Return ST/PC

60

ST/PC

PR-31

PROVISIONAL INTELLIGENCE REPORT

RAILROAD TRANSPORT CAPABILITIES BETWEEN THE SOVIET FRONTIER AND WESTERN EUROPE

CIA/RR PR-31
27 May 1953

CENTRAL INTELLIGENCE AGENCY
OFFICE OF RESEARCH AND REPORTS

WARNING

This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18, USC, Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

Approved For Release 1999/09/02 : CIA-RDP79-01093A000300140003-8

~~CONFIDENTIAL~~

SECURITY INFORMATION

US OFFICIALS ONLY

PROVISIONAL INTELLIGENCE REPORT

RAILROAD TRANSPORT CAPABILITIES BETWEEN THE SOVIET FRONTIER AND WESTERN EUROPE

CIA/RR PR-31

(ORR Project 10-51)

NOTICE

The data and conclusions contained in this report do not necessarily represent the final position of ORR and should be regarded as provisional only and subject to revision. Additional data or comments which may be available to the user are solicited.

CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

US OFFICIALS ONLY

~~CONFIDENTIAL~~

FOREWORD

The purpose of this report is to determine the major railroad lines in use between the western frontier of the USSR and the Iron Curtain and to establish their traffic capabilities. The report will attempt not only to show the railroad lines currently serving as sections of major east-west transport routes but also to show those railroad lines which seem likely to be used as sections of major and alternate military supply routes for east-west through traffic in the event of war.

Quantitative estimates in this report are based on the capabilities of the lowest capacity sections of the major railroad lines west of the transloading stations along the western frontier of the USSR.

The area under review comprises all of Eastern Europe, including Austria and Yugoslavia. Albania is not included, because its small railroad system is not connected to the other Satellite systems and can contribute nothing to Soviet continental transport requirements.

~~CONFIDENTIAL~~
~~S E C R E T~~

CONTENTS

Appendixes

~~S E C R E T~~
~~CONFIDENTIAL~~

Maps

CIA/RR PR-31
(ORR Project 10-51.)

~~CONFIDENTIAL~~
SECURITY INFORMATION

RAILROAD TRANSPORT CAPABILITIES BETWEEN THE SOVIET FRONTIER AND WESTERN EUROPE*

Summary

The 12 railroad through routes which cross Eastern Europe between the Soviet frontier and Western Europe have proved adequate, with few exceptions, for all requirements placed on them since they have passed under Soviet control, and they possess a great potential for expansion.

Whether these routes would be equal to the demands of Soviet military operations in Western Europe cannot be estimated. In weighing the estimated traffic capability of these routes against any estimate of requirements, it should be borne in mind that the logistical requirements of the Soviet Bloc for such operations would not be restricted to goods originating in the USSR, since the requirements would in part be met by Satellite sources of supply.

The maximum sustained traffic capacity of these routes -- the level of traffic that can be supported indefinitely -- is estimated at 250 trains each way per day (TEWPD), carrying 225,000 tons** each way per day.***

The maximum short-term traffic capacity of these routes -- the highest level of traffic that can be supported for approximately 30 days -- is estimated at 287 TEWPD, carrying 258,300 tons each way per day.

A maximum emergency capacity is believed to exist whereby these routes can move about 936 trains per day, in one direction only, carrying 505,200 tons of freight across the area. Such a movement would be possible only with considerable advance preparation and is limited to a maximum total of about 1,000 trains.

* This report contains information available as of 1 January 1953.

** Tonnage capacities are given in net metric tons throughout this report.

*** The estimates of railroad capacities contained in this report are believed to be correct within a 25-percent margin of error.

~~CONFIDENTIAL~~

The capacity of transloading stations along the Soviet frontier, through which freight is transferred from the European standard-gauge railroad lines to the Soviet broad-gauge lines, at present limits the maximum sustained traffic capacity for movements crossing the Soviet frontier to only 205 TEWPD, or 184,500 tons per day in each direction -- 72 percent of the total maximum short-term traffic capacity of the existing Satellite railroad network. The existing transloading facilities can be expanded without undue difficulty; and because the transloading capacity can be readily expanded, transloading is not considered to affect seriously east-west traffic capacity.

Expansion of facilities, both planned and already under way, is expected to elevate the maximum short-term traffic capacity by 1955 to approximately 388 TEWPD, carrying 349,200 tons each way per day.

I. History of Railroad Transportation in Eastern Europe.

Railroads originally were introduced into Eastern Europe chiefly for military rather than economic utility. The first railroads were built not to bind Eastern Europe together but rather as defense measures which resulted in its division into separate areas. The frontiers of four great empires lay across Eastern Europe in the nineteenth century, and the newly developed steam trains were well suited to deliver the increasing weights of military supplies needed at border garrisons. Austria, lying between Russia, Prussia, and the Ottoman Empire, became the greatest railroad builder in Eastern Europe. Tsarist Russia did little to further the economic growth of its border lands. Consequently, the railroads in Bessarabia and in the Grand Duchy of Warsaw were chiefly of military importance and were not well developed. The sparsest railroad system in Eastern Europe is in that part of Poland which was taken over from Russia following World War I.

The railroads of several Eastern European states were developed under more than one governing authority. The poor articulation of the railroad systems inherited by Yugoslavia, Rumania, and Poland in 1919 can be attributed as much to the "tides of empire" as to the dictates of geography. Yugoslavia, for example, inherited parts of five different railroad systems when the country was formed.

During the past 30 years, however, there has been considerable railroad development, and few traces of the imperial pattern are now visible in the Satellite railroad network, except in Poland, where the old Russo-German frontier is as clearly visible in the railroad network as if it were marked by a line on a map. The railroad network in Silesia and Pomerania is uniformly dense up to the frontier line of the old Grand Duchy of Warsaw. Immediately east of this line the network is extremely and uniformly sparse.*

II. Administration and Operation.

1. Administration.

When the Satellite railroads came under Soviet control in 1945, they were particularly ill-suited to meet the long-term strategic and economic needs of the USSR in Eastern Europe. Administration and control were greatly complicated by the multiple ownership of the railroads. There were eight separate state-owned railroad systems and scores of private lines to be dealt with in controlling a combined system totaling less than 100,000 kilometers.

The several difficulties inherent in multiple ownership have been solved for the USSR in different ways. All the private railroads in the European Satellite countries were nationalized by 1949, leaving only the eight state-owned railroad systems to be controlled. The general control of transport ministries, which Communist political domination of all Satellite cabinets had given the USSR, was too indirect and unwieldy -- sometimes too unreliable -- to be satisfactory. To install Soviet personnel at all levels of the eight state-owned railroad systems would have been impossible for several reasons, including lack of trained manpower.

A short cut to efficient and complete Soviet control was found in the relationship which existed between the military and the state railroads in every Satellite country except East Germany. The organization in Czechoslovakia is typical. The best railroad brains of the Czechoslovak Ministry of Transportation are reported to have been in the Fourth Bureau of the General Staff of the Czechoslovak Army. Through this bureau and through Czechoslovak Army representatives in the Ministry of Transport, the Czechoslovak Army controls all railroad planning, operations, and information. The Ministry of Transport

* See the map, Railroads of Eastern Europe -- 1952 (North Sheet and South Sheet), following p. 41.

serves chiefly for administration and management. It has always met all military requests immediately. A large group of Soviet Army officers is working on the Czechoslovak General Staff, and some are in the Fourth Bureau. Through the channels of the Fourth Bureau, their demands can be quickly and easily satisfied. 1/* One reason why the USSR has refrained from putting large numbers of Soviet personnel into operational positions in the Czechoslovak railroads is that it is realized that hundreds of Czechoslovak officials would be offended. 2/

Also in Hungary and Poland, Soviet Army officers are in operational positions necessary to support the military lines of communication from Vienna and Berlin to the USSR. Because East Germany has no established military force through which to work, the USSR controls the East German Reichsbahn (State Railroad) through its economic commission as well as through direct military supervision.

2. Operation.

Between World Wars I and II, railroad operation in Eastern Europe was neither intensive nor efficient. Traffic was not heavy, rolling stock was adequate, and turn-round time (the elapsed time between one loading and the next loading of a car) was unhurried. Equipment was primitive: few cars had air brakes, automatic couplings, or roller bearings. Block signals were used on few lines, and centralized traffic control was used only in the great terminals.

Railroad traffic was then largely made up of domestic movements in support of the several internal economies and the exchange with Central and Western Europe of raw materials for finished products. Less than 5 percent of the commerce of Eastern Europe was with the USSR. Consequently, few railroad lines leading into the USSR were developed.

The layout of the total railroad network, although satisfactory for westward traffic toward Central Europe, was poorly orientated for the new eastward and northeastward traffic pattern imposed on the area by the USSR. Topographical factors, such as the Carpathian mountain range, would have made any basic reorientation of the over-all network extremely difficult and expensive. Serious congestion points in the network, where lines converged on the great cities, caused many dangers and inconveniences.

* Footnote references in arabic numerals are to sources listed in Appendix D.

The physical condition of the railroads alone created a serious problem throughout the Soviet Bloc. During World War II, all the systems suffered greatly from lack of maintenance and from abusive overuse in addition to the enormous war destruction which had, by 1945, brought nearly all railroad operations in the area to a complete standstill.

During the past 5 years the Satellite railroads have been restored to good physical condition, and much has been done to overcome their shortcomings. By 1949, nearly all the lines, bridges, and workshops which were destroyed in the war were restored to service, and rolling stock inventories were largely restored to prewar levels, mainly by intensified workshop activity, although there has also been new production. The railroad network has been altered extensively to meet present requirements: hundreds of kilometers of new lines have been laid in order to provide better connections to the east, and bypasses have been built, not only around the great cities but also around many secondary congestion points. New lines which have been laid include the following:

a. Tomaszow Mazowiecki -- Radom, in Poland.
b. Vac -- Hatvan, in Hungary.
c. Craiova -- Caracal -- Bucharest, in Rumania.
d. Tecuci -- Faurei -- Bucharest, in Rumania.
e. Sofia -- Karlovo, in Bulgaria.

There have been technical difficulties with the Satellite railroads, however, which have been harder to correct. These difficulties derive largely from multiple ownership. The wide variety of types of equipment in use and the numerous working methods employed have greatly complicated all operations, particularly maintenance and replacement. Workshop procedures and dispatching practices vary. Brake systems, signal equipment, and types of rolling stock differ widely in each of the Satellites. In 1947, 140 different types of locomotives were reported in the railroad inventory in Poland alone.

Considerable technical unification has been effected across the whole area, without altering the framework of the various national railroad systems. The diversity of the Polish locomotive park, for instance, is being reduced to the three standarized types currently in production in Poland. This trend toward standardization has been reported in Hungary and Rumania as well, and at least some

cross-standardization of rolling stock, air brakes, couplings, and signal equipment has been achieved throughout the Soviet Bloc.

