

**WSDOT and PCC Rail Authority  
PCC Rail System Capital Maintenance Requirements Study  
Eastern Washington  
Task AG  
Work Element 2  
PCC Normalized Maintenance Report – January, 2010**

This brief report estimates the cost of a normalized maintenance program on the system of WSDOT owned track otherwise known as the PCC lines. The report presents a railroad industry standard approach to determining an order of magnitude of cost for capital maintenance based on a 75 year time period on the PCC line infrastructure considering its current condition and its long term viability.

**Project Background**

The State of Washington owns the rights of way and rail of the P & L, CW and PV Hooper Branches of the former PCC Rail System. WSDOT is responsible for overseeing operations and condition of the lines. The track, bridge and right of way infrastructure suffers from many years of deferred maintenance. WSDOT, in recent years, has developed plans to rehabilitate the lines to address urgent concerns. Some rehabilitation projects were completed between August 2008 and May 2009. Additional projects were developed for construction in 2009 that are currently underway. These repairs will help ensure the branches remain operable without substantial service interruptions due to their physical condition for at least five years. A few additional projects, related primarily to structures, are slated to be performed in 2010.

The current and recent rehabilitation work has attempted to address only the most urgent repairs to keep the lines safely traversable and meeting or exceeding minimum safety standard regulations in the near term. The lines will continue to need significant capital maintenance investment to remain viable and safe. The current rail transportation volumes on the lines are not adequate to allow the contract operators to maintain the railroads to even their current substandard conditions. The majority of the line segments are also hampered with outdated (meaning old and underrated) infrastructure that limits the operators from using the latest efficient modern rail equipment.

**Normalized Capital Maintenance**

For the purpose of this report (and the following work elements in this task) normalized and/or capitalized maintenance means; maintenance performed in such a way that worn and defective elements are changed out, or otherwise repaired, in such a way as to keep the general condition of the line constant and in a good state of repair verses deferring or “under performing” maintenance that increases risk (derailments) and accelerates the rate of degradation of facilities and equipment. Sometimes this terminology is synonymous with capitalized maintenance, which should be taken to mean larger scale (quantity) maintenance performed intermittently with larger crews and specialized crews that keep the facilities in a generally even “state of good repair” condition and meeting capitalization accounting requirements.

Owners and/or operators of railroads must provide a source of funds to maintain their physical plants in order to provide for existing and possibly growing transportation service levels. These costs can be substantial and of course depend on the type of operations, territory, and traffic. A line's cost of maintenance is heavily dependent on the number, length and degree of curves; number, length and type of bridges; size of rail, whether the line has continuous welded rail or jointed rail and number, type and length of crossings, among other things.

In recent times the PCC lines have had a limited customer and commodity base and a very low car loading (or gross tons hauled) per track mile ratio. Some portions of the lines are relatively easy to maintain, and other portions are more difficult. There is evidence (thorough prior reports and direct inspection) and generally agreed to, that there has not been adequate reinvestment into the lines in recent decades. Sometimes this is referred to as deferred maintenance. In general the lines are also antiquated with respect to some of the key components of the infrastructure. The lines have many underrated (bridges without the design capacity to carry modern axle loadings) timber bridges and small rail sections. Some of these expensive components are nearing the ends of their useful lives.

The report and the owners of the line presume that the current traffic levels cannot justify the operators of the lines to pay for all necessary capital maintenance and rehabilitation. This report will help explain and justify the amount of money that needs to be sought by the agencies if the lines are to remain a viable freight transportation alternative.

### **The Evaluation**

To perform the evaluation, HDR has used its general first hand knowledge of the lines as well as prior reports and information contained in various recent and historical documents. HDR has provided rail consulting services for many years for WSDOT and in recent years HDR has had one group of individuals based in eastern Washington provide engineering support concerning the lines. The most important resource for this report is the historical track charts. These are included as Appendix C. Another general resource is the document entitled *Evaluation of the PCC Railroad for WSDOT– HDR 2003* (2003 Evaluation). Other resources include documentation that has been gathered and developed as part of the recent urgent rehabilitation work performed in the last two years over the lines.

The report assesses the WSDOT owned portions of the line segments.

These line segments - geographical segments include:

- CW line - Cheney to Coulee City
- P&L line – Marshall to Stateline just short of Moscow ID
- WIM line – Palouse to Stateline short of Potlatch ID
- PV line – Winona to Thornton
- Hooper line – Hooper Jct. to Colfax

For the purpose of comparison, the report presents the necessary normalized capital maintenance and rehabilitation needs on a cost per mile per year (cost/mile/year) basis.

This is a very standard railroad industry way of presenting ongoing rail infrastructure cost. It has the benefit of indicating how much money it takes to maintain a theoretical “steady state” condition for the facilities. That is - put back into the line how much is degraded or “used up” over time because of various degradation modes. Those modes fit into three categories:

- Mechanical wear and fatigue – This is the wear, abrasion, and crushing that is directly observable and is due primarily to the rail vehicles operating over the track. Fatigue is specifically the breakdown of materials that comes from repeated “flexing” of or “stress” on the component/s. In the track structure, primarily rail and related OTM (other track material) are affected by fatigue. (Ties can also be affected in this way; however other modes of failure are more predominant on a short line.) This mode also affects structures or bridges regardless of what type of construction. Mechanical wear and fatigue is highly influenced by not only the amount/quantity of traffic but the individual axle loads of the traffic. i.e. 286k traffic has an exponentially greater damaging effect on the track and structures versus the older standard 263k or 268k traffic. Please see the axle loading discussion below.
- Environmental damage / decay – This is the rot, weathering and rust that affects all track components that don’t wear out first. The tracks on these lines were built with timber ties and many of the bridges are built with timber or contain timber components. Environmental damage/decay is largely unaffected by the amount of traffic that runs on the track and structures. Because of this fact, there is some actual fixed cost for a railroad line segment that occurs regardless of traffic. This is extremely burdensome on the “short line” or light traffic density type railroads we are discussing because the tonnage and revenue generated on the line on a per mile basis does not keep up with the costs of replacing components that are decaying.
- Obsolescence - This mode is due to technological improvements whereas over the years railroads have changed and/or modernized their equipment and the way of doing business. For the PCC this primarily relates to the use of heavier cars. A century ago, the weight of loaded rail cars was at most 2/3 the weight of cars in use today using the same number of axles. The rail sizes (also called rail sections, the weight of the rail per 1 yard of rail length) were smaller because of this. For example, early rail sections were 75lb to 90lb rail versus 112lb and heavier used in new construction and rehabilitation in more recent years. Many of the existing structures on the lines rate at Cooper E-60 (based on dimensions of key structural members), whereas new railroad structures of today are built to Cooper E-80 standard. It would be convenient to say that the obsolescence factor is not that important, but unfortunately the only way any shortline can remain part of the competitive rail transportation system is to be able to accept/use the same equipment as the connecting (Class 1) railroads. Heavier rolling stock equipment has been used to degree on the PCC lines, Even up to 286k loading on the northern portion of the P&L line. (Please see the axle loadings discussion below.) When heavier equipment is used over underrated facilities, the rate of mechanical and fatigue degradation is accelerated. In summary it is essential to understand that

components affected by the use of modern, heavier cars need to be eventually replaced or otherwise modernized/updated.

### **Important Criteria and Assumptions**

- 75 year horizon - We have chosen to evaluate the lines for a 75 year time period. The rationale for this time period choice is the important components in track and related structures need to be replaced or significantly addressed in some way within the next 75 years when considering the three modes of degradation. If the time is any longer, some of the components that should be addressed sooner will not get cost attributed to them quick enough. This would include the bridges for sure, and portions of the rail as well. It is expected that all of the timber bridges and all of the small section rail would need to be replaced within a 75 year horizon regardless of traffic. If the horizon is shorter, then the cost for some items will be skewed to be too large and would not reflect the desired steady state situation that we are attempting to present. The 2003 Evaluation also considers the useful life of the timber structures to be 75 years.
- Annual tonnage – For the purpose of this report, tonnage means how many gross tons rather than net tons of commodity are carried on a line segment on an annual (or otherwise stated measure of time) basis. The most common industry standard way of relating this is units of MGT meaning million gross tons. For this report MGT is determined by the number of loaded cars times a typical gross loading, plus the empty car making an “opposite move” on the segment, plus a locomotive allowance per number of loaded cars moved. An example calculation would be 3000 loaded cars per year equal about 0.55 MGT. The traffic on the WSDOT lines is considered to be very light. See data provided in the report below. In comparison, an average medium density main track on a Class 1 railroad carries about 40 MGT a year.
- Axle loadings –The subject of axle loadings, maximum gross car weights, or 286k is very important to a shortline operator. 286k means the maximum gross car weight of 286,000lbs and also means a loading of 71,500lbs on each of 4 axles per car. This is also considered to be a HAL (heavy axle load) car. This is in comparison to the more dated maximum gross car weights of 263k and 268k (meaning 263,000 lbs and 268,000 lbs respectively). Currently none of the PCC line segments are officially acknowledged to be 286k capable. This is largely due to the bridges, but also to the light weight rail sections.
- Operating speed – While important, operating speed is not critical in light of the purpose of this report. It is presumed that the determination of normalized maintenance cost based on continued viable and safe operation is the goal of this report. With that stated, the conditions of the lines will improve in direct relationship to the amount of capital maintenance performed on the lines and will (depending on the order and locations of the work) result in track and structures that would allow higher operating speeds in many portion of line segments. (The next Work Element in this task will address this more.) It should be understood however, that increased speeds do incrementally raise the cost of maintaining track just as increasing carloads or gross tons hauled will.

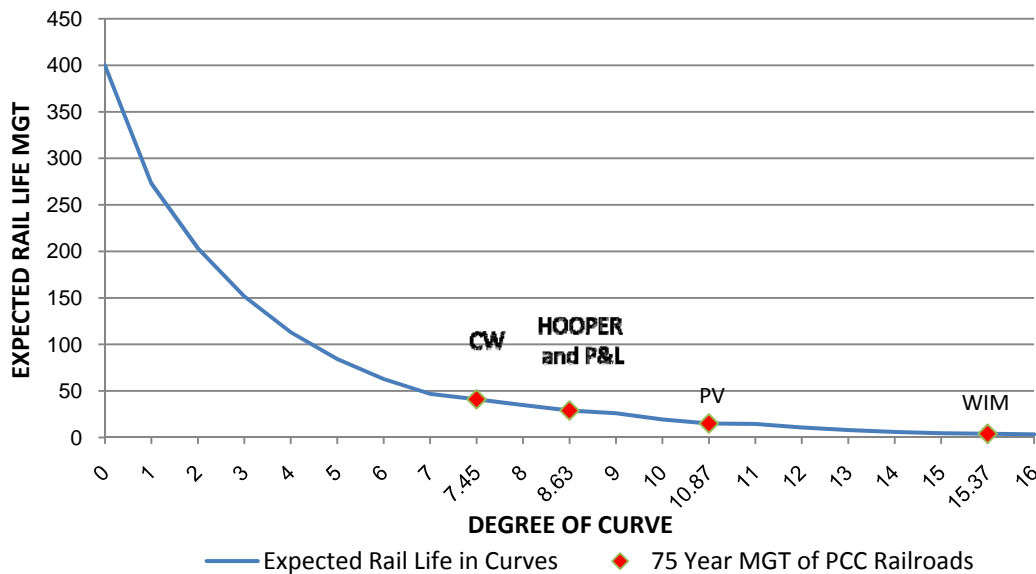
- FRA Track Classes – The Federal Railroad Administration (FRA) Track Safety Standards (CFR Part 213) are track and bridge safety standards that must be met to keep a railroad in operation.. Sometimes one might hear “maintain to Class 2 standards”. While not intended, statements like this are actually contradictory. The FRA safety standard is a minimum condition or state of repair threshold that is set by the government for the safety of the operator and the public. The FRA itself acknowledges that the Track Safety standards are not a construction or maintenance specification. However, the Track Safety Standards can be used as a benchmark in normalized maintenance planning. See Appendix B for additional information.

### Recommended 75 Year Plan

Our analysis attempted to address every significant capital cost, specific to each of the PCC rail segments.

- In the rail analysis, we have included replacing all rail on time that is currently 100lb or smaller, and replacing a small percentage of the 112lb and larger, outside (or high side) rail in curvature areas as well. This includes 25% of curves over 4 degrees to a threshold determined by traffic in MGT and curvature and all rail above that threshold. The following chart helps explain why so little rail would have to be replaced on the PCC if based on wear alone. The replacement rail is assumed to be 112 lb minimum CWR which would require all steel other track material (OTM) to be replaced. And again, the rail is primarily being replaced because of obsolescence, however some of the smaller section rail areas are becoming difficult to maintain because of fatigue failure of bars and rails breaking and the lack of available replacement materials.

**EXPECTED RAIL LIFE vs. CURVATURE CHART**



\* Rail wear assumes no maintenance, rail grinding or rail lubrication. Tangent rail fails thru fatigue.

- In the tie replacement analysis we have included replacing every tie 1.5 times, This replacement equates to a 50 year tie life. The life of a tie is a very debatable subject but somewhat statistically substantiated. While the 2003 Evaluation indicated the tie life on the PCC approaches 60 years, many other sources and studies indicate that tie life is 40 or less years, even considering low traffic. Our experience on these PCC lines shows that 50 years is reasonable starting point tie life for the PCC. If the lines had uniform, well draining ballast and stable subgrade conditions, a 60 year tie life might be approached. However the conditions on the PCC cannot be categorized in that way. The quality of ties being produced and installed in recent decades has generally declined and this also affects tie life as well.
- Joints are considered to be maintained in a systematic formal way twice within the 75 year horizon.
- Ballast is considered to be installed at an average rate of 0.1 tons of ballast per track foot over the entire line three times.
- Surfacing is considered to be performed over the length of each segment 4.5 times in the 75 year horizon.
- In the bridge analysis we have included replacing all of the timber bridges (once). Many of these bridges are in good to fair shape today but will require replacement or substantial reconstruction, at a minimum, in the 75 year window. Our costs for bridge replacement assumes simple, pile with prefabricated concrete spans or steel beam girders replacing the timber structures. We have included an allowance for the steel structures as well that envisions costs that would be associated with their anticipated repair and or retrofits.
- Crossings are considered to be reconstructed or rebuilt twice over the 75 year time period. Paved and wooden crossing surfaces are treated equally for the purposes of this analysis.
- Culverts are considered to be replaced once in the 75 year cycle.
- Ditching is considered to be performed on 1/6 of the subdivision length twice (both sides) in the 75 horizon.
- Main track turnouts are considered and have an incremental allowance for switch ties and steel component replacement over and above that associated with the above aspects in standard track.

The report basis of length and tonnage for each segment is shown below:

- CW line - Cheney to Coulee City – 107.44 miles – tonnage 0.55 MGT (3000 car cars per year)
- P&L line – Marshall to Stateline just short of Moscow ID – 83.04 miles – tonnage 0.39 MGT (2100 cars per year)
- WIM line – Palouse to Stateline short of Potlatch ID – 3.67 miles – tonnage 0.05 MGT (250 cars per year)
- PV line – Winona to Thornton – 31.75 miles – tonnage 0.20 MGT (1050 cars per year)
- Hooper line – Hooper Jct. to Colfax – 51.23 miles – 0.39 MGT (2100 cars per year)

As a result of our assumptions and the criteria of the report, the following table presents the estimated annual costs:

<b>PCC RAIL SYSTEM NORMALIZED/CAPITAL MAINTENANCE COSTS in \$ per MILE per YEAR</b>							
<b>ITEM</b>	<b>PV</b>	<b>HOOPER</b>	<b>PV HOOPER</b>	<b>P&amp;L</b>	<b>WIM</b>	<b>P&amp;L WIM</b>	<b>CW</b>
RAIL	\$9,365	\$5,819	\$7,176	\$3,313	\$10,560	\$3,601	\$6,486
TIES	\$9,078	\$8,970	\$9,011	\$11,501	\$12,156	\$11,529	\$8,547
JOINTS	\$401	\$164	\$255	\$96	\$55	\$94	\$607
SLD + BALLAST	\$1,056	\$1,056	\$1,056	\$1,056	\$1,027	\$1,055	\$1,056
BRIDGE	\$2,746	\$3,530	\$3,230	\$3,351	\$0	\$3,209	\$535
CROSSINGS	\$484	\$336	\$393	\$555	\$872	\$568	\$494
CULVERTS	\$95	\$43	\$63	\$251	\$85	\$244	\$218
DITCHING	\$469	\$469	\$469	\$469	\$457	\$469	\$469
TURNOUTS	\$334	\$355	\$347	\$388	\$0	\$371	\$436
<b>TOTAL</b>	<b>\$24,028</b>	<b>\$20,743</b>	<b>\$22,000</b>	<b>\$20,981</b>	<b>\$24,775</b>	<b>\$21,141</b>	<b>\$18,849</b>

Additional details supporting the table are provided in Appendix A.

