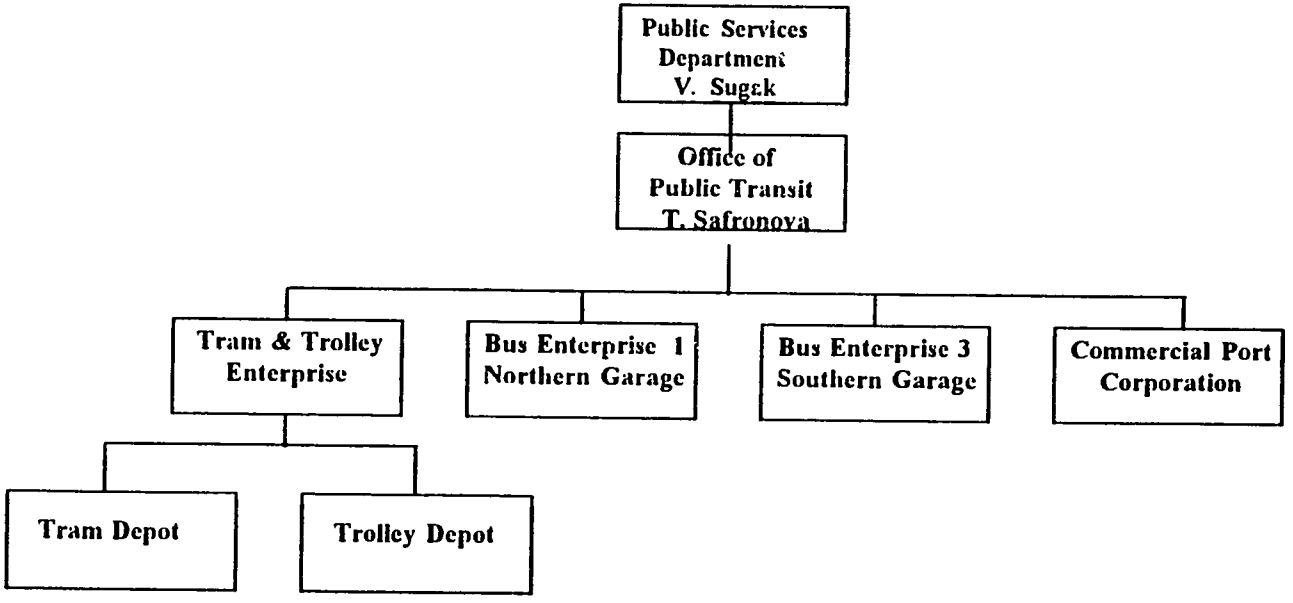
2.2 Organizational Setting

2.2.1 City Administration and Provision of Regulatory Functions

The following organizational chart (Annex 1) presents the current organizational structure for public transport in the City of Vladivostok. The administration and management of public transport services for the City of Vladivostok resides in the Department of Public Services, currently held by Deputy Mayor Valery Sugak. The Office of Public Transit, headed by Ms. Tonya Safronova, has the municipal charge and responsibility for managing and monitoring the services delivered by each of the public transport enterprises.

The Director of the City's Office of Public Transit coordinates the activities of the operating company, monitors the level of service provided each day, and acts as the intermediary with all of the service providers. The Office of Public Transit is staffed by Ms. Safranova and her three assistants. The Office's duties and responsibilities include:

ORGANIZATION STRUCTURE OF PUBLIC TRANSPORT



- Monitor, on a daily basis, the on-street service delivery of the various enterprises, including the ferry company.
- Validate data submitted by the various companies.
- Maintain the primary point of contact between the City and the managers and directors of the various public transport service providers.
- Handle passenger and customer complaints, and respond to emergency situations such as severe accidents and service disruptions.
- Coordinate supplemental modal services in case of break-downs, power outages, or other related events.
- Develop, coordinate, and manage the snow or inclement weather emergency plan for public transport services.
- Advise the Mayor and the Department heads on policy issues such as fare policy, service contracts, subsidy levels, and other public transport issues.
- In coordination with the Office of Finance, review the operating budgets provided by the transport enterprises and submit for approval to the Office of Mayor .
- In coordination with the Office of Finance and the Economic Planning Office, review request for capital funds provided by the transport enterprises and submit for approval to the Office of Mayor .
- Review request for operating license from private operators and issue such license when appropriate.

In addition to the Office of Public Transit, there are two other city offices which play significant roles in the administration of public transport services. These offices are the Economic Planning Office and the Office of Finance. The Economic Planning Office prepares forecasts and projections of demand which are used in determining the level of service required from each of the various public transport modes. The Office of Finance is involved with the calculation of subsidy requirements and payments to each of the public transport enterprise companies. The three offices together provide the regulatory functions for the cities public transport services.

2.2.2 Transport Enterprises and Provision of Service

Public transportation services are provided via service contracts between the City and the various service providers. The contracts are cost plus fixed fee contracts for a specified level of service. This arrangement offers no incentives to the companies for efficiency, cost reductions, or increased or higher quality of service. The actual service levels delivered by the transport enterprises are monitored through the Office of Public Transit. Each enterprise is responsible for route service, operational service, and maintenance service for their respective companies. The four enterprises providing bus, tram , trolleybus and ferry services are listed below:

1. Enterprise-1 (Northern Garage)
2. Enterprise-3 (Southern Garage)
3. Tram and Trolley Enterprise (Electrical Service Company) operates from two tram depots and one trolley depot.
4. The Vladivostok Commercial Port Corporation providing sea transport services through its own sea passenger boat and ferry fleet to the City and the Krai governments.

The public transportation fleet totals 480 vehicles, 285 buses for urban and suburban routes, 128 tram cars, and 67 trolley-buses. The Vladivostok Commercial Port Corporation uses 14 vessels each day in providing its sea passenger transport services to the city.

2.2.3 Other Providers of Transport Services

In addition to the bus companies mentioned above, several private owner operators provide bus services under a license from the Office of Public Transit. These private operators, which are very few in number, set their own fares and define their routes and operating schedules.

Another significant player in the public transport picture that should not be overlooked is the Commuter and inter-city rail system, which accounts for over 300,000 daily passenger trips in Vladivostok. The rail system is operated by the Ministry of Rail Service.

The Taxi Garage (Enterprise No 2), was privatized in 1993 and continues to provide taxi service in the city.

