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HIGHWAY AND RAIL TRANSPORTATION
IN THE SOVIET MIDDLE EAST

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HIGHWAY AND RAIL TRANSPORTATION IN THE SOVIET MIDDLE EAST

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This report is submitted as a special project requested by RQM/OIS, in answer to requirements [REDACTED] on highway and rail networks in Armenia, Azerbaydzhān, Tadzhikistan, and Turkmenistan.

1. Main roads leading from Iran to Armenia, Azerbaydzhān, and Turkmenistan*

Five main roads lead to the Iranian-USSR frontier west of the Caspian Sea and converge on three crossing points into the Azerbaydzhān SSR -- Pul Dasht, Julfā, and Āstārā. The roads provide strategic access routes to and from the Soviet Union. All three of the roads crossing the Soviet frontier into Azerbaydzhān connect with a main highway leading to the Armenian capital of Yerevan. There is no important direct road linking Iran and the Armenian SSR. East of the Caspian Sea, important roads cross the Soviet frontier into Turkmenistan near Īshshak Tappeh, and at Bajzīrān, Lutfābād, and Sarakhs.

a. Roads crossing into Soviet Azerbaydzhān

The main motor route from Iran to Soviet Azerbaydzhān is the Caspian coastal highway from Bandar Shāh, via Pahlevī, to Āstārā. Across the Soviet frontier, it continues as a major trunk route between Russian Āstārā, Lenkorān, and the oil center of Baku. During World War II the road was of considerable significance to the Allied Forces for shipping supplies from the Persian Gulf into the USSR. The Iranian part of the road is gravel surfaced most of the way and is in fairly good condition. A 119-mile section of the road, extending from Resht to Āstārā, has a

* For the purposes of this study, the Nakhichevan^o ASSR is included as part of the Azerbaydzhān SSR.

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bituminous surface. Heavy rains in October and November, however, have been known to cause washouts, closing traffic for several days at a time. On the Russian side, the road from Astara to Baku is metalled and fairly well maintained. It serves as an important economic and military route to Iran. Commercial traffic is light, at present, and consists mainly of agricultural produce and some petroleum.

A secondary road from Bustānābād, some 152 miles to the southwest, provides an alternate approach route to Āstārā. This road branches off the Tabriz-Teheran highway. Between Bustānābād and Ardebīl, it has two lanes and is metalled. From Ardebīl to Āstārā, a distance of 28 miles, the road is unimproved and is passable in dry weather only. From the standpoint of traffic, the Bustānābād-Āstārā road is of secondary significance. Three permanent fords on the road are probably impassable from December to May. One of the fords, located near the village of Kizil Kachi (approximately 31.5 miles from Bustānābād), is 300 feet long.

Two Iranian roads converge on the border town of Julfā. One emanates from Marand and Tabriz, and the other from Khoī and Rizāīyeh. Both roads are gravel surfaced, but they have deteriorated and are in poor condition. Except for the hauling of military stores and supplies, they are little used by motor traffic. The two roads are legs of a historically famous "Transit Route" built to facilitate commerce between Iran, Turkey, and Russia. Connection with Turkey is achieved by a main motor road that leads from Khoī northwestward to Erzurum. The same road leads southeast to the Iranian capital of Teheran by way of Tabriz, Zenjān, Takistān, and

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Qazvin. From the junction point in the southern outskirts of Iranian Julfā, a road leads through town to the road bridge crossing the Araks River and then into Russian Dzhul'fa. This bridge lies to the west of a single-track, twin-arched steel railroad bridge that provides the sole rail connection between Iran and the Soviet Union. Traffic over the road bridge consists almost exclusively of approved commercial imports and exports and of official exchange visits between frontier authorities of both countries. On the Soviet side of the Araks River, a strategic motor route continues from Russian Dzhul'fa northward along the frontier to Nakhichevan and to the Armenian capital of Yerevan. Traffic on this road is moderately heavy, consisting mainly of agricultural produce, timber, and military supplies.

Near the western end of the USSR-Iran boundary is an important road connection between Iran and the Nakhichevan ASSR of Soviet Azerbaydzhān. It is a single-lane seasonal military road that crosses the border at Pul Dasht. This road provides the shortest motorable approach from the Soviet Union to Turkey via Iranian territory. Some 8 miles southeast of Mākū, it connects with the main highway from Teheran through Marand and Khōf to the Turkish provincial capital of Erzurum. The road from Pul Dasht is one of several potential routes for Soviet invasion of eastern Turkey. Motor traffic is relatively light because the road surface is poor along much of the route. On the Soviet side of the frontier, the road continues northward to Kyvrak, where it intersects the Dzhul'fa-Nakhichevan-Yerevan highway. After crossing the Araks River near the

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frontier outpost and railroad station of Shakhtakhty, the road also intersects the strategically important Leninakan-Yerevan-Baku railroad line. This line skirts most of the Soviet-Iranian frontier west of the Caspian Sea, and serves as a vital military supply route.