## **Discussion**

The typical maintenance cost per mile per year on a shortline might range from \$6,000 to \$10,000 and is highly dependent on a number of factors which are discussed above. First, these costs are usually based on the railroad themselves making the investment and performing the work themselves or through a private contractor. Our costs are based on recent real costs for a public works executed project. (See further clarifications below.) The largest single factor however is that we have included large quantities of rail replacement and bridge replacement/reconstruction. As discussed before, the rail being replaced is as much driven by obsolescence as it is by other issues. With the tonnage on these lines, rail does not generally wear out in 75 years. With that in mind, some shortlines do not accurately account for their rail situation or they already have sufficient heavy rail that will last beyond a reasonable maintenance planning horizon. If the rail replacement (driven by obsolescence) was to be removed from the PV-Hooper line costs, for example, the cost per mile per year drops to the \$14,800 range per mile per year. Many shortlines don't account accurately for their true normalized bridge costs either. If the costs associated with the bridges were removed, the costs would drop to the \$11,600 range.

Another key consideration is the price we have assigned to the ties. This figure is an accurate figure but is based on a couple of key things: low density tie replacement and some work not usually included in tie replacement. The recent WSDOT projects have included very low density tie change out (50-100 ties per mile) and filling of cribs, tamping, and dressing of ties within some of the tie items. If larger scale tie change (400-800 ties per mile) that also allows for tamping and dressing to be included in a surfacing item then the unit price may come down dramatically.

When considering this, the costs are very much in line with what might be expected in light of industry generalizations.

Another relevant factor worthy of discussion is that each aspect of capital track maintenance affects or complements another. For example, if rail was to be aggressively replaced, the future normalized costs associated with joints, ties, and surfacing are reduced. In fact, in the case of joint maintenance, the cost is eliminated from that portion of the line in the future. With respect to ties and surfacing, the replacement of rail and elimination of joints (or reduction of joints) greatly extends the tie life and reduces the need to surface the track. The following work elements will take this into account as we assess the work for specific goals.

One might be curious how the recent rehabilitation work performed by WSDOT should be viewed in light of future anticipated normalized maintenance costs. The 2008 and 2009 work totals approximately \$2.4 million on the CW, \$2.4 million on the P&L (and WIM) and \$2.5 million on the PV-Hooper lines. If we take this information and do a little math we can see that we invested about \$11,200 per mile per year on the CW, \$13,800/m/y on the P&L/WIM and \$15,000/m/y on the PV-Hooper. This might seem discouraging because it appears that all that was done in the last 2 years has “not even kept up”. In one sense this is absolutely true, however, with regard particularly to rail replacement, the quantities of these expensive items were very low in the projects as they should have been with our goal of taking care of more immediate concerns. This in effect means that some other items were performed in greater quantities than would be required for a theoretical steady state for those items. Examples would be joint rehab, ditching, and bridge repairs to name a few.

Crossing signal upgrades have not been included as a capital maintenance cost category because when they are rebuilt or modernized, they are usually funded with public funding that we would consider to be separate from funds use to maintain and rehabilitate the track and structures.

The track charts are the initial basis for the quantities; however they are not correct or authoritative in all locations as they are dated and have not been “officially” maintained.

Costs are based on recent prevailing wage rate, public works, project unit prices. Our analysis does not include the costs of minor routine maintenance currently being performed by the operating railroads. The estimated unit prices do not include mobilization, bonding, engineering, construction management, project management, permits, or taxes.

HDR’s evaluation does not consider repairs that may be necessary to particular auxiliary tracks that are used to provide direct service to particular customers or specific operational movements (such as switching, passing trains, or storing cars).

The 2003 Evaluation uses the concept of “tie-index” and so far this report has not. As noted in the results, the ongoing cost related to ties is the largest single track



infrastructure cost over time. For this report, the tie index discussion is not particularly relevant because our costs are based on a long term horizon. The follow-up work elements will use this concept more. However it is good to note that none of the lines (in 2003) had particularly good tie conditions. The line segments included in this study had indexes (based on 100 being a brand new tie and 0 a defective tie) that ranged between 55 and 39.6. This generally means that in the year 2003 the general condition of the ties was average to below average and that there is little opportunity to continue to defer tie maintenance (replacement) without degradation that will either dictate the need to reduce speed, increase inefficiencies, or increase risk. See Appendix B of the 2003 Evaluation for a thorough discussion of the concept.

PV SUBDIVISION

PV RAIL REPLACEMENT (ALL RAIL SMALLER THAN 112#)						
M.P. BEGIN	M.P. END	T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
0.34	5.15	25,397	1.5	38,096	\$100	\$3,809,600
5.96	15.80	51,955	1.5	77,933	\$100	\$7,793,300
15.85	16.76	4,805	1.5	7,208	\$100	\$720,800
17.16	20.83	19,378	1.5	29,067	\$100	\$2,906,700
21.28	22.73	7,656	1.5	11,484	\$100	\$1,148,400
22.96	24.90	10,243	1.5	15,365	\$100	\$1,536,500
25.09	25.68	3,115	1.5	4,673	\$100	\$467,300
27.77	31.68	20,645	1.5	30,968	\$100	\$3,096,800

LENGTH OF PV SUB (MILES) = 31.75

25% RAIL REPLACEMENT ON CURVED TRACK WITH 4  
 DEGREE CURVES OR GREATER & 112# RAIL OR LARGER = \$821,040  
 TOTAL PRICE = \$22,300,440  
 ANNUAL PRICE PER TRACK MILE = \$9,365

PV SUBDIVISION

PV TIE REPLACEMENT								
M.P. BEGIN	M.P. END	T.F.	# TIES	# TIMES REPLACED	CURVE TIE MULTIPLIER	TOTAL TIES REPLACED	UNIT PRICE	TOTAL PRICE
0.00	31.75	167,640	98,425	1.5	1.22	180,136	\$120	\$21,616,286

1) Based on 50 year tie life

2) Tie multiplier based on accelerated tie replacement through curves

LENGTH OF PV SUB (MILES) = 31.75  
 ASSUMED TIES PER MILE = 3100  
 TIE SPACING (INCHES) = 20.4

TOTAL PRICE = \$21,616,286  
 ANNUAL PRICE PER TRACK MILE = \$9,078

PV SUBDIVISION

PV JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
0.00	0.34	1,795	131	2	212	\$20	\$4,236
0.34	5.68	28,195	75	7.5	12,477	\$20	\$249,535
5.68	5.96	1,478	133	3.5	305	\$20	\$6,104
5.96	15.80	51,955	75	7.5	22,991	\$20	\$459,819
15.80	15.85	264	133	3.5	55	\$20	\$1,090
15.85	16.76	4,805	75	7.5	2,126	\$20	\$42,526
16.76	17.16	2,112	119	2	249	\$20	\$4,985
17.16	20.83	19,378	75	2	2,287	\$20	\$45,734
20.83	21.28	2,376	119	2	280	\$20	\$5,608
21.28	21.96	3,590	75	2	424	\$20	\$8,473
21.96	22.28	1,690	119	2	199	\$20	\$3,989
22.28	22.73	2,376	75	2	280	\$20	\$5,608
22.73	22.99	1,373	131	2	162	\$20	\$3,240
22.99	24.90	10,085	75	2	1,190	\$20	\$23,802
24.90	25.09	1,003	119	2	118	\$20	\$2,367
25.09	25.63	2,851	75	2	336	\$20	\$6,729
25.63	25.68	264	100	2	31	\$20	\$623
25.68	27.77	11,035	131	2	1,302	\$20	\$26,044
27.77	27.81	211	100	2	25	\$20	\$498
27.81	30.88	16,210	75	2	1,913	\$20	\$38,257
30.88	30.93	264	131	2	31	\$20	\$623
30.93	31.68	3,960	75	2	467	\$20	\$9,346
31.68	32.04	1,901	133	2	224	\$20	\$4,487

LENGTH OF PV SUB TRACK (MILES) = 31.75  
 WEIGHTED RAIL LENGTH = 33.9  
 TOTAL # OF RAIL JOINTS = 9,891

TOTAL PRICE = \$953,721  
 ANNUAL PRICE PER TRACK MILE = \$401

PV SUBDIVISION

PV SLD + BALLAST DISTRIBUTION									
M.P. BEGIN	M.P. END	T.F.	# TIMES SURFACED	# TIMES BALLAST	TOTAL SLD T.F.	TOTAL BALLAST TONS	SLD UNIT PRICE	BALLAST UNIT PRICE	TOTAL PRICE
0.00	31.75	167,640	4.5	3	754,380	50,292	\$2	\$20	\$2,514,600

1) Based on 50 year tie life

2) Tie multiplier based on accelerated tie replacement through curves

LENGTH OF PV SUB (MILES) = 31.75

TOTAL PRICE = \$2,514,600  
 ANNUAL PRICE PER TRACK MILE = \$1,056

PV SUBDIVISION

PV BRIDGE REPLACEMENT					
BRIDGE LOCATION	BRIDGE T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
1.51*	150	1	150	\$4,000	\$600,000
1.51	120	1	120	\$5,500	\$660,000
7.21	60	1	60	\$5,500	\$330,000
7.73	45	1	45	\$5,500	\$247,500
8.39	60	1	60	\$5,500	\$330,000
8.72	90	1	90	\$5,500	\$495,000
11.04	45	1	45	\$5,500	\$247,500
11.75	15	1	15	\$5,500	\$82,500
12.24	30	1	30	\$5,500	\$165,000
13.65	90	1	90	\$5,500	\$495,000
14.16	30	1	30	\$5,500	\$165,000
15.49	45	1	45	\$5,500	\$247,500
18.13	105	1	105	\$5,500	\$577,500
20.05	60	1	60	\$5,500	\$330,000
22.96	60	1	60	\$5,500	\$330,000
24.91	45	1	45	\$5,500	\$247,500
25.51	60	1	60	\$5,500	\$330,000
30.31	120	1	120	\$5,500	\$660,000

\* DENOTES STEEL BRIDGE

LENGTH OF PV SUB (MILES) = 31.75

TOTAL PRICE = \$6,540,000

ANNUAL PRICE PER TRACK MILE = \$2,746

PV SUBDIVISION

PV CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
0.01	24	2	48	\$550	\$26,400
0.60	16	2	32	\$550	\$17,600
1.20	16	2	32	\$550	\$17,600
2.50	16	2	32	\$550	\$17,600
4.10	16	2	32	\$550	\$17,600
4.80	16	2	32	\$550	\$17,600
5.30	16	2	32	\$550	\$17,600
5.95	16	2	32	\$550	\$17,600
5.55	16	2	32	\$550	\$17,600
7.80	16	2	32	\$550	\$17,600
7.98	24	2	48	\$550	\$26,400
8.35	16	2	32	\$550	\$17,600
8.85	16	2	32	\$550	\$17,600
9.35	16	2	32	\$550	\$17,600
9.99	16	2	32	\$550	\$17,600
10.30	16	2	32	\$550	\$17,600
10.70	16	2	32	\$550	\$17,600
11.50	32	2	64	\$550	\$35,200
12.10	16	2	32	\$550	\$17,600
12.30	16	2	32	\$550	\$17,600
12.90	24	2	48	\$550	\$26,400
13.30	16	2	32	\$550	\$17,600
13.80	16	2	32	\$550	\$17,600
14.40	60	2	120	\$550	\$66,000
14.70	16	2	32	\$550	\$17,600
15.10	16	2	32	\$550	\$17,600
15.48	16	2	32	\$550	\$17,600
16.25	16	2	32	\$550	\$17,600
17.33	16	2	32	\$550	\$17,600
17.43	16	2	32	\$550	\$17,600
17.70	16	2	32	\$550	\$17,600
17.80	24	2	48	\$550	\$26,400
18.20	60	2	120	\$550	\$66,000
18.40	24	2	48	\$550	\$26,400
18.50	16	2	32	\$550	\$17,600
19.25	16	2	32	\$550	\$17,600
20.11	16	2	32	\$550	\$17,600

PV SUBDIVISION

21.50	16	2	32	\$550	\$17,600
21.90	16	2	32	\$550	\$17,600
22.30	16	2	32	\$550	\$17,600
23.15	16	2	32	\$550	\$17,600
23.50	16	2	32	\$550	\$17,600
24.30	48	2	96	\$550	\$52,800
25.60	24	2	48	\$550	\$26,400
25.80	16	2	32	\$550	\$17,600
26.50	16	2	32	\$550	\$17,600
27.00	16	2	32	\$550	\$17,600
27.50	16	2	32	\$550	\$17,600
28.45	16	2	32	\$550	\$17,600
30.00	24	2	48	\$550	\$26,400
30.25	16	2	32	\$550	\$17,600
31.10	16	2	32	\$550	\$17,600
31.20	24	2	48	\$550	\$26,400

LENGTH OF PV SUB (MILES) = 31.75

TOTAL PRICE = \$1,152,800

ANNUAL PRICE PER TRACK MILE = \$484



PV SUBDIVISION

PV CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
1.09	60	CMP	48	1	60	\$250	\$15,000
1.92	20	CMP	12	1	20	\$100	\$2,000
2.50	20	CMP	12	1	20	\$100	\$2,000
3.01	30	CMP	12	1	30	\$100	\$3,000
3.17	30	CMP	12	1	30	\$100	\$3,000
3.50	30	CMP	12	1	30	\$100	\$3,000
4.56	60	CONC	36	1	60	\$100	\$6,000
4.70	30	CMP	18	1	30	\$100	\$3,000
5.99	30	CONC	12	1	30	\$100	\$3,000
6.20	36	CIP	18	1	36	\$100	\$3,600
6.43	36	CIP	18	1	36	\$100	\$3,600
6.57	36	CIP	18	1	36	\$100	\$3,600
6.99	50	CONC	36	1	50	\$100	\$5,000
7.45	30	CIP	18	1	30	\$100	\$3,000
8.95	40	CMP	24	1	40	\$100	\$4,000
9.20	30	CMP	24	1	30	\$100	\$3,000
9.65	50	CMP	10	1	50	\$100	\$5,000
9.75	50	CMP	12	1	50	\$100	\$5,000
9.90	30	CMP	12	1	30	\$100	\$3,000
10.35	50	CONC	48	1	50	\$250	\$12,500
10.75	20	CMP	12	1	20	\$100	\$2,000
14.54	20	CMP	30	1	20	\$100	\$2,000
15.10	20	CIP	24	1	20	\$100	\$2,000
16.01	20	CIP	12	1	20	\$100	\$2,000
16.11	30	CONC	18	1	30	\$100	\$3,000
16.25	30	CIP	24	1	30	\$100	\$3,000
16.75	100	CIP	24	1	100	\$100	\$10,000
17.25	100	CIP	24	1	100	\$100	\$10,000
17.30	60	CIP	24	1	60	\$100	\$6,000
17.43	20	CMP	18	1	20	\$100	\$2,000
17.60	60	CMP	24	1	60	\$100	\$6,000
18.34	50	CMP	18	1	50	\$100	\$5,000
18.35	50	CMP	24	1	50	\$100	\$5,000
18.50	40	CIP	24	1	40	\$100	\$4,000
18.75	100	CIP	24	1	100	\$100	\$10,000
19.05	100	CIP	24	1	100	\$100	\$10,000
20.00	100	CMP	24	1	100	\$100	\$10,000

PV SUBDIVISION

PV CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
20.80	30	CONC	12	1	30	\$100	\$3,000
21.05	20	CMP	12	1	20	\$100	\$2,000
21.10	20	CMP	12	1	20	\$100	\$2,000
22.77	20	CMP	12	1	20	\$100	\$2,000
23.26	20	CMP	24	1	20	\$100	\$2,000
23.74	20	CMP	24	1	20	\$100	\$2,000
24.40	30	CMP	24	1	30	\$100	\$3,000
24.53	30	CMP	24	1	30	\$100	\$3,000
24.80	30	CMP	24	1	30	\$100	\$3,000
26.60	60	CIP	24	1	60	\$100	\$6,000
26.80	80	CIP	24	1	80	\$100	\$8,000
27.00	80	CIP	24	1	80	\$100	\$8,000

1) Culvert lengths are approximate.