In addition, numerous enterprises in the greater Vladivostok area own buses for transporting their own labor force. These enterprises reportedly operate about 4,000 vehicles. A substantial number of such vehicles appear to be underutilized and may represent a potential source (supply) of vehicles for a private public transport operations.

Lastly, there are about 54,000 privately owned cars and the number is increasing daily. Most are previously owned vehicles imported from Korea and Japan. Clearly, the private automobiles are used as a substitute for public transportation.

2.3 Comments on the Organizational Setting

The municipal officials responsible for public transport, led by Deputy Mayor Mr. Sugak, are knowledgeable, dedicated and committed to providing a safe, efficient, and reliable public transport system for the citizens of Vladivostok. However, the responsibility for regulatory functions resides in three different departments of the city. The consultants believe that efficiency and better management can be achieved if the Public Transit Office were totally responsible for all the regulatory functions and reorganized as a Public Transport Authority.

Such an authority would have the responsibility for route design, setting service standards and fares, long range planning and operational control functions to ensure contract compliance by enterprises. The Office of Public Transit currently is understaffed and would be unable to fulfill all the planning and regulatory responsibilities described above. An increase in its staffing is strongly recommended. It is believed that such reorganization would result in improved level and quality of service.

3.0 DEMAND AND SUPPLY OF PUBLIC TRANSPORTATION VLADIVOSTOK

3.1 An Overview

The City of Vladivostok is a major fishing, commercial, and military port city in the Russian Far East. The city has a population of about 654,000 inhabitants and 152,000 households. Until very recently the city was closed to foreigners and even to most Russians. It is the homebase of the Russian nuclear submarine fleet and thus a key military installation for the Navy's Pacific Fleet and a major employer.

Approximately, 16,500 enterprises or businesses operate in Vladivostok of which 300 are privately-owned, and 5000 are small businesses. The average monthly salary is 420,000 Rubles with a subsistence-level defined as 141,739 Rubles per month. Forty percent of the population lives below subsistence level. By occupation, fishermen and persons employed in the finance sector make the highest salaries, over 1,000,000 Rubles per month.

Vladivostok is a bustling city, and by virtue of its proximity to major industrial powers in the East holds a great potential for economic and social improvement, provided that all the necessary and concomitant institutional and structural modifications are been put in place.

Physically the City is bisected by the Golden Horn Bay, which geographically divides the City into northern and southern sections. The Russian Navy occupies a huge chunk of the southern section. The terrain is very hilly, in many respects reminding visitors of San Francisco, California. As a result of the inadequate road network and lack of a modern traffic management system, travel times between points in the northern, CBD, and southern portions are quite long for the size of the City. This necessitates the use of passenger and ferry boats to connect parts of the southern section to the Central Business District (CBD).

3.2 Current Demand for Public Transport

Statistics relating to the demand for public transport in Vladivostok in 1993 are presented in Table 3.1. An attempt was made to obtain prior years data for a comparative study but the consultants were unable to obtain the needed data for all modes of public transport.

The figures below reflect the data provided to the consultants by the city Office of Public Transit. The key operating demand statistics appear to be very low and not consistent with statistics from other Russian cities. However, when the commuter and inter-city rail trips are taken into account, the daily passenger trips on public transport modes approached approximately 854,000, an average of 1.3 trips per person.

Table 3.1.
Demand for Public Transport
Vladivostok, 1993

	Bus	Trolley	Tram	Ferry
Trips/Year(millions)	115.0	56.6	28.4	5.03
Passenger Trips/Day(000's)	318	78	156	13
Average Trip distance in Km.	6.75	10	6	-
Passenger Km's/Day(000,s)	2,146	1,563	235	-
Trips/Year/Inhabitant	176	87	43	8

Source: Department of Public Transit, City of Vladivostok

The values presented in the above table appear to be reasonable, especially given the high number of private enterprise buses, pedestrian trips, and an ever increasing number of personal automobiles in the City.

The average trip distance for trolley-bus passengers appears to be high but it very likely reflects the presents of several long trolley-bus routes. Without a detailed passenger survey it is difficult to assess the accuracy of the figures reported and they need to be validated in a follow-up visit.

During peak hours and most of the mid-day period, trams, trolley-buses, and intra-city buses are crowded. As expected, there is a substantial drop in ridership after the peak hours.

3.3 Future Demand

The geographical location of the City of Vladivostok is very unique. It is a large port city with close proximity to Japan and South Korea, two leading automobile manufacturing nations in the region. Over the last two years, Vladivostok has experienced an influx of imported, used automobiles from its Far Eastern neighbors, a trend likely to continue into the foreseeable future. The tendency toward higher car ownership, in comparison to other parts of Russia, together with other emerging economic factors will have potential implications on the future demand for public transport in Vladivostok.

Throughout Russia and other Eastern European countries, there is growing middle class whose preferences for public transport as their primary mode of travel may change. Astute public transport "watchers" or professionals are already beginning to see decline in the number of passenger trips on public transport modes. In some Eastern European countries, ridership has dropped by about 30 percent over the last few years, not unlike the US experience in public transport of the 1950's and 1960's. If the above trend and assumptions

hold true, Vladivostok will need to implement a number of measures to improve the quality, standards and level of transport services in order to avoid losing patrons. Major investments will also be required in equipment, technical and managerial training, planning, scheduling systems, physical plants, and human resources. This is especially important now that a push to increase operating revenues is being undertaken. Existing demand and ridership levels are adequate now to support the city's targeted recovery rate of 40%.

3.4 Supply of Public Transport in Vladivostok

As mentioned earlier, public transport services in Vladivostok are provided by several enterprises under an "Operating Services Contract" with the city. Service providers include two bus enterprises, a tram and trolley-bus enterprise, and the Commercial Port Corporation. As in other Russian cities, the transport fleets are old and inefficient. The transport enterprises are heavily subsidized through the cost-plus contract and unless properly managed, subsidy levels will likely increase further.

3.4.1 Bus Transport System

The bus transport system has fairly good coverage throughout the city, serving as the predominant mode of public transport in Vladivostok. The bus system consists of 40 intra-city, 11 inter-city and 7 suburban routes, with one suburban route operating only during summer months. Two separate bus companies operate and each has one depot to service and park its vehicles.

The Northern Garage also operates three routes with six buses on Russian Island, mainly a military installation. The Northern Garage has a total of 218 revenue generating vehicles in its inventory: 107 Ikarus buses, 74 Laz buses, and 7 Paz buses and 30 new Hyundai buses. The average age of the fleet is about 9 years.

