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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

APPRAISAL OF
A HIGHWAY PROJECT
YUGOSLAVIA

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YUGOSLAVIA

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YUGOSLAVIA

APPRAISAL OF A HIGHWAY PROJECT

SUMMARY

- i. The Government of Yugoslavia, through its Investment Bank, has asked the Bank for a loan of US\$35 million equivalent to assist in financing a highway project which consists of the completion of the Adriatic Highway (422 km) and of most of the Central Highway (174 km).
- ii. Construction of these two highways to modern standards was started after World War II. The standards are generally adequate and the quality of the completed work is satisfactory.
- iii. The total cost of the project is estimated at US\$98 million equivalent, including a reasonable allowance for contingencies. This estimate is based largely on quantities obtained from final plans and on actual unit cost of similar work currently under way.
- iv. The Federal Government would be responsible for the execution of the project. The preparation of plans, award of contracts and supervision of construction would be delegated to so-called "investors" and other government supervised organizations which are competent.
- v. The Government has agreed to call for international competitive bidding on certain road sections which may be of interest to foreign contractors. Tender documents for international competitive bidding have been prepared and are generally satisfactory. This will be the first time that foreign firms would be invited to bid on road construction in Yugoslavia.
- vi. The first-class road system is well maintained. However, road maintenance on the rest of the system is somewhat inadequate because of lack of funds and equipment.
- vii. The project has a sound economic justification. The Central and Adriatic Highways are the two most important ones in Yugoslavia and their completion will be an important step in further integrating Yugoslavia into one national market. The rate of return on the investment from reduced transport and maintenance costs alone will range from 10 to 15 per cent on the various parts of the project.
- viii. The Project provides a suitable basis for a Bank loan of US\$35 million equivalent to the Yugoslav Investment Bank, for a term of 20 years, including a 3.5 year period of grace.

I. INTRODUCTION

1. The Yugoslav Government, through its Investment Bank, has requested a loan of US\$35 million equivalent to help finance the completion of the Adriatic Highway and part of the Central Highway. The Investment Bank is a Government agency responsible for financing a large share of major investments, and is authorized to contract foreign loans for this purpose. This would be the first highway loan by the Bank to Yugoslavia. The project was submitted to the Bank in mid-1962. A number of issues, including the need for international competitive bidding, were discussed with the Government in December 1962.

2. This report is based on the findings of a Bank appraisal mission to Yugoslavia in February 1963 and on documents prepared by various Government agencies. The mission recommended a number of changes in the project which were accepted by the Yugoslav Government. The most important changes were (a) to include the completion of the Adriatic Highway rather than merely the 1963-64 construction program, and (b) to omit a section of the Central Highway which has a lower priority.

II. BACKGROUND

A. General

3. Yugoslavia, with an area of 257,000 sq.km, is about as large as the United Kingdom or Western Germany. Its population of about 19 million is, however, only one-third of these countries. Population growth has been slowing down and is now about 1.3 per cent annually.

4. Yugoslavia's gross national product was about Din 3,800 billion in 1962 (US\$5.0 billion equivalent), with a per capita income of about US\$235 equivalent. The total real growth rate since 1954 has averaged a high 8 per cent annually. With the progress of industrialization, the proportion of population in agriculture has dropped from the prewar three-quarters to about one-half. The transport sector has accounted for about 6 per cent of Yugoslavia's national product in recent years.

5. Yugoslavia consists of six Republics and can be divided roughly into three main geographic regions: (a) the northeast, the granary of Yugoslavia, (b) a narrow coastal strip along the Adriatic sea, and (c) the remaining mountainous two-thirds of the country. Communication between these areas is still difficult even today.

B. Transport in Yugoslavia

6. Yugoslavia's main domestic transportation system consists of railways and, to a lesser extent, of highways (see Map 1); freight traffic on the inland waterways is of some significance, though most of it is international transit traffic, and air transport is as yet very limited.

7. The country's main routes of communication have been conditioned by its topography; they have followed the easy paths and have avoided the mountain barriers along the coast and in the south. As a result, the main routes run northwest to southeast along the Sava-Danube Valley. They serve the rich agricultural areas in these valleys and in the north. They also provide easy access to the Balkan countries north and east of Yugoslavia and, to some extent, to Austria, Italy and Greece. But the mountain barrier blocks access to the coast, except at a few gaps.

8. This serious handicap of geography was further aggravated by the different historical development of the northern part of the country under Austrian rule and of the southern part under Ottoman Turkish rule. In the northern, richer regions, such as Slovenia, there is a fairly dense and modern transport network comparable to that in Western Europe, while in the south the transport system was never adequately developed. Narrow gauge railway lines predominate in the area of difficult communication and are inadequate to satisfy present needs. There are also few roads in this area. One aim of post-war transport policy has been to open up these less developed regions and to provide direct access from the hinterland (around Sarajevo and Belgrade) to the sea by means of modern railways and roads. Another has been to open Yugoslavia to West European motor traffic by means of the modern Central Highway from Italy and Austria to Greece via Belgrade and another highway along the Adriatic coast from Rijeka to Bar and then inland to Skopje, where it will join the Central Highway.

9. The railway is still the backbone of Yugoslavia's transportation system, accounting for nearly 75 per cent of freight traffic in 1962 (see Table 1). The bulk of railway traffic consists of minerals and heavy materials; of the total, about 30 per cent is coal, 30 per cent ores, metals and other minerals, and 10 per cent is lumber. Highways and shipping split the remainder about equally. As in most countries, the proportion carried on highways has increased rapidly - from about 7 per cent in 1957 to 15 per cent in 1962. As for passenger traffic, the railways accounted for about 65 per cent in 1962, interurban buses for about 22 per cent, and passenger cars for nearly 10 per cent (see Table 2). But here, too, the proportion carried on highways has doubled in recent years - from about 17 per cent in 1957 to 33 per cent by 1962. As for the future, it can be expected that the railways will continue to be the largest carrier, especially for freight, but that their relative decline will continue, while the importance of highways will increase.

10. Yugoslavia has invested heavily in transportation and communications in recent years. This sector accounted for about 20 per cent of gross capital expenditures in the seven-year period from 1956 to 1962, compared to less than 15 per cent in the preceding seven years. These amounts are not out of scale for a country like Yugoslavia. While investments for all modes of transport have been increasing rapidly (see Table 3), the proportion spent for railways has declined from more than one-half in the 1954-56 period to less than one-third in 1962, while the proportion spent on shipping has not changed much. However, the percentage spent for highway transport (including vehicles) has more than doubled from about 22 to nearly 50 per cent during this period

C. Transport Coordination

11. The need for transport coordination is relatively new in Yugoslavia since trunk highways have been built relatively recently and since some areas of the country have only limited railway service. The main problem exists on the Central Highway which for most of its length runs parallel to a railway.

12. The general policy of the Government is to make each form of transport commercially viable and competitive with other forms on fair terms. This policy is subject to two major weaknesses. First, railway rates are based on the traditional system of classification by commodity groups and are unrelated to the particular costs of carrying the particular commodity. As a result, over-simplified criteria as to which types of traffic are best suited to railways and road tend to be used in considering future investment. These over-simplified criteria, which may be justifiable when there are few trucks and a general overloading of the transport system, will become more and more unreliable in the future.

13. Secondly, it would appear that both railways and highways are subsidized. Road operators pay little directly towards the cost of the roads, but have been making high profits. On the other hand, the interest paid by the railway on its capital involves a subsidy rate. It is difficult to say which has benefited most.

14. The Federal Government is, however, in a particularly good position to assure adequate coordination in the future and avoid the dilemmas confronting many other countries in this area. Firstly, it is fully aware of the problem and seems to have adequate authority even though it is not being exercised in all fields (see paragraph 31). Secondly, the Secretariat for Transport and Communications is ably staffed and well organized, not by mode of transport, but by function, such as investment, tariffs, etc. Thirdly, the relatively large scale of the trucking enterprises (see paragraph 28) helps to avoid some of the problems of excess competition which arise when one-truck entrepreneurs charge rates below their real costs. Fourthly, a relatively large proportion of railway freight is of the bulk type (see paragraph 9) and therefore less subject to highway competition. Finally, the Government has already initiated some important steps, such as relating railway rates more closely to transport costs.