LENGTH OF PV SUB (MILES) = 31.75

TOTAL PRICE = \$227,300  
 ANNUAL PRICE PER TRACK MILE = \$95

PV SUBDIVISION

PV DITCHING						
M.P. BEGIN	M.P. END	DITCH L.F.	# TIMES EXCAVATED	TOTAL L.F. RESTORED	UNIT PRICE	TOTAL PRICE
0	31.75	55,880	2	111,760	\$10	\$1,117,600

1) 1/6 of overall subdivision length will be ditched 2 times in 75 years - both sides of track.

LENGTH OF PV SUB (MILES) = 31.75

TOTAL PRICE = \$1,117,600  
 ANNUAL PRICE PER DITCH L.F. = \$469

PV SUBDIVISION

PV TURNOUTS						
M.P. BEGIN	STATION	RAIL WEIGHT	FROG	REPAIR ALLOWANCE	UNIT PRICE	TOTAL PRICE
0.15	Winona	133	10	1	\$45,000	\$45,000
1.17	Wye	133	10	1	\$45,000	\$45,000
0.45	Winona	75	9	1	\$60,000	\$60,000
0.85	Winona	75	9	1	\$60,000	\$60,000
11.3	Willada	75	9	1	\$60,000	\$60,000
12	Willada	75	9	1	\$60,000	\$60,000
18.21	St. John	75	9	1	\$60,000	\$60,000
18.55	St. John	75	9	1	\$60,000	\$60,000
19.7	Juno	75	9	1	\$60,000	\$60,000
20	Juno	112	9	1	\$45,000	\$45,000
25.25	Sunset	75	9	1	\$60,000	\$60,000
25.5	Sunset	75	9	1	\$60,000	\$60,000
30.8	Thornton	75	9	1	\$60,000	\$60,000
31.3	Thornton	75	9	1	\$60,000	\$60,000

LENGTH OF PV SUB (MILES) = 31.75

TOTAL PRICE = \$795,000  
 ANNUAL PRICE PER TRACK MILE = \$334

HOOPER SUBDIVISION

HOOPER RAIL REPLACEMENT (ALL RAIL SMALLER THAN 112#)						
M.P. BEGIN	M.P. END	T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
26.47	31.95	28,934	1	28,934	\$100	\$2,893,400
35.60	41.61	31,733	1	31,733	\$100	\$3,173,300
44.40	51.55	37,752	1	37,752	\$100	\$3,775,200
51.60	51.95	1,848	1	1,848	\$100	\$184,800
52.30	55.40	16,368	1	16,368	\$100	\$1,636,800
55.46	57.40	10,243	1	10,243	\$100	\$1,024,300
57.50	58.29	4,171	1	4,171	\$100	\$417,100
58.40	72.83	76,190	1	76,190	\$100	\$7,619,000
72.39	73.63	6,547	1	6,547	\$100	\$654,700

HOOPER CURVE RAIL REPLACEMENT (8.63 DEGREE CURVES AND GREATER WITH RAIL LARGER THAN 112#)						
M.P. BEGIN	M.P. END	L.F.	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
34.02	34.15	686	1	686	\$50	\$34,300
77.18	77.28	528	1	528	\$50	\$26,400

LENGTH OF HOOPER SUB (MILES) = 51.23

25% REPLACEMENT ON CURVED TRACK 4 DEGREE to  
 8.63 DEGREE WITH 112# RAIL OR LARGER = \$918,720  
 TOTAL PRICE = \$22,358,020  
 ANNUAL PRICE PER TRACK MILE = \$5,819

HOOPER SUBDIVISION

HOOPER TIE REPLACEMENT								
M.P. BEGIN	M.P. END	T.F.	# TIES	# TIMES REPLACED	CURVE TIE MULTIPLIER	TOTAL TIES REPLACED	UNIT PRICE	TOTAL PRICE
26.47	77.70	270,494	158,813	1.5	1.21	287,215	\$120	\$34,465,780

1) Based on 50 year tie life

2) Tie multiplier based on accelerated tie replacement through curves

LENGTH OF HOOPER SUB (MILES) = 51.23  
 ASSUMED TIES PER MILE = 3100  
 TIE SPACING (INCHES) = 20.4

TOTAL PRICE = \$34,465,780  
 ANNUAL PRICE PER TRACK MILE = \$8,970

HOOPER SUBDIVISION

HOOPER JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
26.47	26.52	264	90	2	31	\$20	\$615
26.52	31.95	28,670	90	2	3,341	\$20	\$66,828
31.95	35.60	19,272	133	2	2,246	\$20	\$44,922
35.60	41.61	31,733	90	2	3,698	\$20	\$73,967
41.61	44.40	14,731	133	2	1,717	\$20	\$34,337
44.40	51.55	37,752	100	2	4,400	\$20	\$87,997
51.55	51.60	264	131	2	31	\$20	\$615
51.60	51.95	1,848	100	2	215	\$20	\$4,308
51.95	52.30	1,848	133	2	215	\$20	\$4,308
52.30	55.40	16,368	100	2	1,908	\$20	\$38,153
55.40	55.46	317	131	2	37	\$20	\$739
55.46	57.40	10,243	100	2	1,194	\$20	\$23,876
57.40	57.50	528	133	2	62	\$20	\$1,231
57.50	58.29	4,171	100	2	486	\$20	\$9,722
58.29	58.40	581	133	2	68	\$20	\$1,354
58.40	65.29	36,379	100	2	4,240	\$20	\$84,797
65.29	72.83	39,811	90	2	4,640	\$20	\$92,797
72.83	72.93	528	131	2	62	\$20	\$1,231
72.93	73.63	3,696	90	2	431	\$20	\$8,615
73.63	77.70	21,490	131	2	2,505	\$20	\$50,092

LENGTH OF HOOPER SUB TRACK (MILES) = 51.23  
 WEIGHTED RAIL LENGTH = 34.3  
 TOTAL # OF RAIL JOINTS = 15,763

TOTAL PRICE = \$630,502  
 ANNUAL PRICE PER TRACK MILE = \$164

HOOPER SUBDIVISION

HOOPER SLD + BALLAST DISTRIBUTION									
M.P. BEGIN	M.P. END	T.F.	# TIMES SURFACED	# TIMES BALLAST DISTRIBUTION	TOTAL SLD T.F.	TOTAL BALLAST TONS	SLD UNIT PRICE	BALLAST UNIT PRICE	TOTAL PRICE
26.47	77.70	270,494	4.5	3	1,217,223	81,148	\$2	\$20	\$4,057,410

1) Ballast distribution based on 0.1 ton per track foot

LENGTH OF HOOPER SUB (MILES) = 51.23

TOTAL PRICE = \$4,057,410  
 ANNUAL PRICE PER TRACK MILE = \$1,056



HOOPER SUBDIVISION

HOOPER BRIDGE REPLACEMENT					
BRIDGE LOCATION	BRIDGE T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
26.47*	210	1	210	\$4,000	\$840,000
26.47	180	1	180	\$5,500	\$990,000
32.72	15	1	15	\$5,500	\$82,500
33.17	45	1	45	\$5,500	\$247,500
33.71	120	1	120	\$5,500	\$660,000
33.90	135	1	135	\$5,500	\$742,500
33.99	105	1	105	\$5,500	\$577,500
36.91	60	1	60	\$5,500	\$330,000
37.22	60	1	60	\$5,500	\$330,000
44.78	120	1	120	\$5,500	\$660,000
48.60	30	1	30	\$5,500	\$165,000
52.00	195	1	195	\$5,500	\$1,072,500
52.64	90	1	90	\$5,500	\$495,000
55.25	120	1	120	\$5,500	\$660,000
55.42*	45	1	45	\$4,000	\$180,000
56.10	75	1	75	\$5,500	\$412,500
56.53	90	1	90	\$5,500	\$495,000
56.97	90	1	90	\$5,500	\$495,000
57.22	15	1	15	\$5,500	\$82,500
60.67	45	1	45	\$5,500	\$247,500
64.94	105	1	105	\$5,500	\$577,500
65.52	105	1	105	\$5,500	\$577,500
66.74	60	1	60	\$5,500	\$330,000
67.77	120	1	120	\$5,500	\$660,000
68.83	75	1	75	\$5,500	\$412,500
71.38	75	1	75	\$5,500	\$412,500
75.90*	57	1	57	\$4,000	\$228,000
77.23*	150	1	150	\$4,000	\$600,000

\* DENOTES STEEL BRIDGE

LENGTH OF HOOPER SUB (MILES) = 51.23

TOTAL PRICE = \$13,563,000

ANNUAL PRICE PER TRACK MILE = \$3,530

HOOPER SUBDIVISION

HOOPER CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
26.55	16	2	32	\$550	\$17,600
26.95	24	2	48	\$550	\$26,400
28.60	26	2	52	\$550	\$28,600
29.70	16	2	32	\$550	\$17,600
30.75	16	2	32	\$550	\$17,600
33.35	24	2	48	\$550	\$26,400
35.61	16	2	32	\$550	\$17,600
36.10	16	2	32	\$550	\$17,600
37.35	16	2	32	\$550	\$17,600
39.02	16	2	32	\$550	\$17,600
41.40	32	2	64	\$550	\$35,200
41.70	24	2	48	\$550	\$26,400
43.90	16	2	32	\$550	\$17,600
44.20	16	2	32	\$550	\$17,600
45.00	16	2	32	\$550	\$17,600
44.50	16	2	32	\$550	\$17,600
46.80	16	2	32	\$550	\$17,600
48.80	24	2	48	\$550	\$26,400
52.20	16	2	32	\$550	\$17,600
52.90	16	2	32	\$550	\$17,600
54.25	16	2	32	\$550	\$17,600
54.80	16	2	32	\$550	\$17,600
56.20	24	2	48	\$550	\$26,400
56.75	16	2	32	\$550	\$17,600
57.09	16	2	32	\$550	\$17,600
57.50	16	2	32	\$550	\$17,600
57.90	24	2	48	\$550	\$26,400
58.10	24	2	48	\$550	\$26,400
59.20	16	2	32	\$550	\$17,600
60.30	16	2	32	\$550	\$17,600
60.80	16	2	32	\$550	\$17,600
61.55	16	2	32	\$550	\$17,600
62.80	16	2	32	\$550	\$17,600
63.75	24	2	48	\$550	\$26,400
64.92	16	2	32	\$550	\$17,600
65.55	16	2	32	\$550	\$17,600
66.10	16	2	32	\$550	\$17,600

HOOPER SUBDIVISION

HOOPER CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
66.60	24	2	48	\$550	\$26,400
67.50	16	2	32	\$550	\$17,600
68.40	16	2	32	\$550	\$17,600
68.70	96	2	192	\$550	\$105,600
69.70	16	2	32	\$550	\$17,600
70.60	16	2	32	\$550	\$17,600
71.10	16	2	32	\$550	\$17,600
71.40	16	2	32	\$550	\$17,600
72.40	16	2	32	\$550	\$17,600
72.50	24	2	48	\$550	\$26,400
75.15	16	2	32	\$550	\$17,600
76.05	24	2	48	\$550	\$26,400
76.40	24	2	48	\$550	\$26,400
77.20	48	2	96	\$550	\$52,800
77.20	16	2	32	\$550	\$17,600
77.30	32	2	64	\$550	\$35,200
77.40	20	2	40	\$550	\$22,000
77.50	40	2	80	\$550	\$44,000
77.70	16	2	32	\$550	\$17,600

LENGTH OF HOOPER SUB (MILES) = 51.23

TOTAL PRICE = \$1,291,400

ANNUAL PRICE PER TRACK MILE = \$336

## HOOPER SUBDIVISION

HOOPER CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
34.25	20	CONC	12	1	20	\$100	\$2,000
34.34	20	CONC	12	1	20	\$100	\$2,000
34.50	30	CONC	24	1	30	\$100	\$3,000
34.80	40	CONC	24	1	40	\$100	\$4,000
35.20	40	CONC	24	1	40	\$100	\$4,000
35.30	40	CONC	24	1	40	\$100	\$4,000
35.61	20	CMP	18	1	20	\$100	\$2,000
35.75	20	CMP	18	1	20	\$100	\$2,000
36.51	20	CONC	18	1	20	\$100	\$2,000
37.51	60	CMP	48	1	60	\$250	\$15,000
38.25	30	CONC	36	1	30	\$100	\$3,000
39.01	20	CMP	12	1	20	\$100	\$2,000
40.94	20	CMP	12	1	20	\$100	\$2,000
41.58	40	CMP	24	1	40	\$100	\$4,000
45.73	20	CIP	12	1	20	\$100	\$2,000
46.10	20	CMP	12	1	20	\$100	\$2,000
47.10	16	CMP	12	1	16	\$100	\$1,600
47.48	40	CMP	36	1	40	\$100	\$4,000
47.80	16	CMP	12	1	16	\$100	\$1,600
48.60	40	CMP	36	1	40	\$100	\$4,000
53.70	20	CMP	12	1	20	\$100	\$2,000
54.20	20	CMP	12	1	20	\$100	\$2,000
54.36	16	CONC	12	1	16	\$100	\$1,600
54.42	16	CONC	12	1	16	\$100	\$1,600
54.60	20	CMP	12	1	20	\$100	\$2,000
54.65	24	CMP	24	1	24	\$100	\$2,400
54.80	20	CIP	12	1	20	\$100	\$2,000
56.18	12	CMP	24	1	12	\$100	\$1,200
56.27	60	CMP	24	1	60	\$100	\$6,000
57.97	200	CMP	18	1	200	\$100	\$20,000
58.14	18	CMP	32	1	18	\$100	\$1,800
58.39	80	CMP	24	1	80	\$100	\$8,000
58.49	40	CMP	24	1	40	\$100	\$4,000
59.24	20	CMP	24	1	20	\$100	\$2,000
59.99	24	CMP	24	1	24	\$100	\$2,400
60.15	16	CONC	18	1	16	\$100	\$1,600
61.49	20	CMP	24	1	20	\$100	\$2,000

HOOPER SUBDIVISION

HOOPER CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
63.73	8	WB	12	1	8	\$100	\$800
63.87	16	CONC	24	1	16	\$100	\$1,600
66.00	16	CONC	24	1	16	\$100	\$1,600
66.11	20	CMP	24	1	20	\$100	\$2,000
66.41	20	CMP	24	1	20	\$100	\$2,000
66.70	20	CMP	24	1	20	\$100	\$2,000
67.50	20	CMP	24	1	20	\$100	\$2,000
67.65	20	CMP	24	1	20	\$100	\$2,000
67.60	20	CMP	24	1	20	\$100	\$2,000
69.25	30	CMP	18	1	30	\$100	\$3,000
69.50	16	CONC	18	1	16	\$100	\$1,600
69.55	16	CONC	18	1	16	\$100	\$1,600
69.71	16	CONC	18	1	16	\$100	\$1,600
69.97	20	CMP	18	1	20	\$100	\$2,000
70.23	16	CMP	18	1	16	\$100	\$1,600
70.60	16	CMP	12	1	16	\$100	\$1,600
71.12	20	CMP	12	1	20	\$100	\$2,000
71.24	16	CB	36	1	16	\$100	\$1,600
71.60	16	CONC	12	1	16	\$100	\$1,600
72.09	20	CMP	12	1	20	\$100	\$2,000
72.17	16	WB	12	1	16	\$100	\$1,600
72.51	40	CMP	12	1	40	\$100	\$4,000
72.53	30	CONC	18	1	30	\$100	\$3,000
72.60	16	WB	12	1	16	\$100	\$1,600
72.80	30	WB	12	1	30	\$100	\$3,000
73.15	30	CMP	12	1	30	\$100	\$3,000

1) Culvert lengths are approximate.