b. Roads crossing into Soviet Turkmenistan

The main north-south traffic route into Turkmenistan, across the Kopet-Dag, is the international highway connecting Mashhad in Iran with the Turkmen capital of Ashkhabad. The Iranian section of the highway is metal surfaced and generally well constructed. From Mashhad to Qūchān, some 38 miles south of the border, the road follows the wide and densely populated valley of the Kashaf Rūd. From Qūchān northward to the Iranian border settlement of Bajgīrān, the route is deliberately left in a poor state of repair and presents serious traffic problems. Here the road is 10 to 16 feet wide, and traffic speed is limited to 6 miles per hour. Although the capacity of the road decreases sharply during the winter as a result of snow and of floods along numerous streams it is capable of limited all-weather use. Approximately 18 miles north of Qūchān the road crosses the Alam Ali Pass (elevation 5,500 feet). The pass accommodates a single-lane road only and is intermittently blocked by snow during January and February. A few miles south of Bajgīrān the road climbs the Qurisakh Pass (6,645 feet) and crosses the Turkmen border via the Gaudax Pass (4,871 feet). The Turkmen section of the highway, which descends the northern slopes of the Kopet-Dag to Ashkhabad, is a three-lane road with asphalt surface. It serves primarily as a route

for military supplies and to a lesser extent for import of raw materials from Iran. Daily traffic is reportedly heavy, consisting of as many as 42 army trucks in addition to a number of commercial vehicles.

A road of somewhat less importance leads from Imām Quli on the Mashhad-Ashkhabad Highway eastward to Lutfābād on the Iranian-Turkmen border. About 28 miles east of Imām Quli the road crosses a rugged mountain range via the Kashmar Pass (6,000 to 7,000 feet). The western approach to the pass is over 4 miles long and has many hairpin turns and switchbacks. The eastern approach of the road is extremely steep. During January and February the pass is intermittently blocked to road traffic. At Lutfābād, the highway connects with a Soviet dirt road leading to Artyk on the Ashkhabad railroad trunkline. Because of the difficult mountainous terrain and travel delays caused by snow and flash floods, traffic on the Imām Quli-Artyk road is extremely light.

In the Atrak section of the Caspian coastal plain, an international highway joins the Iranian road center of Gurgān with the Turkmenian town of Kizyl-Arvat on the Ashkhabad Railroad. This highway, constructed during World War II, accommodates limited freight traffic between Iran and the USSR. The Iranian part of the road follows a general north-south direction. North of the town of Gurgān it crosses the Gorgān River via a 100-foot-long stone bridge at Pahlevī Dezh. At this point the road is intersected by a hard-surfaced road leading southwestward toward the coast to Bandar Shāh and by a motorable

track that follows the Gurgān River northeastward to the road center of Gonbad Qābūs. The main road crosses the international boundary about 4 miles north-northeast of the Iranian village of Ishshak Tappeh. After crossing the Turkmen border, the highway spans the Sukhoye Ruslo Atrek (Dry Riverbed Atrek) and continues in a north-easterly direction. It follows closely the right bank of the Atrek River, which marks the Iran-Turkmen boundary in the area. Kizyl-Atrek and Chat are important military border settlements along the route. From Chat to Ters-Akan, the highway follows mainly the right bank of the Sumbar River. Beyond Ters-Akan the road cuts across the western foothills of the Kopet-Dag and gradually swings northward to Kizyl-Arvat.

In the Tedzhen River area at the extreme eastern end of the border, Iran and the Turkmen SSR are connected by the Mashhad-Serakhs Highway, which cuts across the eastern ranges of the Kopet-Dag. For over half its distance the road has two lanes and an improved-earth surface. It follows the course of the Kashaf Rūd to a point southwest of Mazdūrān, where it fords the shallow river channel. The remaining stretch to Serakhs has only one lane and little better than dirt track. From December to April, rain and snow are sufficient to restrict movement along the road, particularly at fords and in the marshy terrain of the Tedzhen Valley. Even during dry weather the road is difficult for motor vehicles. The average maintainable speed is 11 to 15 miles per hour. Approximately 9 miles southwest of Mazdūrān a secondary road branches off the Mashhad-Serakhs Highway and follows the Kashaf Rud to the frontier settlement of Pul-i-Khwātūn. This road

has a loose dirt surface and is traversable only during dry weather. On the Turkmen side of the frontier, a strategic military highway connects the border settlements of Serakhs and Pul-i-Khvātun with Tedzhen on the Ashkhabad Trunkline. This highway also continues southward from Pul-i-Khvātun following the general alignment of the Iranian and Afghan borders to Kushka, a significant rail terminus on the USSR-Afghan border. The highway carries two-lane traffic and has an improved surface permitting all-weather movement. Road traffic is reported to be fairly active and consists mostly of military vehicles. No border traffic is currently reported across the Tedzhen River at Serakhs or Pul-i-Khvātun.