III. HIGHWAYS AND HIGHWAY TRANSPORT

A. Introduction

15. Highway transport in Yugoslavia is only in the initial stages of its development when compared to most other European countries. For example, Yugoslavia has a highway network of about 0.32 km per sq.km, compared to about 0.7 for Italy, 1.0 for Poland and nearly 3 for France; the length of highways per unit of population shows a similar situation. In 1961 the number of motor vehicles per 1,000 inhabitants was 12, the second lowest in Europe; it compares to 40 for Poland, 143 for Italy, and 250 for France. But while the absolute level is still low, the progress made in recent years is very great. Thus the modern highway network has expanded from 3,482 km in 1955 to 9,000 km in 1962 (see Table 4) and the number of motor vehicles per 1,000 inhabitants has increased from about 3 to 14 during this period.

B. The Highway System

Description

16. The highway network of Yugoslavia (see Map 1) varies from main highways built in the last few years to dirt tracks. The total road network consists of about 83,000 km, of which 9,000 km have asphalt and 49,000 km have a macadam surface. The density of modern roads differs widely in the different parts of the country, ranging from the very good road system in Slovenia to the primitive one in Macedonia. But even the same road frequently shows widely different conditions, ranging from recently built surfaces in excellent condition to stretches of gravel surface often badly rutted. However, with a quintupling of annual investments on highways in the last five years (see Table 5), the proportion of modern surfaces in the total network has increased from 4 to 11 per cent between 1955 and 1962. Under current tentative plans, improvements of about 1,200 km annually in the next few years are contemplated; this is approximately the 1962 level.

Administration and Organization

17. The road system is divided into four classes for administrative purposes. The Federal Government is responsible for (a) overall policies and programs for construction and maintenance of roads in all classes, (b) for design standards, and (c) for planning and financing the construction of the most important Class I roads, including the ones in this project. The Republics are responsible for financing other Class I roads and all those in Class II, as well as for maintaining all roads in both classes; the Federal Government does not finance any maintenance. Classes III and IV represent local roads which are the responsibility of the districts and communes respectively. Of the total network of about 83,000 km, nearly 10,000 km are in Class I and about 15,000 km are in Class II.

18. Responsibility for the actual carrying out of maintenance has been delegated to forty-seven road maintenance enterprises. Each enterprise is responsible for the maintenance of the entire road network in its respective area and for the construction of Classes III and IV roads. Responsibility for the construction of Classes I and II roads is delegated to an agency in each Republic known as the "investor" (see Chart). The investors in four of the six Republics are associations of the road maintenance enterprises which direct and coordinate the work of the member enterprises. In the remaining two Republics, the investor is the Secretariat of Transport.

19. The investors are mainly concerned with the carrying out of surveys, the preparation of preliminary and final plans and specifications and the awarding of contracts. Engineering work is generally awarded to engineering enterprises which act as consultants to the investors. These enterprises carry out thorough preliminary studies which include examination of alternate alignments to insure selection of the most economic location. Final plans are carefully prepared and the work is of a high technical standard. Field supervision of construction is generally delegated by the investors to the local maintenance enterprise. The staff of the engineering enterprises regularly visit the field and must approve all changes. This arrangement is unusual in that detailed supervision is not carried out by those who prepared the plans. However, it is acceptable since the quality of construction is very good.

20. While the organizational structure appears somewhat complex, the results are satisfactory, possibly because of careful supervision by the various government authorities and in particular by the Federal Secretariat for Transport and Communications. The highway section of the Secretariat is headed by a Chief Engineer with a small staff. This organization is being strengthened further by the establishment of a road inspectorate which will be responsible for closer supervision of all highways.

Maintenance and Construction

21. The maintenance enterprises discussed above are primarily concerned with maintenance and the carrying out of minor improvements and small construction works which would not be of interest to the domestic construction industry. The enterprises are poorly equipped and their shop facilities are inadequate. However, the Class I roads appear to be well maintained and great importance is attached to keeping them open at all costs. As they are well built, maintenance requirements are kept to a minimum. Maintenance of lower class roads varies widely from very poor to adequate.

22. The building of roads is actually carried out by 21 construction enterprises which specialize in this work. The larger enterprises, of which there are about six, are generally well equipped; however, they lack the heavy equipment for rock excavation generally used in other countries on work of the magnitude now under way, and therefore use hand labor extensively. The enterprises are experienced and the quality of the work is generally satisfactory.

23. The unit prices for construction appear to be high in comparison to similar work on other countries. Reasons for this include (i) the tendency to let work in relatively small contracts; (ii) the high tariff on imports of construction equipment; (iii) high social costs; and (iv) the extensive use of hand labor. Some competition exists between the domestic construction enterprises, but it may not be very extensive, especially when bids for a large volume of work are called for at about the same time. The procedure for the selection of bidders is similar to the normal practice elsewhere and appears satisfactory.

Financing

24. New construction is financed out of the capital budget of the responsible administrative entity. All receipts from the gasoline tax of Din 5 per liter, auto licenses, and fines are allocated to Republic, district and communal road funds, which in turn, finance the road maintenance enterprises. As shown in Table 6, present user charges do not even cover the costs of maintenance; to finance the Din 24.1 billion expenditures of the road maintenance enterprises in 1962 - of which Din 16.0 billion was for maintenance - user charges of Din 12.4 billion had to be supplemented by subsidies of Din 7.9 billion and by miscellaneous income of Din 3.8 billion. However, the Government is considering raising user charges to cover all maintenance costs and ultimately also all new road construction.

25. Maintenance expenditures per km averaged about Din 200,000 in 1962 (US\$260 equivalent), but varied widely for different roads. These expenditures are insufficient to enable the road enterprises to carry out their work properly, especially on the lower class roads which require considerable routine maintenance. As the cost of maintaining Class I roads is considerably less than for gravel roads, the present construction program will facilitate better maintenance of the network; at the same time available funds will probably increase with the growth of traffic and the concomitant increase in receipts from user charges.

C. The Transport Industry and its Regulation

26. Concurrently with the modernization of the highway network, the transport industry has expanded greatly. The total number of motor vehicles increased from about 61,000 to 278,000 between 1955 and 1962; especially noticeable was the increase in passenger cars from about 13,000 to nearly 100,000 and in motorcycles from nearly 13,000 to 93,000 (see Table 7). In 1955, highways carried about 12 per cent of Yugoslavia's inter-city traffic; by 1962 this had increased to about 33 per cent and in a few years it is likely to reach 50 per cent (see Table 2). The expansion of highway freight traffic is equally impressive, increasing from 7 per cent of total freight traffic in 1957 to 15 per cent in 1962 (see Table 1).

27. A growing output of trucks, buses, and passenger cars from Yugoslav factories will enable these to provide increasingly for most domestic needs, except for the heaviest equipment and for specialized vehicles. Between 1958 and 1962 domestic truck output increased from 4,200 to 7,000 and there were no imports in 1962; the production of passenger cars grew from 2,720 to 20,000 in this period, but 15,200 cars were still imported in 1962; the production of motorcycles increased from 16,000 to 50,000, which permitted a sharp reduction in imports; local production of buses has not increased as sharply. By 1965, significant exports of motorcycles, passenger cars and even trucks are planned.

28. The growth of highway transport has not been accompanied by any major increase in the number of transport enterprises, but was achieved by expanding the existing ones. Of the 236 motor transport enterprises operating in 1961, 143 combined passenger and freight service. Unlike the situation in many other countries, the enterprises are generally quite large and there are no one-vehicle operators; of the 236 enterprises, 148 had more than 20 vehicles and only 2 enterprises had 4 or less vehicles. While more than half the highway freight traffic is not carried by public enterprises, their share of the total has been growing and their efficiency has also increased. For example, public transport enterprises were able to handle an eleven-fold increase in freight traffic and a five-fold increase in passenger traffic between 1954 and 1961 with an increase of personnel of less than 3 times.