LENGTH OF HOOPER SUB (MILES) = 51.23

TOTAL PRICE = \$166,600  
 ANNUAL PRICE PER TRACK MILE = \$43

HOOPER SUBDIVISION

HOOPER DITCHING						
M.P. BEGIN	M.P. END	DITCH L.F.	# TIMES EXCAVATED	TOTAL L.F. RESTORED	UNIT PRICE	TOTAL PRICE
26.47	77.70	90,165	2	180,330	\$10	\$1,803,300

1) 1/6 of overall subdivision length will be ditched 2 times in 75 years - both sides of track.

LENGTH OF HOOPER SUB (MILES) = 51.23

TOTAL PRICE = \$1,803,300  
 ANNUAL PRICE PER TRACK MILE = \$469

HOOPER SUBDIVISION

HOOPER TURNOUTS						
M.P. BEGIN	STATION	RAIL WEIGHT	FROG	REPAIR ALLOWANCE	UNIT PRICE	TOTAL PRICE
26.60	Hooper	90	9	1	\$60,000	\$60,000
26.90	Hooper	90	9	1	\$60,000	\$60,000
32.80	Blaze	133	10	1	\$45,000	\$45,000
36.92	Pampa	90	9	1	\$60,000	\$60,000
37.20	Pampa	90	9	1	\$60,000	\$60,000
40.70	Wye	90	9	1	\$60,000	\$60,000
41.25	LaCrosse	90	9	1	\$60,000	\$60,000
41.50	LaCrosse	90	9	1	\$60,000	\$60,000
41.60	LaCrosse	133	10	1	\$45,000	\$45,000
45.95	Sutton	100	9	1	\$60,000	\$60,000
52.03	Winona	133	10	1	\$45,000	\$45,000
52.15	Winona	133	10	1	\$45,000	\$45,000
52.25	Winona	100	9	1	\$60,000	\$60,000
57.50	Endicott	133	10	1	\$45,000	\$45,000
58.30	Endicott	133	10	1	\$45,000	\$45,000
64.55	Thera	100	9	1	\$60,000	\$60,000
64.92	Thera	100	9	1	\$60,000	\$60,000
72.10	Mockonema	90	9	1	\$60,000	\$60,000
72.55	Mockonema	90	9	1	\$60,000	\$60,000
72.95	Mockonema	131	10	1	\$45,000	\$45,000
77.21	Colfax	131	10	1	\$45,000	\$45,000
77.23	Colfax	131	10	1	\$45,000	\$45,000
77.30	Wye	90	9	1	\$60,000	\$60,000
77.40	Colfax	90	9	1	\$60,000	\$60,000
77.45	Colfax	90	9	1	\$60,000	\$60,000

LENGTH OF HOOPER SUB (MILES) = 51.23

TOTAL PRICE = \$1,365,000  
 ANNUAL PRICE PER TRACK MILE = \$355

P & L SUBDIVISION

P&L RAIL REPLACEMENT (ALL RAIL SMALLER THAN 112#)						
M.P. BEGIN	M.P. END	T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
27.85	28.13	1,478	1	1,478	\$100	\$147,800
35.08	38.17	16,315	1	16,315	\$100	\$1,631,500
38.22	38.24	106	1	106	\$100	\$10,600
38.50	44.41	31,205	1	31,205	\$100	\$3,120,500
44.41	44.83	2,218	1	2,218	\$100	\$221,800
44.83	45.34	2,693	1	2,693	\$100	\$269,300
46.86	47.88	5,386	1	5,386	\$100	\$538,600
48.84	49.56	3,802	1	3,802	\$100	\$380,200
49.88	50.20	1,690	1	1,690	\$100	\$169,000
50.50	51.30	4,224	1	4,224	\$100	\$422,400
52.09	52.22	686	1	686	\$100	\$68,600
52.96	53.10	739	1	739	\$100	\$73,900
54.23	54.33	528	1	528	\$100	\$52,800
54.35	54.40	264	1	264	\$100	\$26,400
55.13	55.52	2,059	1	2,059	\$100	\$205,900
55.95	56.81	4,541	1	4,541	\$100	\$454,100
57.07	57.22	792	1	792	\$100	\$79,200
57.65	58.03	2,006	1	2,006	\$100	\$200,600
58.84	59.29	2,376	1	2,376	\$100	\$237,600
59.49	60.89	7,392	1	7,392	\$100	\$739,200
62.13	63.84	9,029	1	9,029	\$100	\$902,900
64.35	64.43	422	1	422	\$100	\$42,200
64.68	64.80	634	1	634	\$100	\$63,400
65.08	67.54	12,989	1	12,989	\$100	\$1,298,900
67.72	68.10	2,006	1	2,006	\$100	\$200,600
68.29	69.30	5,333	1	5,333	\$100	\$533,300
69.95	70.41	2,429	1	2,429	\$100	\$242,900
70.46	70.89	2,270	1	2,270	\$100	\$227,000
71.04	71.84	4,224	1	4,224	\$100	\$422,400
72.14	73.03	4,699	1	4,699	\$100	\$469,900
73.21	74.08	4,594	1	4,594	\$100	\$459,400
74.33	75.09	4,013	1	4,013	\$100	\$401,300
75.17	75.32	792	1	792	\$100	\$79,200
76.55	77.14	3,115	1	3,115	\$100	\$311,500
77.23	84.03	35,904	1	35,904	\$100	\$3,590,400



P & L SUBDIVISION

P&L CURVE RAIL REPLACEMENT (8.63 DEGREE CURVES AND GREATER WITH RAIL LARGER THAN 112#)						
M.P. BEGIN	M.P. END	L.F.	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
46.17	46.35	950	1	950	\$50	\$47,500
47.87	48.18	1,637	1	1,637	\$50	\$81,850
48.20	48.37	898	1	898	\$50	\$44,900
48.42	48.64	1,162	1	1,162	\$50	\$58,100
48.69	48.82	686	1	686	\$50	\$34,300
51.45	51.69	1,267	1	1,267	\$50	\$63,350
53.97	54.18	1,109	1	1,109	\$50	\$55,450
54.65	54.73	422	1	422	\$50	\$21,100
54.76	54.93	898	1	898	\$50	\$44,900
54.96	55.08	634	1	634	\$50	\$31,700
55.52	55.70	950	1	950	\$50	\$47,500
57.25	57.63	2,006	1	2,006	\$50	\$100,300
58.38	58.51	686	1	686	\$50	\$34,300
58.54	58.81	1,426	1	1,426	\$50	\$71,300
59.25	59.45	1,056	1	1,056	\$50	\$52,800
61.17	61.68	2,693	1	2,693	\$50	\$134,650
64.80	65.97	6,178	1	6,178	\$50	\$308,900
75.55	75.83	1,478	1	1,478	\$50	\$73,900
75.95	76.17	1,162	1	1,162	\$50	\$58,100
77.14	77.29	792	1	792	\$50	\$39,600
83.02	83.10	422	1	422	\$50	\$21,100

LENGTH OF P&L SUB (MILES) = 83.04

25% REPLACEMENT ON CURVED TRACK 4 DEGREE to  
 8.63 DEGREE WITH 112# RAIL OR LARGER = \$912,120  
 TOTAL PRICE = \$20,633,020  
 ANNUAL PRICE PER TRACK MILE = \$3,313

P & L SUBDIVISION

P&L TIE REPLACEMENT								
M.P. BEGIN	M.P. END	T.F.	# TIES	# TIMES REPLACED	CURVE TIE MULTIPLIER	TOTAL TIES REPLACED	UNIT PRICE	TOTAL PRICE
1.00	84.04	438,451	257,424	1.5	1.55	596,923	\$120	\$71,630,778

1) Based on 50 year tie life

2) Tie multiplier based on accelerated tie replacement through curves

LENGTH OF P&L SUB (MILES) = 83.04  
 ASSUMED TIES PER MILE = 3100  
 TIE SPACING (INCHES) = 20.4

TOTAL PRICE = \$71,630,778  
 ANNUAL PRICE PER TRACK MILE = \$11,501

P & L SUBDIVISION

P&L JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
0	0.12	634	115	2	72	\$20	\$1,445
0.34	0.36	106	115	2	12	\$20	\$242
0.41	0.44	158	115	2	18	\$20	\$360
0.74	0.89	792	112	2	90	\$20	\$1,805
0.89	0.96	370	115	2	42	\$20	\$843
0.96	1.12	845	112	2	96	\$20	\$1,926
2.21	2.27	317	112	2	36	\$20	\$723
2.49	2.57	422	112	2	48	\$20	\$962
2.72	3.30	3,062	112	2	349	\$20	\$6,979
8.95	9.20	1,320	112	2	150	\$20	\$3,009
10.84	10.96	634	112	2	72	\$20	\$1,445
10.96	10.98	106	112	2	12	\$20	\$242
11.46	11.49	158	112	2	18	\$20	\$360
19.44	19.59	792	112	2	90	\$20	\$1,805
21.58	21.70	634	112	2	72	\$20	\$1,445
22.89	23.07	950	112	2	108	\$20	\$2,165
23.95	24.10	792	112	2	90	\$20	\$1,805
26.37	26.40	158	112	2	18	\$20	\$360
26.47	26.55	422	112	2	48	\$20	\$962
27.85	28.13	1,478	112	2	168	\$20	\$3,369
28.42	28.59	898	112	2	102	\$20	\$2,047
31.02	31.09	370	112	2	42	\$20	\$843
31.82	31.85	158	115	2	18	\$20	\$360
32.13	33.72	8,395	115	2	957	\$20	\$19,135
33.88	34.94	5,597	112	2	638	\$20	\$12,757
34.96	35.08	634	112	2	72	\$20	\$1,445
35.08	38.17	16,315	90	2	1,859	\$20	\$37,187
38.17	38.21	211	112	2	24	\$20	\$481
38.21	38.24	158	90	2	18	\$20	\$360
38.24	38.50	1,373	112	2	156	\$20	\$3,129
38.50	39.72	6,442	90	2	734	\$20	\$14,683
39.72	40.00	1,478	100	2	168	\$20	\$3,369
40.00	44.40	23,232	90	2	2,648	\$20	\$52,952
44.40	44.83	2,270	112	2	259	\$20	\$5,174
44.83	45.04	1,109	90	2	126	\$20	\$2,528
45.04	45.33	1,531	100	2	174	\$20	\$3,490
45.33	46.25	4,858	112	2	554	\$20	\$11,073
46.35	46.51	845	100	2	96	\$20	\$1,926
46.85	47.50	3,432	90	2	391	\$20	\$7,823

P & L SUBDIVISION

P&L JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
47.50	47.88	2,006	100	2	229	\$20	\$4,572
47.88	48.70	4,330	112	2	493	\$20	\$9,869
48.70	48.84	739	115	2	84	\$20	\$1,684
48.84	49.28	2,323	100	2	265	\$20	\$5,295
49.28	49.56	1,478	90	2	168	\$20	\$3,369
49.56	49.64	422	115	2	48	\$20	\$962
49.64	49.73	475	112	2	54	\$20	\$1,083
49.73	49.76	158	132	2	18	\$20	\$360
49.76	49.86	528	112	2	60	\$20	\$1,203
49.86	49.88	106	115	2	12	\$20	\$242
49.88	49.91	158	112	2	18	\$20	\$360
49.91	49.99	422	90	2	48	\$20	\$962
49.99	50.19	1,056	100	2	120	\$20	\$2,407
50.19	50.50	1,637	112	2	187	\$20	\$3,731
50.50	50.96	2,429	90	2	277	\$20	\$5,536
50.96	51.30	1,795	100	2	205	\$20	\$4,091
51.30	51.34	211	112	2	24	\$20	\$481
51.44	51.71	1,426	115	2	163	\$20	\$3,250
51.81	52.96	6,072	112	2	692	\$20	\$13,840
52.96	53.10	739	100	2	84	\$20	\$1,684
55.95	56.82	4,594	100	2	524	\$20	\$10,471
57.07	57.22	792	100	2	90	\$20	\$1,805
57.22	57.65	2,270	115	2	259	\$20	\$5,174
57.65	58.00	1,848	100	2	211	\$20	\$4,212
58.00	58.84	4,435	112	2	505	\$20	\$10,109
58.84	59.28	2,323	90	2	265	\$20	\$5,295
59.28	59.49	1,109	112	2	126	\$20	\$2,528
59.49	59.70	1,109	85	2	126	\$20	\$2,528
59.70	59.73	158	90	2	18	\$20	\$360
59.73	59.87	739	100	2	84	\$20	\$1,684
59.87	60.45	3,062	85	2	349	\$20	\$6,979
60.45	60.55	528	100	2	60	\$20	\$1,203
60.55	60.73	950	85	2	108	\$20	\$2,165
60.73	60.88	792	100	2	90	\$20	\$1,805
60.88	62.13	6,600	112	2	752	\$20	\$15,043
62.13	62.39	1,373	100	2	156	\$20	\$3,129
62.39	62.59	1,056	85	2	120	\$20	\$2,407
62.59	62.82	1,214	100	2	138	\$20	\$2,767
62.82	63.61	4,171	85	2	475	\$20	\$9,507

P & L SUBDIVISION

P&L JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
63.61	63.83	1,162	100	2	132	\$20	\$2,649
63.83	63.94	581	112	2	66	\$20	\$1,324
64.20	64.35	792	112	2	90	\$20	\$1,805
64.35	64.43	422	90	2	48	\$20	\$962
64.43	64.68	1,320	112	2	150	\$20	\$3,009
64.68	64.79	581	100	2	66	\$20	\$1,324
64.79	64.99	1,056	112	2	120	\$20	\$2,407
64.99	65.08	475	112	2	54	\$20	\$1,083
65.08	65.22	739	100	2	84	\$20	\$1,684
65.22	65.32	528	85	2	60	\$20	\$1,203
65.32	65.75	2,270	100	2	259	\$20	\$5,174
65.75	65.82	370	85	2	42	\$20	\$843
65.82	66.14	1,690	100	2	193	\$20	\$3,852
66.14	66.54	2,112	85	2	241	\$20	\$4,814
66.54	66.69	792	100	2	90	\$20	\$1,805
66.69	67.18	2,587	85	2	295	\$20	\$5,897
67.18	67.31	686	100	2	78	\$20	\$1,564
67.31	67.54	1,214	85	2	138	\$20	\$2,767
67.54	67.72	950	112	2	108	\$20	\$2,165
67.72	68.10	2,006	85	2	229	\$20	\$4,572
68.10	68.29	1,003	112	2	114	\$20	\$2,286
68.29	68.50	1,109	85	2	126	\$20	\$2,528
68.50	68.92	2,218	100	2	253	\$20	\$5,055
68.92	69.30	2,006	85	2	229	\$20	\$4,572
69.30	69.52	1,162	112	2	132	\$20	\$2,649
69.95	70.40	2,376	85	2	271	\$20	\$5,416
70.40	70.46	317	115	2	36	\$20	\$723
70.46	70.88	2,218	85	2	253	\$20	\$5,055
70.88	71.04	845	112	2	96	\$20	\$1,926
71.04	71.35	1,637	100	2	187	\$20	\$3,731
71.35	71.83	2,534	85	2	289	\$20	\$5,776
71.83	72.14	1,637	112	2	187	\$20	\$3,731
72.14	72.32	950	100	2	108	\$20	\$2,165
72.32	72.65	1,742	85	2	199	\$20	\$3,971
72.65	72.75	528	100	2	60	\$20	\$1,203
72.75	73.02	1,426	85	2	163	\$20	\$3,250
73.02	73.10	422	112	2	48	\$20	\$962
73.10	73.35	1,320	100	2	150	\$20	\$3,009
73.35	73.58	1,214	85	2	138	\$20	\$2,767