Operational procedures have been standardized gradually throughout the Soviet Bloc, chiefly by abandoning established patterns of work in favor of Soviet procedures. Every Satellite country has sent delegations of railroad technicians to the USSR for training courses, and Soviet commissions have toured each Satellite railroad system in the interest of coordination. The imposition of Soviet methods on Satellite railroads, which has been going on for about 5 years, is not concluded. As late as April 1952 it was reported that the application of Soviet methods throughout the Czechoslovak railroads was being pushed by Transport Commissioner Gireth and by the General Board of Directors of State Railroads in Prague, who together control actual operations. 3/

Certain economies have been gained by the adoption of Soviet workshop procedures, whereby scores of operations, formerly needed to inspect and service a locomotive, were reduced to 18 routine operations. This regimentation into one pattern of such diverse railroad systems as the East German and Bulgarian systems cannot have been achieved without serious dislocations. Nevertheless, the reorganization has yielded many economies, cemented Soviet control, and considerably strengthened the entire Soviet Bloc railroad system.

The best measure of the success of Sovietization is reflected in the figures showing the increasing volume of traffic carried. In 1951 the Satellite railroads produced approximately 90 billion ton-kilometers of freight traffic, 4/ which was approximately 60 percent above the 1938 level of about 55 billion ton-kilometers. 5/ This increased freight traffic apparently was achieved with approximately the same amount of physical equipment and manpower and was made possible by increased efficiency at every level of railroad operations and by greatly intensified utilization of all equipment and labor. Workers' productivity was increased by the introduction of several types of competition. The Stakhanovite system has continually elevated the work-load norms.

Similar intensification of output is going on in other fields of the Satellite economies. For example, bauxite production in Hungary has increased yearly from 340,000 tons in 1947 to 500,000 tons in 1948, 530,000 tons in 1949, and 800,000 tons in 1950. Production

for 1952 was planned at 1.2 million tons. 6/ Such increases in industrial activity result not only in yearly increases in requirements for railroad freight transportation but also in the production of input items required for increasing railroad capabilities. There is every indication that the Satellite railroads will continue to increase their capabilities and that, if allocations are kept in balance, railroad capabilities can be maintained at any level required by industrial expansion.

III. Railroad System of Eastern Europe.

The combined railroad system of Eastern Europe has no prevailing over-all pattern. The major railroad lines do not form a clearly defined network, and there is neither north-south nor east-west polarity noticeable in the total network. There are, however, several small patterns: the grid of Bulgaria, the crescent of Rumania, the northwest-southeast axis of Yugoslavia, and the radial spokes of Hungary.

The over-all railroad network well reflects the geography of the area: lines which skirt the mountain formations and follow river valleys are prominent. The political structure of Eastern Europe is also reflected in the network, the most outstanding features of which are the webs which radiate from the capital cities -- Berlin, Warsaw, Prague, Vienna, and Budapest.

The economic life of the area accounts for other railroad centers, such as Wroclaw, Katowice, Ostrava, Bratislava, Brasov, and Ploesti, where heavy industry and commerce have developed focal points in the network. These webs and focal points are united by several main connecting lines and crosslines, and together these form the basic railroad system of Eastern Europe. To this basic system, many secondary connecting lines and crosslines have been added, giving the total network, particularly west of the 20th meridian, considerable density and many alternate routing possibilities.

Within the over-all network of railroad lines in Eastern Europe, this report is concerned with three main patterns: (1) those 11 lines, regardless of location, which are now most important to the Satellite area; (2) the existing east-west through routes, formed by combinations of local or area lines, which now connect the Soviet frontier with the Iron Curtain; and (3) the potential east-west through routes across the Satellite area as they may be expected to be by 1955. For

convenience, these three patterns are identified as follows: basic network -- Pattern A; existing east-west through routes -- Pattern B; and potential east-west through routes -- Pattern C.

1. Basic Network -- Pattern A.

Within the total network the 11 railroad lines which form the basic network, Pattern A, and which are currently most important for binding the Satellite area together and for the volume of traffic hauled are listed in Table 1.*

It is significant that, although these are the most important railroad lines in Eastern Europe, only four of these lines can be properly regarded as parts of east-west through routes: namely, Lines 1, 2, 3, and 6.

2. Existing East-West Through Routes -- Pattern B.

Pattern B represents the east-west through routes which can be formed by currently available railroad lines. These routes are listed in detail in Table 2** and are shown on the accompanying map, Eastern Europe: Principal East-West Railroad Through Routes -- 1952.***

a. Principal Lines.

Nineteen railroad lines enter the Satellite area from the east, and about 30 lines cross the Iron Curtain from the west. The difference is largely because of the fact that nearly twice as many lines enter East Germany from Western Europe as enter Poland from the USSR. Not all these frontier crossings, however, have east-west through connections. There are only 12 routes -- continuous connections from east to west across the Satellite area -- and 4 of these are secondary routes, currently carrying very little east-west through traffic.

Routes X and XI, which do not lead to the frontiers of the USSR, have been included because they lead to Soviet-dominated Black Sea ports, each of which can deliver freight in volumes comparable to the average overland transloading stations.

* Table 1 follows on p. 9.
** Table 2 follows on p. 11.
*** Following p. 12.

Approved For Release 1999/09/02 : CIA-RDP79-01093A000300140003-8

Table 1

The Basic Railroad Network in Eastern Europe
Pattern A
1952

Line	Alignment	Principal Freight Shipments
1	Berlin -- Frankfurt/Oder -- Warsaw -- Brest	Shipments of German reparations to the USSR, including raw pig iron. 7/
2	Cottbus -- Wroclaw -- Katowice	Polish coal to East Germany. German machinery and finished goods to Poland.
3 a/*	Katowice -- Przemysl -- L'vov	Polish coal to the USSR. Soviet ores and materials to Polish Silesia.
4	Szczecin -- Poznan -- Katowice --	Czechoslovak and Polish traffic with the Baltic.
5	Vienna -- Ostrava -- Katowice -- Bydgoszcz -- Gdynia	Polish coal and some Czechoslovak exports to Gdynia port. Swedish iron ore to Polish Silesia and Czechoslovakia.
6	Vienna -- Gyor -- Budapest -- Debrecen -- Zahony	Soviet military traffic. Austrian and Hungarian reparations to the USSR.

* Footnotes for Table 1 follow on p. 10.

Table 1

The Basic Railroad Network in Eastern Europe
Pattern A
1952
(Continued)

Line	Alignment	Principal Freight Shipments
7	Vienna -- Kolin -- Bad Schandau b/-- Dresden -- Berlin -- Stralsund	Czechoslovak and German shipments to the USSR via the Baltic. Austrian petroleum products to the Soviet Baltic Sea fleet. Uranium ore from the Aue area to the USSR via Berlin and Brest.
8	Budapest -- Oradea -- Ploesti -- Galati	General military traffic between the lower and middle Danube valleys, including petroleum products from the Ploesti oil fields.
9	Timisoara -- Turnu-Severin -- Bucharest -- Constanta	Same as Line 8, plus heavy industry production from the Recita area of Rumania to Bucharest and to the USSR.
10 b/	Budapest -- Subotica -- Belgrade -- Thessaloniki	Domestic traffic in Hungary and Yugoslavia. Little used, since the Tito schism, for international traffic.
11 c/	Ljubljana -- Zagreb -- Belgrade -- Sofia	A major avenue for domestic traffic in Yugoslavia and Bulgaria. Little used, since the Tito schism, for international traffic.

a. An eastward continuation of Line 2.
b. Bad Schandau is the frontier point for all East German traffic with the Balkans.
c. Formerly a major line for traffic between the northern and the southern Satellites and between the Baltic and Aegean seas.
d. The old Simplon Orient Express line, connecting Western Europe with Istanbul.

Approved For Release 1999/09/02 : CIA-RDP79-01093A000300140003-8

Table 2

Existing East-West Railroad Through Routes in Eastern Europe
Pattern B
1952

Route	Alignment
I a/*	Luebeck -- Bad Kleinen -- Guestrow -- Pasewalk -- Szczecin -- Runowo -- Chojnice -- Tczew -- Elblag -- Braniewo -- Kaliningrad
II	Oebisfelde -- Stendal -- Rathenow -- Berlin (Spandau) b/-- Berlin (Inner Freight Ring) -- Werbig -- Kostrzyn -- Pila -- Torun -- Ilawa -- Korsze -- Zheleznodorozhnyy -- Chernyakhovsk
III	Helmstedt -- Magdeburg -- Potsdam -- Berlin (Southern Outer Freight Ring) -- Frankfurt/Oder -- Zbaszynek -- Poznan -- Kutno -- Lowicz -- Warsaw -- Siedlce -- Lukow -- Brest
IV	Ellrich -- Nordhausen -- Halle -- Falkenberg -- Cottbus -- Guben -- Glogow -- Leszno -- Lodz -- Koluszki -- Tomaszow Mazowiecki -- Radom -- Deblin -- Lublin -- Rejowiec -- Chelm -- Yagodin -- Kovel'
V	Bebra -- Eisenach -- Leipzig -- Ruhland -- Horka -- Wroclaw -- Opole -- Katowice -- Krakow -- Przeworsk -- Przemysl -- L'vov
VI	Cheb -- Prague -- Poricany -- Kolin -- Pardubice -- Prerov -- Hranice -- Horni Lidec -- Zilina -- Liptovsky Sv. Mikulas -- Margecany -- Kysak -- Kosice -- Michal'any -- Slov. N. Mesto -- Cerna -- Chop
VII	Fuerth -- Ceske Budejovice -- Gmuend -- Vienna -- Bratislava -- Szob -- Vac -- Aszod -- Miskolc -- Szerencs -- Nyiregyhaza -- Zahony -- Chop -- Mukachevo
VIII	Linz -- St. Poelten -- Vienna -- Gyor -- Budapest -- Ujszasz -- Szolnok -- Szajol -- Puspokladany -- Debrecen -- Nyiregyhaza -- Zahony -- Chop -- Mukachevo

* Footnotes for Table 2 follow on p. 12.