29. There is practically no information about the commodities carried by road transport. It is clear, however, that apart from distribution around the major urban centers, road traffic concentrates on the commodities of high value and low weight; but because of the poor railway communications in some areas, some heavy goods are carried by road.

30. Receipts of the road transport enterprises per ton/km declined about 40 per cent from Din 40 in 1955 to nearly Din 23 in 1961; during this period the retail price index increased by about 25 per cent and per ton/km receipts of the railways by about 50 per cent. While the receipts per passenger/km increased for both railway and highway services during this period, the charges for the latter increased much less than of the railway. These trends also help to explain the increasing share of traffic going on highways.

31. The basic federal law concerning highway transport provides for its regulation and inspection. The Federal Government is responsible for the regulation and enforcement of most safety measures, limitations on axle weights and vehicle dimensions, etc. While the law also authorizes rate and other economic regulation, freight service is not being regulated to any significant extent, and each enterprise sets its own freight rates. Establishment of a new enterprise requires the approval of the local community; while such approval is generally automatic, there are instances where it has been withheld on the ground that the existing capacity is adequate.

The Government is keeping a close eye on the need for economic regulation in this field but currently appears to favor the maximum degree of competition.

32. Passenger traffic is subject to economic regulation, including licensing and approval of fares by the local community. In practice, fares can be changed quite readily. The transport section of the Chamber of Commerce coordinates time schedules for various enterprises and also appears to influence the level of fares.

IV. THE PROJECT

A. Description

33. The purpose of the project is to expedite the completion of Yugoslavia's two most important highways. The project consists of the completion of:

- i) the Adriatic Highway from Vodice to Bar, the uncompleted sections of which total 422 km; and
- ii) the Central Highway from Ljubelj to Skopje, the completion of which involves two sections totaling 174 km.

The work includes the construction of earthworks, paving, bridges, viaducts, tunnels, interchanges and overpasses. The highway sections to be completed are listed in Table 8 and are shown on maps 1 and 2.

Adriatic Highway

34. The Adriatic Highway follows the Dalmatian Coast of Yugoslavia from Rijeka in the northwest to Bar in the southeast, a distance of 764 km. At Rijeka, a number of highways lead to the Italian and Austrian borders and to major centers in western Yugoslavia. The highway terminates at Bar and there are no plans at present to extend it to the Albanian border. However, shortly before Bar a highway connection to Titograd has recently been completed. This highway will eventually be extended to other cities in eastern Yugoslavia including Skopje on the Central Highway.

35. The Dinara mountain range extends along the whole of the Adriatic coast and acts as a natural barrier between the relatively narrow coastal strip and the rest of the country. The terrain of the coastal strip ranges from hilly to mountainous, interspersed with occasional sections of flat and rolling ground. The geology of the region is predominantly limestone and as the rock formations are exposed or lie just below the surface, heavy excavation is called for over much of the length of the highway.

36. The Adriatic Highway has been completed from Rijeka to Vodice, a distance of 286 km. In addition, three short sections between Vodice and Podgora, totaling 56.5 km in length, have also been completed. Construction is currently under way on six widely scattered sections between Vodice and Bar, totaling 87.4 km in length, while no work has yet been started on the remaining nine sections totaling 334.2 km in length. The project provides for the completion of these 15 sections.

37. The original coastal road existed throughout as a narrow gravel road with steep grades and curves. The new highway is partly located on the existing alignment and here the construction consists mainly of widening the roadway and improving substandard elements. In many places, however, the highway has been relocated to bypass narrow streets in villages and towns or to avoid natural obstructions. Alternate locations are carefully studied in order to secure the best alignment at the least cost. The rugged terrain necessitates the use of a large number of viaducts and tunnels and the selection of these again is based on studies of alternate solutions.

Central Highway

38. The Central Highway extends from the Austrian to the Greek border, a distance of 1,152 km, and as its name implies, passes through the central part of the country. It generally follows the river valleys of the Sava, Morava, and the Vardar where the largest cities in the country are located. The highway passes through terrain which ranges from alpine in Slovenia, hilly in Croatia, flat in Serbia and hilly again in Macedonia. It is designated as an official international road by the Inland Transport Committee of the Economic Commission for Europe.

39. A road has existed for centuries along the route of the Central Highway; however, it was not until after World War II that steps were taken to provide a modern highway constructed to design standards agreed upon by most of the countries of Europe. Two sections, from Naklo to Belgrade and from Paracin to Skopje, have been completed, and good progress is being made on the construction of a number of other sections; however, several uncompleted gaps remain where the traffic continues to use the old road.

40. The two largest and most important of the uncompleted sections are included in the project. The remaining sections are all located between Skopje and the Greek border. These are in various stages of completion and are scheduled to be open to traffic within a year.

41. The Ljubelj-Naklo section, which lies in the Yugoslav alps, will connect the Austrian and Yugoslav road systems via a tunnel under the border. The tunnel will lower the elevation of the border crossing by about 300 meters thus facilitating the use of lower grades. The new road section is designed to be kept open all year round despite the heavy snowfall and slides which close the existing road from six to seven months a year. Austria will complete its part of the tunnel and connect it to the existing road by the end of 1963. In addition, Austria has also agreed to reconstruct the present narrow highway, with gradients up to 21 per cent, within the next few years.

42. The second section consists of a paved two-lane highway between Belgrade and Paracin. From Belgrade to Osipaonica the highway will be located in rolling to hilly terrain on a new line and all crossings will be grade separated. An interchange will be provided at the intersection with the Belgrade circumferential highway which has been partly completed, so that traffic may bypass the city or continue into one of its main thoroughfares.

43. From Osipaonica to Paracin the highway is located in flat terrain roughly paralleling the Morava river. The earthwork, drainage and pavement have already been completed and the only remaining work on the section is the

construction of the overpasses for rural and county roads which cross the highway. The completed work appears to have been adequately designed and well constructed. No failures or signs of damage were noted over the entire section.

Design Standards

44. The Adriatic and the Central Highways are being built to Class I design standards as shown in Table 9. The standards for the Central Highway are somewhat higher than for the Adriatic Highway and also call for grade separation of cross roads and intersections. The standards are considered satisfactory to meet the anticipated growth in traffic, except for the tendency to use somewhat narrow shoulders, a practice which is followed throughout the country as an economy measure. This was discussed with Yugoslav officials who are quite aware of the deficiency, but they are naturally unwilling to increase the shoulder width on sections included in the project over that of the existing adjoining sections.

45. A tendency was noted to reduce standards of grade and curvatures below the minimum in mountainous terrain on the Ljubelj-Naklo section to save funds. The Government has agreed to the design standards shown in Table 9, with the provision that if on this section any gradient exceeds 10 per cent, an additional lane would be provided and an explanation submitted to the Bank.

B. Cost Estimate

46. The total estimated cost of the project is US\$98 million equivalent or 73.5 billion dinars, of which US\$68.2 million equivalent is for the Adriatic Highway and US\$29.8 million equivalent is for the Central Highway (see Table 10). It is not possible to determine with any precision the foreign currency component because the results of international competitive bidding are unpredictable, no road construction having been undertaken hitherto by foreign firms. It would appear, however, that the foreign exchange component could range from roughly 10 per cent with no foreign bidders employed to as high as 20 per cent if foreign contractors were successful in obtaining contracts for the sections considered suitable for international competitive bidding.

47. The cost estimate was prepared by the highway departments of the Republics concerned and their consultants. The estimate appears reliable because (i) quantities are based for the most part on final plans prepared from detailed surveys, (ii) prices are based on experience in constructing similar road works over the past decade and (iii) the engineers of the highway organizations concerned and their consultants are highly competent.

48. The estimate includes the cost of equipment depreciation, labor, materials and supplies, contractors' profits and engineering costs. The latter are relatively low because of low salaries and the magnitude of the work. The estimate also includes an allowance of 10% for contingencies on work performed after January 1, 1963. The amount is considered reasonable in view of the reliability of the estimate as discussed in the preceding paragraph; prices are expected to be relatively stable during the project

period, and while wages may increase by about 5 per cent annually, this increase is tied to increases in productivity by the Government's policy. In this connection, it is of special significance that more than one-half of the expenditures are estimated to be made before the end of 1963.