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2. Main roads (with their classification) along the southern borders of Turkmenistan and Tadzhikistan

a. Roads along the Turkmenistan border

Because of the considerable length (975 miles) and distinct regional character of the Turkmen border area, roads are grouped according to three major subregions. From west to east they are: (1) the flat Atrek coastal plain, (2) the rough and barren Kopet-Dag mountains, and (3) the desert region of the north-south oriented Tedzhen, Murgab, and Amu-Dar'ya Rivers.

(1) Roads in the Atrek coastal plain are concentrated in the Chikishlyar--Gasan-Kuli--Kizyl-Atrek area. From Chikishlyar, a minor anchorage point on the Caspian Sea, an unimproved east-west road extends to Kizyl-Atrek on the international Gurgān--Kizyl-Arvat Highway. Leading southward from Chikishlyar is a dirt road to the fishing center of Gasan-Kuli, which also serves as a minor anchorage site on the Caspian. Gasan-Kuli is connected by a dirt road to Adzhi-Yab, a nomadic settlement located about 10 miles to the southeast. From here, a main east-west road leads through the dense labyrinth of water channels and distributaries of the lower Atrek, passes through the settlement of Kara-Degish, and connects with the Gurgān--Kizyl-Arvat Highway at Gudri-Olum.

A number of dirt roads extend northward to settlements strung along the Ashkhabad Trunkline. Most significant among these are the seasonal roads connecting Chikishlyar with Bala Ishem, Kizyl-Atrek with Kazandzhik, and Chat with Iskander. Because of the nature of the surrounding terrain

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these roads are unusually wide and are little more than motorable dirt tracks.

(2) In the mountainous region of the Kopet-Dag, main roads are connected along the route of the Ashkhabad Trunkline. A good two-lane gravel-surfaced road closely parallels the railroad from Dzhebel to Dushak, covering a distance from west to east of approximately 380 miles. This road, which between Archman and Ashkhabad is classified as a highway, crosses the railroad numerous times before reaching Dushak. Beyond Dushak, the road actually continues along the railroad to the oasis centers of Tedzhen, Mary, and Bayram-Ali. A number of roads branching from it lead south into the Kopet-Dag Mountains and north onto the Karakum Desert.

Roads leading southward traverse very difficult terrain. Vehicles are limited to few established routes, which necessarily follow winding courses and have steep slopes. Heavy snows and slides often block mountain roads in winter. Three important highways lead south from the railroad. The first begins at Kizyl-Arvat, crosses the Kopet-Dag, and eventually crosses into Iran after following the Atrek River for a considerable distance (see description in Section 1-b). From Ashkhabad two highways branch southward. The first, the international Ashkhabad-Qūchān-Mashhad Highway, traverses mountainous terrain and crosses the USSR-Iran frontier at Gaudan, 26 miles south of Ashkhabad (see section 1-b). The second connects Ashkhabad with Firyuza, a resort center near the Iranian

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border. According to recent reports, the Firyuza highway is asphalt surfaced and probably has three lanes. Vehicular and pedestrian traffic is reported to be extremely heavy. The more important routes northward from the railroad are unimproved dirt roads originating in Bakharden, Ashkhabad, and Kaakha. Two roads running north from Ashkhabad are particularly significant. One leads to the sulphur mines at Sernyy Zavod and Darvaza approximately 149 miles to the north. The other runs first to the east and then swings north for approximately 50 miles to the Karry-Cherlya well. Archman is reported to be the point of origin of an important caravan route that extends across the Kara-Kum Desert to the lower Amu-Dar'ya River.

(3) Roads in the Tedzhen, Murgab, and Amu-Dar'ya River areas are limited to three key routes, one following each of the rivers valleys from the Turkestan Trunkline to the Afghan border, and to a few minor interconnecting roads.

In the Tedzhen River area, roads are centered on the military settlement of Serakhs, located opposite the Iranian village of the same name. A strategic highway originates at Tedzhen on the Ashkhabad Trunkline and follows the right bank of the Tedzhen River to Serakhs and continues south to Soviet Pul'-i-Khvatum (see description in Section 1-b). The highway continues along the Afghan border to Kushka, a rail terminus on the USSR-Afghan frontier. The stretch between Pul'-i-Khvatum and Kushka has a single dirt lane, and is lightly traveled. Serakhs also is the junction of two less important dirt roads. One leads to the rail junction

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of Mary located on the Murgab River some 80 miles to the northeast. The road carries seasonal traffic, but numerous dune areas of loose shifting sands often impede vehicular movement even in the season of optimum weather conditions. The second road from Serakhs runs southeastward across the desert and the eastern reaches of the Badkhyz Steppe. It connects with the railroad and highway that parallel the Kushka tributary of the Murgab River. As a result of frequent sandstorms, drifting sand dunes, and overall poor maintenance, the road is best suited to pack-animal traffic.