The Southern Garage operates 17 intra-city buses with a fleet of 67 vehicles. Information on the type of vehicles and the age of the Southern Garage fleet was unavailable. Together, the bus enterprises average only 148 vehicles in service each day from the combined fleet size of 285, implying an availability rate of 52%, which is very low even by Eastern European standards. Consultants were informed however that the enterprises are planning to retire some of the vehicles during 1995, which will push the availability ratio upward.

3.4.2 Tram and Trolley-bus System

The tram and trolley bus services are operated as one enterprise and provide service on routes within the City of Vladivostok out of two tram depots and one trolley-bus depot. Four tram lines operate on 47 kilometers of track, with an average line length of 7.5 kilometers. Trams achieve an operational speed of 16 kilometers per hour. The tram fleet

consists of 129 Russian made tram cars, averaging about 4 years in age. The enterprise uses about 87 cars each day, resulting in an availability rate of 67.4%

The trolley-bus system route lengths range from 10 to 21 kilometers per route. Vehicles operate at average speed of 20 Km/hour. The fleet consists of 70 trolley-buses, of which 12 are articulated vehicles. The enterprise uses 50 vehicles per day, resulting in an availability rate of 71.4%

3.4.3 Sea Passenger or Ferry Service

The city contracts ferry boat service with the Commercial Port of Vladivostok. The ferry enterprise operates 6 lines with 14 vessels. During the summer months, one additional line is operated to an outlying island. The ferry lines account for about 5 million passenger trips per year or about 419,000 passenger trips per month. The service is an important feature of the public transport system in Vladivostok, substantially reducing travel times between the southern portion of the City and the Central Business District (CBD) and providing a vital connection to the surrounding islands of Vladivostok and the Primorskii region.

3.5 Utilization of the Public Transport Fleet

Tables 3.2 and 3.3 below provide information on utilization of the public transport fleet in Vladivostok. The aggregate supply of vehicles in Vladivostok is extremely low considering the city's population and levels of trip demand. Field observations by the Consultants during the AM peak, the base period, and PM peak revealed overcrowding on bus, trolleybus, and tram lines. The Consultants were informed that the lack of vehicles, long queues, and overcrowded conditions necessitated the extension of morning peak period to 10:30 am. It is readily accepted by all transport officials in Vladivostok that the fleet utilization rates are very high and that the supply of vehicles must be increased.

Although, actual peak period and maximum load point data was not available, estimates were provided by various transport enterprises and the Office of Public Transit. Based on these estimates, fleet utilization in Vladivostok was analyzed. As presented in Table 3.3, the peak(static) utilization and average(dynamic) utilization ratios for all modes of public transport indicate overcrowding during the typical working day.

In order to reduce overcrowding and delays, and to bring the level of service to an acceptable standard, it is estimated that 20 new trams, 10 trolley-buses and 50 standard size buses are needed immediately. This requires, at a minimum, an investment of 20 billion rubles. ($6,000,000 US) Currently the tram and trolloy enterprise plans to add ten new tram cars to the fleet during 1995.

Table 3.2
Key Utilization & Operating Statistics
Vladivostok, 1994

	Bus	Trolleybus	Tram
Passenger Trips/Day\1	318,000	78,453	156,353
Average Trip Distance in Km.	6,75	10	6
Passenger Kms/Day	2,146,500	784,530	938,118
Number of Route Lines	58	6	4
Number of Vehicles in Fleet	289	70	129
Vehicles Available Per Day	148	50	87
Availability rate	52%	71%	67%
Vehicles Trips/Day	3,786	908	484
Total Vehicle Kms/Day	28,970	11,860	18,600
Average Breakdowns/Day	22	12	4
Vehicles in Maintenance/Day	66	13	39
Number of Employees	1,246	1406\2	
Employees Per Vehicle	4.4	7.1\2	
Employees/Operating Vehicle	8.4	10,3\2	

Notes:
\1 Passenger Trips/Day for buses include suburban trips
\2 Includes both figures for tram and trolleybus systems.

Source: Office of Public Transit, City of Vladivostok

Table 3.3
Vehicle Utilization & Ridership
Vladivostok Municipal Passenger Transport System
1994 Estimates

	Bus	Trolleybus	Tram
1 Passenger trips per working day	277,000	91,779	182,912
2 Passenger trips per peak hour	28,000	10,000	20,000
3 Passengers at the most busy part of the lines	15,000	6,000	12,000
4 Average capacity per vehicle @ 8 pass./sqm	100	110	125
5 Actual number of vehicles during peak	135	50	87
6 Capacity per peak hour	13,500	5,500	10,875
Static utilization ratio (3/6)	**111%**	**109%**	**110%**
7 Average trip distance per passenger	6.75	10	6
8 Average operational speed (km/hr)	17	19	15.7
9 Total vehicle Km's per peak hour (8*5)	2,295	950	1,366
10 Capacity-kms at 8 pass./sqm(9*4)	229,500	104,500	170,738
11 Passenger kms per peak hour (7*2)	189,000	100,000	120,000
Dynamic Utilization Ratio(11/10)	**82%**	**95%**	**70%**

Note: Utilization ratios are based on urban trips only. Data for utilization calculations are estimates provided by the transit companies.

3.6 Maintenance Procedures and Physical Plants

The bus, trolleybus, and tram enterprises all follow the same, standard maintenance procedures, designated Technical Services Number One, and Technical Services Number Two. The former is capital or major repair, and the latter is regular or routine maintenance. Regardless of the procedures employed by mechanics, the critical deficiency in the maintenance programs is the lack of spare parts. Each of the enterprises must hand-tool and manufacture some critical spare parts because funds for their purchase spare parts are not available. While mechanics appear to be adequately trained and knowledgeable, they must work with a shortage of decent tools and spare parts. Each year a few buses must be "cannibalized' for spare parts and the fleets are continually shrinking.

The depots and garages in Vladivostok are all in disrepair and require modernization or replacement. The following is a "shopping list" of improvements to the physical plants:

- New depots or car barns
- Heated garages/parking barns
- New fuel refilling facilities with computerized pumps
- New dispatcher kiosks or stations
- Bus parking lot on Russian Island
- Additional trolleybus depot for 100 vehicles
- Electricity sub-station to increase supply of electric current for tram and trolleybuses
- Replace tram tracks
- New trolleybus lines

Solving the spare parts problem and improving the physical plants would contribute significantly to the supply of vehicles on the street. Giving high priority to these two items would vastly upgrade the quantity and quality of public transport in Vladivostok.