49. Expenditures on the project are scheduled over the three and one half years from July 1, 1962, to the end of 1965. They include back payments for work on the Osipaonica-Paracin part of the Central Highway, for a very small amount on the Ljubelj-Naklo section of the Central Highway and for a number of sections of the Adriatic Highway. The estimated schedule of expenditures is as follows:

(In millions of U.S. dollars equivalent)

	<u>1962*</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>Total</u>
Adriatic Highway	3.3	26.0	34.0	4.9	68.2
Central Highway	<u>12.5</u>	<u>15.3</u>	<u>2.0</u>	<u>-</u>	<u>29.8</u>
Total	15.8	41.3	36.0	4.9	98.0

* Period July 1 to December 31, 1962.

50. The requested loan of US\$35 million equivalent represents about 35 per cent of the total cost of the project; the balance of US\$63 million equivalent would be provided by the Federal Government, and to a small extent by the Republics, through allocations in their annual budgets.

C. Administration and Execution

51. The Federal Secretariat of Transport would be responsible for the execution of the project. As noted in paragraph 18, the investors in each Republic would act as agents of the Secretariat for the design and construction of the highway sections located within their borders. The highway staffs of the Central Government, the Republics and their consultants are fully capable to execute the program from both the administrative and technical points of view.

52. Final plans and specifications for the Central Highway have been completed. Preliminary engineering studies have been completed for the Adriatic Highway and final plans have been completed for over 70 per cent of the unfinished sections. Design work will be completed by the end of 1964.

53. Contracts for the construction of the Belgrade-Osipaonica part of the Central Highway were awarded late in 1962, and tenders for the remaining work on that highway will be called for shortly. Construction of the Adriatic Highway is now being carried out on widely scattered sections which were selected on the basis of local priorities. Contracts for the remaining sections will be awarded on the same principle.

54. The Yugoslav Government has agreed to call for international competitive bidding on the following road sections which are considered of potential interest to foreign contractors: (i) the bridge over the river Krka near Sibenik; (ii) Trogir-Solin; (iii) Drasnice-Gradac, (iv) Gradac-Slano; and (v) Cilipi-Budva. The estimated cost of these sections is approximately 75 per cent of the total cost of the sections not yet contracted. The past policy of calling for competitive bids exclusively from the domestic construction industry will be followed on works which are too small to interest foreign bidders. Tender documents for international competitive bidding have been reviewed by the Bank and are generally satisfactory.

V. ECONOMIC JUSTIFICATION

A. Adriatic Highway

General

55. The completion of the Adriatic and Central highways will be an important step in further integrating Yugoslavia into one national market. This is of particular importance in Yugoslavia where the geographic and historical circumstances described previously have made an integrated economy very difficult.

56. The Adriatic Highway is the second most important highway in Yugoslavia. It provides the only land transport connecting various parts of this region, and the cost of constructing a railway would be so high as to be clearly uneconomic. At the same time it serves as the feeder to and distributor of railway traffic at Rijeka, Split and Ploce, three points at which the railroad connects the coast with the interior of the country. The growth of the area is reflected not only in the increasing highway traffic discussed below, but also in expanding agriculture and industry and major new investments planned for most of the Adriatic ports. The construction or improvement of three major highways from the interior to the Adriatic at Split, Metkovic, and Dubrovnik will link the coast with the economically most developed mining and industrial regions of the country. Ultimately, extension to Skopje of the existing road from Petrovac on the coast to Titograd will effectively connect the Central and Adriatic highways.

57. The Adriatic Highway is of special significance for an improved balance of payments for Yugoslavia through its contribution in stimulating foreign tourism. The beauty of the Adriatic coast, the temperate climate, and the charm of ancient towns like Dubrovnik are world famous and there can be no doubt that tourism has been held back by the absence of an adequate highway. Net receipts from foreign tourism increased from US\$ 6 million equivalent in 1959 to \$23 million in 1962, and the coastal resorts accounted for nearly 80 per cent of foreign tourism. With the improvement of highways, the proportion of foreign tourists arriving by motor vehicle has increased from about one-half in 1959 to nearly two-thirds at present. The Yugoslav Government is also making other investments, such as in new hotels, which are necessary for an expanding tourist industry, and under recent legislation is even permitting foreigners to own land for private homes.

58. Only a small proportion of the land along the Adriatic coast is arable: pastures and vineyards are special features. The hot, dry summers and mild but damp winters make the region especially suitable for such fruits as olives, figs and some citrus in the south. Early vegetables are of special importance. Livestock rearing, particularly sheep, is common. Forests cover about one-third of the area. There is also some mining (e.g. bauxite), a lumber industry, and a number of cement factories. A major irrigation project not far from Metkovic has been started with FAO assistance; it is anticipated that upon completion of the project in about 10 years, more than a million tons of fruits and vegetables will be produced annually, with an estimated value of Din 48 billion. According to the FAO technical advisor, about one-third of the output will be carried by highway.

Road-User and Maintenance Benefits

59. The most important economic benefits of the proposed investment which are measurable in monetary terms consist of reduced transportation costs for the users of the highway and lower highway maintenance costs. It is estimated that these benefits alone will bring a return on the investment of about 11 per cent during its useful life of 25 years. This is a reasonable return in a country like Yugoslavia, especially since it does not include other important benefits, such as those discussed in paragraph 61.

60. The estimate of benefits is based on the following major assumptions, which are regarded as reasonably conservative:

- i) Traffic: The forecast of traffic (see Table 11) takes into account primarily the traffic growth since 1956, the growth of population and national income in general and of the potential of the Adriatic coast in particular, and the traffic developments on the completed sections of the highway. The traffic on the uncompleted sections has increased by about 20 per cent annually since 1956, and reached about 400 vehicles per day in 1961. Since highway transport in Yugoslavia is moving out of its early stages, future growth cannot be expected to continue at such a high rate, and it has therefore been assumed that the normal growth, which could be expected even without the new improvements, will decline from an average of 12 per cent in the 1963-67 period to 2 per cent near the end of the 25-year period. In addition to this normal growth, there will be additional traffic stimulated from lower transport costs. Some of this will be traffic diverted from coastal shipping, but most of it will be newly developed traffic. On the Rijeka-Zadar section of the highway, which was completed by 1960, traffic grew nearly five fold between 1956 and 1961, from about 200 to 1,000 vehicles; on other sections, too, a doubling of traffic within a year or two after completion of the improvements, and a tripling not long thereafter, is not uncommon. However, because the uncompleted sections have a smaller economic potential than most of the sections already completed, an additional traffic increase of only 20 per cent in 1963, 50 per cent in 1964, and 40 per cent in 1965 has been assumed.

- ii) **Reduced Highway Transport Costs:** Yugoslav studies indicate that the highway improvements will reduce operating costs by about Din 70 per truck/km (approximately US 10 cents equivalent) or about 40 per cent (see Table 12). The saving for a relatively small passenger car prevalent in Yugoslavia would be at least Din 10 and for a motorcycle about Din 2. For the type of traffic usual on this road, it is likely that at least 20 per cent of the vehicles will be trucks. On this basis, and also allowing for the reduction of about 8 per cent in the distance of the new highway as against the old one, a saving of at least Din 20 per vehicle/km can be expected. This saving has been applied fully to the estimated normal traffic growth, but only one-half of it to the generated traffic on the assumption that this type of traffic is induced proportionally to the amount of reduction in operating costs.
- iii) **Reduced Transport Costs for Diverted Traffic:** The cost reduction for traffic diverted from coastal shipping will also be very substantial. The present cost for general cargo traffic at a representative distance of 100 - 150 miles ranges from about Din 7,000 - 12,000 per ton, depending on the specific commodity. There are additional costs of about Din 2,500 per ton for loading and unloading, warehousing, insurance, etc., plus the cost of final delivery, which depends primarily on the distance involved. At a cost of Din 10,000 per ton for 150 miles, the per ton/km cost of Din 40 would be nearly double the cost by highway.
- iv) **Maintenance Savings:** Maintenance of the existing macadam road is already very expensive and would increase sharply with growing traffic. For annual routine maintenance it is reasonable to expect a reduction of costs per km from Din 900,000 to Din 400,000 (from US\$1,200 to \$532 equivalent), especially since the new highway is being built so well. In addition, there will be a similar saving on periodic restoration and resurfacing, for which the costs on a macadam road are a very high Din 4 million every four years, compared to Din 2 million for an asphalt road. The total annual savings per km on maintenance will therefore be about Din 1 million (US\$1,320 equivalent).