A strategic military road follows the Murgab River, and its tributary the Kushka, from the rail center of Mary to the Afghan border settlement of Kushka. This road runs along the left banks of the Murgab and Kushka Rivers and is maintained in good condition. According to recent information, it is gravel surfaced at least in part. A stretch extending between Kushka and Kala-i-Mor has three lanes and is well traveled. Reasonably good driving speeds can be maintained on this road. Road traffic consists mainly of trucks. An important one- or two-lane dirt road leads from station Takhta-Bazar, located at the confluence of the Murgab and Kushka rivers, to Marūchāk across the Afghan frontier. From here the road continues to the Afghan road center of Bāla Murghāb. The settlement of Takhta-Bazar is the terminus of a long and rather poorly developed stretch of dirt road extending along the southern margin of the Kara-Kum desert to Kerki on the Amu-Dar'ya River. This route is infrequently used. In the Murgab oasis region, an improved dirt road branches off the Mary-Kushka road and leads northward to the railroad center of Bayram-Ali.

Main roads in the Amu-Dar'ya River area follow closely both the left and the right banks of the river from southeast to northwest. Most important among these is an improved dirt road which skirts the left bank of the meandering Amu-Dar'ya all the way from Bassaga on the USSR-Afghan border to the river delta on the Aral Sea. According to available data the surface of this road consists of well-packed earth and sand and has a width of 26 to 32 feet. Considerable year-round traffic is reported on the stretch between the traffic centers of Chardzhou and Kerki. An important road to Afghanistan branches off the main road near Kizyl-Ayak, some 13 miles south of Kerki, and leads to the Afghan border settlement of Sultān Ribāt. From Sultān Ribāt the road continues beyond the border to the Afghan road center of Andkhūi. At Kerkichi, on the right bank of the upper Amu-Dar'ya across from Kerki, two main roads meet. One leads northeastward along the railroad to Karshi in Uzbekistan. It apparently has an improved dirt surface that permits year-round traffic. The second road parallels the Amu-Dar'ya from the rayon center of Burdalyk, via Kerkichi, to the Uzbek rail center of Termez on the Afghan border and serves local needs in this cotton-growing area.

b. Roads along the Tadzhikistan border

The road net along the Tadzhik border area includes a number of important military and economic supply routes, two of which are rated among the strategic life lines of Soviet Central Asia. A strategic highway leads from the Tadzhik capital of Stalinsbad to Khorog, the capital of the Gorno-Badakhshan Autonomous Oblast in the Pamirs. Here

it connects with the vital Pamir Highway, which roughly follows the Tadzhik borders with Afghanistan and China and eventually terminates at Osh in the Kirgiz Fergana region. Since the Stalinabad-Khorog and the Pamir highways are located in a strategic area where the borders of the USSR, China, and Afghanistan meet, both are invaluable as military supply routes.

The Stalinabad-Khorog highway extends for a distance of 352 miles and is partly paved and partly of gravel and improved dirt. It is well maintained and provides year-round two-lane traffic. East of Stalinabad the road follows the course of the Kafirnigan, Vakhsh, and Obi-Khingou Rivers to the Darvazskiy Mountain Range. It crosses the range from north to south via the 11,000-foot Khabu-Rabat Pass, and reaches the Afghan border at the settlement of Kalai-Khumb on the Pyandzh River. From here, it follows the irregular course of the Pyandzh River to Khorog.

The Pamir highway from Khorog to Osh is one of the highest automobile roads in the world, with an average elevation of 12,500 feet above sea level. From Khorog it maintains a general east-west direction to Murgab, and then turns northward to Osh. Covering a distance of 469 miles, the course of this strategic highway roughly parallels, but at some distance, the Soviet frontier with Afghanistan and China as it angles its way across the Pamir ranges. Along much of its route the highway runs through the rugged valleys of mountain rivers, including the Gunt, Alichur, Kara-Su, Ak-Baytal, and Muz-Kol. Three important mountain passes are crossed in the Tadzhik section of the route: Koy-Tezek (14,200 feet), Hayza Tash (13,700 feet), and Kyzyl-Art (14,000 feet). Because of extreme elevations, snow and ice frequently close the highway to traffic from November to April.

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The highway has two lanes, has an improved dirt and gravel surface, and is generally well maintained.

An important military road skirts the Soviet side of the Pyandzh River, which forms most of the border between Tadzhikistan and Afghanistan, from Khorog to the mountain lake of Zor-Kul^u. From Zor-Kul^u it continues as a mountain track across the Alichurskiy Range to Kara-Su, where it intersects the Pamir Highway. The 50-mile-long stretch of the road between Khorog and Ishkashim is in poor condition and is more like a motorable track than a road. This section of the road is reportedly being improved. According to eye-witness reports, the road is metalled from Ishkashim to Lake Zor-Kul^u and serves as supply route for many border outposts in the area. Traffic is relatively light and consists mainly of trucks.