Table 2

Existing East-West Railroad Through Routes in Eastern Europe
Pattern B
1952
(Continued)

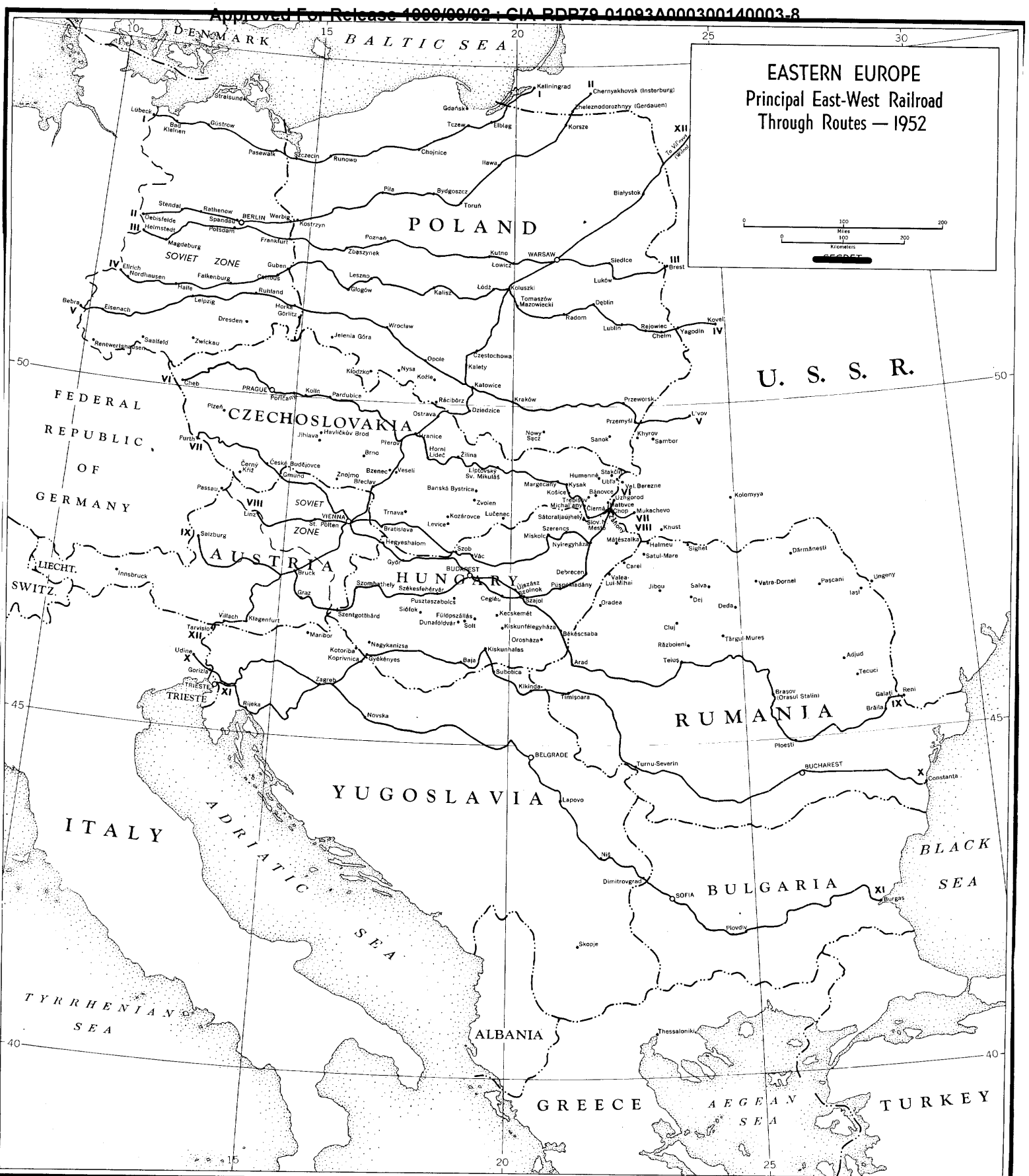
Route	Alignment
IX	Salzburg -- Bruck -- Graz -- Szentgotthard -- Szombathely -- Szekesfehervar -- Budapest -- Cegled -- Szolnok -- Szajol -- Bekescsaba -- Arad -- Teius -- Brasov -- Ploesti -- Reni
X a/	Udine -- Gorizia -- Zagreb -- Koprivnica -- Gyekenyes -- Baja -- Kiskunhalas -- Subotica -- Kikinda -- Timisoara -- Turnu-Severin -- Bucharest -- Constanta
XI a/	Trieste -- Zagreb -- Novska -- Belgrade -- Lapovo -- Nis -- Sofia -- Plovdiv -- Burgas
XII a/	Tarvisio -- Klagenfurt -- Vienna -- Prerov -- Dziedzice -- Zebrzydowice -- Katowice -- Czestochowa -- Warsaw -- Bialystok -- Vil'nyus

a. Route of secondary importance.
b. Spandau is a suburb of Berlin.

Because of its oblique axis, Route XII seems to be a route unlikely to be much used for traffic across the Satellite area. It is included because it is capable of carrying a large amount of traffic, because it has virtually no overlapping,* and because several of its sections are known to be important to intra-Soviet Bloc traffic.

This selection of routes is admittedly an oversimplification of a complex pattern. Omitted from the map of Pattern B are the bifurcations (branching lines), the alternate line sections (line sections

* Throughout this report, overlapping refers to the inclusion of any one section of a railroad line in more than one of the routes discussed.



which provide roughly parallel connections between two points), and the cross-connections. These would complicate the map without appreciably improving the knowledge of over-all east-west capacities. Two criteria were used, wherever possible, in selecting the routes: (1) that they be independent of each other, with as little overlapping as possible, and (2) that they reflect the actual east-west routing practices of the area rather than what might appear from the map to be the most direct routes.

b. Bifurcations.

Eight of the 10 routes which lead to the Soviet frontier are bifurcated east of the 20th meridian, permitting traffic to enter the USSR at not 9 or 10, but at 17, border crossing points. Route XI is bifurcated three times, and westbound traffic which enters Central Europe via Trieste can originate at two points now in Soviet hands, Varna and Burgas, or at two points now in Western hands, Istanbul and Thessaloniki. Four other bifurcations, west of the 15th meridian, permit traffic from the 12 basic routes to enter Central Europe over 16 different lines. The bifurcations give an unquestioned increase in routing elasticity, but they can have little effect on the total east-west traffic capacity as the network between the 15th and 20th meridians now stands.

These bifurcations are listed in Table 3* according to routes, forking points, and bifurcating lines.

c. Alternate Line Sections.

Alternate line sections which exist in several places serve both to increase capacity for local traffic and to provide emergency alternate through-route connections. Because east-west through traffic on all these alternate line sections must eventually return to the main lines of Pattern B, the alternate line sections increase the total east-west through traffic capacity very little. These alternate line sections are listed in Table 4.**

d. Cross-Connections.

A myriad of cross-connections made up of connecting lines and crosslines greatly increases the elasticity of the system. For instance, a considerable amount of eastbound traffic entering Poland on Route IV branches off, either at Koluszki to join Route III

* Table 3 follows on p. 14.
** Table 4 follows on p. 15.

Table 3

Bifurcations of Major East-West Railroad Through Routes in Eastern Europe

Route	Forking Point	Bifurcating Line
	Westward Bifurcations	
II	Berlin (Spandau)	Wittenberge -- Hamburg
II	Stendal	Salzwedel -- Bremen
IV	Nordhausen	Heiligenstadt -- Kassel
IX	Budapest	Nagykanizsa -- Maribor -- Villach -- Innsbruck
	Eastward Bifurcations	
II	Korsze	Bagrationovsk -- Kaliningrad
III	Siedlce	Kolonia Czeremcha
IV	Rejowiec	Zawada -- Rava Russkaya
V	Przemysl	Nizhankovitse -- Sambor
VI	Michal'any	Banovce -- Uzhgorod
VIII	Puspokladany	Episcopea Bihorului -- Sacueni -- Dej -- Darmanesti -- Iasi
VIII	Debrecen	Valea-Lui-Mihai -- Halmeu -- Khust -- Sighet -- Kolomyya
XI	Lapovo	Skopje -- Thessaloniki
XI	Sofia	Pleven -- Varna
XI	Plovdiv	Edirne -- Istanbul
XII	Bialystok	Krynki -- Minsk

at Warsaw 8/ or at Tomaszow Mazowiecki to join Route V at Przeworsk. 9/ The Kutno -- Torun -- Pila line connects Warsaw with Szczecin and permits interchange between Routes I, II, and III. The Zbaszynek --

Czerwiensk line gives a cross-connection between Routes III and IV. 10/ The Prague -- Plzen -- Domazlice line connects Routes VI and VII in the west, and the Szerencs -- Satoraljaujhely line connects them in the east. Routes VII and VIII are connected by the Nordbahn Bridge in Vienna and by the Vac -- Budapest line. Routes VIII and IX are connected by the line between Puspokladany and Oradea and share the short line section between Szolnok and Szajol. The Razboieni -- Teius line permits traffic between the eastern alternate line sections of Route IX, and the Arad -- Timisoara line connects Routes IX and X. There are many other cross-connections on which traffic moves freely between all the routes.

Table 4

Alternate Railroad Line Sections in Eastern Europe

Route	Alternate Line Section
I	Runowo -- Slupsk -- Gdynia -- Tczew
II	Bad Kleinen -- Rostock -- Stralsund -- Pasewalk
III	Siedlce -- Kolonia Czeremcha -- Brest
IV	Cottbus -- Forst -- Zagan -- Glogow
VI	Hranice -- Bohumin -- Zilina
VI	Prague -- Nymburk -- Kolin
VIII	St. Poelten -- Wiener Neustadt -- Gyor
IX	Budapest -- Kecskemet -- Szeged -- Arad
IX	Bekescsaba -- Oradea -- Cluj -- Deda -- Adjud -- Galati
XI	Zagreb -- Dugo Selo -- Novska
XII	Vienna -- Bratislava -- Zilina -- Zebrzydowie
XII	Dziedzice -- Tunel -- Radom -- Warsaw

e. Overlapping.

Overlapping (the use of a line section by more than one route) occurs on three of the routes. Routes VII and VIII overlap for 65 kilometers in Hungary, from Nyiregyhaza to Zahony, and for perhaps twice that distance inside the USSR. Routes VIII and IX

overlap for 12 kilometers between Szolnok and Szajol. This overlapping in Hungary is believed to cause little inconvenience to the dispatchers: the Nyiregyhaza -- Zahony line section is double-track, and both Route VII and Route VIII which feed into it are single-track. The Szolnok -- Szajol line section may be a potential strategic congestion point, but it is short, and its capacity is believed to be adequate for the maximum traffic requirements of both Route VIII and Route IX.

The city of Budapest is perhaps the worst congestion point in Hungary. Although completion of the double-track line from Vac to Aszod enables all the transit traffic of Route VII to bypass the city, Budapest remains a congestion point for east-west traffic. Routes VIII and IX must cross the Danube on the same bridge and share 20 kilometers of the metropolitan system, between the Kelenfold and Kobanya-Rakos stations, with fairly heavy local traffic. The reconstruction of the Ujpest Bridge in Budapest has been started. 11/ This bridge will completely separate Routes VIII and IX, leaving only the congestion which results from local traffic on the lines within the metropolitan area. Routes X and XI pass through northern Yugoslavia and have handled very little intra-Soviet Bloc traffic since the Tito schism in 1948.