Other Benefits

61. In addition to the benefits discussed above, there will be others not measurable in monetary terms but perhaps equally significant. One of the most important is the saving of time. The new road will permit an increase in average speeds from about 30 to 60 km, which will reduce traveling time by about one-half. A small part of this benefit is reflected in reduced operating expenses in that it lowers depreciation costs and wages per km. However, the time saving will also reduce the need for inventories, which is of special importance for the shipment of vegetables, and enlarge the area in which they and other commodities can be marketed. Similar consequences will follow from the fact that the damage to goods transported on bad roads will be reduced. These qualitative improvements in the transport service are especially important in stimulating new traffic. In addition, travel on the new road will be much more convenient and comfortable for passengers.

B. Central Highway

General

62. The Central highway from the Austrian border to the Greek frontier is the backbone of Yugoslavia's highway network. It connects four of Yugoslavia's five largest cities, - Ljubljana, Zagreb, Belgrade, and Skopje - and the area of its influence encompasses about one-half of the country's economy and one-third of its population.

63. The highway runs through the fertile low land along the Sava river and is closely linked with Yugoslavia's richest agricultural area, Vojvodina, and its most developed area, Bosnia and Herzegovina. The completion of the highway will greatly facilitate the promotion of Yugoslavia's exports, especially of agricultural products for which there exists a high demand in neighboring countries.

64. The highway is also a significant component of the European network of trunk lines, and its completion will more effectively link Yugoslavia and Greece to Austria, Italy and other Central and Western European countries, increase transit traffic through Yugoslavia and stimulate foreign tourism which is becoming of considerable importance for Yugoslavia's balance-of-payments.

65. The Belgrade-Paracin section, in particular, runs through a highly developed region, which includes 19 large coal mining enterprises, 4 iron and steel enterprises, 43 metalworking factories, 43 large and many small producers of building materials, 34 textile enterprises, 67 food processing enterprises, and many others.

Road-User Benefits

66. Probably the most important benefit of the Belgrade-Paracin section will consist of reduced transportation costs for the users of the highway. This benefit alone is estimated to bring a very satisfactory return on the investment of about 15 per cent during its useful life of 25 years. There will be no significant maintenance savings since the old road will continue to be maintained for local traffic.

67. About 1000 vehicles daily travelled on the Belgrade-Paracin road in 1962. Yugoslav studies indicate that about two-thirds of this traffic will in the future use the new highway. In addition, most of the nearly 100 vehicles daily on the Belgrade-Plana road will use the new road between Belgrade and Osiponica. Belgrade-Paracin traffic has been increasing 13 per cent annually since 1958, but the growth has been less in the last two years. Accordingly, future normal growth, which could be expected even without the new improvements, is assumed at 10 per cent in 1963-7 and to decline slowly to 2 per cent at the end of the 25-year period.

In line with the experience on the completed sections of the new highway, where traffic in 1962 immediately rose 35 per cent over the previous growth trend, a similar developmental increase for the new sections is assumed for 1963; a further 45 per cent increase is likely to take place in 1964 because the full highway will then be completed (see Table 11). The savings per vehicle in operating costs are calculated on the same basis as explained for the Adriatic highway; however, due to the higher proportion of buses and trucks, which account for about one-third of the traffic, and because the distance will be 14 per cent less, the saving will be about Din 35 per vehicle/km (about US 5 cent equivalent).

68. As for the Naklo-Ljubelj section near the Austrian border, road-user and maintenance benefits are the most important ones from the proposed improvement and alone are estimated to bring a return on the investment of about 10 per cent. The annual increase in traffic on this road in recent years has averaged about 20 per cent, reaching 400 vehicles per day in 1961. Future traffic will arise from three main sources: Firstly, there will be the normal growth which could be expected to arise even without the new investment; as explained in connection with the Adriatic highway, this growth is estimated to decline from about 12 per cent in 1964-7 to 2 per cent at the end of the 25 year period. Secondly, new traffic will develop because the new highway will be open all year, while the existing one is closed about half the year during the winter; and the reduction in operating costs will further stimulate additional traffic. These two factors are conservatively assumed to increase traffic by 20 per cent in 1964, 50 per cent in 1965, and 25 per cent in 1966. Thirdly, traffic will be diverted from the border crossings at Podkoren and Jezersko. There were about 500 vehicles per day on the road to Podkoren in 1961, of which at least 20 per cent are estimated to use the new highway; similarly, of the about 150 vehicles daily using the road via Jezersko, about 40 per cent are expected to divert to the new highway (see Table 11). The assumptions concerning savings per vehicle and for maintenance are analogous to the ones explained above for the Adriatic highway.

Other Benefits

69. The new highway will involve important savings in time, since average speeds will increase from about 30 to 70 km. This, and the reduced damage to goods, are of special importance for the shipment of vegetables, and will enlarge the area in which these and other commodities can be marketed. Comfort and convenience to passengers will be enhanced substantially.

VI. CONCLUSIONS AND RECOMMENDATIONS

70. The Project will greatly improve the conditions for road transport on the two most important highways of Yugoslavia. It is well planned, technically sound and will yield a good economic return on the investment from lower transportation and maintenance costs alone. The Yugoslav Government is well able to execute the Project.

71. The Project provides a suitable basis for a bank loan of US\$35 million equivalent to the Yugoslav Investment Bank for a term of 20 years, including a 3.5-year period of grace.

June 7, 1963

TABLE 1YUGOSLAVIAFREIGHT TRAFFIC. BY MODE OF TRANSPORT, 1952-62

(Millions of ton/km)

YEAR	TOTAL	RAILWAYS	MARITIME		HIGHWAYS	
			Inland Waterways	Coastal Traffic	Trucking Enterprises	Own Account
1952	n.a.	8,383	706	173	115	n.a.
1953	n.a.	8,817	528	143	133	n.a.
1954	n.a.	9,571	766	166	145	n.a.
1955	n.a.	11,577	809	230	180	n.a.
1956	n.a.	11,869	928	208	206	n.a.
1957	15,615	12,984	1,257	226	349	799
1958	16,284	13,031	1,491	257	560	945
1959	17,947	13,974	1,636	499	816	1,022
1960	19,693	15,191	2,009	390	1,016	1,087
1961	20,011	14,941	2,085	370	1,382	1,233
1962	20,706	15,033	2,187	358	1,628	1,500*
Average distances of freight haulage (km)						
		233	347	285	95	14

* Tentative

TABLE 2

YUGOSLAVIA

PASSENGER TRAFFIC, BY MODE OF TRANSPORT, 1952-62

(Millions of passenger/km)

YEAR	TOTAL	RAILWAYS 1/	HIGHWAYS		AIR	MARITIME	
			Buses 2/	Passenger Cars 3/		Coastal Traffic	Inland Waterways
1952	5,561	4,815	417	130	24	151	24
1953	6,927	5,981	549	150	29	191	27
1954	7,628	6,488	692	170	33	206	39
1955	8,909	7,533	864	190	50	230	42
1956	8,817	7,314	966	220	48	248	21
1957	10,095	8,059	1,346	325	53	285	27
1958	11,492	8,877	1,760	425	60	340	30
1959	12,602	9,250	2,231	580	82	333	26
1960	13,574	9,449	2,826	810	114	348	27
1961	14,659	9,855	3,139	1,180	136	326	23
1962	15,021	9,742	3,315	1,425	165	354	20
Average distances per trip (km)		50	30	n.a.	300	46	40

1/ Beginning in 1955 includes passengers coming from other countries or in transit.