3.7 Fleet Availability and Operational Analysis

The fleet availability rates for bus, trolleybus, and trams range from 52% for buses to 71% for trolleybuses, and are extremely low even by Russian standards. The rates reflect the overcrowded conditions and low levels of service on all there modes and further indicate a myriad of problems facing the public transport sector in Vladivostok:

- Poor overall quality of rolling stock (vehicles)
- Shortage of spare parts
- Inadequate mechanical tools and repair facilities
- Lack of funds to purchase new, high quality vehicles
- Mismanagement of human and capital resources
- Ill-trained management staff at the enterprises
- Lack of performance analysis and contract management expertise in city departments

- Disincentives of cost-plus contract agreements

The available time and resources did not permit a detailed analysis of operations. However, the consultants can offer several comments on public transport, based on field observations and limited analysis of available data. First, one must be cautious in applying western standards and operational efficiencies to the system in Vladivostok. The quality of equipment, management practices, employee levels, training, and service expectations are not the same. The number of employees per vehicle is extremely high and unacceptable, unnecessarily driving up operating costs. In many cases, the equipment is of poor quality, and inappropriately used. For example, the trolleybus and bus systems provide duplicable service along several corridors. The routes and operating schedules must be examined further to improve scheduling efficiency. The bus fleet should include more small and medium size vehicles.

A high priority should be the development of a performance monitoring and evaluation system to properly assess the operational needs and performance of each mode. It should also include the design of a traffic (passenger) monitoring program that will provide a basis for adjusting service requirements in the level of service provided. Such a system would also include a component to determine the cost relative to service quality and level of service provided by each contracting enterprise and provide a basis for the developing of a better contract for services. Incentive and disincentive clauses should be incorporated into the contracts to encourage the enterprises to be more efficient and cost conscious.

4.0 FINANCIAL ANALYSIS

4.1. Financial analysis of transport enterprises

A rapid increase in input prices, insufficient funds, operational inefficiencies and lack of spare parts inventory has led to the financial deterioration of transport enterprises in recent years.

The following assumptions were used in analyzing the financial conditions of Bus Enterprise-1(Northern Garage), Bus Enterprise-3(Southern Garage), the Tram and Trolley Enterprise and Vladivostok Commercial Port Corporation responsible for sea transport:

1. Calculations were based on November 1, 1994 prices.
2. The new fares for the buses, trams and trolley-buses were set to achieve 40% cost-recovery.
3. A single full fare is 300 rubles for all transport modes. After adjusting for monthly passes and other discounted fares, the average fare is 194 rubles.
4. About 50 % of riders are exempt from paying fares.
5. No fare increase is planned for 1995.
6. Cost components provided by the enterprises are inflation-adjusted for 1995.
7. Profit is defined as the amount the enterprise add to the total operating cost.

All the figures and the limited data upon which this analysis is based have been provided by the City Administration, specifically the Office of Public Transit, the Economic Planning Department, Office of Finance, Bus Garages, and the Tram and Trolley Garage. Discrepancies in figures constituted a major impediment to comprehensive analysis. Considerable effort was spent to reconcile the figures in order to develop sound policy recommendations.

4.2 Bus Enterprise No 1: Northern Garage

Operating figures and key financial statistics for the Northern Garage (Enterprise-1) are presented in the following tables. Figures used in the following analysis were provided by the enterprise and the Office of Public Transit.

Salaries have not been broken down by drivers, conductors, dispatchers and other administrative personnel. Costs other than salaries, fuel, tire depreciation, maintenance/repair have been disclosed as "other expenses." Other expenses include phone bills, communication expenses, taxes, computer rentals, some dispatchers, etc. The consultants were not provided with a detailed break down of this cost component.

Table 4.1
Operating Figures, Northern Garage, 1993-1994

	1993 Actual	1994 Actual 3 Quarters	1994 Estimate	Revised Estimate Monthly
Operating Expenses (million)		4,741	7,509	729
Passengers(thousands)	63,100	50,200		913
Passenger/Km.(million)		461,4		
Cost/Passenger/Km.(Rbls)	1,226	1,300		
Fare (Rbls)	50		300	300

Source: Department of Public Transit, City of Vladivostok

Table 4.2
Profit and Loss Statement
Northern Garage (in million Rbls.)

	Estimated 1994	Estimated 9 Months Total	% of Total	Actual 9 Months Total	% of Total	Deviation 9 Months
Revenues	1,481	1,081				
Operating Expense	7,509	5,274		4,741		-.10
Salaries	2,901	1,976	37.5	1,537	33.1	-.22
Charges	1,074	731	13.9	569	12.1	-.22
Fuel	957	681	12.9	506	10.7	-.24
Tire Depreciation	148	91	1.7	58	1.2	-.37
Maintenance/Repair	536	412	7.8	49	10.4	+.20
Depreciation	645	455	8.6	231	4.8	-.49
Other Expenses	1,255	934	17.7	1,345	28.4	+.44
Operating Losses	6,029	4,193		3,614		-.14
Profit	2,628	527		474		
Profit+Losses	8,657	4,721		4,088		
Subsidy	8,657					

Source: Enterprise-No:1 and the Department of Public Transit, City of Vladivostok

4.2.1 Evaluation of Northern Garage

On an average day the Northern Garage, operates 80 buses on urban and suburban routes and employs 860 persons. Vehicle availability ratio for suburban routes is 67% while it is only 51% for the urban routes.

Because no fares were charged on intra-city routes during most of 1994, revenues shown in the table are fares collected on suburban routes and some express routes. Of the total revenues collected by the Northern Garage 63% came from suburban routes and the remaining 37% from express routes.

During the last quarter, the enterprise adjusted its estimated monthly average operating expense for 1994 adjusted upward by 20% to 729 million Rubles.

When compared with industry norms, the numbers of employee per bus is staggeringly high. As seen in Table 4.2, the main cost components are salaries, charges on salaries, and other expenses. Salaries and charges on salaries combined constitute about 46% the total operating cost, Because labor accounts for more than 45% of the operating costs, it is an obvious area with which to begin reducing operating expenses.

