In March 1946, the Chief of Transportation made arrangements for the Transportation School to move from Louisiana to Fort Eustis, Virginia. The move began on 17 May when 80 enlisted men and 14 officers moved by rail from New Orleans to Fort Eustis. The battalion and regimental concept for the administrative control of individuals and units used by the Transportation Corps training activities throughout the war was continued after the move to Fort Eustis. Therefore, the 1st, 2nd, and 4th Regiments of the newly authorized 9224th TSU-TC were activated to receive personnel of the incoming 1st and 2nd Regiments of the 9204th TSU-TC and personnel attached to the Transportation Crops School. 9224 TSU-TC Headquarters Company, Transportation Corps School (TSCH) was organized on 6 May 1946 and assigned to the Post Compliment Command. Only officers and warrant officers of the staff and faculty were assigned to the unit not students.

On 6 January 1947, the 9224 TSU-TC Headquarters Company, 4th Training Regiment, TSCH, which had been providing enlisted specialist training, was discontinued and its five student companies were transferred to 9224 TSU-TC Headquarters Company, TSCH. The Officer Candidate Course was discontinued and the Transportation School began giving enlisted specialist training. On 23 April 1947, 9224 TSU-TC Headquarters Company, TSCH was redesignated 9224 TSU-TC Headquarters Company, TSCH Section I and 9224 TSU-TC Headquarters Company, TSCH Section II was organized.

In June 1947, the Western Division of the School at Fort Francis E. Warren, Wyoming, was discontinued and the 9224 TSU-TC, Student Detachment I and Headquarters Detachment, TSCH, Western Division were inactivated.

The outbreak of the Korean War in the summer of 1952, created greater demands on the training of soldiers for the Transportation School. On 19 September 1951, Headquarters Company 9224 TSU-TC, TSCH Section I was redesignated just Headquarters Company, 9224 TSU-TC, TSCH.

The 9224th TSU-TC Detachment III was activated at Fort Story on 31 October 1951 to provide administrative overhead personnel for the purpose of command all Transportation Corps and Second Army units stationed at Fort Story to include the 54th Battalion. The 54th Transportation Truck Battalion, which had that responsibility, reverted to a cadre training status. Effective 13 May 1952, the recently activated 99th and 285th Port Companies, 605th, 606th, 607th, and 612th TAT Companies were relieved from the command of Headquarters Company 9224 TSU-TC Detachment III and placed under the command of 54th Transportation Truck Battalion.

On 7 January 1952, 1st Student Officer Company, 1st Student Officer Company (Pipeline) and Headquarters Company, 9224 TSU-TC, TSCH was relieved from the command jurisdiction of the Commanding Officer, Post Compliment Command and placed under the command jurisdiction of the 46th Transportation Service Group. On 24 January 1952, it was relieved form the 46th Transportation Group and placed under the Assistant Commandant, Transportation School. The Transportation Section, Headquarters Company, 9224 TSU-TC, TSCH was organized and placed under the command jurisdiction of the 46th Transportation Service Group the next day on 25 January 1952. On 20 August 1952, Headquarters Commandant Section was
formed to replace the 46th Transportation Service Group. That same day, 1st and 2nd Student Companies (Enlisted), 9224 TSU-TC and 1st and 2nd Student Companies (Pipeline), 9225 TSU-TC were organized and placed under the command jurisdiction of the Headquarters Commandant along with 1st Student Officer Company, 1st Student Officer Company (Pipeline) and Headquarters Company, 9224 TSU-TC. On 7 November 1952, Headquarters, TSCH 9224 TSU-TC was redesignated Headquarters Company, 9224-3 TSU-TC.

By 5 August 1953, the 2nd Student Enlisted Company was fully staffed with cadre and physically separated from the 1st Student Enlisted Company. On 20 August 1953, the 3rd Student Enlisted Company was activated by the increased forecast of enlisted students. Since no additional assigned personnel spaces were authorized to establish this company, the Transportation School borrowed people from other school agencies to fill it. The Transportation School activated the 4th Student Enlisted Company on 1 October 1953 to handle the students of the Leadership Course.

1954 heralded major reorganization of the Transportation School. On 20 August 1954, the 9th and 10th Student Enlisted Companies were activated to provide for students being trained in the basic military occupational specialty (MOS) courses previously supervised by the port unit at Fort Eustis. The 5th, 6th, 7th and 8th Student Enlisted Companies were assigned to other training units on post.

On 28 February 1955, Headquarters Company, 9224 TSU-TC was redesignated Headquarters and Headquarters Company, 9224 TSU-TC. On 1 July 1955, the 1st Student Officer Company was discontinued and the responsibility for the officer students was transferred from the Composite Battalion to the Office of the Secretary. The 9th Student Enlisted Company, 9225-3 TU-TC was redesignated the 4th Student Enlisted Company, 9224-3 TU-TC. The 9th Student Enlisted Company, 9224-3 TU-TC was discontinued and the majority of the cadre were transferred to the 4th Training Company, 9224-3 TU-TC. The 4th Training Company, 9225-3 TU-TC and the 4th Student Enlisted Company, 9224-3 TU-TC had the mission of quartering, subsistence, and administration of personnel attending the School and training for MOS 560 (Harbor Craft Crewman). The trainee company, 10th Student Enlisted Company, 9225-3 TU-TC was redesignated the 5th Training Company, 9225 TU-TC. The permanent party company, 10th Student Enlisted Company, 9224-3 TU-TC was inactivated and the 5th Student Enlisted Company was activated in its place. The 5th Training Company assumed responsibility for the stevedore (MOS 555.1) training of the former 9th Student Enlisted Company. 9224 TSU-TC was discontinued on 10 March 1955. On 15 December 1955, the 9250.3 TSU-TC was activated.

On 1 March 1957, the 5th Student Enlisted Company was discontinued. The same day the 4th Student Enlisted Company was redesignated the 4th Student Receiving and Processing Company. On 15 May 1957, Headquarters Company, 9250.3 was redesignated as Headquarters Company, Transportation School.