2/ Inter-urban public services only.

3/ Estimate based on the reasonably conservative assumption that each passenger car travelled about 6,000 km annually in inter-city traffic, with an occupancy rate of about 2.5 persons per car.

TABLE 3YUGOSLAVIAINVESTMENT IN TRANSPORT, 1954-1961

(Billions of Dinars) *

YEAR	TOTAL	RAILWAY	HIGHWAY (incl.vehicles)	OCEAN PORTS AND SHIPPING	INLAND WATERWAYS	AVIATION
1954	67.9	36.6	15.8	12.6	1.5	1.3
1955	73.5	41.6	15.0	14.4	1.9	0.8
1956	90.2	51.2	18.1	18.3	2.2	0.4
1957	104.0	55.3	26.0	17.9	3.3	1.7
1958	102.5	44.2	37.5	15.5	4.2	1.1
1959	124.0	48.7	44.0	24.4	5.4	1.5
1960	143.3	50.8	59.8	23.7	5.8	3.2
1961	162.7	50.4	71.6	26.9	6.4	7.3
1962	162.2	47.2	78.3	25.3	6.2	5.2

* At current prices. The index for producers prices increased about
2 per cent annually during this period.

TABLE 4YUGOSLAVIAMODERNIZATION OF HIGHWAY NETWORK, 1955-62

(km)

<u>YEAR</u>	<u>ANNUAL MODERNIZATION</u>	<u>LENGTH OF MODERN NETWORK</u> <u>(Cumulative)</u>
1955	162	3,482
1956	290	3,772
1957	409	4,181
1958	833	5,014
1959	1,047	6,061
1960	712	6,773
1961	946	7,719
1962	1,281	9,000

YUGOSLAVIA

EXPENDITURES ON HIGHWAYS, 1955-62
(Billions of Dinars)

Year	Total Investment and Maintenance	I n v e s t m e n t					M a i n t e n a n c e		
		Total Investment	Federal Government	Republics	Districts and Communities	Others	Total Main- tenance	Republics	Districts and Communities
1955	14.4	10.2	n.a.	n.a.	n.a.	n.a.	4.2	n.a.	n.a.
1956	18.0	11.4	n.a.	n.a.	n.a.	n.a.	6.6	n.a.	n.a.
1957	20.8	11.7	n.a.	n.a.	n.a.	n.a.	9.1	n.a.	n.a.
1958	34.1	22.8	16.1	4.6	1.3	684	11.3	5.3	6.0
1959	40.3	28.6	19.9	6.3	1.9	487	11.6	5.5	6.2
1960	49.4	37.8	27.1	7.5	2.2	928	11.6	5.9	5.7
1961	64.8	51.5	37.0	8.7	4.5	1.2	13.2	6.8	6.4
1962	65.0	49.0	32.6	8.0	7.4	963	16.0	7.5	8.4

TABLE 6

YUGOSLAVIA
RECEIPTS AND EXPENDITURES OF ROAD MAINTENANCE
ENTERPRISES, 1962

	Dinar billions
<u>Receipts</u>	
Gas and oil tax	3.3
License taxes	5.0
Tax on animal drawn vehicles	2.4
Turnover tax on individual truck-owners providing freight service	1.1
Fines and penalties	<u>0.6</u>
Subtotal, User charges	12.4
Subsidies from Republics and other administrative entities	7.9
Miscellaneous receipts	<u>3.8</u>
Total	24.1
<u>Expenditures</u>	
Highway maintenance	16.0
Minor improvements and construction, and other	<u>8.1</u>
Total	24.1

TABLE 7YUGOSLAVIATHE MOTOR VEHICLE FLEET, 1955-62

(In thousands)

<u>YEAR</u>	<u>MOTOR- CYCLES</u>	<u>PASSENGER CARS</u>	<u>BUSES</u>	<u>TRUCKS</u>	<u>TRAILERS & OTHERS</u>	<u>TOTAL</u>
1955	12.5	12.6	2.4	21.1	12.1	60.7
1956	15.5	14.6	2.7	21.1	14.6	68.5
1957	26.4	21.6	3.4	25.8	21.3	98.5
1958	37.6	28.3	3.9	28.4	28.0	126.2
1959	54.5	39.0	4.6	31.5	34.6	164.2
1960	69.7	54.2	5.1	33.5	40.5	203.0
1961	72.1	75.5	5.2	32.4	44.9	230.1
1962	92.5	99.1	6.2	37.6	42.9	278.3 *

TABLE 8

YUGOSLAVIA
HIGHWAY PROJECT

List of Highway Sections to be Completed 1/

<u>Highway</u>	<u>Section</u>	<u>Length</u> (km)	<u>Description of Work</u>	<u>Status of Work</u>
Adriatic Highway	2/ Vodice-Sibenik	10	New construction 4/	Prelim.design compl.
	Sibenik-Rogoznica	29.6	" "	Under construction
	Trogir-Solin	23.3	" "	Prelim.design compl.
	Solin-Split	4.8	" "	Under construction
	Omisa-Makarska	38.3	" "	Final plans compl.
	Podgora-Drasnice	5	" "	Under construction
	Drasnice-Gradac	28	" "	Final plans compl.
	Gradac-Ploce	12	Reconstruction 5/	Prelim.design compl.
	Ploce-Slano	60.6	New construction	" " "
	Slano-Trsteno	16	Reconstruction	Final plans compl.
	Trsteno-Komolac	18.5	" "	" " "
	Kolomac-Gruz	6	" "	Under construction
	Gruz-Dubrovnik	4	New construction	Final plans compl.
	Dubrovnik-Cilipi	21	Reconstruction	Under construction
	Cilipi-Croatian Border	13.5	" "	Prelim.design compl.
	Croatian Border-Budva	93	" "	" " "
	Budva-Petrovac	17	" "	Final plans compl.
Petrovac-Bar	21	" "	Under construction	
	Sub-total	421.6		
Central Highway	3/ Ljubelj-Naklo	20.6	Construction Class I	Final plans compl.
	Belgrade-Osipaonica	58	" "	" " "
	Osipaonica-Paracin	95	" "	Under construction
		173.6		

1/ The following highway sections in the project are already completed:

	<u>Length</u>
Rogoznica-Trogir	25
Split-Omisa	26
Makarska-Podgora	5.5
	56.5

2/ Total length of completed highway from Rijeka to Bar will be 764 km.

3/ " " " " " " Ljubelj to the Greek border will be 1152 km.

4/ New construction as used in this table means construction on new alignment.

5/ Reconstruction as used in this table means substantial use of existing alignment.

YUGOSLAVIA

HIGHWAY PROJECT

Class 1 - Design Standards

	<u>N a t i o n a l 1/</u>			<u>I n t e r n a t i o n a l 2/</u>			
	<u>Flat</u>	<u>Hilly</u>	<u>Mountainous</u>	<u>Flat</u>	<u>Hilly</u>	<u>Mountainous</u>	<u>Alpine</u>
Design speed (kph)	75-90	60-75	50-60	100-120	80-100	60-80	40-60
Minimum radius (m)	130	85	60	325	200	110	50
Maximum gradient (percent)	5	6	7	5	6	7	10 3/
Minimum sight distance (non passing, m)	85	55	40	150	95	55	30
Surface width (m)	7.0	6.5	6	7.5	7	6.5	6.0
Shoulder width (m)	1.00	0.75	0.50	1.25	1.25	0.75	0.75
Maximum super-elevation (percent)	8	8	8	8	8	8	8
Slope of cut banks	1 : 1 to 5 : 1			1 : 1 to 5 : 1			
Slope of fills	1 : 1 to 1 : 2			1 : 1 to 1 : 2			
Maximum axle load	10 tons			10 tons			
Type of pavement	Asphalt penetration			Asphalt concrete or Portland cement concrete			

1/ As used for Adriatic Highway (except for the existing road around the bay of Kotor which will only be asphalt).

2/ As used for Central Highway. These standards call for grade separated structures.