Because other expenses make up 28.4% of the operating costs, they need further qualification. The Consultants were informed, and to a limited extent provided with scant data, that these expenses included phone bills, communication expenses, computer rentals, taxes, dispatchers, and other expenses not included in the main cost categories. A detailed break down of this cost component was not available.

Tires are treated differently. Rather than charging the total cost as an expense, they are depreciated on a prorated basis over their useful life. This procedure places minimal burden on the operating budget in the short run. Tire depreciation accounts for 1.7 percent of the operating expenses.

Maintenance and repair comprises 10.4% of the total operating cost. This cost component includes spare parts, maintenance of current fleet, repair of machinery, maintenance of manufacturing shops, etc.

Since the transit enterprises operate on a cost-plus basis, a profit margin or fee is added to the total operating costs. The consultants were informed that in the past a 35% profit margin was used to determine the total cost to the city, it has now been reduced to 10%.

Assuming that the number of buses are maintained at 1994 levels, and the 300 ruble fare does not change in 1995, the estimated 40% cost-recovery ratio will be difficult to attain given the upward adjustments in wages, and other inflation-prone cost components. Heavy reliance on subsidies will continue.

However analysis of the information provided indicate that the Northern Garage can improve its financial performance by taking advantage of suburban routes. If this competitive edge is also coupled with a realistic fare policy, the outcome would be advantageous to the enterprise.

4.3 Bus Enterprise No 3: Southern Garage

Operating figures and key financial statistics for the Enterprise No: 3, the Southern Garage are presented in the following tables. All estimates were provided by the Southern Garage and the Department of Public Transit.

Salaries have not been broken down by driver, conductor, dispatcher, and other administrative personnel. Other expenses include phone bills, communication expenses, taxes, computer rentals, some dispatchers, etc. The Consultants were not provided with a detailed break down of this cost component.

4.3.1 Evaluation of Southern Garage

The Southern Garage is a small scale enterprise, and only operates 30-35 buses daily on urban routes. As a result of the no-fare policy of the past, almost no revenues were collected by the company during 1993-1994 period.

As with the Northern Garage, the Southern Garage also adjusted its estimated monthly average operating expense upward by about 50% to 670 million Rubles.

Salaries, including charges, make up 56.5% of Southern Garage's total operating cost. The enterprise has 60 buses, yet on an average day only 50% operate., The enterprise employs 400 people, of which 120 are drivers, 70 are maintenance workers, 70 perform cleaning functions, 44 are in administration, and the rest are employed in auxiliary units. The employee to operating vehicle ratio for the Southern Garage is about 11 per bus. Actual salaries for the first nine months of 1994 were 24 percent higher than the budgeted amounts. Containment of labor cost is an immediate issue to be tackled.

Fuel accounts for 4.9% of the total operating cost which is slightly higher than 4.0% for the Northern Garage.

Other expenses constitute 16.1% of the total operating cost, as opposed to 28.4% for the Northern Garage, a result of the smaller scale operation.

Profit or fee is again an important part of the total cost, and an essential variable in determining the level of subsidies.

Several options must be considered to reduce cost and increase efficiency of the Southern Garage. These include:

- combining the management and other common functions of the Northern and Southern Garage i.e. spare parts inventory, engine overhaul of the two bus companies;
- increasing the size of the fleet to take advantage of the current excessive labor base; and
- transferring the ownership of the enterprise to the employees.

Table 4.3
Operating Figures, Southern Garage, 1993-1994

	1993 Actual	1994 Actual 3 Quarters	1994 Estimate	Revised Estimate Monthly
Operating Expense(million Rbls)		3,128	4,904	670
Passenger (thousands)	50,400	20,900		850
Passenger/Km.(millions)		149,3		
Cost/Passenger/Km.(Rbls)	1,226	2,170		
Fare (Rbls)	50		300	300

Source: Office of Public Transit, City of Vladivostok

Table 4.4
Profit and Loss Statement
Southern Garage (in million Rubles)

	Estimated 1994	Estimated 9 Months Total	% of Total	Actual 9 Months Total	% of Total	Deviation 9 Months
Revenues	152	21				
Operating Expense	4,905	2,758		3,129		+.13
Salaries	1,889	1,013	36.7	1,259	40.2	+.24
Charges	774	415	15.1	516	16.5	+.24
Fuel	658	448	16.2	466	14.9	
Tire Depreciation	122	64	2.3	54	1.7	-.16
Maintenance/Repair	244	100	3.6	132	4.2	+.32
Depreciation	276	238	8.6	196	6.2	-.18
Other Expenses	942	479	17.4	506	16.1	+.05
Losses	4,748	2,736		3,104		+.13
Profit	490	276		255		
Profit + Loss	5,238	3,012		3,559		
Subsidy	5,238					

Source: Enterprise-3 (Southern Garage), Office of Public Transit, City of Vladivostok

4.4 Trams and Trolley-bus Enterprise

The following table shows the key financial figures for the Tram and Trolley-bus Enterprise. Data were provided by the Economic Planning Department. Operating expenses for trams and trolleys are presented both in total and separately. All routes operated by the this transit mode are urban.

Table 4.5
Operating Figures, Trams and trolley-buses
1993-1995

	1993/9Mos. Actual	1994/9Mos. Estimated	1994/9Mos Actual	1995/Year Estimated
Total Passengers(mil.)	85	72,6	72,8	85,0
Passengers/Day(000's)	231,2	265	265	232,9
Percent Who Pay	30.7			36.7
Fare (Rbls)	50			300
Tram+Trol.PassKm's(mil.)\1	923	916	933	1,230
Collected Fare/Pass.(Rbls.)	2,85			
Oper.Cost/Pass.Km.(Rbls.)				
Trams	1241			
Trolleys	1092			
Oper.Cost/Pass.Trip(Rbls.)				
Without Fare				647
With Fare				718

\1 Reported Tram and trolley-bus passenger km's appear to be very high as compared to the consultants' estimates presented in Table 3.2.

Source: Department of Economic Planning, and Office of Public Transit, City of Vladivostok

4.4.1 Evaluation of Tram and Trolley Enterprise

As with bus enterprises, salaries were not broken down by driver, conductor, or other administrative personnel. Salaries for both modes constitute 75% of the total operating cost. This is the single most important cost component and a primary determinant of the efficiency and the profitability of the operation. Combined employment at the Tram and Trolley-bus Enterprise is approximately 1400 . Average monthly salary per employee in 1994 was 500,000 Rbls.