P & L SUBDIVISION

P&L JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
73.58	73.78	1,056	100	2	120	\$20	\$2,407
73.78	74.09	1,637	85	2	187	\$20	\$3,731
74.32	75.08	4,013	100	2	457	\$20	\$9,147
75.08	75.17	475	112	2	54	\$20	\$1,083
75.17	75.33	845	100	2	96	\$20	\$1,926
75.33	75.88	2,904	112	2	331	\$20	\$6,619
75.88	76.22	1,795	100	2	205	\$20	\$4,091
76.22	76.24	106	90	2	12	\$20	\$242
76.24	76.39	792	100	2	90	\$20	\$1,805
76.39	76.73	1,795	90	2	205	\$20	\$4,091
76.73	76.86	686	100	2	78	\$20	\$1,564
76.86	77.06	1,056	90	2	120	\$20	\$2,407
77.06	77.08	106	100	2	12	\$20	\$242
77.08	77.14	317	90	2	36	\$20	\$723
77.14	77.33	1,003	112	2	114	\$20	\$2,286
77.33	77.38	264	90	2	30	\$20	\$602
77.38	77.41	158	100	2	18	\$20	\$360
77.41	78.03	3,274	90	2	373	\$20	\$7,462
78.03	81.77	19,747	100	2	2,250	\$20	\$45,009
81.77	81.95	950	112	2	108	\$20	\$2,165
81.95	82.34	2,059	90	2	235	\$20	\$4,693
82.49	82.63	739	112	2	84	\$20	\$1,684
82.83	83.14	1,637	112	2	187	\$20	\$3,731
83.14	83.44	1,584	112	2	181	\$20	\$3,610
83.44	83.87	2,270	115	2	259	\$20	\$5,174
83.87	84.03	845	90	2	96	\$20	\$1,926

LENGTH OF P&L SUB (MILES) = 83.04  
 WEIGHTED RAIL LENGTH = 35.1  
 TOTAL # OF RAIL JOINTS = 24,984

TOTAL PRICE = \$597,627  
 ANNUAL PRICE PER TRACK MILE = \$96

P & L SUBDIVISION

P&L SLD + BALLAST DISTRIBUTION									
M.P. BEGIN	M.P. END	T.F.	# TIMES SURFACED	# TIMES BALLAST DISTRIBUTION	TOTAL SLD T.F.	TOTAL BALLAST TONS	SLD UNIT PRICE	BALLAST UNIT PRICE	TOTAL PRICE
1	84.04	438,451	4.5	3	1,973,030	131,535	\$2	\$20	\$6,576,766

1) Ballast distribution based on 0.1 ton per track foot

LENGTH OF P&L SUB (MILES) = 83.04

TOTAL PRICE = \$6,576,766  
 ANNUAL PRICE PER TRACK MILE = \$1,056

P & L SUBDIVISION

P&L BRIDGE REPLACEMENT					
BRIDGE LOCATION	BRIDGE T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
3.89	10	1	10	\$5,100	\$51,000
6.15	45	1	45	\$5,100	\$229,500
9.77*	132	1	132	\$4,000	\$528,000
10.50	60	1	60	\$5,100	\$306,000
12.39	45	1	45	\$5,100	\$229,500
12.72	30	1	30	\$5,100	\$153,000
13.24	30	1	30	\$5,100	\$153,000
13.73	30	1	30	\$5,100	\$153,000
14.36	75	1	75	\$5,100	\$382,500
16.25	15	1	15	\$5,100	\$76,500
17.63	30	1	30	\$5,100	\$153,000
17.82	15	1	15	\$5,100	\$76,500
18.62	30	1	30	\$5,100	\$153,000
20.37	45	1	45	\$5,100	\$229,500
21.92	45	1	45	\$5,100	\$229,500
23.77	75	1	75	\$5,100	\$382,500
23.89	30	1	30	\$5,100	\$153,000
24.89	15	1	15	\$5,100	\$76,500
27.67	15	1	15	\$5,100	\$76,500
28.45*	60	1	60	\$4,000	\$240,000
28.85	15	1	15	\$5,100	\$76,500
28.89	60	1	60	\$5,100	\$306,000
29.01	45	1	45	\$5,100	\$229,500
29.46	60	1	60	\$5,100	\$306,000
30.20	60	1	60	\$5,100	\$306,000
30.53	45	1	45	\$5,100	\$229,500
30.95	45	1	45	\$5,100	\$229,500
31.27	45	1	45	\$5,100	\$229,500
31.80	30	1	30	\$5,100	\$153,000
32.12	30	1	30	\$5,100	\$153,000
33.77	45	1	45	\$5,100	\$229,500
34.23	60	1	60	\$5,100	\$306,000
34.79	30	1	30	\$5,100	\$153,000
35.66	30	1	30	\$5,100	\$153,000
36.25	30	1	30	\$5,100	\$153,000
37.36	30	1	30	\$5,100	\$153,000
38.48	30	1	30	\$5,100	\$153,000



P & L SUBDIVISION

P&L BRIDGE REPLACEMENT					
BRIDGE LOCATION	BRIDGE T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
39.94	30	1	30	\$5,100	\$153,000
40.19	45	1	45	\$5,100	\$229,500
40.52	30	1	30	\$5,100	\$153,000
41.06	15	1	15	\$5,100	\$76,500
41.13	30	1	30	\$5,100	\$153,000
41.81	45	1	45	\$5,100	\$229,500
42.30	45	1	45	\$5,100	\$229,500
43.31	30	1	30	\$5,100	\$153,000
43.72	45	1	45	\$5,100	\$229,500
44.31	30	1	30	\$5,100	\$153,000
43.72	45	1	45	\$5,100	\$229,500
46.26	75	1	75	\$5,100	\$382,500
48.95	60	1	60	\$5,100	\$306,000
49.86	75	1	75	\$5,100	\$382,500
52.06	75	1	75	\$5,100	\$382,500
52.29	90	1	90	\$5,100	\$459,000
52.73	60	1	60	\$5,100	\$306,000
53.60	105	1	105	\$5,100	\$535,500
54.51	75	1	75	\$5,100	\$382,500
56.45	150	1	150	\$5,100	\$765,000
56.45*	70	1	70	\$4,000	\$280,000
56.64	45	1	45	\$5,100	\$229,500
58.36*	134	1	134	\$4,000	\$536,000
58.91	210	1	210	\$5,100	\$1,071,000
58.91*	66	1	66	\$4,000	\$264,000
61.74	45	1	45	\$5,100	\$229,500
63.21	75	1	75	\$5,100	\$382,500
63.78	75	1	75	\$5,100	\$382,500
65.18	135	1	135	\$5,100	\$688,500
62.25	75	1	75	\$5,100	\$382,500
66.17	30	1	30	\$5,100	\$153,000
66.83	45	1	45	\$5,100	\$229,500
69.72	60	1	60	\$5,100	\$306,000
70.92	60	1	60	\$5,100	\$306,000
74.56	105	1	105	\$5,100	\$535,500
76.85	75	1	75	\$5,100	\$382,500
77.61	15	1	15	\$5,100	\$76,500

P & L SUBDIVISION

P&L BRIDGE REPLACEMENT					
BRIDGE LOCATION	BRIDGE T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
78.68	15	1	15	\$5,100	\$76,500
79.87	15	1	15	\$5,100	\$76,500
81.10	45	1	45	\$5,100	\$229,500
83.20	75	1	75	\$5,100	\$382,500
83.91	45	1	45	\$5,100	\$229,500

\* DENOTES STEEL BRIDGE

LENGTH OF P&L SUB (MILES) = 83.04

TOTAL PRICE = \$20,871,000

ANNUAL PRICE PER BRIDGE T.F. = \$3,351

P & L SUBDIVISION

P&L CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
0.99	16	2	32	\$550	\$17,600
1.35	16	2	32	\$550	\$17,600
1.93	16	2	32	\$550	\$17,600
2.58	32	2	64	\$550	\$35,200
3.68	32	2	64	\$550	\$35,200
5.38	16	2	32	\$550	\$17,600
6.58	16	2	32	\$550	\$17,600
7.09	16	2	32	\$550	\$17,600
7.5	24	2	48	\$550	\$26,400
8.62	24	2	48	\$550	\$26,400
9.42	16	2	32	\$550	\$17,600
10.15	24	2	48	\$550	\$26,400
10.68	24	2	48	\$550	\$26,400
10.97	32	2	64	\$550	\$35,200
11.22	24	2	48	\$550	\$26,400
11.5	32	2	64	\$550	\$35,200
11.58	16	2	32	\$550	\$17,600
11.66	24	2	48	\$550	\$26,400
12.25	24	2	48	\$550	\$26,400
12.5	16	2	32	\$550	\$17,600
12.78	32	2	64	\$550	\$35,200
13.3	16	2	32	\$550	\$17,600
14.06	16	2	32	\$550	\$17,600
15.45	32	2	64	\$550	\$35,200
16.19	16	2	32	\$550	\$17,600
16.78	24	2	48	\$550	\$26,400
17.3	16	2	32	\$550	\$17,600
18.34	24	2	48	\$550	\$26,400
19.18	16	2	32	\$550	\$17,600
19.44	24	2	48	\$550	\$26,400
20.27	16	2	32	\$550	\$17,600
22.35	24	2	48	\$550	\$26,400
23.3	24	2	48	\$550	\$26,400
23.83	16	2	32	\$550	\$17,600
25.29	24	2	48	\$550	\$26,400
26.01	16	2	32	\$550	\$17,600
26.51	24	2	48	\$550	\$26,400

P & L SUBDIVISION

P&L CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
26.64	24	2	48	\$550	\$26,400
26.71	24	2	48	\$550	\$26,400
26.79	24	2	48	\$550	\$26,400
26.95	16	2	32	\$550	\$17,600
27.02	24	2	48	\$550	\$26,400
28.86	24	2	48	\$550	\$26,400
29.08	16	2	32	\$550	\$17,600
29.43	16	2	32	\$550	\$17,600
29.98	16	2	32	\$550	\$17,600
30.69	16	2	32	\$550	\$17,600
31.05	16	2	32	\$550	\$17,600
31.31	16	2	32	\$550	\$17,600
31.91	16	2	32	\$550	\$17,600
32.38	60	2	120	\$550	\$66,000
32.87	16	2	32	\$550	\$17,600
33.43	16	2	32	\$550	\$17,600
35.04	24	2	48	\$550	\$26,400
36.19	24	2	48	\$550	\$26,400
36.95	16	2	32	\$550	\$17,600
37.31	24	2	48	\$550	\$26,400
37.39	32	2	64	\$550	\$35,200
37.47	16	2	32	\$550	\$17,600
37.57	32	2	64	\$550	\$35,200
37.62	16	2	32	\$550	\$17,600
38.19	32	2	64	\$550	\$35,200
39.64	16	2	32	\$550	\$17,600
40.45	16	2	32	\$550	\$17,600
40.8	28	2	56	\$550	\$30,800
41.38	16	2	32	\$550	\$17,600
41.9	16	2	32	\$550	\$17,600
42.92	16	2	32	\$550	\$17,600
43.67	24	2	48	\$550	\$26,400
44.28	16	2	32	\$550	\$17,600
44.62	16	2	32	\$550	\$17,600
45.44	16	2	32	\$550	\$17,600
44.99	24	2	48	\$550	\$26,400
46.99	16	2	32	\$550	\$17,600

P & L SUBDIVISION

P&L CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
47	32	2	64	\$550	\$35,200
47.67	16	2	32	\$550	\$17,600
47.94	16	2	32	\$550	\$17,600
49.14	24	2	48	\$550	\$26,400
49.24	24	2	48	\$550	\$26,400
49.51	24	2	48	\$550	\$26,400
49.61	24	2	48	\$550	\$26,400
49.85	16	2	32	\$550	\$17,600
49.89	16	2	32	\$550	\$17,600
50.26	16	2	32	\$550	\$17,600
50.68	24	2	48	\$550	\$26,400
50.95	16	2	32	\$550	\$17,600
51.76	16	2	32	\$550	\$17,600
52.2	16	2	32	\$550	\$17,600
52.78	16	2	32	\$550	\$17,600
53.12	24	2	48	\$550	\$26,400
54.2	16	2	32	\$550	\$17,600
55.6	16	2	32	\$550	\$17,600
56.33	16	2	32	\$550	\$17,600
57.99	16	2	32	\$550	\$17,600
58.53	32	2	64	\$550	\$35,200
59.08	24	2	48	\$550	\$26,400
59.26	32	2	64	\$550	\$35,200
59.45	24	2	48	\$550	\$26,400
61.15	16	2	32	\$550	\$17,600
62.01	16	2	32	\$550	\$17,600
62.56	20	2	40	\$550	\$22,000
63.03	16	2	32	\$550	\$17,600
63.33	32	2	64	\$550	\$35,200
63.59	16	2	32	\$550	\$17,600
65.39	32	2	64	\$550	\$35,200
65.54	16	2	32	\$550	\$17,600
65.82	16	2	32	\$550	\$17,600
66.14	24	2	48	\$550	\$26,400
66.75	40	2	80	\$550	\$44,000
66.9	16	2	32	\$550	\$17,600
67.02	24	2	48	\$550	\$26,400

P & L SUBDIVISION

P&L CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
67.06	16	2	32	\$550	\$17,600
69.08	16	2	32	\$550	\$17,600
69.2	24	2	48	\$550	\$26,400
70.81	24	2	48	\$550	\$26,400
71.32	16	2	32	\$550	\$17,600
71.95	32	2	64	\$550	\$35,200
73	16	2	32	\$550	\$17,600
73.91	24	2	48	\$550	\$26,400
74.73	16	2	32	\$550	\$17,600
75	32	2	64	\$550	\$35,200
75.61	32	2	64	\$550	\$35,200
75.71	48	2	96	\$550	\$52,800
76.01	32	2	64	\$550	\$35,200
76.14	16	2	32	\$550	\$17,600
76.2	16	2	32	\$550	\$17,600
76.93	8	2	16	\$550	\$8,800
77.02	160	2	320	\$550	\$176,000
77.25	32	2	64	\$550	\$35,200
77.57	16	2	32	\$550	\$17,600
77.7	16	2	32	\$550	\$17,600
77.84	16	2	32	\$550	\$17,600
78.07	16	2	32	\$550	\$17,600
78.91	16	2	32	\$550	\$17,600
79.22	16	2	32	\$550	\$17,600
79.46	32	2	64	\$550	\$35,200
80.1	16	2	32	\$550	\$17,600
80.45	16	2	32	\$550	\$17,600
80.86	16	2	32	\$550	\$17,600
82.1	16	2	32	\$550	\$17,600
83.29	16	2	32	\$550	\$17,600
83.69	16	2	32	\$550	\$17,600