3. Potential East-West Through Routes -- Pattern C.

Several factors have been omitted from the analysis that produced Pattern B, which represents only the network as of June 1952. Line development in all the Satellites, both planned and under construction as of June 1952, is expected to alter the railroad network so that, by 1955, Pattern B will no longer adequately represent the east-west traffic capabilities of the Satellite area. Three or four new routes are expected to be opened, and nearly all the present overlapping will be bypassed. The most important of the construction projects are listed in Table 8,* Appendix A, according to route, country, and line. The routes which form Pattern C, the potential through routes by 1955, are listed in detail in Table 5** and are shown on the accompanying map, Eastern Europe: Potential East-West Railroad Through Routes -- 1955.***

* P. 29, below.
** Table 5 follows on p. 18.
*** Following p. 20.

IV. Traffic Capacities of Pattern B and Pattern C.*

Many factors besides the availability of lines, track, and rolling stock govern the capacity of a railroad system to move freight from one place to another. These other factors include the speeds prevailing on each line; ruling gradients and minimum radii of curves; maximum permissible axle-loading pressures; types and amounts of signal equipment employed; and, for single-track lines, the frequency and lengths of passing sidings and of alternate lines. The lengths and weights of trains, their operating ranges, and the types of load which they haul also affect the capacity of the lines.

The necessary material is not available from which to make an accurate capacity estimate for each of the 64 line sections under review. Considerable evidence is available, however, on what the German and Soviet railroad authorities believe the Satellite railroad capabilities to be. It is this material on which most of the estimates in this report have been based.

Traffic capacity can be stated in three ways: (1) maximum sustained traffic capacity, (2) maximum short-term traffic capacity, and (3) maximum 24-hour emergency traffic capacity. Maximum sustained traffic capacity refers to the highest level of traffic that can be supported indefinitely. Maximum short-term traffic capacity refers to the highest level of traffic that can be supported for approximately 30 days. Maximum emergency traffic capacity refers to the highest level of traffic that can be supported for 24 hours in one direction only. Estimates for all three categories of traffic capacity for Pattern B are listed in Table 6.**

To convert number of trains per day to number of tons per day, 900 tons per train are allocated for sustained tonnage capacity and short-term tonnage capacity. Calculations are based on a train of 50 cars at a load of 18 tons per car.

These figures are selected arbitrarily because there is no such thing as a standard Eastern Europe freight train. Trains usually run between 40 and 60 cars, and carloads vary between 15 and 20 tons.

---

* For the purposes of this report, capacity of a route refers to the capacity of that section of the railroad line which is able to carry the least volume of traffic and which thereby limits traffic on the entire line.

** Table 6 follows on p. 21.

Table 5

Potential East-West Railroad Through Routes in
Eastern Europe
Pattern C
1955

Route	Alignment
I	Luebeck -- Bad Kleinen -- Guestrow -- Pasewalk -- Szczecin -- Runowo -- Chojnice -- Tczew -- Elblag -- Kaliningrad
II	Oebisfelde -- Stendal -- Rathenow -- Berlin (Spandau) -- Berlin (Inner Freight Ring) -- Werbig -- Kostrzyn -- Pila -- Bydgoszcz -- Torun -- Ilawa -- Korsze -- Zheleznodorozhnyy -- Chernyakhovsk
III	Helmstedt -- Magdeburg -- Potsdam -- Berlin (Southern Outer Freight Ring) -- Frankfurt/Oder -- Zbaszynek -- Poznan -- Kutno -- Lowicz -- Warsaw -- Siedlce -- Lukow -- Brest
IV	Ellrich -- Nordhausen -- Halle -- Falkenberg -- Cottbus -- Guben -- Glogow -- Leszno -- Kalisz -- Lodz -- Koluszki -- Tomaszow Mazowiecki -- Radom -- Deblin Bypass -- Lublin -- Chelm -- Rejowiec -- Yagodin -- Kovel'
V	Bebra -- Eisenach -- Erfurt -- Leipzig -- Ruhland -- Horka -- Wroclaw -- Opole -- Katowice -- Krakow -- Przeworsk -- Przemysl -- L'vov
V-A	Rentwertshausen -- Saalfeld -- Zwickau -- Dresden -- Goerlitz -- Jelenia Gora -- Klodzko -- Nysa -- Kozle -- Nedza -- Dziedzice -- Nowy Sacz -- Nowy Zagorz -- Chyrow -- Sambor
VI	Cheb -- Prague -- Poricany -- Kolin -- Pardubice -- Prerov -- Hranice -- Horni Lidec -- Zilina -- Liptovsky Sv. Mikulas -- Margecany -- Kysak -- Kosice -- Trebisov -- Banovce -- Matovce Cepel -- Uzhgorod
VI-A	Fuerth -- Plzen -- Prague Bypass -- Havlickuv Brod -- Brno -- Kyjov -- Veseli -- Kozarovce -- Zvolen -- Banska Bystrica --

Table 5

Potential East-West Railroad Through Routes in
Eastern Europe
Pattern C
1955
(Continued)

Route	Alignment
VI-A (Cont'd)	Margecany -- Kysak -- Humenne -- Stakcin -- Ubl'a -- Vel. Berezne
VI-B	Passau -- Haidmuehle -- Ceske Budejovce -- Jihlava -- Breclav -- Trnava -- Levice -- Lucenec -- Miskolc -- Szerencs -- Nyiregyhaza -- Mateszalka -- Carei -- Jibou -- Dej -- Salva -- Darmanesti -- Pascani -- Iasi -- Ungeny
VII	Fuerth -- Ceske Budejovice -- Gmuend -- Vienna -- Bratislava -- Szob -- Vac -- Miskolc -- Szerencs -- Satoraljaujhely -- Cerna -- Chop -- Mukachevo
VIII	Linz -- St. Poelten -- Vienna -- Hegyeshalom -- Gyor -- Budapest -- Ujszasz -- Szolnok -- Szajol -- Puspokladany -- Debrecen -- Valea-Lui-Mihai -- Carei -- Satul Mare -- Halmeu -- Khust -- Sighet -- Kolomyya
IX	Salzburg -- Bruck -- Graz -- Szentgotthard -- Szombathely -- Szekesfehervar -- Budapest -- Cegled -- Szolnok -- Szajol -- Bekescsaba -- Arad -- Brasov -- Ploesti -- Braila -- Reni
IX-A	Innsbruck -- Villach -- Maribor -- Kotoriba -- Nagykanizsa -- Siofok -- Pusztaszabolcs -- Dunafoldvar -- Solt -- Fulopszallas -- Kecskemet -- Kiskunfelegyhaza -- Oroshaza -- Bekescsaba -- Oradea -- Cluj -- Razboieni -- Targul-Mures -- Deda -- Adjud -- Tecuci -- Reni
X	Udine -- Gorizia -- Zagreb -- Koprivnica -- Gyekenyes -- Baja -- Kiskunhalas -- Subotica -- Kikinda -- Timisoara -- Turnu-Severin -- Bucharest -- Constanta

Table 5

Potential East-West Railroad Through Routes in
Eastern Europe
Pattern C
1955
(Continued)

Route	Alignment
XI	Trieste -- Rijeka -- Zagreb -- Novska -- Belgrade -- Lapovo -- Nis -- Dimitrovgrad -- Sofia -- Plovdiv -- Burgas
XII	Tarvisio -- Villach -- Klagenfurt -- Vienna -- Prerov -- Dziedzice -- Katowice -- Kalety -- Czestochowa -- Koluszki -- Warsaw -- Bialystok -- Vil'nyus

Thus tonnage capacity varies between 600 and 1,200 tons. The average of 900 tons has been accepted for this report as a conservative average. Actually most through freights between East Germany and the USSR are believed to carry more than 1,000 tons. Only 60 percent of maximum tonnage capacity, or 540 tons per train, has been used for the estimate of maximum emergency tonnage capacity.

The figure of 900 tons for the maximum emergency tonnage capacity appears to be conservative. The Soviet-dominated Reichsbahn limits the net load of trains operating between West Germany and Berlin, via the Helmstedt -- Potsdam section of Route III, to 800 tons. 12/ This is believed, however, to be a synthetic restriction, because several spot checks have revealed that Soviet Bloc trains operating between Berlin and the USSR average 60 cars at 17 tons each, or 1,020 tons net load. The most common train load listed in German railroad operating timetables is 1,200 tons. Maximum train loads in Poland have been reported as 1,100 tons for Route II, 1,200 tons for Route III, and 1,050 tons for Route IV. 13/

The estimates given in Table 6 are believed to be correct within an estimated 25-percent margin of error. It is doubtful if the Soviet transportation authorities themselves have a really accurate estimate of the capacity of Pattern B, because the true maximum capacity of any railroad line is rarely ever discovered until the line functions

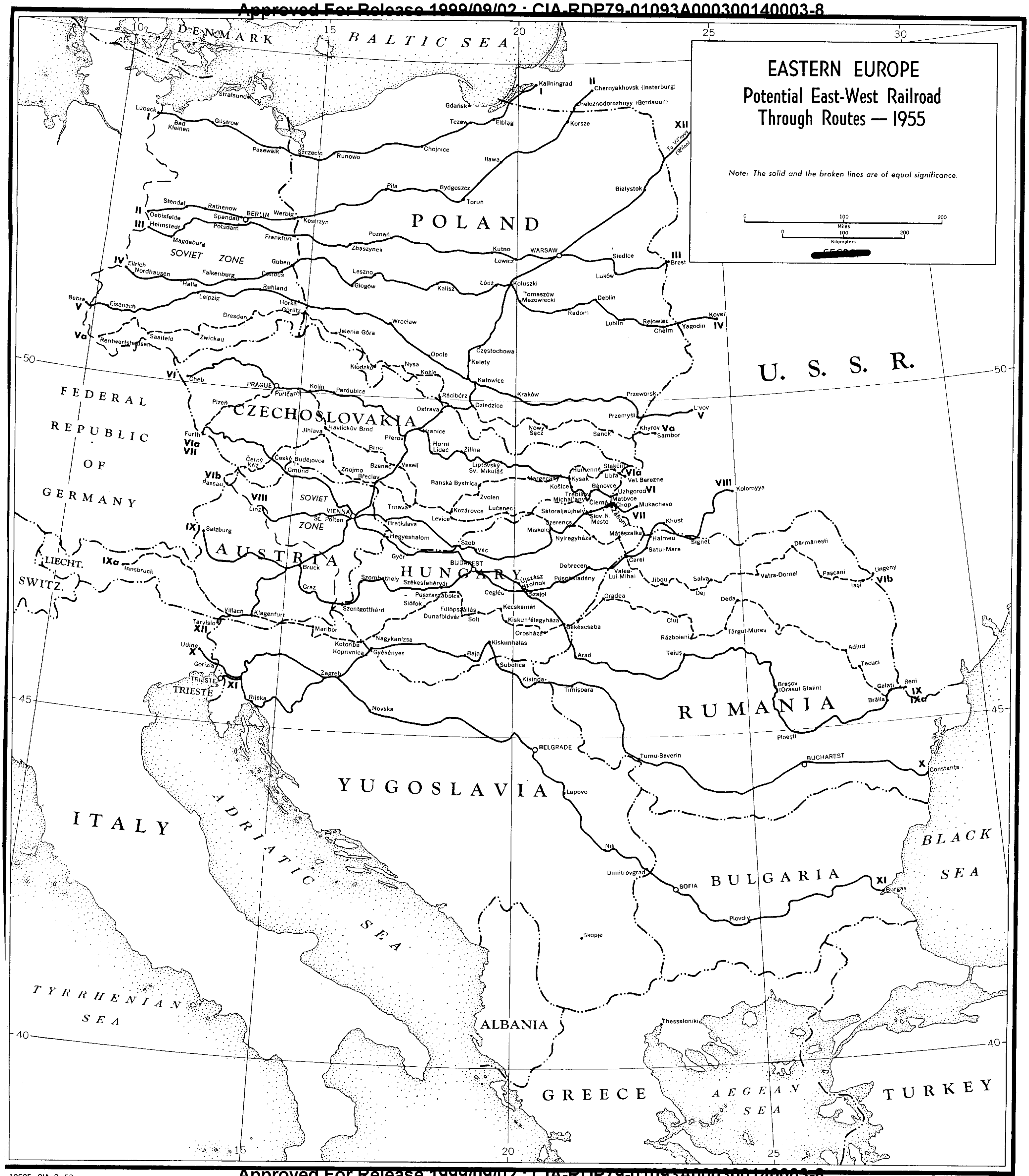


Table 6

Estimated Maximum Traffic Capacities
of Existing East-West Railroad Through Routes
in Eastern Europe
Pattern B
June 1952