Trams account for 61% of the total operating cost, while trolleys make up the remaining 39%. During the fourth quarter of 1994 the enterprise has adjusted its estimated monthly average operating cost upward by more than 50% to 1,875 million Rubles.

Trams account for 61% of the total operating cost, while trolleys make up the remaining 39%. During the fourth quarter of 1994 the enterprise has adjusted its estimated monthly average operating cost upward by more than 50% to 1,875 million Rubles.

Electricity is the second most important cost component of the total operating cost, about 10%.

Table 4.6
Profit and Loss Statement
Tram and Trolley-bus Enterprise (in million Rubles)

	Trams & Trolley-buses Estimated/Year 1994 Total	Trams Actual/9 Months 1994 Total	% of Total	Trolley-buses Actual/9 Months 1994 Total	% of Total	Trams & Trolley-buses Estimated/Year 1995 Total
Revenues	1,038					8,305
Operating Expense	15,980	6,234		3,958		28,138
Material	743	253	4.0	165	4.1	1,028
Salaries	7,288	3,348	53.7	2,135	53.9	11,469
Charges	2,915	1,326	21.3	853	21.5	5,505
Electricity	1,536	562	9.0	419	7.1	2,234
Depreciation	837	346	5.5	280	10.5	939
Heating, Energy	762	195	3.0	59	1.5	1,143
Fuel	143					246
Cold Water	52	32		4		61
Tire Depreciation	219			16		22
Repair Fund	627					1,459
Other Expenses	692	172	2.7	26		3,750
Operational Loss	14,773	6,234		3,958		19,553
Other Losses:						
Loan interest	169					280
Total Loss	14,942	6,234		3,958		19,833
Profit	1,598					2,814
Profit + Loss	16,540					22,647
Subsidy\1	16,540					22,647

\1 : To maintain consistency with other enterprises, subsidy is calculated on the basis of profit+loss, and differs from subsidy definition of the Department of Economic Planning

Source: Department of Economic Planning, City of Vladivostok

4.5 Sea Transport (Ferries)

The ferries serve three inner harbor lines and three islands. The following table shows the projected 1995 financial figures for Vladivostok Commercial Port Corporation, the operator of the ferry boats. The consultants were not provided with financial information on previous years. 1995 projections were provided by the City officials and the General Manager of the Corporation. Calculations were based on an average fare level of 940 Rbls. The increase in fares from 100 Rbls. to 946 Rbls., almost 1000%, will effect considerable reduction in subsidies, and thus less burden on the city's budget.

Ferries have high operating cost per passenger trip, however due to higher fares cost/recovery ratio is in line with other modes.

A total of 300 persons are employed in the ferry operation.

Table 4.7
Impacts of Fares on Monthly Operating Expenses & Revenue
Vladivostok Commercial Port Corporation , 1995

	With Fare	Without Fare
Passenger trip (thousands)	419	
Total revenues (in million Rbls.)	220	
Total Expenses (in million Rbls)	729	719
Operating cost per passenger trip	1,739	1,715
Subsidies (in million Rbls.)	582	791
Decrease of subsidy(in million Rbls.)	209	
Total subsidy decrease per annum(million Rbls)	2,508	
Cost Recovery (For fare: 946Rbls.)	40%	

Source: Department of Public Transit, the City of Vladivostok

4.6 Summary Remarks on the Financial Analysis:

The City recalculated its key financial figures after reinstating fares on regular intra-city routes. As a result of fare collection, there will be an additional cost of 185 million Rbls. per month for trams and trolleys. Monthly collection cost for Northern and Southern Garages are estimated as 73 and 81 million Rubles respectively. For ferries the cost of fare collection is estimated as 10 million Rubles per month.

Unless the deficit in transit operations in Vladivostok is controlled and dependence on government subsidies is reduced, the level and quality of transport services will continue to decline. The most obvious approach is to reduce operating costs. Based on actual 1994 figures with 94 Rubles, Northern garage provided the lowest per passenger trip cost among all transport enterprises. In contrast, cost per passenger trip for the Southern Garage and Tram and Trolleybus Enterprise were 150 and 142 respectively.

Every effort must be made to bring the cost down in all enterprises but in the Southern Garage measures to reduce operating costs should be undertaken immediately. As mentioned earlier, all enterprises are overstuffed. The number of employees per operating vehicle varies from 3-5 in Western Europe to 5-8 in Eastern Europe cities. Some private operators have achieved a ratio as low as 2.75 employees per operating vehicle. In the opinion of the consultants, the minimum standards of Eastern Europe can be achieved in Vladivostok.

5.0 FARE POLICY AND SUBSIDIES

5.1 Fares

Transit fares in Vladivostok are controlled by the Municipality. Prior to August, 1993 the full fare on all transit modes, except for ferries, was 50 Rubles. There were 33 fare categories. After August 1, 1993, the previous administration stopped collecting fares on all intra city routes with the exception of the express routes. However, in November 1994, coinciding with the consultants visit to the city, officials re-imposed 300 rubles fare for all city routes, with varying rates for students, monthly pass holders, and other categories. After adjusting for the discounted fares, current average fare is estimated to be 194 Rubles.

According to a World Bank study, monthly transportation expenses as a percentage of income have risen from 1.5% to almost 8% in Poland during the last 5 years. In some Western european countries 10 to 15 % of income is spent on transportation. Similar fare increases may be unavoidable in Vladivostok. However, attention must be given to the issue of affordability when setting fares. Considering about 40% of the residents are estimated to have incomes below subsistence levels, their transportation needs must be addressed considered when fare policies are established. A blanket no fare policy, however, while assuring transportation for the poor, provides an indirect subsidy to those with higher income. Improving the overall finances of the municipality, by collecting revenues from those who are able to pay will insure better service delivery for all.

The current fare was established by the city to recover 40% of the operating cost. Replacement costs, however, were not included in calculating the fares. Thus, funds for these categories must be secured from other sources than direct users of the transport system. When capital expenditures are included in the cost-recovery calculations, only 20% of the total cost can be recovered through fares. In setting the fares, the city assumed a fare evasion rate of 20%. In addition, all calculations were based on constant prices and no allowance were made for inflation. Unless, fares are adjusted regularly to reflect increases in input prices, cost recovery through fares will be significantly less, placing additional burden on public budgets.