LENGTH OF P&L SUB (MILES) = 83.04

TOTAL PRICE = \$3,454,000  
 ANNUAL PRICE PER TRACK MILE = \$555

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
1.53	32	RCP	24	1	32	\$100	\$3,200
2.03	64	CMP	48	1	64	\$250	\$16,000
2.38	32	RCP	24	1	32	\$100	\$3,200
2.59	32	RCP	36	1	32	\$100	\$3,200
2.73	32	RCP	36	1	32	\$100	\$3,200
3.06	32	RCP	36	1	32	\$100	\$3,200
3.65	36	CMP	24	1	36	\$100	\$3,600
3.70	35	CMP	24	1	35	\$100	\$3,500
3.77	36	CMP	24	1	36	\$100	\$3,600
4.66	33	RCP	48	1	33	\$250	\$8,250
4.75	33	CMP	24	1	33	\$100	\$3,300
5.85	32	RCP	24	1	32	\$100	\$3,200
7.34	33	CIP	24	1	33	\$100	\$3,300
7.91	33	RCP	24	1	33	\$100	\$3,300
8.72	32	RCP	24	1	32	\$100	\$3,200
9.20	32	CMP	18	1	32	\$100	\$3,200
9.42	35	CIP	18	1	35	\$100	\$3,500
9.96	35	RCP	24	1	35	\$100	\$3,500
10.14	35	CMP	18	1	35	\$100	\$3,500
11.03	54	CMP	18	1	54	\$100	\$5,400
11.56	20	CMP	30	1	20	\$100	\$2,000
11.57	76	RCP	18	1	76	\$100	\$7,600
11.71	32	RCP	36	1	32	\$100	\$3,200
11.82	32	RCP	36	1	32	\$100	\$3,200
12.21	36	RCP	36	1	36	\$100	\$3,600
12.24	41	CMP	36	1	41	\$100	\$4,100
12.60	38	CMP	24	1	38	\$100	\$3,800
13.13	32	RCP	24	1	32	\$100	\$3,200
13.40	33	RCP	24	1	33	\$100	\$3,300
13.46	36	CMP	24	1	36	\$100	\$3,600
13.52	34	RCP	36	1	34	\$100	\$3,400
13.99	24	CIP	36	1	24	\$100	\$2,400
14.08	32	RCP	48	1	32	\$250	\$8,000
14.49	59	RCP	42	1	59	\$250	\$14,750
14.58	64	CIP	24	1	64	\$100	\$6,400
14.89	38	CIP	20	1	38	\$100	\$3,800
15.04	45	RCP	36	1	45	\$100	\$4,500

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
15.18	38	TP	24	1	38	\$100	\$3,800
15.31	21	CMP	24	1	21	\$100	\$2,100
15.41	24	CIP	24	1	24	\$100	\$2,400
15.44	30	CMP	24	1	30	\$100	\$3,000
15.67	41	RCP	36	1	41	\$100	\$4,100
15.98	32	RCP	24	1	32	\$100	\$3,200
16.33	35	CMP	24	1	35	\$100	\$3,500
16.38	35	CMP	24	1	35	\$100	\$3,500
16.52	35	CMP	24	1	35	\$100	\$3,500
17.01	31	RCP	24	1	31	\$100	\$3,100
17.29	35	CMP	24	1	35	\$100	\$3,500
17.95	33	CMP	24	1	33	\$100	\$3,300
18.11	36	CMP	24	1	36	\$100	\$3,600
18.69	19	RCP	18	1	19	\$100	\$1,900
18.93	32	RCP	24	1	32	\$100	\$3,200
19.66	62	RCP	36	1	62	\$100	\$6,200
20.87	62	RCP	36	1	62	\$100	\$6,200
21.07	37	RCP	24	1	37	\$100	\$3,700
21.16	40	RCP	24	1	40	\$100	\$4,000
21.26	41	CMP	42	1	41	\$250	\$10,250
21.40	35	CMP	36	1	35	\$100	\$3,500
21.53	32	RCP	36	1	32	\$100	\$3,200
21.57	33	CMP	24	1	33	\$100	\$3,300
21.67	25	CMP	24	1	25	\$100	\$2,500
22.10	62	RCP	36	1	62	\$100	\$6,200
22.29	48	CIP	24	1	48	\$100	\$4,800
22.35	25	CMP	12	1	25	\$100	\$2,500
22.52	25	CMP	18	1	25	\$100	\$2,500
23.01	24	STB	48	1	24	\$250	\$6,000
23.23	30	CIP	20	1	30	\$100	\$3,000
24.08	41	RCP	24	1	41	\$100	\$4,100
24.19	30	CMP	12	1	30	\$100	\$3,000
24.32	27	CMP	12	1	27	\$100	\$2,700
24.37	25	RCP	24	1	25	\$100	\$2,500
24.98	33	RCP	36	1	33	\$100	\$3,300
25.30	35	RCP	24	1	35	\$100	\$3,500
25.44	37	CMP	24	1	37	\$100	\$3,700



P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
25.66	36	RSB	18	1	36	\$100	\$3,600
25.84	33	RCP	24	1	33	\$100	\$3,300
25.99	32	RCP	36	1	32	\$100	\$3,200
26.16	33	RCP	24	1	33	\$100	\$3,300
26.43	30	CIP	24	1	30	\$100	\$3,000
26.51	30	CMP	24	1	30	\$100	\$3,000
26.64	48	CIP	24	1	48	\$100	\$4,800
26.69	40	RCP	24	1	40	\$100	\$4,000
27.10	32	WB	24	1	32	\$100	\$3,200
27.24	32	RCP	24	1	32	\$100	\$3,200
27.33	33	RCP	24	1	33	\$100	\$3,300
27.62	32	RCP	24	1	32	\$100	\$3,200
27.79	36	RCP	24	1	36	\$100	\$3,600
27.90	33	RCP	24	1	33	\$100	\$3,300
28.07	33	RCP	24	1	33	\$100	\$3,300
28.76	36	CIP	24	1	36	\$100	\$3,600
28.84	30	CMP	18	1	30	\$100	\$3,000
29.38	24	CIP	24	1	24	\$100	\$2,400
29.62	24	CIP	24	1	24	\$100	\$2,400
29.68	24	RCP	24	1	24	\$100	\$2,400
29.92	32	RCP	32	1	32	\$100	\$3,200
30.10	24	RCP	24	1	24	\$100	\$2,400
30.37	24	RCP	24	1	24	\$100	\$2,400
31.18	27	RCP	18	1	27	\$100	\$2,700
31.55	24	RCP	24	1	24	\$100	\$2,400
32.32	28	RCP	24	1	28	\$100	\$2,800
32.37	32	CMP	18	1	32	\$100	\$3,200
32.48	31	CIP	24	1	31	\$100	\$3,100
32.58	36	CMP	18	1	36	\$100	\$3,600
32.71	41	CMP	36	1	41	\$100	\$4,100
32.85	33	RCP	36	1	33	\$100	\$3,300
33.03	32	RCP	24	1	32	\$100	\$3,200
33.08	38	TP	24	1	38	\$100	\$3,800
33.27	43	RCP	48	1	43	\$250	\$10,750
33.40	30	CMP	18	1	30	\$100	\$3,000
34.26	76	RCP	24	1	76	\$100	\$7,600
34.94	30	RSB	4'x15'	1	30	\$550	\$16,500

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
36.13	39	RCP	36	1	39	\$100	\$3,900
36.31	32	RCP	24	1	32	\$100	\$3,200
36.32	36	RCP	36	1	36	\$100	\$3,600
36.83	32	CMP	48	1	32	\$250	\$8,000
37.56	108	CIP	36	1	108	\$100	\$10,800
38.04	24	RCP	24	1	24	\$100	\$2,400
38.17	30	WB	16	1	30	\$100	\$3,000
38.21	30	RCP	12	1	30	\$100	\$3,000
38.55	30	CIP	24	1	30	\$100	\$3,000
38.72	29	TC	6'	1	29	\$550	\$15,950
38.80	31	RSB	4'x15'	1	31	\$550	\$17,050
38.82	24	CIP	24	1	24	\$100	\$2,400
39.09	24	RCP	24	1	24	\$100	\$2,400
39.45	32	RCP	36	1	32	\$100	\$3,200
39.55	32	RCP	36	1	32	\$100	\$3,200
39.82	24	CIP	24	1	24	\$100	\$2,400
40.45	24	CIP	24	1	24	\$100	\$2,400
41.25	32	RCP	36	1	32	\$100	\$3,200
41.57	32	CMP	24	1	32	\$100	\$3,200
41.64	24	RCP	36	1	24	\$100	\$2,400
42.49	24	RCP	36	1	24	\$100	\$2,400
43.20	40	RSB	4'x15'	1	40	\$550	\$22,000
43.51	32	RCP	24	1	32	\$100	\$3,200
44.01	24	CMP	24	1	24	\$100	\$2,400
44.41	24	RCP	36	1	24	\$100	\$2,400
44.62	38	RCP	36	1	38	\$100	\$3,800
45.11	24	CIP	18	1	24	\$100	\$2,400
45.33	24	CIP	18	1	24	\$100	\$2,400
45.45	24	RCP	24	1	24	\$100	\$2,400
45.71	42	RCP	24	1	42	\$100	\$4,200
45.84	24	CIP	24	1	24	\$100	\$2,400
45.93	30	TP	24	1	30	\$100	\$3,000
46.05	64	RCP	48	1	64	\$250	\$16,000
46.26	72	CIP	24	1	72	\$100	\$7,200
46.48	67	CIP	24	1	67	\$100	\$6,700
46.75	24	CIP	20	1	24	\$100	\$2,400
46.90	77	STB	48	1	77	\$250	\$19,250

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
47.20	44	RCP	36	1	44	\$100	\$4,400
47.30	42	CIP	24	1	42	\$100	\$4,200
47.48	36	CIP	24	1	36	\$100	\$3,600
47.73	30	CIP	24	1	30	\$100	\$3,000
47.81	36	CIP	24	1	36	\$100	\$3,600
47.94	32	RCP	36	1	32	\$100	\$3,200
49.12	24	RCP	24	1	24	\$100	\$2,400
49.31	20	CMP	12	1	20	\$100	\$2,000
49.45	30	CIP	18	1	30	\$100	\$3,000
49.52	49	CIP	24	1	49	\$100	\$4,900
49.60	16	RCP	12	1	16	\$100	\$1,600
49.71	65	RCP	48	1	65	\$250	\$16,250
49.78	30	CIP	24	1	30	\$100	\$3,000
49.84	24	RCP	24	1	24	\$100	\$2,400
49.95	72	CIP	24	1	72	\$100	\$7,200
50.06	48	RCP	36	1	48	\$100	\$4,800
50.23	40	RCP	48	1	40	\$250	\$10,000
50.46	50	RCP	24	1	50	\$100	\$5,000
50.59	48	CMP	24	1	48	\$100	\$4,800
50.81	28	CMP	18	1	28	\$100	\$2,800
50.86	48	CIP	36	1	48	\$100	\$4,800
51.00	39	RCP	24	1	39	\$100	\$3,900
51.10	39	RCP	24	1	39	\$100	\$3,900
51.22	36	CIP	24	1	36	\$100	\$3,600
51.42	26	RCP	24	1	26	\$100	\$2,600
51.52	26	RCP	24	1	26	\$100	\$2,600
51.71	18	CIP	24	1	18	\$100	\$1,800
51.89	52	RCP	24	1	52	\$100	\$5,200
52.45	36	VTP	24	1	36	\$100	\$3,600
52.54	50	CIP	24	1	50	\$100	\$5,000
52.58	46	RCP	24	1	46	\$100	\$4,600
52.89	56	CA	84	1	56	\$550	\$30,800
53.10	30	CIP	20	1	30	\$100	\$3,000
53.21	103	CIP	24	1	103	\$100	\$10,300
53.28	34	RCP	18	1	34	\$100	\$3,400
53.68	78	CMP	18	1	78	\$100	\$7,800
53.83	48	CMP	18	1	48	\$100	\$4,800

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
53.88	80	CMP	18	1	80	\$100	\$8,000
53.96	92	CMP	18	1	92	\$100	\$9,200
54.29	57	RCP	18	1	57	\$100	\$5,700
54.37	34	CMP	18	1	34	\$100	\$3,400
54.49	139	CIP	24	1	139	\$100	\$13,900
54.59	30	CMP	18	1	30	\$100	\$3,000
54.70	42	RCP	18	1	42	\$100	\$4,200
54.81	32	RCP	24	1	32	\$100	\$3,200
55.08	235	CIP	24	1	235	\$100	\$23,500
55.24	24	STB	72	1	24	\$550	\$13,200
55.30	24	CIP	18	1	24	\$100	\$2,400
55.43	42	RCP	24	1	42	\$100	\$4,200
55.61	28	RCP	18	1	28	\$100	\$2,800
55.67	28	RTB	72	1	28	\$550	\$15,400
55.78	148	CIP	24	1	148	\$100	\$14,800
56.03	32	CMP	18	1	32	\$100	\$3,200
56.08	25	CMP	24	1	25	\$100	\$2,500
56.12	32	CMP	18	1	32	\$100	\$3,200
58.30	66	CIP	38	1	66	\$250	\$16,500
57.03	28	CMP	24	1	28	\$100	\$2,800
57.16	32	CIP	24	1	32	\$100	\$3,200
57.25	30	CMP	18	1	30	\$100	\$3,000
57.42	23	RCP	24	1	23	\$100	\$2,300
57.51	31	CIP	24	1	31	\$100	\$3,100
57.60	32	CIP	24	1	32	\$100	\$3,200
57.68	18	CIP	18	1	18	\$100	\$1,800
57.78	24	CIP	18	1	24	\$100	\$2,400
58.08	36	CIP	24	1	36	\$100	\$3,600
58.55	24	CIP	18	1	24	\$100	\$2,400
58.73	80	RCP	36	1	80	\$100	\$8,000
59.25	47	CMP	36	1	47	\$100	\$4,700
59.36	71	STB	48	1	71	\$250	\$17,750
60.39	32.6	CMP	24	1	33	\$100	\$3,260
60.45	32.3	RCP	36	1	32	\$100	\$3,230
60.60	34	CIP	18	1	34	\$100	\$3,400
60.72	42	CIP	24	1	42	\$100	\$4,200
61.04	85.8	RCP	36	1	86	\$100	\$8,580

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
61.15	38	RCP	18	1	38	\$100	\$3,800
61.25	55	CIP	24	1	55	\$100	\$5,500
61.60	46	CIP	24	1	46	\$100	\$4,600
61.73	55	CIP	24	1	55	\$100	\$5,500
61.80	28	RCP	36	1	28	\$100	\$2,800
61.89	30	CIP	18	1	30	\$100	\$3,000
61.99	39.5	OCP	36	1	40	\$100	\$3,950
62.01	26.3	CMP	24	1	26	\$100	\$2,630
62.12	23.4	OCP	36	1	23	\$100	\$2,340
62.46	33.5	CIP	18	1	34	\$100	\$3,350
62.61	44	CIP	24	1	44	\$100	\$4,400
63.38	34	CIP	18	1	34	\$100	\$3,400
63.59	38	CIP	18	1	38	\$100	\$3,800
63.97	87	CIP	24	1	87	\$100	\$8,700
64.09	30	RCP	24	1	30	\$100	\$3,000
64.10	24.5	CIP	24	1	25	\$100	\$2,450
64.28	19	CIP	24	1	19	\$100	\$1,900
64.34	64	CIP	24	1	64	\$100	\$6,400
64.47	55	CIP	24	1	55	\$100	\$5,500
64.53	55	CIP	24	1	55	\$100	\$5,500
64.74	60	CIP	24	1	60	\$100	\$6,000
64.95	39	CIP	18	1	39	\$100	\$3,900
65.32	56	CIP	24	1	56	\$100	\$5,600
65.54	45	RCP	36	1	45	\$100	\$4,500
65.65	48	RCP	24	1	48	\$100	\$4,800
65.74	48	RCP	24	1	48	\$100	\$4,800
66.55	24	CMP	18	1	24	\$100	\$2,400
66.97	30	CMP	18	1	30	\$100	\$3,000
67.41	45	STB	54	1	45	\$550	\$24,750
67.68	48	CIP	30	1	48	\$100	\$4,800
67.79	44	CIP	24	1	44	\$100	\$4,400
67.95	35	CIP	24	1	35	\$100	\$3,500
68.34	25	CIP	24	1	25	\$100	\$2,500
68.49	29.5	CMP	36	1	30	\$100	\$2,950
68.65	30	CIP	18	1	30	\$100	\$3,000
68.73	38	CIP	18	1	38	\$100	\$3,800
68.84	35	CIP	18	1	35	\$100	\$3,500