Route	End Points	Maximum Traffic Capacities		
		Sustained (TEWPD)	Short-Term (TEWPD)	Emergency (Trains per Day in One Direction)
I	Luebeck -- Kaliningrad	24	24	84
II	Oebisfelde -- Chernyakhovsk	24	24	84
III	Helmstedt -- Brest	42	42	96
IV	Ellrich -- Kovel'	24	27	84
V	Bebra -- L'vov	26	30	96
VI	Cheb -- Chop	12	18	48
VII	Fuerth -- Mukachevo	16	20	84
VIII	Linz -- Mukachevo	16	20	84
IX	Salzburg -- Reni	20	24	84
X	Udine -- Constanta	14	18	84
XI	Trieste -- Burgas	12	16	60
XII	Tarvisio -- Vil'nyus	20	24	48
	Total	250	287	936

a. The derivation of these estimates is indicated in Appendix B.

under such extreme operating conditions as are imposed in wartime. Expansion of facilities goes on continually in normal railroads. In the Satellite area, it has been somewhat accelerated since World War II, permitting increases in traffic volume of from 60 to 100 percent above the 1946 levels. Expansion may be expected to continue to keep abreast of the increasing requirements projected under the several Five Year Plans. Reports of such expansion throughout the area are continually being received. Recently, increased signal facilities on the Berlin -- Frankfurt/Oder line have been reported.

The utilization of line capability for through traffic is limited by the requirements for local traffic. This local traffic pre-empts an important part of the total traffic capacity, varying frequently from

about 25 to 75 percent of total capacity 14/ even on short stretches of line. The actual effective east-west capability of Pattern B to move freight cannot, therefore, be determined accurately without a reasonably valid estimate of the minimum economic requirements of the entire Satellite area.

1. Pattern B.

The total maximum short-term traffic capacity of the existing east-west railroad through routes in the Satellite countries, as of June 1952, is estimated to be 287 TEWPD. At 900 tons per train, the total short-term tonnage capacity would be 258,300 tons each way per day. The maximum sustained traffic capacity is estimated at 250 TEWPD, and the maximum sustained tonnage capacity at 225,000 tons each way per day. An emergency traffic capacity of perhaps 936 trains in one direction, for 24 hours, is believed to exist.

Chief among the factors appearing to limit the present capacity of Pattern B has been the widespread postwar dismantling of second tracks in East Germany. Four of the five routes which cross Poland are double-track. Only one of these, Route III, continues into Germany with double tracks and does so only for the 82 kilometers from Frankfurt/Oder to Berlin. The other routes are single-track west of the Oder -- Neisse Line.

Although four routes must therefore be considered to have only single-track capacity, this limitation actually is not serious. Nine lines clear the five routes westward from the Polish frontier. Single-track line capacity is higher in East Germany than elsewhere in the Soviet Bloc, chiefly because the distances between passing sidings are shorter in the Soviet Zone. East German inland shipping takes a good percentage of traffic off the railroads. This fact affects the utilization of the capacity of Pattern B because much of the nonmilitary freight now moving from the USSR to East Germany crosses Poland via rail and, on entering Germany, is transshipped to inland waterways at the Oder -- Neisse frontier. 15/ Although this transfer does not increase the capacity of Pattern B, it relieves the Reichsbahn of considerable east-west freight traffic and certainly reduces the need for double-tracking East German railroads. It appears doubtful that the Pattern B lines in East Germany will be double-tracked in the next few years.

2. Pattern C.

The maximum short-term traffic capacity of Pattern C in 1955 could reach an estimated 388 TEWPD, if the amplification of facilities described in Appendix A is completed. At 900 tons per train, the total maximum short-term traffic capacity would be 349,200 tons each way per day. A tabulation of these figures is given in Table 7.*

V. Transloading Stations.

This report does not review in detail the problem of the difference in gauge of Soviet and Satellite railroads and the allied problem of transloading freight between cars of the different gauges. An earlier CIA report, which reviewed the history and techniques of transloading, derived a tentative capacity estimate for total traffic through all transloading stations on the western Soviet frontier. This estimate indicated a tonnage capacity of 184,500 tons per day in each direction. At 900 tons per train, this would total 205 TEWPD, 82 TEWPD less than the total maximum short-term traffic capacity of Pattern B, herein estimated to be 287 TEWPD.

Obviously, transloading stations impose a 28-percent limitation on east-west maximum short-term traffic capacity from the USSR to the Iron Curtain. Nevertheless, for the purposes of this report, which reviews only the capabilities of the Satellite railroads west of the belt of transloading stations, the estimate of 287 TEWPD must stand.

Any estimate of Soviet potential in Central Europe based on east-west maximum short-term traffic capacity of only 205 trains daily could lead to serious error. There are at least two reasons for this: (1) Soviet supply centers throughout Eastern Europe can dispatch the 73,000-ton difference between transloading capabilities and the capacity of Pattern B, and (2) transloading capabilities are elastic and can be expanded when the need arises. Existing stations can be enlarged, and new stations can be built.

Transloading has not been greatly mechanized. The chief requirements for expansion are manpower and rails, and there is no foreseeable lack of these to restrict the construction of needed transloading stations. Worn-out rails are satisfactory for this service, and annual replacement of rails in the Soviet Bloc greatly exceeds the total rail investment in all transloading stations.

* Table 7 follows on p. 24.

Table 7

Estimated Maximum Short-Term Traffic Capacity of
Selected East-West Railroad Through Routes
in Eastern Europe
Pattern C
1955

Route	End Points	Capacity (TEWPD)
I	Luebeck -- Kaliningrad	26
II	Oebisfelde -- Chernyakhovsk	26
III	Helmstedt -- Brest	44
IV	Ellrich -- Kovel'	30
V	Bebra -- L'vov	36
V-A	Rentwertshausen -- Sambor	18
VI	Cheb -- Uzhgorod	20
VI-A	Fuerth -- Vel. Berezne	18
VI-B	Passau -- Ungeny	12
VII	Fuerth -- Mukachevo	24
VIII	Linz -- Kolomyya	24
IX	Salzburg -- Reni	24
IX-A	Innsbruck -- Reni	12
X	Udine -- Constanta	24
XI	Trieste -- Burgas	18
XII	Tarvisio -- Vil'nyus	32
Total		388

There are now about 10 railroad lines across the Soviet frontier which have no transloading stations and which are not in use. These lines feed into Pattern B and have not been developed, because existing traffic does not require them. If more capacity is required, they can be opened, and transloading stations can be constructed.

This type of expansion is believed to be under development now in eastern Slovakia. In addition, there are many places where new yards can be developed along the double-track, dual-gauge (one Soviet-gauge track and one standard-gauge track) lines which cross the frontier in several places. This type of expansion has already been

partially developed in the Brest and L'vov areas. Because transloading capacity can be expanded by these two methods, transloading is not considered to affect seriously east-west traffic capacity.

Transloading stations are not highly vulnerable. They are too numerous; too dispersed and decentralized; too deep in enemy territory; and, particularly, too easily repaired to constitute a desirable target for aerial attack.

VI. Emergency Traffic Capacities.

There is some evidence that the Soviet Bloc can exceed and intends to exceed estimated maximum short-term traffic capacity levels on certain line sections for brief duration. The amount of traffic carried by the USSR during the war, according to technically competent German officials, reached astonishing levels for short periods of time. The volume of traffic was increased by increasing both the load per car and the density of trains. The introduction of four-axle freight cars gradually increased the average net weight of Soviet train loads from 600 to 1,800 tons.

The USSR also was able, at times, to increase traffic over all main lines supporting its western front to 1 train every 10 minutes in one direction, which represents a rate of 144 trains per day. Occasionally, trains were run in the same direction on both tracks of double-track lines, giving an emergency traffic capacity rate of somewhere between 200 and 290 trains daily. 16/

That the USSR believes it can extort such high-density performance from the entire Satellite system has been revealed several times. In May 1948 the Soviet transport authorities directed the Hungarian railroads to prepare Route VIII, from Hegyeshalom to Chop via Budapest, for a peak west-to-east traffic level of one train every 5 minutes in one direction only. The Hungarians replied that the greatest amount of traffic which could be expected from this route would be 5 trains per hour, a rate of 120 trains per day. 17/

In April 1951 the Soviet authorities ordered the East German railroads to study the feasibility of running trains from east to west simultaneously on both tracks of the double-track sections of Routes III and V and also the feasibility of operating 60 trains within a 6-hour period. Although this would be at the rate of 240

trains daily, the Reichsbahn is reported to have replied that both propositions are feasible. 18/ In June 1951 the following traffic capacities for the Reichsbahn were reported, on request, to the Soviet Economic Commission: 162, 178, and 164 trains daily -- not in one direction but in both directions -- for the Halle -- Leipzig, Halle -- Weissenfels, and Halle -- Berlin line sections, respectively. 19/ Reports have been received of the USSR's requesting other Satellite states to prepare for parallel one-way operation on both tracks of double-track lines, but the replies of the Satellites in question are not now known.

Whether the Satellites could establish parallel one-way operation on double-track lines, with traffic approaching a rate of 200 trains per line daily, does not affect this report, because none of the routes in Pattern B is completely double-tracked. It is possible, however, that the entire Pattern B could be prepared to support emergency traffic for a limited period of time. By employing the bifurcations and alternate sections, it appears probable that every route in Pattern B could be prepared to accommodate 4 trains per hour for 24 hours, or 96 trains for a 1-day period.