From the Stalinabad area two important highways lead southward to the Tadzhik-Afghan border. One connects Stalinabad with the border settlements of Molotovabad and Kirovabad. It roughly parallels the Stalinabad--Kurgan-Tyube--Nizhniy Pyandzh railroad and serves as a main traffic artery in the cotton-growing region of the Vakhsh River. Traffic is relatively heavy and consists mainly of agricultural commodities. The road has two lanes and an improved surface. The second highway connects Ordzhonikidzeabad, located 15 miles east of Stalinabad, with the oblast^u center of Kulyab and the frontier bastion of Kirovabad. The surface of this road is improved gravel and dirt. It is used for both commercial and military purposes.

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3. Railroads in Turkmenistan and Tadzhikistan, including important bridges and terminals, with special reference to the Ashkhabad Railroad*

Railroads in Turkmenistan and Tadzhikistan are few and consist mainly of loosely connected lines of the Ashkhabad and Tashkent railroad systems. The principal rail artery serving the two republics is a trunkline connecting Krasnovodsk on the Caspian Sea with Tashkent, and with branch lines leading to various industrial and urban centers such as Andizhan and Kok-Yangak in the Fergana Valley. Although single-tracked, this trunkline provides strategic ties between Soviet Central Asia and the Caucasus, the Urals, and Soviet Siberia. From Krasnovodsk, a trans-Caspian ferry provides connection with the oil port of Baku in the Caucasus. At the important railroad junction of Uraat'yevskaya, connection is made with lines leading into the Fergana Valley region. At Arys^o on the Tashkent-Chkalov line, junction is made with the Turkestan-Siberian trunkline, which eventually leads to Novosibirsk on the Trans-Siberian Railroad. Several branch lines serve as strategic approach routes to the Afghan border. Such lines lead from Mary to Kushka; and from Kagan via Karshi, Kerkichi, and Termez to Stalinabad in Tadzhikistan. A narrow-gauge line leads southward from Stalinabad and follows the Vakhsh River valley to the border settlement of Nizhniy Pyandzh.

a. Railroads in Turkmenistan

The main transportation artery of the republic is the Trans-Caspian Railroad (also referred to as the Turkestan or Ashkhabad railroad), which

* Railroads in the immediately adjacent Uzbekistan area are also included.

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connects the port of Krasnovodak on the Caspian Sea and Chardzhou on the Amu-Dar'ya and continues to Tashkent. The western part of this trunk-line has a generally east-west alignment along the lowland strip that parallels the southern escarpments of the Krasnovodsk Plateau and along the narrow foreland or piedmont between the Kopet-Dag Mountains and the Kara-Kum Desert. In the east the line cuts across the vast wastelands of the Kara-Kum, connecting the important river oases at Fedzhen and Mary with the Amu-Dar'ya River valley.

The Ashkhabad railroad is a single-track line of Russian 5-foot-gauge and is diesel and steam operated. Traffic on the line is moderate. According to the 1955-56 winter Soviet timetable, two slow-moving steam-driven passenger trains operate between Krasnovodak and Chardzhou, with Tashkent as their ultimate destination. One train runs daily in each direction; the other operates only every other day. A fast diesel train also operates daily in each direction between Ashkhabad, Chardzhou, and Tashkent. This train consists of three coupled cars with enclosed vestibules. The two end cars have internal-cumbustion motors. The maximum speed of this train is 87 miles per hour. Diesel locomotives have great advantages over steam locomotives on the Ashkhabad line, especially in waterless areas. Whereas a steam locomotive needs water every 30-50 miles, a diesel locomotive can run 300-450 miles before taking on water. Railroad activity on the Ashkhabad-Dushak section of the line is estimated at about 8 trains each way per day, of which 3 are passenger and 5 are freight trains. Eastbound cargo generally consists of oil, forest products, manufactured goods, and foodstuffs;

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westbound is largely cotton, nonferrous metals, vegetable oils, coal, and animal products.

There are no known tunnels and only one major bridge within the Turkmen section of the trunkline. At Chardzhou, an important single-track steel bridge crosses the Amu-Dar'ya. The bridge is of the through-truss type, and has 25 spans and an overall length of 5,332 feet.

Major railroad stations and terminals are located at Krasnovodsk, Ashkhabad, Mary, and Chardzhou. Other main stops along the route are Dzhebel, Nebit-Dag, Kazandzhik, Kizyl-Arvat, Bami, Bakharden, Kaakhka, Tedzhen, Chu-Adzhi, and Repetek. The main railroad facilities are located at 6 places:

(1) The Krasnovodsk terminal is an important transshipping center between rail and Caspian Sea transport. According to Turkmenskaya Iskra (Turkmen Spark) of 6 February 1951, more than 60 percent of the total freight carried by the Ashkhabad railroad system is handled at this station. Terminal facilities include a locomotive-repair shop, a rolling-stock repair shop, an engine shed, a marshalling yard, and according to recent reports a diesel-locomotive engine house and repair shop. An electric-equipment shop is located at the locomotive-repair shop. Traction motors are assembled here. A short single-track spur leads from station Krasnovodsk I to the wharf areas, and a second spur connects stations Krasnovodsk I and Krasnovodsk II. The latter is located 8 miles to the east.