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
69.06	30	CIP	18	1	30	\$100	\$3,000
69.08	23.5	RCP	24	1	24	\$100	\$2,350
69.33	62	CIP	18	1	62	\$100	\$6,200
69.52	33	CIP	24	1	33	\$100	\$3,300
69.58	35	CMP	36	1	35	\$100	\$3,500
70.02	31	CIP	24	1	31	\$100	\$3,100
70.15	30	CIP	18	1	30	\$100	\$3,000
70.36	31	RCP	48	1	31	\$250	\$7,750
71.26	34	CIP	18	1	34	\$100	\$3,400
71.33	31	OCP	36	1	31	\$100	\$3,100
71.58	36	CIP	18	1	36	\$100	\$3,600
71.73	29	RCP	24	1	29	\$100	\$2,900
71.95	33	RCP	36	1	33	\$100	\$3,300
72.04	37	CMP	18	1	37	\$100	\$3,700
72.14	32	RCP	12	1	32	\$100	\$3,200
72.29	36	RCP	36	1	36	\$100	\$3,600
72.41	35	CIP	18	1	35	\$100	\$3,500
72.50	25	CIP	24	1	25	\$100	\$2,500
72.51	40	CIP	12	1	40	\$100	\$4,000
72.56	24	CIP	24	1	24	\$100	\$2,400
72.80	34	CMP	24	1	34	\$100	\$3,400
73.00	30	CIP	18	1	30	\$100	\$3,000
73.08	30	CIP	12	1	30	\$100	\$3,000
73.21	25	CIP	18	1	25	\$100	\$2,500
73.49	33	CIP	18	1	33	\$100	\$3,300
73.53	48	CIP	24	1	48	\$100	\$4,800
73.54	32	RSB	72	1	32	\$550	\$17,600
73.88	32	CIP	24	1	32	\$100	\$3,200
73.97	50	TP	24	1	50	\$100	\$5,000
74.38	30	CIP	18	1	30	\$100	\$3,000
74.70	70	RCP	36	1	70	\$100	\$7,000
74.71	70	CIP	18	1	70	\$100	\$7,000
74.78	71	RCP	24	1	71	\$100	\$7,100
75.00	32	RTB	54	1	32	\$550	\$17,600
75.30	54	RCP	24	1	54	\$100	\$5,400
75.43	149	WB	20	1	149	\$100	\$14,900
75.87	50	TP	24	1	50	\$100	\$5,000

P & L SUBDIVISION

P&L CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT DIAMETER	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
76.26	40	CP	36	1	40	\$100	\$4,000
76.56	53	CMP	36	1	53	\$100	\$5,300
77.49	32	RCP	48	1	32	\$250	\$8,000
78.09	24	WB	12	1	24	\$100	\$2,400
78.13	23	RCP	24	1	23	\$100	\$2,300
78.33	43	CMP	24	1	43	\$100	\$4,300
78.87	40	CMP	24	1	40	\$100	\$4,000
79.38	31	RCP	36	1	31	\$100	\$3,100
80.17	24	CMP	24	1	24	\$100	\$2,400
80.29	32	RCP	36	1	32	\$100	\$3,200
80.44	20	RCP	12	1	20	\$100	\$2,000
80.87	32.5	CMP	24	1	33	\$100	\$3,250
81.09	78.5	CIP	24	1	79	\$100	\$7,850
81.48	81	RCP	48	1	81	\$250	\$20,250
82.05	39	RCP	36	1	39	\$100	\$3,900
82.11	15	CIP	12	1	15	\$100	\$1,500
82.25	65	CIP	42	1	65	\$250	\$16,250
82.59	59	CMP	36	1	59	\$100	\$5,900
83.00	38	CIP	24	1	38	\$100	\$3,800
83.11	16	CIP	12	1	16	\$100	\$1,600
83.20	65	CIP	42	1	65	\$250	\$16,250
83.50	65	CMP	24	1	65	\$100	\$6,500
83.64	36	CIP	18	1	36	\$100	\$3,600

1) Culvert lengths are approximate.

LENGTH OF P&L SUB (MILES) = 83.04

TOTAL PRICE = \$1,565,590  
 ANNUAL PRICE PER TRACK MILE = \$251

P & L SUBDIVISION

P&L DITCHING						
M.P. BEGIN	M.P. END	L.F.	# TIMES EXCAVATED	TOTAL L.F. RESTORED	UNIT PRICE	TOTAL PRICE
1.00	84.04	146,150	2	292,301	\$10	\$2,923,010

1) 1/6 of overall subdivision length will be ditched 2 times in 75 years - both sides of track.

LENGTH OF P&L SUB (MILES) = 83.04

TOTAL PRICE = \$2,923,010.00

ANNUAL PRICE PER TRACK MILE = \$469



P & L SUBDIVISION

P&L TURNOUTS						
M.P. BEGIN	STATION	RAIL WEIGHT	FROG	REPAIR ALLOWANCE	UNIT PRICE	TOTAL PRICE
10.87	Spangle	112	11	1	\$45,000	\$45,000
10.97	Spangle	112	11	1	\$45,000	\$45,000
11.87	Spangle	112	9	1	\$45,000	\$45,000
11.97	Spangle	112	11	1	\$45,000	\$45,000
19.45	Plaza	112	9	1	\$45,000	\$45,000
19.48	Plaza	112	9	1	\$45,000	\$45,000
19.75	Plaza	112	9	1	\$45,000	\$45,000
20.07	Plaza	112	9	1	\$45,000	\$45,000
26.41	Rosalia	112	9	1	\$45,000	\$45,000
27.06	Rosalia	112	9	1	\$45,000	\$45,000
31.82	McCoy	112	11	1	\$45,000	\$45,000
32.10	McCoy	112	11	1	\$45,000	\$45,000
34.94	Flaig	112	9	1	\$45,000	\$45,000
37.40	Oakesdale	90	9	1	\$60,000	\$60,000
37.59	Oakesdale	90	9	1	\$60,000	\$60,000
37.94	Oakesdale	90	11	1	\$60,000	\$60,000
37.98	Oakesdale	90	9	1	\$60,000	\$60,000
38.55	Oakesdale	115	9	1	\$45,000	\$45,000
42.53	Belmont	90	9	1	\$60,000	\$60,000
42.76	Belmont	90	9	1	\$60,000	\$60,000
43.13	Belmont	90	9	1	\$60,000	\$60,000
43.15	Belmont	90	9	1	\$60,000	\$60,000
43.63	Farmington	90	8	1	\$60,000	\$60,000
47.06	Eden	90	8	1	\$60,000	\$60,000
47.40	Eden	90	9	1	\$60,000	\$60,000
49.38	Garfield	90	9	1	\$60,000	\$60,000
49.58	Garfield	115	9	1	\$45,000	\$45,000
49.85	Garfield	115	9	1	\$45,000	\$45,000
58.83	Palouse	90	9	1	\$60,000	\$60,000
58.84	Palouse	90	9	1	\$60,000	\$60,000
58.94	Palouse	90	9	1	\$60,000	\$60,000
58.98	Palouse	90	9	1	\$60,000	\$60,000
59.21	Palouse	90	9	1	\$60,000	\$60,000
59.27	Palouse	90	9	1	\$60,000	\$60,000
59.71	Palouse	90	9	1	\$60,000	\$60,000
65.38	Fallon	100	9	1	\$60,000	\$60,000
65.51	Fallon	100	9	1	\$60,000	\$60,000

P & L SUBDIVISION

P&L TURNOUTS						
M.P. BEGIN	STATION	RAIL WEIGHT	FROG	REPAIR ALLOWANCE	UNIT PRICE	TOTAL PRICE
65.81	Fallon	85	9	1	\$60,000	\$60,000
65.85	Fallon	100	9	1	\$60,000	\$60,000
70.37	Whelan	85	9	1	\$60,000	\$60,000
70.66	Whelan	85	9	1	\$60,000	\$60,000
73.54	Kitzmilller	85	9	1	\$60,000	\$60,000
76.20	Pullman	115	11	1	\$45,000	\$45,000
76.50	Pullman	115	11	1	\$45,000	\$45,000
84.04	Wilson	115	11	1	\$45,000	\$45,000

LENGTH OF P&L SUB (MILES) = 83.04

TOTAL PRICE = \$2,415,000  
 ANNUAL PRICE PER TRACK MILE = \$388

WIM SUBDIVISION

WIM RAIL REPLACEMENT (ALL RAIL SMALLER THAN 112#)						
M.P. BEGIN	M.P. END	T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
0	0.84	4,435	2	8,870	\$100	\$887,000
0.94	1.28	1,795	2	3,590	\$100	\$359,000
2.28	3.67	7,339	2	14,678	\$100	\$1,467,800

LENGTH OF WIM SUB (MILES) = 3.67

25% REPLACEMENT ON CURVED TRACK 4 DEGREES OR  
 GREATER WITH 112# RAIL OR GREATER = \$192,720  
 TOTAL PRICE = \$2,713,800  
 ANNUAL PRICE PER TRACK MILE = \$10,560

WIM SUBDIVISION

WIM TIE REPLACEMENT								
M.P. BEGIN	M.P. END	T.F.	# TIES	# TIMES REPLACED	CURVE TIE MULTIPLIER	TOTAL TIES REPLACED	UNIT PRICE	TOTAL PRICE
0.00	0.84	4435	2,604	1.5	1.68	6,561	\$120	\$787,304
0.94	3.67	14414	8,463	1.5	1.68	21,323	\$120	\$2,558,738

1) Excludes new crossing constructed between Hwy 27 and Hall Street.

2) Tie multiplier based on accelerated tie replacement through curves

LENGTH OF WIM SUB (MILES) = 3.67  
 ASSUMED TIES PER MILE = 3100  
 TIE SPACING (INCHES) = 20.4

TOTAL PRICE = \$3,346,041  
 ANNUAL PRICE PER TRACK MILE = \$12,156

WIM SUBDIVISION

WIM JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
0.00	0.84	4,435	70	2	538	\$20	\$10,752
0.94	1.28	1795	70	2	218	\$20	\$4,352
2.28	3.67	7339	70	2	890	\$20	\$17,792

LENGTH OF WIM SUB (MILES) = 3.67

TOTAL PRICE = \$15,103  
 ANNUAL PRICE PER TRACK MILE = \$55

WIM SUBDIVISION

WIM SLD + BALLAST DISTRIBUTION									
M.P. BEGIN	M.P. END	T.F.	# TIMES SURFACED	# TIMES BALLAST DISTRIBUTION	TOTAL SLD T.F.	TOTAL BALLAST TONS	SLD UNIT PRICE	BALLAST UNIT PRICE	TOTAL PRICE
0.00	0.84	4,435	4.5	3	19,958	1,331	\$2	\$20	\$66,526
0.94	3.67	14,414	4.5	3	64,863	4,324	\$2	\$20	\$216,210

1) Ballast distribution based on 0.1 ton per track foot

LENGTH OF WIM SUB (MILES) = 3.67

TOTAL PRICE = \$282,736  
 ANNUAL PRICE PER TRACK MILE = \$1,027

WIM SUBDIVISION

WIM CROSSING REPLACEMENT					
CROSSING LOCATION	CROSSING T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
0.41	33	1	33	\$550	\$18,150
0.49	160	1	160	\$550	\$88,000
0.84	65	1	65	\$550	\$35,750
0.94	32.5	1	32.5	\$550	\$17,875
1.00	32.5	1	32.5	\$550	\$17,875
1.10	81.25	1	81.25	\$550	\$44,688
2.54	16	1	16	\$550	\$8,800
3.08	16	1	16	\$550	\$8,800

1) Excludes new crossing constructed between Hwy 27 and Hall Street.

LENGTH OF WIM SUB (MILES) = 3.67

TOTAL PRICE = \$239,938

ANNUAL PRICE PER TRACK MILE = \$872

WIM SUBDIVISION

WIM CULVERT REPLACEMENT						
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT SIZE (DIA. INCH)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
0.72	48	2' X 2' BOX	1	48	\$250	\$12,000
1.09	15	24	1	15	\$100	\$1,500
1.10	16	8	1	16	\$100	\$1,600
1.34	16	12	1	16	\$100	\$1,600
1.42	20	18	1	20	\$100	\$2,000
1.51	16	12	1	16	\$100	\$1,600
3.08	32	24	1	32	\$100	\$3,200

1) Culvert lengths are approximate.

LENGTH OF WIM SUB (MILES) = 3.67

TOTAL PRICE = \$23,500  
 ANNUAL PRICE PER TRACK MILE = \$85



WIM SUBDIVISION

WIM DITCHING						
M.P. BEGIN	M.P. END	DITCH L.F.	# TIMES EXCAVATED	TOTAL L.F. RESTORED	UNIT PRICE	TOTAL PRICE
0	0.84	1,478	2	2,957	\$10	\$29,570
0.94	3.67	4,805	2	9,610	\$10	\$96,100

1) 1/6 of overall subdivision length will be ditched 2 times in 75 years - both sides of track.

LENGTH OF WIM SUB (MILES) = 3.67

TOTAL PRICE = \$125,670  
 ANNUAL PRICE PER TRACK MILE = \$457

CW SUBDIVISION

CW RAIL REPLACEMENT (ALL RAIL SMALLER THAN 112#)						
M.P. BEGIN	M.P. END	T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
2.94	9.02	32,102	1	32,102	\$100	\$3,210,200
9.41	10.41	5,280	1	5,280	\$100	\$528,000
10.46	10.65	1,003	1	1,003	\$100	\$100,300
10.83	13.90	16,210	1	16,210	\$100	\$1,621,000
14.55	14.94	2,059	1	2,059	\$100	\$205,900
15.27	15.85	3,062	1	3,062	\$100	\$306,200
16.31	21.03	24,922	1	24,922	\$100	\$2,492,200
21.08	21.33	1,320	1	1,320	\$100	\$132,000
21.36	26.28	25,978	1	25,978	\$100	\$2,597,800
26.33	28.32	10,507	1	10,507	\$100	\$1,050,700
28.41	31.97	18,797	1	18,797	\$100	\$1,879,700
32.24	33.13	4,699	1	4,699	\$100	\$469,900
33.70	33.97	1,426	1	1,426	\$100	\$142,600
34.07	34.24	898	1	898	\$100	\$89,800
34.30	34.40	528	1	528	\$100	\$52,800
34.45	36.85	12,672	1	12,672	\$100	\$1,267,200
37.50	39.63	11,246	1	11,246	\$100	\$1,124,600
40.03	41.08	5,544	1	5,544	\$100	\$554,400
41.13	41.28	792	1	792	\$100	\$79,200
41.35	41.93	3,062	1	3,062	\$100	\$306,200
42.22	48.77	34,584	1	34,584	\$100	\$3,458,400
49.05	50.10	5,544	1	5,544	\$100	\$554,400
52.03	64.58	66,264	1	66,264	\$100	\$6,626,400
64.65	101.07	192,298	1	192,298	\$100	\$19,229,800
101.12	108.43	38,597	1	38,597	\$100	\$3,859,700

CW CURVE RAIL REPLACEMENT (7.45 DEGREE CURVES AND GREATER WITH RAIL LARGER THAN 112#)						
M.P. BEGIN	M.P. END	L.F.	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
1.30	1.43	686	1	686	\$50	\$34,300
15.87	16.29	2,218	1	2,218	\$50	\$110,900
32.00	32.22	1,162	1	1,162	\$50	\$58,100
34.30	34.48	950	1	950	\$50	\$47,500

LENGTH OF CW SUB (MILES) = 107.44

25% REPLACEMENT ON CURVED TRACK 4 DEGREE to  
 7.45 DEGREE WITH 112# RAIL OR LARGER = \$71,940  
 TOTAL PRICE = \$52,262,140  
 ANNUAL PRICE PER TRACK MILE = \$6,486

CW SUBDIVISION

CW TIE REPLACEMENT								
M.P. BEGIN	M.P. END	T.F.	# TIES	# TIMES REPLACED	CURVE TIE MULTIPLIER	TOTAL TIES REPLACED	UNIT PRICE	TOTAL PRICE
1	108.44	567,283	333,064	1.5	1.15	573,931	\$120	\$68,871,672