3/ If on the Naklo-Ljutelj section any gradient exceeds 10 percent, an additional lane would be provided.

TABLE 10

YUGOSLAVIA
HIGHWAY PROJECT
Cost Estimate

(In millions of U.S. dollars equivalent)

Adriatic Highway

Construction contracts	59.0
Design and supervision by consultants (about 4%)	2.4
Contingencies <u>1/</u> (about 10%)	<u>6.8</u>
Sub-total	68.2

Central Highway

Construction contracts	26.7
Design and supervision by consultants (about 4%)	1.3
Contingencies <u>1/</u> (about 10%)	<u>1.8</u>
Sub-total	29.8
Total	98.0 <u>2/</u>

1/ Calculated on balance of work to be completed.

2/ 73.5 billion dinars.

TABLE 11

YUGOSLAVIA

PRESENT AND PROJECTED AVERAGE DAILY TRAFFIC, 1961-86

(Number of Vehicles)

<u>YEAR</u>	<u>ADRIATIC HIGHWAY ^{1/}</u>	<u>BELGRADE-PARACIN ^{2/}</u>	<u>NAKLO-LJUBELJ ^{3/}</u>
1961	400	700	400
1966	1400	1500	1500
1971	2300	2300	2500
1976	3600	3300	4000
1981	5100	4500	5700
1986	6800	5800	7600

^{1/} For explanation of underlying assumptions see paragraph 60

^{2/} For explanation of underlying assumptions see paragraph 67

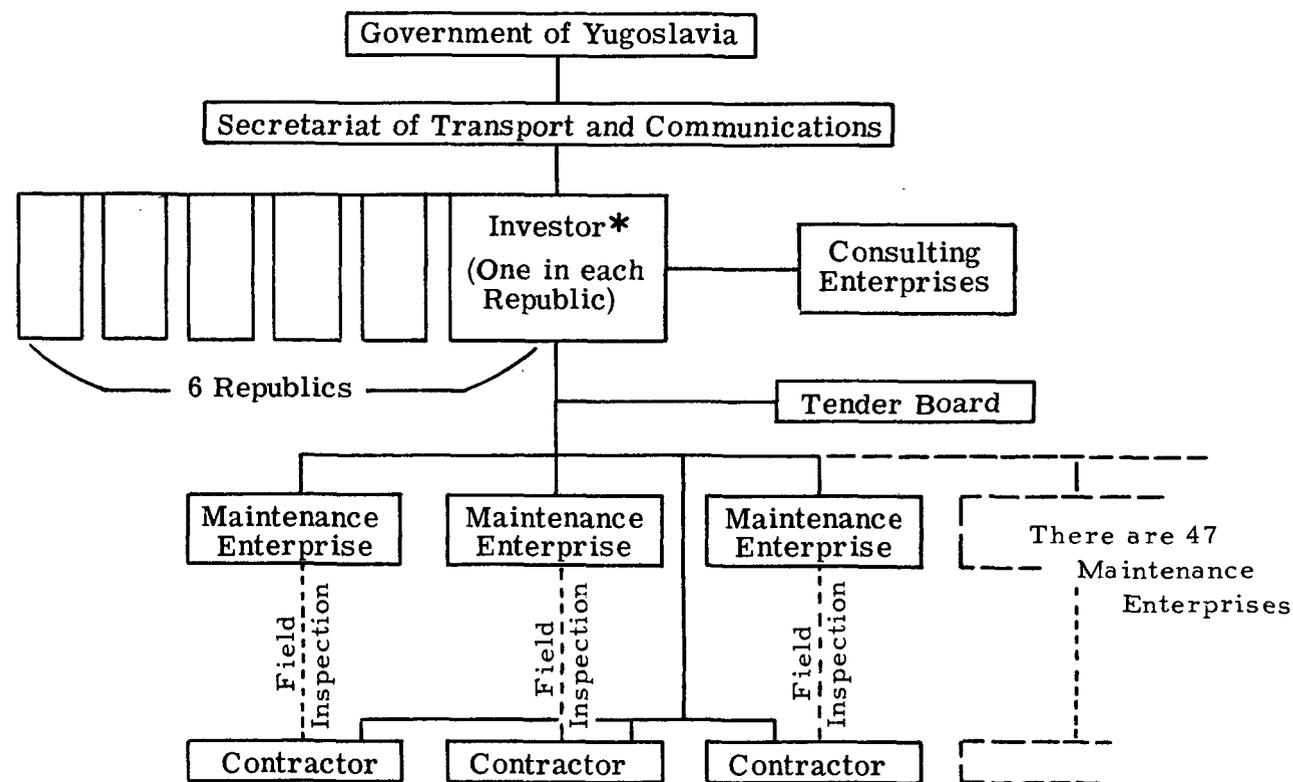
^{3/} For explanation of underlying assumptions see paragraph 68

TABLE 12YUGOSLAVIACOMPARISON OF OPERATING COSTS OF AVERAGE TRUCKON MACADAM AND MODERN HIGHWAY

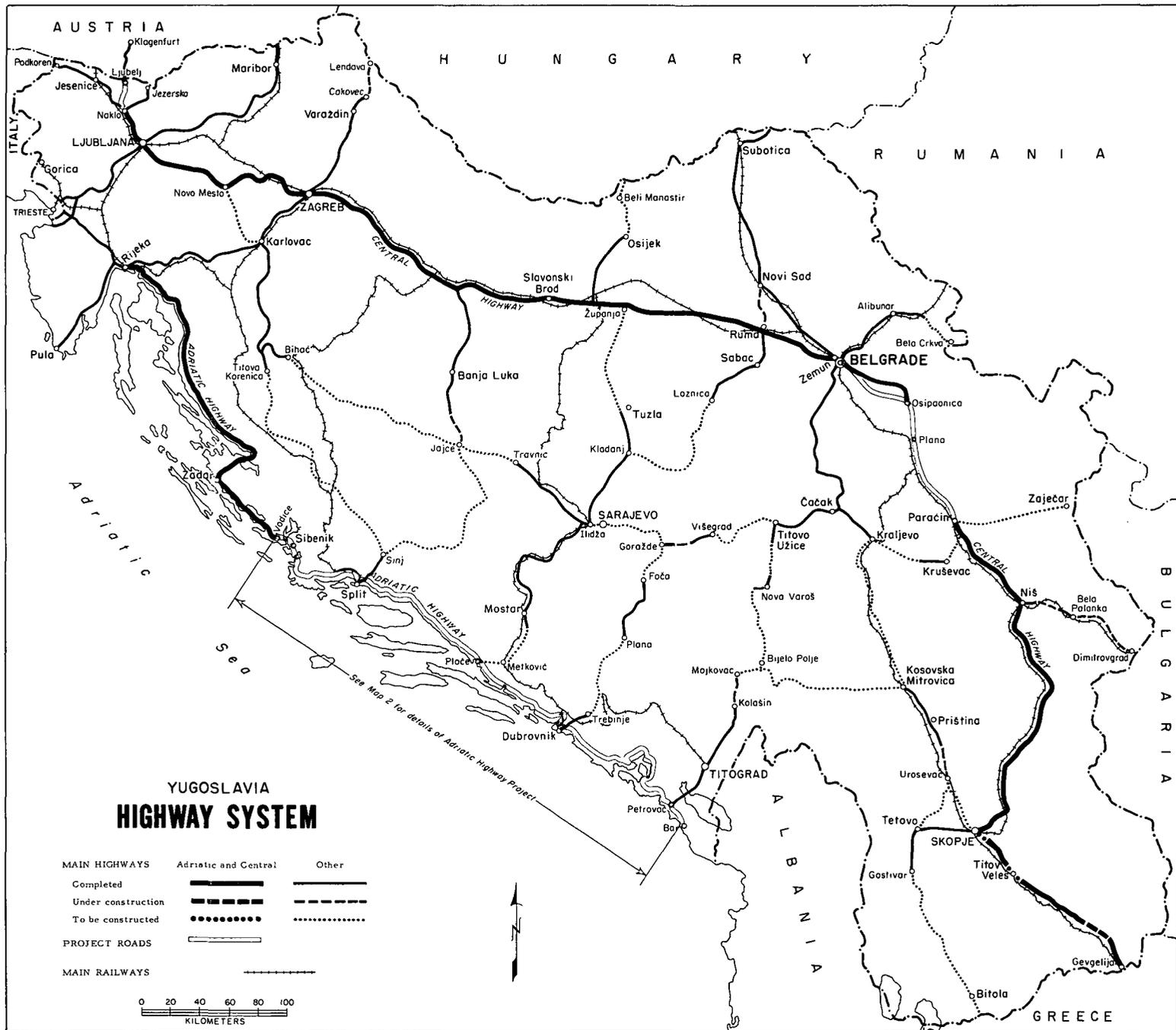
(Dinars per Truck/km)

