

INVESTIGATION OF THE SALT LAKE & UTAH RAILWAY



To The Commission:

Pursuant to the Commissions' Order, an investigation of the physical condition of the S. L. & U. RR. has been made by Mr. Slaughter and myself with principal purpose in mind of ascertaining the amount of materials and maintenance costs required to put the road in safe operating condition.

In arriving at our conclusions, the track was thoroughly inspected at several places picked at random along the line. Most of the bridges, including the Jordan Narrows bridge which is the principal one on the route, were examined. We rode the entire line on the front of the company's passenger cars to get an overall picture of all the line.

TRACK:

The track generally based on our observations, is in poor and unsatisfactory condition. It is built on a road bed of soil graded from along the right-of-way and without added gravel or ballast to give firm support to the ties and prevent them from settling into the mud and earth of the road bed. The original ties and all subsequent replacements, with minor exceptions, were of untreated fir or cedar. The life of an untreated tie in this area is approximately 12 years or less. The rails were laid directly on the ties without tie plates. This practice has materially reduced the life of the tie due to the rail cutting through the soft wood. This accounts for a great percentage of the required replacement, and for much of the rail movement and consequent roughness of the road. It appears the practice has been to place ties without reference to the rail joints. Many were observed to fall between two ties, thereby permitting the rails to sag at the joints causing unnecessary roughness and excessive wear at a vulnerable point of the rail. Most of the track south of Provo is 60 pound rail. Between S. L. and Provo it is 75 pound rail with some 80 and 90 pound rail at critical points. Generally the rail is light, but if properly supported, it is heavy enough for the light electric passenger cars and electric motors operated by the company. For safe operation of heavier equipment, rail changes would be recommended. Some of the present rail is badly worn and will require replacement soon.

On the Magna branch the ties appear in better condition, generally, than on the main line. The roadbed here is better ballasted. However, the rails are very much out of allinement and several badly bent ones were notices. It is estimated that an average of about four tie replacements per 33 ft. rail length and considerable labor on rail allinement would put the branch line in safe operating condition.

The entire track in American Fork should be taken up and relaid on a firm road bed. This would necessitate the use of ballast, probably all new ties and heavier rail. It is estimated on the basis of current prices this would cost approximately \$16,000. The amount may be materially reduced by re-using the present rail and some of the ties.

In Provo it is proposed the passenger track on Center Street be abandoned and the freight track converted to passenger use. An estimated additional expense of approximately \$10,000 would be incurred in the change over, by replacing existing rail with new and heavier rail and other conversion charges.

BRIDGE STRUCTURES:

Practically all the companys' bridges and pass-overs are of timber construction and have been in service for many years. Some should be replaced in part immediately. Almost all require some immediate maintainance. It is estimated \$25,000 to \$30,000 would put the bridge structures in safe immediate operation.

It is recommended that the company might eliminate some of its bridge structure entirely by the installation of culverts, fills, fills at approaches, etc. If joint use with the Union Pacific Railroad of their Fairfield Branch Line Crossing of the Jordan River could be procured, it might well save the Salt Lake and Utah about \$15,000 on the replacement of their structure at that point. It is understood the Union Pacific runs only one train weekly over this line and would like to abandon it entirely. Their structure is in very good condition and will last many years. The overhead structure at Mile Post 10.45, road crossing over deep Railway cut, could be abandoned if permission could be obtained to grade a like roadway leading from the

county road and Railway Crossing about two tenth of a mile further south.

The Company's road master estimates the life of ties on the road to be not more than 10 years. In the past nine years, according to the companys' records, there has been 100,100 tie replacements. On 102 miles of track there is approximately 293,760 ties, leaving 193,660 ties due for replacement next year. This number would indeed put the road in first class condition, but is not necessary for immediate operation.

It is estimated that a minimum average of seven ties per 33 ft. rail length should be replaced on all main line track, and about four ties per 33 ft. rail length on all spur and siding track.

On this basis, and the above discussion, the following approximate material quantities and costs are determined:

66.9 Miles of Track S.L.C. - Payson - 74,926 ties ea. \$2.22 (Installed)	\$166,336
66.0 Miles of Track S.L.C. - Payson - Rail alinement and general maintainance each \$100.00	
66.9 Miles of Track S.L.C. - Payson 100-75 Rails each ton	2,500
Installation of rails	1,500
25 Mile Spur track & siding 16,000 ties ea. \$2.22 (Installed)	35,520
10 Mile Magna Branch 6,400 ties ea. \$2.22 (Installed)	14,208
10 Mile Magna Branch Rail alinement ea. \$200.00 Mile	2,000
Additional work in American Fork	16,000
Additional work in Provo	10,000
Repair and Replacement of Bridge Structures	<u>30,000</u>
Contingencies and Omissions at 10%	<u>28,475</u>
Total	<u>\$313,229</u>

In view of the present material, and labor shortages, it is quite possible the Company could not complete the above improvement program this year. They could,

however, continue to operate the road on its present standard by spreading its tie replacements over a period of say three years. If approximately fifty thousand ties were replaced each year the the next three years, those now recommended for replacement plus additional ones that will have met their life span during the interim will have been replaced. Future replacements will then be reduced to normal operating maintenance. Such a plan would reduce the present tie replacements by 47,326 ties and the overall cost to approximately \$208.165.

In making these recommendations it is to be noted that the basis used and the thought in mind was the materials and maintainance necessary to bring the road up to fair operating conditions without materially changing the class or type of road from its original construction.

Respectfully submitted

*C. Victor Smith*

C. Victor Smith, Engineer

*R. N. Slaughter*

R. N. Slaughter, Inspector

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The entire track in American Fork should be taken up and relaid on a firm road bed. This would necessitate the use of ballast, probably all new ties and heavier rail. It is estimated on the basis of

current prices this would cost approximately 416,000. The amount may be materially reduced by re-using the present rail and some of the ties.

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