- (2) Nebit-Dag has terminal and junction facilities for a short branch line to oil fields at Vyahka. This line, 16 miles long, is single tracked and has Russian 5-foot gauge. Passenger trains make 3 round trips daily.
- (3) Kizyl-Arvat is an important road-rail transshipping center. Here the railroad connects with the international highway leading to the Iranian road center of Gurgan. In addition to a number of storage and warehouse facilities, Kizyl-Arvat has a locomotive and railroad-car repair plant, an engine shed, blacksmith shops, and a technical shop.
- (4) Ashkhabad, the capital city and industrial center of Turkmenistan, is an important center of rail-transportation activity. Railroad installations are grouped in the eastern part of town, along the Ashkhabad line. These include the railroad station, communications house, administration building for the Ashkhabad Railroad System, freight depot, the "Stalin" diesel-locomotive repair plant and shops, steam-locomotive and rolling-stock repair shops, engine shed, and various educational, cultural, and recreational facilities for railroad workers. The railroad station is of recent construction and replaces the old station destroyed during the 1948 earthquake. The locomotive and car repair installations are capable of handling both major and minor repairs.
- (5) The oasis town of Mary is a noteworthy railroad junction on the Ashkhabad trunkline. From here, a branch line leads southward to the Afghan border town of Kushka. Railroad facilities at Mary include a diesel-locomotive engine house, a steam-locomotive and railroad car

repair shop, an engine shed, and an air-brake inspection station. The Mary-Kushka branch, which is 194 miles long, has a single track and broad gauge. It follows the course of the Murgab River to Takhta-Bazar and then continues toward the border along the valley of the Kushka River. Several small steel bridges cross the Kushka River and distributaries of the Murgab River. Rolling stock used on the line consists of old-fashioned steam locomotives and the conventional two-axle-type passenger and freight cars. Passenger and freight traffic between Mary and Kushka is moderate. One slow-moving passenger train operates daily in each direction. During a 24-hour period in 1953, 3 or 4 freight trains were observed passing over the line in each direction.

(6) Chardzhou has become one of the major railroad centers in Turkmenistan since the completion of the Chardzhou--Kungrad railroad (24 July 1955). The main railroad function of Chardzhou is to switch freight and passenger trains from the Ashkhabad line to the Chardzhou--Kungrad line, which serves various large urban centers in the Khorezm Oasis and the Amu-Dar'ya River Delta.

The Chardzhou--Kungrad line is one of the longest railroads constructed in Soviet Central Asia since World War II. It is a single-track and broad-gauge line 423 miles long. The line is the first link of a long-planned railroad outlet from Soviet Central Asia to central European USSR, which will connect the present European terminus at Aleksandrov Gay with Makat and Chardzhou. There are no major bridges on the Chardzhou--Kungrad line, but several short bridges

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cross streams and rivulets in the Khorezm Oasis. One crosses the "Soviet Yab" canal near the railroad station of Takhia-Tash. Some railroad facilities are located at Urgench, including a diesel-locomotive depot.

Northbound freight on the Chardzhou--Kungrad line includes grain, cotton and wool fabrics, petroleum products, mineral fertilizers, lumber, construction materials, and machines of all sorts. Southbound freight consists mainly of cotton fiber, silk cocoons, grapes, fish, alfalfa, and melons. Railroad facilities at Chardzhou include a fair-sized railroad station and marshalling yard, repair shops for locomotives and rolling stock, a diesel-locomotive engine house, and several storage and warehouse sheds.

In addition to the lines mentioned above, there is a railroad line which originates at Karshi, in Soviet Uzbekistan on the Kagan-Karshi-Shakhrisyabe line, and leads to Kerkichi on the Amu-Dar'ya, opposite Kerki. It then follows the northern bank of the Amu-Dar'ya, paralleling the Afghan--Turkmen--Uzbek borders to Termez. Between Kerki and Termez, the railroad is a military supply line for border installations. Samsonovo is the main railroad stop within Turkmen territory. Samsonovo and Kerkichi, 3 miles to the south, have facilities for the transshipment of freight and supplies across the Amu-Dar'ya to Kerki.

b. Railroads in Tadzhikistan

The predominance of mountainous terrain has greatly restricted the development of railroads in Tadzhikistan. Existing lines are concentrated in the Fergana Valley and in the Stalinabad region. Most of the important lines are sections of railroad leading through Tadzhik territory to destinations in Uzbekistan and Kirghizia.

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In the extreme northern part of the republic the main Tadzhik railroad line runs through the Fergana Valley from west to east. It is a branch of the Tashkent Railroad System that connects the Uzbek centers of Tashkent and Ursat'yevskaya with the Kirghiz mining and industrial centers of Dzhahalal-Abad and Kok-Yangak, and provides rail access to the large urban or industrial centers of Sovetabad, Leninabad, Chkalovskiy, Kanibadam, Isfara, and Shurab. Within Tadzhik territory, the line roughly parallels the southern bank of the Syr'Darya River. The line is single-track and broad gauge. A short siding leads from Leninabad station, on the main line, to the city proper. A 33-mile-long spur line branches off the main line at Mel'nikovo and leads to Kanibadam, Isfara, and Shurab.