At this rate of 1 train every 15 minutes, Pattern B could transfer 1,152 trains from deep in the Satellite area to the western frontiers of the European Satellites in one gigantic operation. This estimate is not extravagant. It is at a rate 20 percent less than the 5-trains-per-hour rate that was acceptable to the Hungarian railroads in 1948. If, moreover, an additional safety factor of two extra minutes per train were allowed, the rate of dispatching would be reduced 13 percent -- to 1 train every 17 minutes. This would be only 70 percent of the rate acceptable to Hungary in 1948. This rate would call for 84 trains over each route in Pattern B, or a total of 1,008 trains in 24 hours.

Obviously, conditions on the 12 routes of Pattern B vary too greatly to permit a single formula to rule. This estimate can be adjusted by arbitrarily reducing the capacity for Route XI to 60 trains and Routes VI and XII to only 48 trains and by increasing with bifurcations the capacity for Routes III and V to 96 trains. These adjustments further reduce the total to 936 trains. (See Table 6*.)

* P. 21, above.

At 900 tons per train, deliveries theoretically would total 842,000 tons. Total loadings, however, would hardly exceed 505,200 tons, because it is estimated that only 60 percent of potential capacity can be handled under emergency conditions. Such a movement would take 3-1/2 to 4 days from the Soviet frontier to the Iron Curtain, but only 24 hours would be needed to clear any given point or line section.

The whole movement could not originate at the Soviet frontier without extraordinary preparations in advance, because transloading facilities cannot dispatch so many trains in 24 hours. Frontier loadings, however, would probably be augmented by shipments originating at military depots and concentration points deep in the Satellite area.

Preparation for such movements would be difficult, but if the USSR does impose occasional "fire-drill" exercises on the various Satellite systems, it can develop a potential for mass emergency through movements of hundreds of thousands of tons of freight per day. The problem of unloading and turning around so many trains would be enormous, but it is known that mobile loading ramps, suitable for unloading trains in open country, are stored at many stations throughout the Satellite area. The density of the network, particularly in East Germany, where there are approximately 1,000 stations west of Berlin, would make it possible to park 1,000 trains for unloading in less than a day, provided the program were well planned in advance.

The potential ability to move 0.5 million tons of freight to the borders of Western Europe from 800 kilometers deep in the Satellite interior in less than 4 days could be of military utility. It is extremely unlikely that such a high-density operation will ever be put into effect, as it would be very expensive, and no need for such a drastic traffic movement can be visualized at this time. Nevertheless, the existence of this great potential capacity is assurance that the much lower levels estimated for maximum short-term and maximum sustained traffic capacities can be achieved.

VII. Capabilities, Vulnerabilities, and Intentions.

The railroads of Eastern Europe seem capable of meeting any probable requirements for traffic between the Soviet frontier and the Iron Curtain. The estimated maximum sustained capacity for traffic across the frontiers is 250 trains, or 225,000 tons, per day, sufficient to deliver, for example, 500 tons per military division daily

to 200 divisions and to have 125,000 tons left over for nonmilitary traffic. This is an optimum figure, much higher than existing 1952 traffic levels and somewhat higher than the highest level of traffic probable even under full wartime conditions. Although this calculation was based on the existing lines and equipment, the full capacity could not be achieved without some advance preparation.

Several factors limit railroad traffic in general and east-west traffic in particular. Much railroad equipment is badly worn. Overloading is encouraged, maintenance of equipment is neglected, and replacement of equipment is systematically delayed. The speeds of trains cannot be greatly increased until the general conditions of equipment is improved and until signal installations and passing tracks on many single-track lines are increased. Transloading capacity at the Soviet frontier is 72 percent of the maximum short-term capacity of Pattern B, thus limiting the maximum short-term capacity for movements crossing the Soviet frontier to 184,500 tons daily at the end of 1952.

These limitations, however, do not affect the ability of the railroads to meet existing requirements. Transloading capacity in general is being gradually expanded in step with the expanding productivity of the Satellite economies. Any serious limitations which may develop can be overcome whenever requirements justify the necessary investment in materials and manpower.

The railroads of Eastern Europe are too decentralized to present a highly vulnerable target either for aerial attack or for sabotage. The network is dense enough to permit rerouting around many blocked line sections at the same time. Locomotive repair facilities and transloading stations are not good targets, because they are too numerous and too widely dispersed.

Soviet intentions for Satellite railroads appear clear. The intensive utilization will continue, but the gradual expansion of facilities and the replacement of equipment begun after World War II are producing and will continue to produce a slow but steady improvement in the general condition of the railroad system.

APPENDIX A

CONSTRUCTION ON EAST-WEST RAILROAD THROUGH ROUTES PLANNED OR IN PROCESS IN THE EUROPEAN SATELLITE AREA
June 1952

Table 8

Route	Country	Alignment and Work Planned
II	Germany	The Rathenow -- Neustadt -- Loewenberg line is being brought up to first-class line capacity by increasing the weight of rails and the number of sidings. 20/
II	Germany	The Loewenberg -- Eberswalde new line is being built, in conjunction with the Rathenow -- Loewenberg line, to bypass Berlin via Werbig for through traffic on Route II.
III	Germany	The Southern Outer Freight Ring from the Wuhlheide station in Berlin to the Seddin station in Berlin is being double-tracked to give Route III a high-capacity bypass around the congested Berlin Inner Ring System. 21/
III	Poland	Completion of the Lowicz -- Skierniewice -- Lukow line, now under construction, will bypass the congested Warsaw junction and considerably increase the capacity of Routes III and XII. 22/
IV	Germany	The Falkenberg -- Cottbus -- Guben line is planned to be double-tracked, giving Route IV a double-track connection through the dense traffic area of Saxony. 23/
V-A	Germany	Reconstruction of the railroad bridge at Goerlitz 24/ will open the line from Rentwertshausen to L'vov via Zwickau -- Dresden -- Goerlitz -- Jelenia Gora -- Prudnik -- Kozle -- Nowy Sacz -- Sanok -- Sambor.

APPENDIX A

Table 8
(Continued)

Route	Country	Alignment and Work Planned
VI	Czechoslovakia	Construction now under way of bypasses around Prague, Pardubice, and Kolin and of triple track from Prague to Poricany will increase the total east-west capacity of Route VI by relieving the heavy local traffic in Bohemia.
VI	Czechoslovakia	Completion of the new transloading station at Mat'ovce will permit Route VI to be realigned east of Kosice, entering the USSR via Michal'any, Banovce, and Uzhgorod. This alignment leaves the existing transloading station of Cerna free for the realignment of Route VII.
VI-A	Czechoslovakia	Completion of construction on the Havlickuv Brod -- Slov. N. Mesto -- Brno line in Moravia, on the Prague Bypass line, and on the Humenne -- Ubl'a -- Vel. Berezne line and the strengthening under way on the Zvolen -- Margecany line in Slovakia will open a route from Fuerth via Plzen -- Havlickuv Brod -- Brno -- Trnava -- Zvolen -- Kysak into the USSR via the transloading station reported now under construction at Ubl'a. 25/
VI-B	Czechoslovakia	Completion of the Lucenec -- Levice line, now under construction in Slovakia, 26/ will give an alternate connection between Moravia and the Ukraine via the existing single-track line from Lucenec to Miskolc. Lines existing

APPENDIX A

Table 8
(Continued)

Route	Country	Alignment and Work Planned
VI-B	Czechoslovakia (Continued)	in Moravia afford independent connection to the Czechoslovakia-Germany border via Trnava -- Breclav -- Jihlava -- Ceske Budejovice and Haidmuehle -- Passau.
VI-B	Hungary Rumania	By overlapping on the Miskolc -- Nyiregyhaza line, this route can join the line that crosses Rumania through Dej to Iasi (the first bifurcation on Route VIII, Pattern B).
VII	Hungary	Completion of the second track between Miskolc and Satoraljaujhely will give the realigned Route VI a double-track connection from Gmuend to Chop via Miskolc, Satoraljaujhely, and Cerna. 27/
VIII	Hungary	Reconstruction of the Ujpest bridge in Budapest, now under way, will give Route VIII an independent Danube crossing and reduce the overlapping to only the 12-kilometer stretch between Szolnok and Szajol. 28/
IX	Hungary	The Szekesfehervar -- Budapest (Kelenfold) a/ line will be converted to a double-track line by 1954. 29/
IX-A	Hungary	Completion of the Dunafoldvar -- Solt -- Fulopszallas line, crossing the Danube over the new Dunafoldvar bridge, will connect Pusztaszabolcs on the

a. Kelenfold is a suburb of Budapest.

APPENDIX A

Table 8
(Continued)

Route	Country	Alignment and Work Planned
IX-A	Hungary (Continued)	western bifurcation of Route IX with Bekescsaba on the eastern bifurcation of the same route. This will give an additional east-west route for Pattern C, free of overlapping from Innsbruck to Barbosi. The 12-kilometer overlap with Route IX between Barbosi and Galati is not serious, because much westbound traffic on Route IX originates at the deepwater Danube port of Braila, west of Barbosi.
X	Hungary	Work now in progress on the Baja -- Bacsalmas -- Kiskunhalas line will elevate this weak link of Route X to a first-class line by 1957. 30/

APPENDIX B

METHODOLOGY

The two most important estimates in this report are for the maximum short-term traffic capacities and for the maximum sustained traffic capacities of the 12 selected east-west railroad through routes of Pattern B. The estimate of 287 TEWPD represents the sum of the maximum short-term capacities of the 12 routes in Pattern B. These estimates are based chiefly on a survey of available documentary evidence published by East German and Soviet authorities. These documents indicate what East German and Soviet transportation authorities seem to believe the Eastern European railroad capabilities to be. In order to arrive at the estimate for maximum sustained capacity, 250 TEWPD, the maximum capacity estimates for the 12 routes were arbitrarily adjusted downward to allow for failures which may result from protracted intensive operation.

This approach to the problem of estimating maximum short-term and maximum sustained capacities was necessitated by the lack of adequate, basic detailed data which would permit reliable capacity estimates for the 64 line sections cited in Pattern B, using the customary formulas involving train speeds and distances between signals.

The estimate of emergency capacity figure for Pattern B, 936 TEWPD, was based on reports of Satellite estimates of railroad capabilities. The detailed derivation of the maximum emergency capacities will be found in Section V of this report.

APPENDIX C

GAPS IN INTELLIGENCE

There are considerable areas for which sufficient information on which to base usable estimates is not available. In defining Pattern B, 64 line sections have been employed. Material has permitted estimates to be made for 43 of these line sections. Little or no information has been found on 21 of the line sections.

Although copious material is available for the East German railroad system, no really firm information on the Berlin -- Frankfurt/Oder line was found. Even less reliable information is available for the other Satellites. Confirming information is needed for the estimated capacities of the line sections listed in Table 9.*

The 22 line sections for which little or no information has been found are listed in Table 10.**

* Table 9 follows on p. 36.
** Table 10 follows on p. 36.