TYPE OF COST	MACADAM	MODERN	COST REDUCTION	
			Absolute	%
Depreciation	34	24	10	30
Wages	27	15	12	44
Repairs	43	23	20	46
Tires	38	21	17	45
Fuel and Oil	28	17	11	40
TOTAL	170	100	70	41

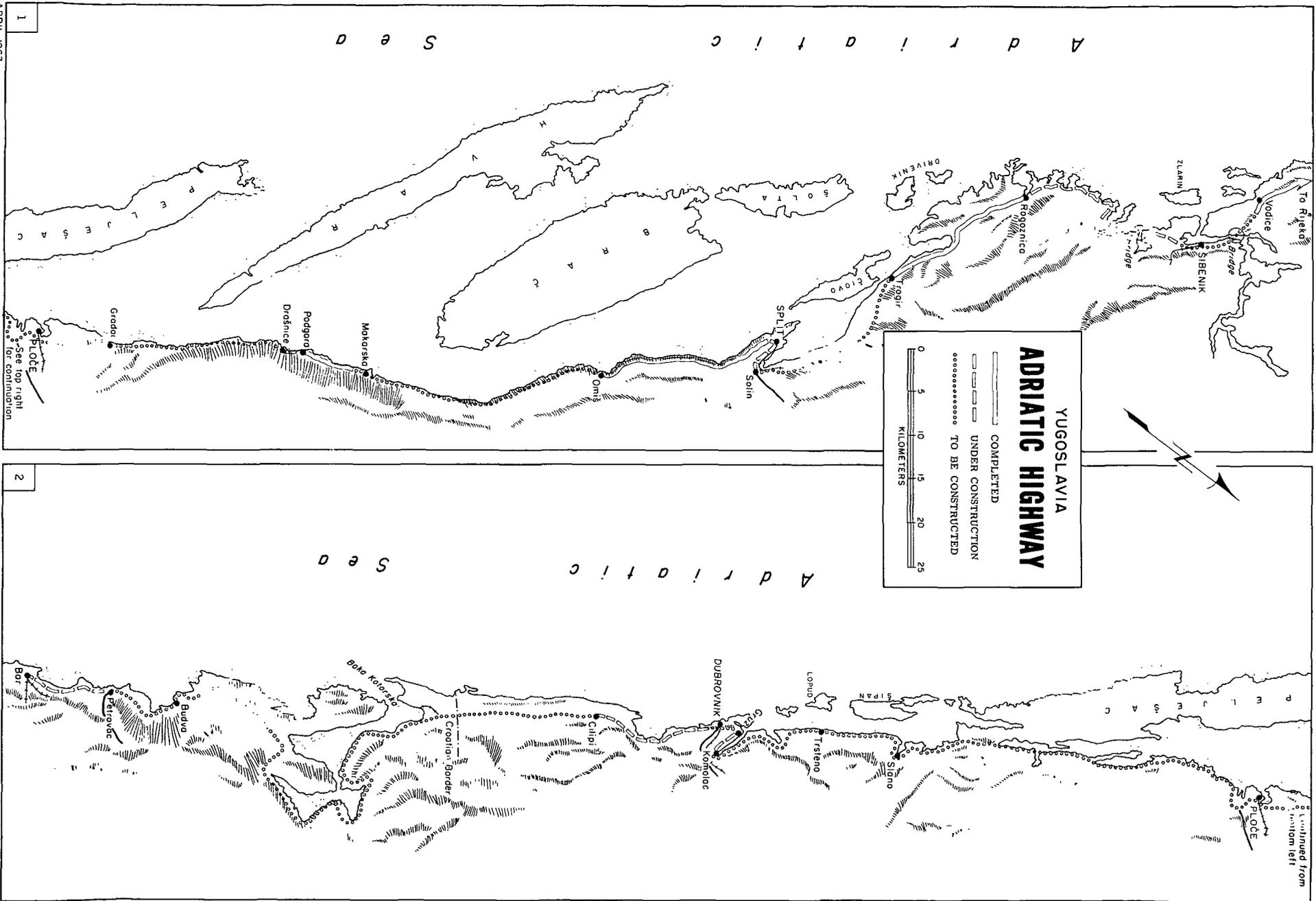
YUGOSLAVIA
ADMINISTRATION OF HIGHWAY CONSTRUCTION



* In four Republics, the Investor is the Association of Road Maintenance Enterprise in the particular Republics; in the other two Republics the Investor is the Secretariat of Transport of the particular Republic.



Continued from
Map 1 on left



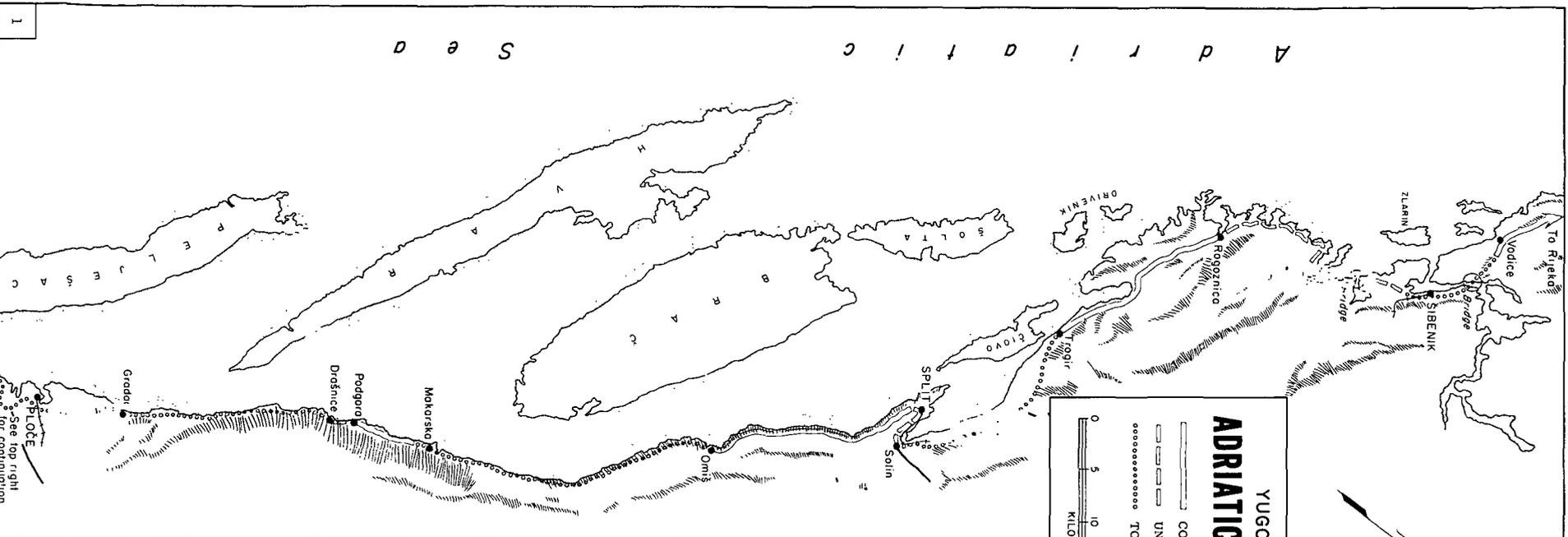
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