Railroad traffic on the main line is relatively heavy. Three passenger trains and at least two freight trains operate daily in each direction. There are no significant railroad bridges along the route. The only known railroad maintenance facilities are those at Leninabad, which consist of a steam-locomotive engine house, a car-repair shop, and a number of small storage sheds.

Stalinabad is the largest railroad center in the Tadzhik republic. From the city, lines radiate in all directions. To the west, a single-track, broad-gauge line leads to Termez on the Uzbek--Afghan border, covering a distance of 139 miles and linking the central portion of Tadzhikistan with the railroad system of Soviet Central Asia. A broad-gauge line connects Stalinabad with Yangi-Bazar, located 13 miles to the east. Yangi-Bazar is the terminal station for Ordzhonikidzeabad. Local trains make daily round-trips on this line. Two narrow-gauge lines also

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emanate from Stalinabad. One runs northward through the Varzob gorge to the village of Pugus (20 miles) and, according to plans, will be extended 50 miles farther to the Ziddinskiye coal deposits. The second narrow-gauge line leads southward into the cotton country of the Vakhsh River valley to Nizhniy Pyandzh on the Afghan frontier. It is 149 miles long and links Stalinabad with the most important cotton-producing centers of the valley. Freight hauled over this line consists primarily of mineral fertilizers, fuel, machinery, raw cotton, grain, and construction materials.

Terminal facilities at Stalinabad are being improved to meet the growing transportation needs. Currently they consist of a small yard, a locomotive and rolling-stock repair shop, a steam-locomotive engine house, and several small storage and supply sheds.

4. Railroads in Armenia and Azerbaydzhani, including important bridges and terminals, with special reference to the Transcaucasus Railroad

The railroad network of the Armenia-Azerbaydzhani area consists essentially of three main lines of the Transcaucasus Railroad System,* emanating from the Baku-Alyat oil region on the Caspian Sea. The Baku-Batumi trunkline, which cuts through Azerbaydzhani in a northwesterly direction, traverses the entire Caucasus region from the Caspian to the Black Sea. It is a main lifeline for some of the richest oil-producing centers in the USSR. The Baku--Mineral'nyye Vody--Rostov line, paralleling the Caspian coastline of Azerbaydzhani, provides the shortest route of access to Central European Russia. The Alyat-Leninakan-

* The Azerbaydzhani portions of this line have recently been returned to administration of the Azerbaydzhani system.

Tbilisi line skirts the Armenian and Azerbaydzhan borders with Iran and Turkey. The line connects with the Turkish rail network at Leninakan and with the Iranian line to Tabriz at Dzhul'fa. A branch line leads to the Iranian border at Astara.

a. Railroads in Armenia (Including Nakhichevan' ASSR)

The main railroad serving the Armenian SSR enters the republic from the Nakhichevanskaya Autonomous SSR in the south, where it connects with Iranian railroads at Dzhul'fa, and skirts the southern and western borders of the Armenian SSR, passing through Zangibasar, Leninakan, Kirovakan, and Alaverdi en route to Tbilisi in the Georgian SSR. The mountainous terrain through which the line passes necessitates many sharp curves and steep gradients. From Leninakan a branch line crosses the international boundary westward into Turkey, and a short spur leads southeast toward the volcanic tuff center of Artik. From Zangibasar a branch runs north to the Armenian capital city of Yerevan. The entire railroad stretch from Yerevan to Tbilisi in Georgia has been electrified. Double trackage reportedly is continuous between Leninakan and Tbilisi.

Two new railroad lines from Yerevan are reported to be under construction. One apparently leads northeastward to Lake Sevan, reaching the lake at its northwestern end at the town of Sevan. From there the line will swing northwestward to Dilizhan, continue along the Agstev River to its headwaters, and finally meet the Alyat-Leninakan-Tbilisi railroad at Kirovakan. Only the section of the line from Yerevan to the site of the new Zanga hydroelectric plant is known to be completed.

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The second line running north from Yerevan, is completed and connects with the Alyat-Leninakan-Tbilisi line at Amamlu near the town of Spitek. The line traverses rough mountainous country, winding through tunnels and mountain passes. Traffic on this line was reportedly very heavy.

Freight and passenger traffic on the Alyat-Leninakan-Tbilisi line is fairly heavy. Several freight trains and four passenger trains operate daily in each direction between Yerevan and Leninakan. Three daily passenger trains in each direction run between Leninakan and Tbilisi.