Clearly, to maintain the targeted 40% cost recovery level, collection efficiency must be increased and fare evasion reduced. If 100 percent collection efficiency is achieved, total fare revenues from all operations would exceed 16 billion Rubles ($6 million US) annually. The Office of Public Transit actively encourages all enterprises in the city to buy monthly passes for their workers. This program is very similar to tax incentives provided by cities in the West to attract passengers. Similar tax incentives in Vladivostok would strengthen the monthly pass sales activities of the Office of Public Transit.

5.2 Subsidies

The historically high dependence on subsidies, and the legal fare exemption for more than 50% of the riders placed a heavy burden on the operating budget of transport enterprises. The reinstatement of the fares effective December, 1994 will certainly provide partial relief, and over the long-run, a more effective and efficient transit operation. In the absence of fares subsidies are estimated to be 4,020 million Rubles per month for all transit modes without fares. However, with new fares, subsidies are expected to fall by 1,148 million Rubles per month.

5.2.1 Determining the Level of Operating Subsidies

As mentioned earlier the enterprises provide transport services under a service contract with the city. To determine the amount of subsidy to be provided by the city an annual operating budget and a budget for the first quarter are prepared by the enterprise and submitted to the City for review and approval. Following the review by the Departments of Public Transit and Finance, the proposed level of subsidy is presented to the City administration (Mayor) for approval. Once the proposed budget is approved an advance payment is made to the enterprise for the first quarter. Final payment for service is based on actual cost. Accounts are settled at the end or each quarter.

The process described above is used to determine the operating subsidies. Funds for replacement of the aging fleet, fleet expansion and other capital needs are also provided by the city. The procedures for funding capital expenditures are described below.

5.2.2 Determining Subsidies for Capital Expenses

Although the city does not have a capital improvements program (CIP), the consultants were informed that a capital expenditure budget is prepared annually. At the time of their visit to the City, the 1995 capital budget was not available.

To secure financing for capital needs, transport enterprises prepare a request for funding to the Department of Public Transit(DoPT). DoPT reviews the request and submits the request to the Department of Finance for further review. Subject to the clearance by both departments, the request for funds is then submitted to the Office of Mayor for approval .

Until 1994, a transportation tax was used in part to finance the capital needs for the transit operations. However, since 1994 , the Krai Government has collected and used the funds generated from the transportation tax for road improvements and other expenses, putting an additional burden on the municipal budgets.

To determine the magnitude of this burden on the municipal budgets, the consultants prepared a preliminary capital improvements program (Exhibit 2). According to their estimates, an additional 20 billion Rubles is needed immediately in order to bring the

service levels to acceptable standards and reduce overcrowding. This amount would allow the purchase of 50 new standard size buses, 10 trolley buses and 20 trams. According to the information provided by the city, only 10 tram cars are scheduled to be purchased during 1995.

5.2.3 Measures to Decrease Subsidies

Based on the analysis presented above, there are indications that considerable cost reductions can be achieved through reduction in staffing levels, increase in efficiency, redesign of routes, and better management of the spare parts inventory.

Nevertheless, cost reduction is not the sole prescription for solving the problem, and certainly will not provide a complete answer. In addition to controlling deficits and reducing the need for subsidies transit revenues can also be increased, improvements in collection efficiency, generation of non fare revenues through advertising on buses, bus stops, tickets and route maps, and leasing commercial space at major transit stops.

Potentially, one major option for improving service levels and quality without subsidies from the local government would be through provision of upscale, high fare minibus (route taxi) services at high frequencies. In Exhibit 1, monthly ridership, revenue and cost estimates are provided using current information gathered in Vladivostok. These estimates reveal that even based on very conservative ridership estimates, such operations would be profitable. Clearly, for such an operation to succeed, routes must be carefully planned, with buses properly scheduled and maintained. According to consultant's estimates 100 minibuses would improve the service levels immediately and eliminate the need to purchase 50 standard size buses. Currently four thousand minibuses are owned by various enterprises throughout the city an could provide a source of supply for such a small-scale minibus operation.

In addition, the introduction of parking and car registration fees, gasoline and transport taxes would broaden the financial base for public transit operations, provide a mix of public and private funds; as well as establish a more equitable basis for financing transit operations by spreading cost among direct users through fares, and public taxes.

Moreover, the issuance of municipal bonds, offering franchise rights to operators of public transport routes, increasing of vehicle registration taxes, introducing of sales tax, and, transferring the responsibility of financing certain exempt categories are other means to increase the tax base and reduce the burden of financing transport operations on the municipal budgets.

6.0 RECOMMENDATIONS FOR IMPROVING PUBLIC TRANSPORT

6.1 Observation of Deficiencies and Other Issues Affecting Provision of Services

The following deficiencies in the public transport system were observed and noted by the consultants in the field. These items were discussed by the Consultants with the Office Director, Office of Public Transit during several meetings in Vladivostok.

6.1.1 Noted deficiencies:

- Monitoring of Service provided by companies is non-existent
- No clear lines of responsibilities and supervision of: Operating companies and city departments
- Financial audits of enterprises need to be performed
- Aged fleets
- Poor quality of vehicles
- Decrepit facilities (garages, depots, etc.)
- Lack of sufficient spare parts inventories
- Scheduled maintenance programs are not evident
- Tram tracks are in poor condition
- Track maintenance program not evident
- Lack of image - no uniforms, logo, or distinct dress uniform for operators and
- other workers
- Need computerization or automation of management, maintenance, and
- administrative systems
- Lack of service supervisory staff (street), at all enterprises

6.2 Recommended Measures to Improve Quality and Supply of Services

The following recommendations are offered to assist the Department of Public Services in improving the efficiency and quality of public transit services in the City of Vladivostok. Improvement operational efficiency will also ultimately result in reductions in direct subsidies to the operating companies. A revenue enhancement program that includes an improved fare collection system will further reduce the subsidies to public transport.

6.2.1 Short Term Measures:

1. Determine the most appropriate organizational and management structure for administering public transport services for Vladivostok.
2. Examine the contract with the Merchant Fleet Company. This may entail a cost and benefit analysis.

3. Consider the option of privatizing some of the bus service, especially the inter-city and suburban routes. There may be additional opportunities to further reduce subsidies through privatizing maintenance programs.
4. Develop a revenue enhancement program that will include a revised fare collection system.
5. Upgrade the city's traffic management system to help alleviate traffic congestion, and thereby increase the speed and efficiency of public transport vehicles.
6. Improve the image of public transport by developing an image building program that includes designing logo, painting of buses using an identifiable color scheme, adopting a uniform style for drivers and other related items.