Table 9

Railroad Line Sections in Eastern Europe
for Which Traffic Capacity Information Is Desired

Route	Alignment
II	Berlin -- Frankfurt/Oder
II	Frankfurt/Oder -- Warsaw -- Brest
V	Wroclaw -- Katowice -- Przemysl
VI	Prague -- Prerov -- Zilina
VII	Bratislava -- Vac -- Miskolc
VIII	Hegyeshalom -- Budapest -- Debrecen -- Zahony

Table 10

Railroad Line Sections in Eastern Europe
for Which Little Traffic Capacity Information Was Found

Route	Alignment
IV	Koluszki -- Tomaszow Mazowiecki -- Radom
IV	Deblin -- Lublin -- Chelm -- Yagodin
VII	Fuerth -- Domazlice -- Gmuend
VII	Bratislava -- Szob
VII	Szob -- Vac -- Hatvan -- Miskolc
VII	Miskolc -- Nyiregyhaza
VII	Miskolc -- Satoraljaujhely
VIII	Hegyeshalom -- Gyor -- Budapest
VIII	Budapest -- Ujszasz
VIII and IX	Szolnok -- Szajol
VIII	Szajol -- Debrecen -- Nyiregyhaza
IX a/	Fehring -- Szombathely -- Budapest
IX	Budapest -- Cegled -- Szolnok
IX	Lokoshaza -- Arad -- Bucharest -- Galati
X	Zagreb -- Koprivnica -- Gyekenyes
X	Gyekenyes -- Kaposvar -- Kiskunhalas

a. Alternate line section.

Table 10

Railroad Line Sections in Eastern Europe
for Which Little Traffic Capacity Information Was Found
(Continued)

Route	Alignment
X	Kiskunhalas -- Timisoara
X	Bucharest -- Constanta
XI	Dimitrovgrad -- Sofia
XII	Venezia -- Udine -- Villach -- St. Veit

APPENDIX D

SOURCES AND EVALUATION OF SOURCES

1. Evaluation of Sources.

This report is based on hundreds of reports originating in all channels of procurement available to CIA. Although only a few reports earlier than 1950 are cited in this appendix, all available material since September 1948 has been read, much of which may be reflected in the background for the report without actually being cited in the text.

25X1X7

Reference is made to 29 intelligence reports. Of these, 21 were originated by CIA and 6 by the Army. The Department of State and a [redacted] furnished the other two reports.

These sources fall roughly into two classes. (a) Statements by technical or lay sources believed to be in a position to know, or to have access to persons who know. Coming at second or third hand from sources which cannot always be checked, these reports cannot be given the highest credibility. (b) Official documents of the German railroads prepared by Reichsbahn technicians for the use of Reichsbahn personnel in several operational capacities. These documents are related to railroad traffic planning and capacities. They are published in several forms: graphs, charts, maps, and statistical tables. These documents are too numerous, diverse, and verisimilar to be counterfeit.

Among these, the Buchfahrplan and the Fahrplanblatt documents are outstanding. The Buchfahrplan, a tabular operating timetable, is a notebook listing every train that may run in a given railroad section, including the times of arrival and departure at every station on the route, the standing time per station, the maximum gross and net weights of trains, maximum operating speeds, and the minimum braking power allowed. A Fahrplanblatt charts on one sheet all the information given in many pages of a Buchfahrplan, with one difference -- the graphic timetable charts much less traffic than the tabular timetable. It appears to chart actual traffic rather than traffic capacity.

The arrangement and content of these documents is convincing and plausible enough to lend them very high credibility. Some of them were accepted at face value, and others were slightly modified. It is largely on the basis of these high-credibility documents that this report has been prepared.

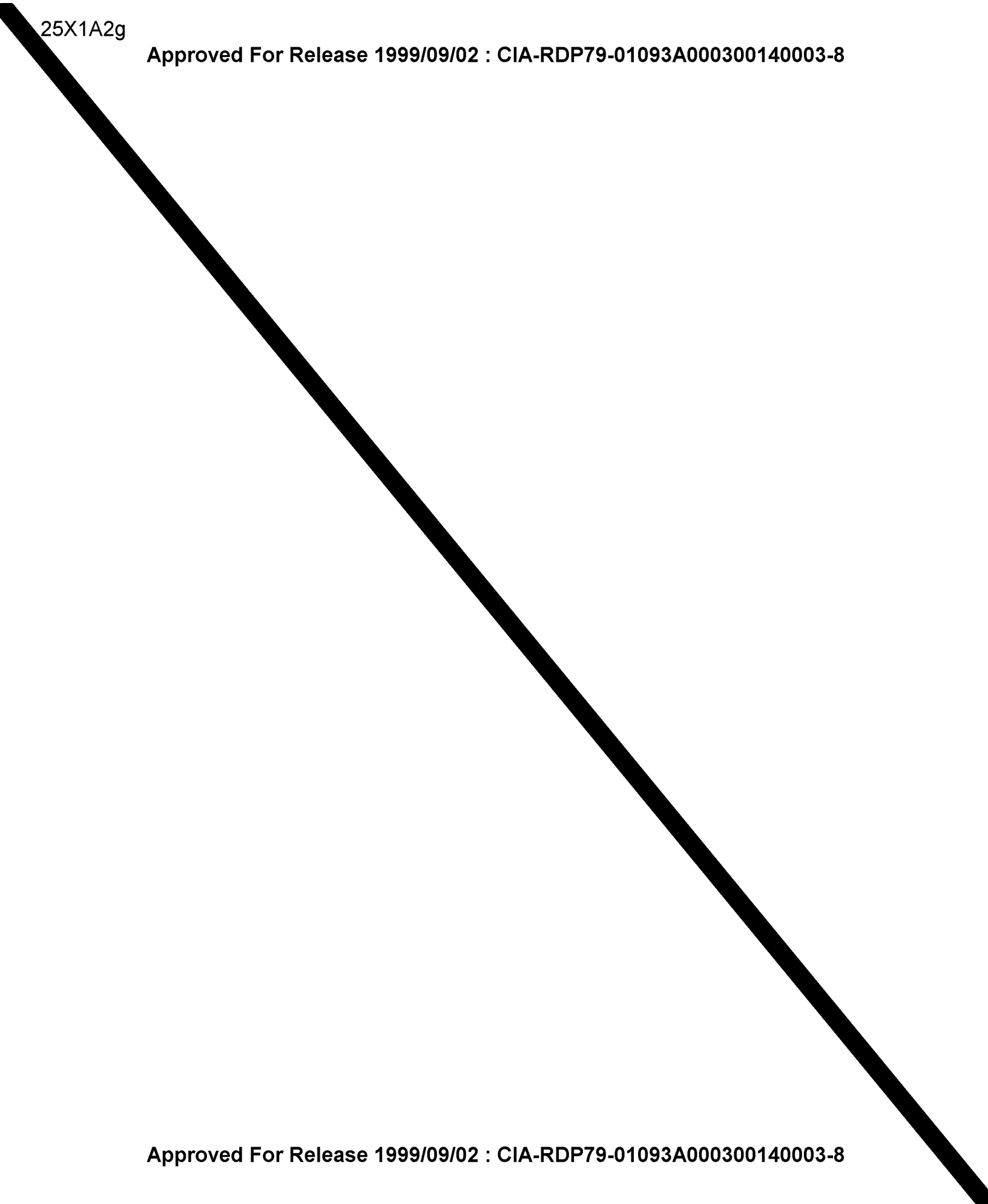
2. Sources.

Evaluations, following the classification entry and designated "Eval.," have the following significance:

Source of Information	Information
A - Completely reliable	1 - Confirmed by other sources
B - Usually reliable	2 - Probably true
C - Fairly reliable	3 - Possibly true
D - Not usually reliable	4 - Doubtful
E - Not reliable	5 - Probably false
F - Cannot be judged	6 - Cannot be judged

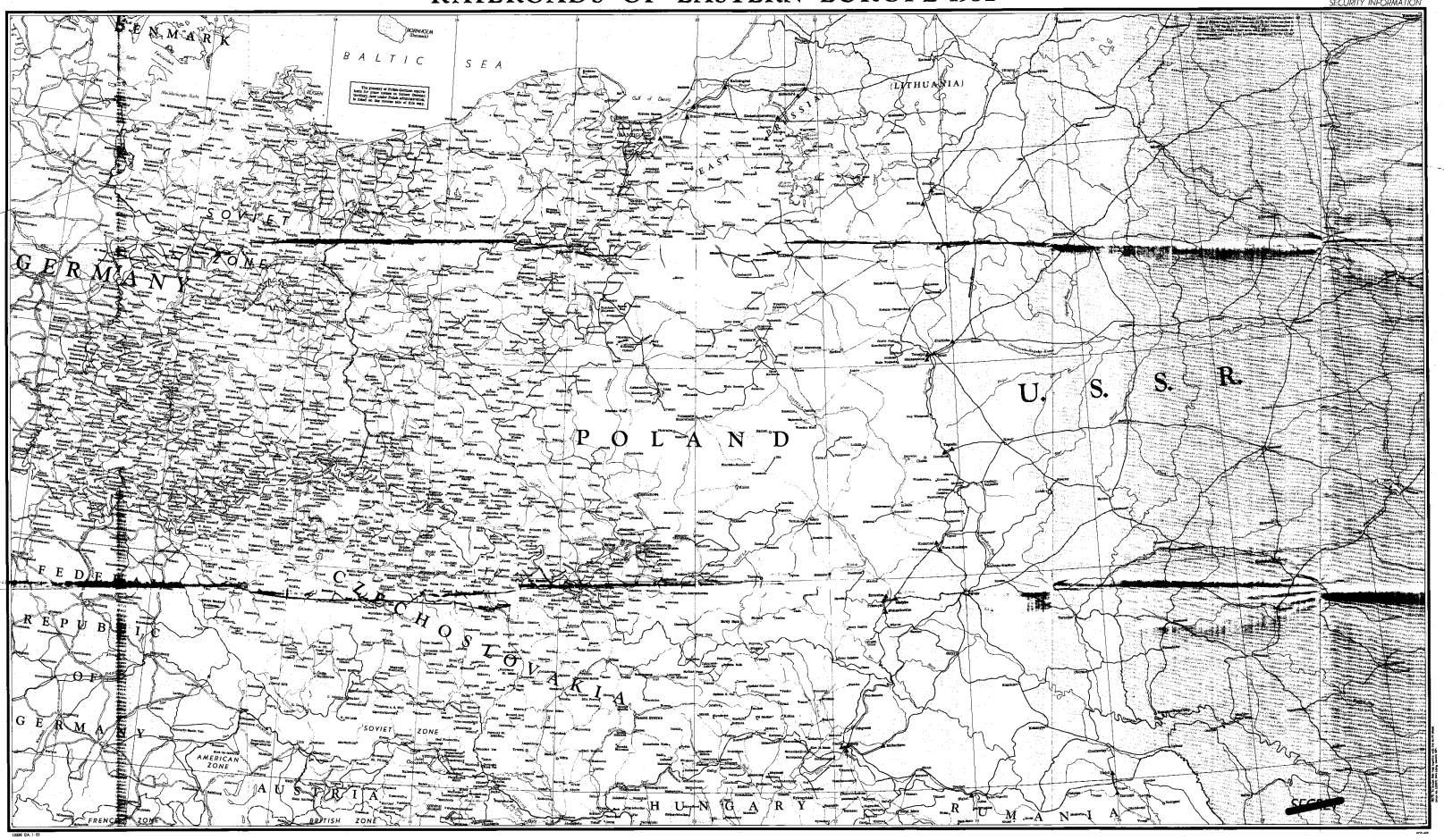
Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation of the cited document.