Significant railroad structures on the trunkline include a long tunnel near Leninakan and several bridges of strategic military importance. The Dzhadzbur tunnel, located 13 miles northeast of Leninakan, is 6,560 feet long and accommodates a double-track line. Important bridges cross the Razdan River 10 miles southwest of Yerevan, the Karasu River some 19 miles west of Zangibasar, and the Nemanlu River approximately 2 miles southwest of Shagali. These bridges are of stone construction and range from 640 to 820 feet in length. They are of key importance because of their relation to significant terrain corridors, the difficulty of replacing them if they were destroyed, and the lack of bypass routes.

Leninakan is the major railroad center in Armenia. Its facilities include a fair-sized yard, a station for freight bound for Turkey, a steam-locomotive engine house, and a railroad-car repair shop.

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Of secondary importance are the yard and terminal facilities at Yerevan. A steam locomotive engine house is located here. The yard area includes a depot, loading ramp, and parking houses. Within the yard the track system consists of four sidings and several connecting tracks.

b. Railroads in Azerbaydzhan

Three main railroad routes serve Azerbaydzhan. The central trunk line goes from Baku westward past Yevlakh and Kirovabad toward Tbilisi, in the Georgian SSR, passing through the cotton-growing areas along the Kura River. The line continues westward to the Black Sea, providing rail access to the ports of Batumi, Poti, Sukhumi, and Tuzpse. Another line leaves Baku in a northwesterly direction and parallels the Caspian Sea coast toward Makhachkala in the Dagestanskaya ASSR. The third and most recently constructed line leaves the central trunk at Alyat and follows the Araks River and the USSR-Iran frontier to Dzhul'fa in the Nakhichevanskaya Autonomous SSR, from where it continues to Leninakan and Tbilisi. Spur lines link the 3 main lines with Astara, Mingechaurl (site of an important powerplant), Artik, Yerevan, Kafan, Sabirabad, and Neftechala.

Long stretches of the Baku-Tbilisi trunkline are double tracked, and electrification of the route is in progress. To date, electrification has been completed in the Baku area and along the section connecting Akstafa with Tbilisi. The main railroad and terminal facilities of the line are located at the Caspian Sea oil port of Baku. Junction facilities and marshalling yards are located at Baladzharly, the junction of the main lines to Makhachkala and to Tbilisi. From Baladzharly a short branch line leads to the rail facilities at Baku proper. In addition to the extensive

classification yard. Baladzhary has a railroad-car repair shop and a steam-locomotive engine house. The Baku railroad center also has extensive yard facilities, including repair shops for electric and steam locomotives as well as railroad cars. From Baku an electric railroad leads to the oilfields in the interior of the Apsheron Peninsula. A newly completed electric branch line connects the station of Kala with Artem Island in the Caspian Sea. Other important operational facilities are located at Akstafa and Kirovabad and probably include railroad yards, steam-locomotive and railroad-car repair shops, and depots. A narrow-gauge branch line leads from Yevlakh, on the Kura River, southward to Stepanakert in the Karabakhskiy range of the Caucasus. A short branch line also connects the main line with Mingechaur. Freight traffic between Baku, Kirovabad, Tbilisi, and ports on the Black Sea is extremely heavy. Westbound freight consists mainly of oil; eastbound freight is mainly coal, iron, copper, manganese, and lumber.

The Alyat-Dzhul'fa-Tbilisi trunkline farther south is a light-duty, single-track route. It is aligned generally along the Soviet bank of the Araks River. Dzhul'fa and Osmanly Novyye are railroad junctions. At Dzhul'fa, connection is made with a line that crosses the Araks River and continues to Tabriz in Iran.* The Osmanly Novyye center serves both the main trunkline and a single-track branch line leading to Astara on the Caspian Sea, across from Iran. It has a short branch line to Neftechala (in. 26 Bakinskikh Komissarov). Short branch lines emanating from the main lead to the urban centers of Kafan and Sabirabad. Traffic on the main line consists of copper ore, oil, and garden produce. Because of

*At various times the Soviets permit their rail cars to go into Iran; at other times, freight destined for Iran is transloaded at Dzhul'fa.

its location near the international border, transport of troops and military supplies and stores occurs frequently.

The Baku-Makhachkala trunkline is a part of the main route connecting Baku with Rostov and Moscow. Traffic on this line is heavy, consisting mainly of oil, coal, and grain shipments. The line crosses a number of small rivers that empty into the Caspian Sea. Bridges are generally short, permanent structures. Within Azerbaydzhan, the main terminal facilities are located at Baku.

In addition to the lines mentioned, several new lines appear to be under construction in the central part of Azerbaydzhan. Available data mention at least two new main lines. One branches off the Baku-Tbilisi trunkline at Alabashly, immediately west of Kirovabad. It is to bypass the eastern shore of Lake Sevan and connect with Ararat, on the Alyat-Dzhul'fa-Tbilisi line. The second line extends southwestward from Stepanakert to Kafan in the extreme southeastern district of the Armenian SSR, which will provide through connection between Baku-Kirovabad-Tbilisi and the Alyat-Leninakan-Tbilisi lines.

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