6.2.3 Measures Requiring Expert Assistance

1. Develop the capacity to monitor the delivery of services provided by the different public transport enterprises, including the Merchant Fleet. A comprehensive traffic data collection and analysis system should be designed and implemented for measuring the performance and adequacy of service.
2. Design of Capital Improvement Program (CPI) to be incorporated in the overall fiscal planning process. Presently, all of the existing fleets and physical plants need modernization.
3. All of the administrative, accounting, management, technical services, and maintenance systems require computerization.
4. A new route network should be designed and incorporate future expansion plans for the tram and trolley systems. In developing the new network, the city should determine the most appropriate mix of bus, tram, and trolley service.
5. Integrate the schedules of all modes of public transport in Vladivostok, including the commuter rail system operated by the Russian Ministry of Transport. This will optimize the resources of each mode, reduce travel and transfer times, and thus improve the overall quality of public transport services.
6. Develop financing strategies and identify funding sources for the Capital Improvement Program.
7. Conduct separate, independent financial audits of the public transport enterprises.

6.3 Fiscal Impacts of the Recommended Improvements

It is anticipated that the proposed improvements would enhance the quality and level of transport service, while reducing the subsidy burden on local governments. The estimated financial impacts of these improvements are presented below. These estimates, however, are preliminary in nature and should be viewed only as targets to be achieved. Nevertheless, they illustrate the opportunity for reducing transport subsidies.

	(billion Rbls)
Revenue Increase:	
Improve Fare Collection	8.0
Increase non-fare revenues	5.0
Share the cost of exempt citizens with the central government	16.0
Increase average fare through high quality high fare service	2.0
Cost Reduction:	
Reduce operating cost through increased efficiency	4.0
Improve the management of transport companies	4.0
Introduce new local Taxes and Fees:	
Vehicle Registration/Property Tax	15.0
TOTAL	**54.0**

In conclusion, the financial impacts of the program presented above will improve the fiscal situation of the City of Vladivostok. The program impact of 54 billion rubles is very significant when compared to the estimated subsidy of 34 billion rubles for the year 1995. In addition, immediate improvements in the level and quality of transport services will be realized.

EXHIBIT 1

FINANCIAL PROJECTIONS FOR A MINIBUS BASED TRANSPORT COMPANY IN VLADIVOSTOK

The following assumptions were used in making the cost and revenue estimates.

RIDERSHIP
Based on existing levels of patronage, 400 single passenger trips were projected per minibus per day assuming a 16 hour operating period. for comparative analysis.

VEHICLE KM PER YEAR
Each minibus would average 100,000 km/year based on 16 hours a day and 330 days of operation a year.

REVENUE
Given the current 300 Rubles fare a for single trip, minibus (route taxi) fares will be set at 600 Rubles per passenger trip. Based on the above assumptions, monthly revenue for a 100 vehicle fleet operation is 720 million Rubles.

In addition, to the revenue from fares, 36 million Rubles per month is assumed to be generated from contract services.

OPERATING EXPENSES

Administration
Administration costs, including salaries for management and administration as well as rent and other expenses related to management of the operation, are estimated at 48 million Rubles.

Driver Salaries
Salaries are assumed to be 640,000 Rubles per month per driver. Assuming 2.4 drivers are assigned to each bus, a total of 153.6 million Rubles are allocated for salaries.

Maintenance
Daily checks will be performed by drivers , however, service and repairs would be performed by either the company or under a service contract with a private garage at an average cost of 960 thousand Rubles per vehicle per month.

Tires
Assuming a 30,000 km life and 4 sets of tires per vehicle per year, tire expenditures are estimated at 160 thousand rubles per vehicle per month.

Fuel and Lube
Assuming 110,000 vehicle kms per year, and present prices of 600 rubles per liter, fuel cost is estimated at 700 thousand Rubles. An additional 50 thousand Rubles are allocated for the total cost of fuel and lubrication per vehicle per month.

Insurance
Insurance premiums are estimated at 16 million for the entire fleet per month.

OTHER REVENUE

Advertising Revenue
Revenues of 16 million Rubles per month are assumed to be generated by the sale of advertising display space on buses.

OTHER EXPENSES

Depreciation
A straight line five year depreciation schedule is assumed for the equipment.

Contingency
35 million Rubles are allocated for contingencies

Taxes
Revenue and cost estimates are presented in constant 1995 Rubles before taxes.

MONTHLY REVENUES AND OPERATING COST FOR A HYPOTHETICAL MINIBUS OPERATION IN VLADIVOSTOK

	Cost Vehicle/Month	Minibus
No of vehicles		*100*
Passengertrips/Day		400
REVENUE		
Fares Rbls.	600	720,000,000
Other		36,000,000
Total Revenue		**756,000,000**
Less Expenses:		
General & Administrative		48,000,000
Salaries	1,536,000	153,600,000
Maintenance	960,000	96,000,000
Tires	160,000	16,000,000
Fuel and Lube	750,000	75,000,000
Insurance	160,000	16,000,000
Total Expenses		**404,600,000**
Operating Profit		**351,400,000**
Other Income		
Advertisement	160,000	16,000,000
Other Expenses		
Depreciation		133,000,000
Contingency		35,140,000
Net Operating Profit/(Loss)		**199,260,000**

VLADIVOSTOK CAPITAL IMPROVEMENTS PROGRAM
NO OF NEW VEHICLE PURCHASES FOR THE TRANSPORT FLEET

	UNIT PRICE USD	1995	1996	1997	1998	1999	2000
TRAM	150,000	20	10	10	10	10	10
TROLLEY	50,000	10	10	10	10	10	10
BUS 9-12M	50,000	50	18	18	18	18	18
BUS 7M	40,000	0	0	0	0	10	10
TOTAL (in mil. const. Rubles)		**19,200**	**9,280**	**9,280**	**9,280**	**10,560**	**10,560**
TOTAL(in mil current Rubles)		**33,600**	**40,600**	**91,350**	**182,700**	**311,850**	**374,220**
TOTAL FUNDS NEEDED (USD)		6,000,000	2,900,000	2,900,000	2,900,000	3,300,000	3,300,000
ANNUAL INTEREST RATE	150.00%	150.00%	150.00%	125.00%	100.00%	50.00%	20.00%
EXCHANGE RATE (MID YEAR)	3200	5,600	14,000	31,500	63,000	94,500	113,400