25X1A2g



Approved For Release 1999/09/02 : CIA-RDP79-01093A000300140003-8

RAILROADS OF EASTERN EUROPE-1952



1500 DA 1-53

NORTH SHEET

STANDARD-GAUGE STEAM (4'8½")

Double track
Double track, under construction
Double track, second track under construction
Double track dismantled
Double track, one track dismantled
Single track
Single track, under construction
Single track, dismantled or out of operation

STANDARD-GAUGE ELECTRIC (4'8½")

Double track
Double track (being converted from steam)
Single track

NOTE: Electrifying and construction of electric railroads are not indicated in the Soviet zone.

Railroad data as of June 1952.

NARROW-GAUGE

Single track, steam
Single track, steam, under construction
Single track, steam, dismantled or out of operation
Single track, electric

NOTE: Only the principal railroads are shown in the shaded areas.

BROAD-GAUGE (5'0")

Double track, steam
Single track, steam

Selected railroad station
Major marshalling area (standard gauge/broad gauge)
International boundary - 1952
Occupation Zone boundary - 1952
International boundary - 1937

Scale 1:3,600,000
(approximately 56 miles to an inch)

0 50 100 150 200
0 50 100 150 200
KILOMETERS

POLISH-GERMAN EQUIVALENTS FOR PLACE NAMES IN FORMER GERMAN TERRITORY

POLISH	GERMAN
Baborów	Bauerwitz
Barnowiec	Reinfeld Hammer
Białogard	Belgard
Bielawa	Langenbielau
Bielawa Dolna	Nieder Bielau
Bieniów	Benau
Bobolice	Bublitz
Boreczek	Wäldchen
Brzeg	Brieg
Brzózka	Dittersbach
Budowo	Budow
Bukowa Śląska	Buchelsdorf
Bytom	Beuthen
Bytów	Bütow
Cecenowo	Zezenow
Chocianów	Kotzenau
Chojnów	Haynau
Choszczno	Arnswalde
Chwarstnica	Klein Schönfeld
Ciepłowody	Lauenbrunn
Cigacice	Odereck
Cybinka	Ziebingen
Czaplinek	Tempelburg
Czernica	Grossbrück
Czerwieńsk	Rothenburg
Czerwona Woda	Rothwasser
Człuchów	Schlochau
Dąbie	Altdamm
Darłowo	Rügenwalde
Dob[illegible]	[illegible]
Dobrodzień	Guttentag
Dominek	Dominke
Drezdenko	Driesen
Dzierżoniów	Reichenbach in Schlesien
Garczegórze	Garzigar
Głazów	Glasow
Głęboka	Glambach
Gliwice	Gleiwitz
Głogów	Glogau
Głubczyce	Leobschütz
Głucholazy	Ziegenhals
Godków	Jädickendorf
Gogolin	Gogolin
Golczewo	Gülzow
Goleniów	Gollnow
Góra	Guhrau
Gorzów Wielkopolski	Landsberg an der Warthe
Gościno	Gross Jestin
Gozdnica	Freiwaldau
Grabowno Wielkie	Gross Graben
Grodków	Grottkau
Groszowice	Groschowitz
Gryfice	Greifenberg in Pommern
Gryfino	Greifenhagen
Gryfów Śląski	Greiffenberg in Schlesien
Grzmiąca	Gramenz
Henryków	Heinrichau
Jakuszyce	Jakobstal
Jankowa Żagańska	Hansdorf
Jasień	Gassen
Jastrowie	Jastrow
Jawor	Jauer
Jaworzyna Śląska	Königszelt
Jedlina-Zdrój	Bad Charlottenbrunn
Jelenia Góra	Hirschberg im Riesengebirge
Jełowa	Ilnau
Kalisz Pomorski	Kallies
Kamień-Pomorski	Cammin
Kamieniec	Kamenz
Kamienna Góra	Landeshut
Karlino	Körlin
Karnice	Karnitz
Karpacz	Krummhübel
Kedzierzyn	Heydebreck
Kietrz	Katscher
Kłodzko	Glatz
Kluczbork	Kreuzburg
Kobierzyce	Rösslingen
Kołobrzeg	Kolberg
Kolsko	Kolzig
Kondratowice	Kurtwitz
Konotop	Kontopp
Korzybie	Zollbrück
Kostrzyn	Küstrin
Koszalin	Köslin
Koźle	Cosel
Kożuchów	Freystadt
Kozy Pom.	Kashagen
Krosno Odrzańskie	Crossen
Krzelów	Krehlau
Krzyz	Kreuz
Kunowice	Kunersdorf
Lagiewniki	Heidersdorf
Łeba	Leba
Lębork	Lauenburg in Pommern
Legnica	Liegnitz
Leśna	Marklissa
Lipinka	Linderei
Lipowa	Deutsch Leippe
[illegible]	Lab[illegible]
Łoźnica	[illegible]
Lubań	Lauban
Lubawka	[illegible] in Schlesien
Lubiana	Alt Libbehne
Lubin	Lüben
Lubsko	Sommerfeld
Lwówek Śląski	Löwenberg in Schlesien
Malczyce	Maltsch
Manowo	Manow
Marciszów	Merzdorf
Maszewo	Massow
Miastko	Rummelsburg in Pommern
Międzyrzecz	Meseritz
Mieszewo	Meesow
Milicz	Militsch
Miłkowice	Arnsdorf
Miłoszyce	Fünfteichen
Mirsk	Friedeberg am Queis
Modła	Modlau
Mrzeżyno	Deep
Mysłakowice	Zillertal Erdmannsdorf
Myślibórz	Soldin
Namysłów	Namslau
Nędza	Buchenau
Niegosławice	Waltersdorf
Nowa Sól	Neusalz
Nowa Wieś Grodziska	Neudorf am Gröditzberg
Nowe Warpno	Neuwarp
Nowogard	Naugard
Nowy Świętów	Deutsch Wette
Nysa	Neisse
Okrzeszyn	Albendorf
Oława	Ohlau
Oleśnica	Öls
Olesno	Rosenberg
Opole	Oppeln
Oskowo	Wutzkow
Ostrowąs	Wiesenthal
Otmuchów	Ottmachau
Pietrowice	Zietenbusch
Piła	Schneidemühl
Płońsko	Plonzig
Płoty	Plathe
Płytnica	Plietnitz
Polanów	Pollnow
Połczyn-Zdrój	Bad Polzin
Polkowice	Heerwegen
Poźrzadło	Klein Spiegel
Prudnik	Neustadt in Oberschlesien
Przedkowice	Gutweide
Przeworno	Prieborn
Przewóz	Priebus
Psie Pole	Hundsfeld
Pyrzyce	Pyritz
Pyskowice	Peiskretscham
Racibórz	Ratibor
Radków	Wünschelburg
Radoszowice	Rauschwalde
Rarwino	Rarfin
Raszyn	Raschen
[illegible]	[illegible]walde
Rostoka	Rohnstock
Rudna	Raudten
Rudnica	Hammer
Runowo	Ruhnow
Rzepin	Reppen
Sanice	Sänitz
Scinawa	Steinau
Ścinawa Mała	Steinau in Oberschlesien
Scinawka Srednia	Mittelsteine
Siekierki	Zackerick
Skrzydłowo	Mühlenbruch
Skwierzyna	Schwerin
Sławięcice	Ehrenforst
Sławniowice	Gross Kunzendorf
Sławno	Schlawe
Sławoborze	Stolzenberg
Słupsk	Stolp
Smołdzino	Schmolsin
Smolén	Karlsburg
Sniatowo	Schnatow
Sobieradz	Woltersdorf
Środa Śląska	Neumarkt in Schlesien
Stara Dąbrowa	Alt Damerow
Strachocin	Schreckendorf
Stargard	Stargard
Stepnica	Stepenitz
Stobno	Stoven
Strzegom	Striegau
Strzelce	Gross Strehlitz
Strzelce Krajeńskie	Friedeberg
Strzelin	Strehlen
Stypułów	Herwigsdorf
Sulechów	Züllichau
Sulęcin	Zielenzig
Swidnica	Schweidnitz
Świdwin	Schivelbein
Świebodzin	Schwiebus
Swielino	Schwellin
Świeradów-Nadleśnictwo	Forst Flinsberg
Swieradów Zdrój	Bad Flinsberg
Świnoujście	Swinemünde
Swobnica	Wildenbruch
Syców	Gross Wartenberg
Szczawienko	Nieder Bad Salzbrunn
Szczecin	Stettin
Szczecinek	Neustettin
Szprotawa	Sprottau
Szydłów	Goldmoor
Tąpadły	Dummadel
Trzciel	Tirschtiegel
Trzebiatów	Treptow
Trzebież	Ziegenort
Trzebnica	Trebnitz
Tuplice	Teuplitz
Ujście	Usch
Ulikowo	Wulkow
Unieście	Nest
Ustka	Stolpmünde
Wałbrzych	Waldenburg in Schlesien
Wałcz	Deutsch Krone
Warszów	Ostwine
Warzymice	Klein Reinkendorf
Wąsosz	Herrnstadt
Węgierce	Wengerz
Węgliniec	Kohlfurt
Wieprzyce	Wepritz
Wierzbno	Wierzebaum
Wierzchowo	Virchow
Włościbórz	Lustebu[illegible]r
Wolin	Wollin
W[illegible]ów	Wo[illegible]
Wołowiecko	[illegible]
Worowo	Wurow
Wrocław	Breslau
[illegible]	Frausta[illegible]
Wysoka Kamieńska	Wietstock
Wyszogóra	Piepenburg
Ząbkowice Śląskie	Frankenstein in Schlesien
Zabrze	Hindenburg
Żagań	Sagan
Zamienice	Samitz
Żary	Sorau in Nieder Lausitz
Zawisna	Grenzwiese
Zbąszynek	Neu Bentschen
Zebrzydowa	Siegersdorf
Zdroje	Finkenwalde
Zgorzelec Ujazd	Görlitz Moys
Zieleniec	Rosswiese
Zielona Góra	Grünberg
Złocieniec	Falkenburg
Złotoryja	Goldberg in Schlesien
Złotów	Flatow
Złoty Stok	Reichenstein
Żmigród	Trachenberg

South Sheet

RAILROADS OF EASTERN EUROPE-1952