LENGTH OF CW SUB (MILES) = 107.44  
 ASSUMED TIES PER MILE = 3100  
 TIE SPACING (INCHES) = 20.4

TOTAL PRICE = \$68,871,672  
 ANNUAL PRICE PER TRACK MILE = \$8,547

CW SUBDIVISION

CW JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
1	1.12	634	85	7.5	288	\$20	\$5,764
1.87	1.95	422	112	3.5	90	\$20	\$1,790
1.95	2.51	2,957	115	3.5	627	\$20	\$12,545
2.51	2.73	1,162	112	3.5	246	\$20	\$4,930
2.73	2.94	1,109	115	3.5	235	\$20	\$4,705
2.94	5.07	11,246	85	7.5	5,112	\$20	\$102,236
5.07	5.15	422	100	7.5	192	\$20	\$3,836
5.15	5.42	1,426	85	7.5	648	\$20	\$12,964
5.42	5.66	1,267	100	7.5	576	\$20	\$11,518
5.66	5.94	1,478	85	7.5	672	\$20	\$13,436
5.94	6.09	792	100	7.5	360	\$20	\$7,200
6.09	6.69	3,168	85	7.5	1,440	\$20	\$28,800
6.69	7.21	2,746	100	7.5	1,248	\$20	\$24,964
7.21	8.53	6,970	85	7.5	3,168	\$20	\$63,364
8.53	8.73	1,056	100	7.5	480	\$20	\$9,600
8.73	9.02	1,531	85	7.5	696	\$20	\$13,918
9.41	10.41	5,280	85	7.5	2,400	\$20	\$48,000
10.41	10.46	264	112	3.5	56	\$20	\$1,120
10.46	10.58	634	85	7.5	288	\$20	\$5,764
10.58	10.65	370	100	7.5	168	\$20	\$3,364
10.65	10.71	317	112	3.5	67	\$20	\$1,345
10.71	10.84	686	115	3.5	146	\$20	\$2,910
10.84	13.90	16,157	85	7.5	7,344	\$20	\$146,882
14.41	14.58	898	112	3.5	190	\$20	\$3,810
14.58	14.94	1,901	85	7.5	864	\$20	\$17,282
14.94	15.29	1,848	112	3.5	392	\$20	\$7,840
15.29	15.85	2,957	85	7.5	1,344	\$20	\$26,882
15.85	16.33	2,534	112	3.5	538	\$20	\$10,750
16.33	16.62	1,531	100	7.5	696	\$20	\$13,918
16.62	16.78	845	85	7.5	384	\$20	\$7,682
16.78	16.81	158	112	3.5	34	\$20	\$670
16.81	17.23	2,218	85	7.5	1,008	\$20	\$20,164
17.23	17.58	1,848	100	7.5	840	\$20	\$16,800
17.58	19.04	7,709	85	7.5	3,504	\$20	\$70,082
19.04	19.19	792	100	7.5	360	\$20	\$7,200
19.19	19.96	4,066	85	7.5	1,848	\$20	\$36,964
19.96	20.14	950	100	7.5	432	\$20	\$8,636

CW SUBDIVISION

CW JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
20.14	21.03	4,699	85	7.5	2,136	\$20	\$42,718
21.03	21.09	317	112	3.5	67	\$20	\$1,345
21.09	21.33	1,267	85	7.5	576	\$20	\$11,518
21.33	21.36	158	112	3.5	34	\$20	\$670
21.36	21.43	370	100	7.5	168	\$20	\$3,364
21.43	21.63	1,056	85	7.5	480	\$20	\$9,600
21.63	22.00	1,954	100	7.5	888	\$20	\$17,764
22.00	22.15	792	85	7.5	360	\$20	\$7,200
22.15	22.25	528	100	7.5	240	\$20	\$4,800
22.25	22.62	1,954	100	7.5	888	\$20	\$17,764
22.62	23.08	2,429	85	7.5	1,104	\$20	\$22,082
23.08	23.29	1,109	100	7.5	504	\$20	\$10,082
23.29	23.96	3,538	85	7.5	1,608	\$20	\$32,164
23.96	24.18	1,162	100	7.5	528	\$20	\$10,564
24.18	26.28	11,088	85	7.5	5,040	\$20	\$100,800
26.28	26.33	264	115	3.5	56	\$20	\$1,120
26.33	28.36	10,718	85	7.5	4,872	\$20	\$97,436
28.36	28.41	264	112	3.5	56	\$20	\$1,120
28.41	28.44	158	85	7.5	72	\$20	\$1,436
28.44	28.67	1,214	100	7.5	552	\$20	\$11,036
28.67	29.45	4,118	85	7.5	1,872	\$20	\$37,436
29.45	29.72	1,426	100	7.5	648	\$20	\$12,964
29.72	30.02	1,584	85	7.5	720	\$20	\$14,400
30.02	30.18	845	100	7.5	384	\$20	\$7,682
30.18	30.50	1,690	85	7.5	768	\$20	\$15,364
30.50	31.14	3,379	100	7.5	1,536	\$20	\$30,718
31.14	31.26	634	85	7.5	288	\$20	\$5,764
31.26	31.46	1,056	100	7.5	480	\$20	\$9,600
31.46	31.65	1,003	85	7.5	456	\$20	\$9,118
31.65	31.85	1,056	100	7.5	480	\$20	\$9,600
31.85	31.97	634	85	7.5	288	\$20	\$5,764
31.97	32.24	1,426	112	3.5	302	\$20	\$6,050
32.24	32.85	3,221	85	7.5	1,464	\$20	\$29,282
32.85	32.95	528	100	7.5	240	\$20	\$4,800
32.95	33.13	950	85	7.5	432	\$20	\$8,636
33.13	33.70	3,010	112	3.5	638	\$20	\$12,770
33.70	33.97	1,426	85	7.5	648	\$20	\$12,964

CW SUBDIVISION

CW JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
33.97	34.07	528	115	3.5	112	\$20	\$2,240
34.07	34.24	898	85	7.5	408	\$20	\$8,164
34.24	34.30	317	115	3.5	67	\$20	\$1,345
34.30	34.40	528	100	7.5	240	\$20	\$4,800
34.40	34.45	264	85	7.5	120	\$20	\$2,400
34.45	35.49	5,491	100	7.5	2,496	\$20	\$49,918
35.49	36.85	7,181	85	7.5	3,264	\$20	\$65,282
36.85	37.90	5,544	112	3.5	1,176	\$20	\$23,520
37.90	38.02	634	100	7.5	288	\$20	\$5,764
38.02	39.63	8,501	85	7.5	3,864	\$20	\$77,282
39.63	40.03	2,112	110	7.5	960	\$20	\$19,200
40.03	40.30	1,426	100	7.5	648	\$20	\$12,964
40.30	41.06	4,013	85	7.5	1,824	\$20	\$36,482
41.06	41.08	106	100	7.5	48	\$20	\$964
41.08	41.13	264	112	3.5	56	\$20	\$1,120
41.13	41.20	370	100	7.5	168	\$20	\$3,364
41.20	41.28	422	85	7.5	192	\$20	\$3,836
41.28	41.35	370	112	3.5	78	\$20	\$1,570
41.35	41.93	3,062	85	7.5	1,392	\$20	\$27,836
41.93	42.22	1,531	112	3.5	325	\$20	\$6,495
42.22	44.03	9,557	85	7.5	4,344	\$20	\$86,882
44.03	44.18	792	100	7.5	360	\$20	\$7,200
44.18	44.74	2,957	85	7.5	1,344	\$20	\$26,882
44.74	44.96	1,162	100	7.5	528	\$20	\$10,564
44.96	48.77	20,117	85	7.5	9,144	\$20	\$182,882
48.77	49.05	1,478	112	3.5	314	\$20	\$6,270
49.05	49.56	2,693	85	7.5	1,224	\$20	\$24,482
49.56	49.83	1,426	100	7.5	648	\$20	\$12,964
49.83	50.13	1,584	85	7.5	720	\$20	\$14,400
50.13	51.73	8,448	115	3.5	1,792	\$20	\$35,840
51.73	52.03	1,584	112	3.5	336	\$20	\$6,720
52.03	52.26	1,214	100	7.5	552	\$20	\$11,036
52.26	53.10	4,435	85	7.5	2,016	\$20	\$40,318
53.10	53.22	634	100	7.5	288	\$20	\$5,764
53.22	55.92	14,256	85	7.5	6,480	\$20	\$129,600
55.92	56.12	1,056	100	7.5	480	\$20	\$9,600
56.12	57.02	4,752	85	7.5	2,160	\$20	\$43,200

CW SUBDIVISION

CW JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
57.02	57.30	1,478	100	7.5	672	\$20	\$13,436
57.30	57.55	1,320	85	7.5	600	\$20	\$12,000
57.55	57.81	1,373	100	7.5	624	\$20	\$12,482
57.81	59.33	8,026	85	7.5	3,648	\$20	\$72,964
59.33	59.64	1,637	100	7.5	744	\$20	\$14,882
59.64	60.96	6,970	85	7.5	3,168	\$20	\$63,364
60.96	61.23	1,426	100	7.5	648	\$20	\$12,964
61.23	61.89	3,485	85	7.5	1,584	\$20	\$31,682
61.89	61.96	370	100	7.5	168	\$20	\$3,364
61.96	62.22	1,373	85	7.5	624	\$20	\$12,482
62.22	62.25	158	100	7.5	72	\$20	\$1,436
62.25	62.99	3,907	85	7.5	1,776	\$20	\$35,518
62.99	63.02	158	100	7.5	72	\$20	\$1,436
63.02	63.54	2,746	85	7.5	1,248	\$20	\$24,964
63.54	63.57	158	100	7.5	72	\$20	\$1,436
63.57	63.69	634	85	7.5	288	\$20	\$5,764
63.69	64.58	4,699	90	7.5	2,136	\$20	\$42,718
64.58	64.65	370	115	3.5	78	\$20	\$1,570
64.65	65.03	2,006	90	7.5	912	\$20	\$18,236
65.03	65.06	158	115	3.5	34	\$20	\$670
65.06	82.00	89,443	90	7.5	40,656	\$20	\$813,118
82.00	82.92	4,858	85	7.5	2,208	\$20	\$44,164
82.92	83.04	634	100	7.5	288	\$20	\$5,764
83.04	84.94	10,032	85	7.5	4,560	\$20	\$91,200
84.94	85.07	686	100	7.5	312	\$20	\$6,236
85.07	87.32	11,880	85	7.5	5,400	\$20	\$108,000
87.32	87.60	1,478	100	7.5	672	\$20	\$13,436
87.60	97.94	54,595	90	7.5	24,816	\$20	\$496,318
97.94	101.07	16,526	100	7.5	7,512	\$20	\$150,236
101.07	101.12	264	115	3.5	56	\$20	\$1,120
101.12	103.47	12,408	100	7.5	5,640	\$20	\$112,800
103.47	103.49	106	90	7.5	48	\$20	\$964
103.49	103.82	1,742	100	7.5	792	\$20	\$15,836
103.82	103.85	158	90	7.5	72	\$20	\$1,436
103.85	105.46	8,501	100	7.5	3,864	\$20	\$77,282
105.46	106.70	6,547	85	7.5	2,976	\$20	\$59,518
106.70	106.73	158	90	7.5	72	\$20	\$1,436

CW SUBDIVISION

CW JOINT MAINTENANCE							
M.P. BEGIN	M.P. END	T.F.	RAIL WT#	# TIMES MAINTAINED	TOTAL JOINTS	UNIT PRICE	TOTAL PRICE
106.73	108.43	8,976	85	7.5	4,080	\$20	\$81,600

LENGTH OF CW SUB TRACK (MILES) = 107.44  
 ASSUMED RAIL LENGTH = 33  
 TOTAL # OF RAIL JOINTS = 34,381

TOTAL PRICE = \$4,890,106  
 ANNUAL PRICE PER TRACK MILE = \$607



CW SUBDIVISION

CW SLD + BALLAST DISTRIBUTION									
M.P. BEGIN	M.P. END	T.F.	# TIMES SURFACED	# TIMES BALLAST DISTRIBUTION	TOTAL SLD T.F.	TOTAL BALLAST TONS	SLD UNIT PRICE	BALLAST UNIT PRICE	TOTAL PRICE
1	108.44	567,283	4.5	3	2,552,774	170,185	\$2	\$20	\$8,509,246

1) Ballast distribution based on 0.1 ton per track foot

LENGTH OF CW SUB (MILES) = 107.44

TOTAL PRICE = \$8,509,246  
 ANNUAL PRICE PER TRACK MILE = \$1,056

CW SUBDIVISION

CW BRIDGE REPLACEMENT					
BRIDGE LOCATION	BRIDGE T.F.	# TIMES REPLACED	TOTAL T.F. REPLACED	UNIT PRICE	TOTAL PRICE
1.38	15	1	15	\$5,100	\$76,500
1.63	16	1	16	\$5,100	\$81,600
11.96	30	1	30	\$5,100	\$153,000
12.14	15	1	15	\$5,100	\$76,500
13.69	65	1	65	\$5,100	\$331,500
15.54	15	1	15	\$5,100	\$76,500
30.14	15	1	15	\$5,100	\$76,500
67.81	15	1	15	\$5,100	\$76,500
68.26	45	1	45	\$5,100	\$229,500
69.89	45	1	45	\$5,100	\$229,500
70.59	45	1	45	\$5,100	\$229,500
71.30	15	1	15	\$5,100	\$76,500
72.23	45	1	45	\$5,100	\$229,500
73.16	30	1	30	\$5,100	\$153,000
76.61	75	1	75	\$5,100	\$382,500
85.01	45	1	45	\$5,100	\$229,500
85.46	90	1	90	\$5,100	\$459,000
87.95	45	1	45	\$5,100	\$229,500
94.65	75	1	75	\$5,100	\$382,500
95.07	60	1	60	\$5,100	\$306,000
98.59	45	1	45	\$5,100	\$229,500

LENGTH OF CW SUB (MILES) = 107.44

TOTAL PRICE = \$4,314,600

ANNUAL PRICE PER BRIDGE T.F. = \$535

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
1.92	16	CMP	12	1	16	\$100	\$1,600
2.68	40	RCP	48	1	40	\$250	\$10,000
3.18	49	RCP	24	1	49	\$100	\$4,900
3.64	24	RCP	24	1	24	\$100	\$2,400
3.68	24	CMP	24	1	24	\$100	\$2,400
3.85	24	CMP	24	1	24	\$100	\$2,400
4.22	40	RCP	36	1	40	\$100	\$4,000
4.44	16	WB	18	1	16	\$100	\$1,600
4.66	24	CIP	24	1	24	\$100	\$2,400
4.74	24	CMP	24	1	24	\$100	\$2,400
4.92	24	CIP	24	1	24	\$100	\$2,400
5.27	39	CMP	36	1	39	\$100	\$3,900
5.45	24	CIP	24	1	24	\$100	\$2,400
5.54	24	RCP	36	1	24	\$100	\$2,400
6.06	41	RCP	48	1	41	\$250	\$10,250
6.89	39	RCP	36	1	39	\$100	\$3,900
7.72	40	RCP	24	1	40	\$100	\$4,000
7.96	24	CIP	24	1	24	\$100	\$2,400
8.6	24	CIP	24	1	24	\$100	\$2,400
8.96	50	RCP	48	1	50	\$250	\$12,500
9.14	36	CIP	24	1	36	\$100	\$3,600
9.48	36	CIP	36	1	36	\$100	\$3,600
9.68	48	CIP	24	1	48	\$100	\$4,800
9.99	31	CIP	24	1	31	\$100	\$3,100
10.79	24	CIP	24	1	24	\$100	\$2,400
10.88	31	CIP	24	1	31	\$100	\$3,100
11.26	24	CIP	24	1	24	\$100	\$2,400
11.33	25	RCP	24	1	25	\$100	\$2,500
11.55	33	RCP	36	1	33	\$100	\$3,300
12.32	24	CIP	48	1	24	\$250	\$6,000
12.61	24	CMP	36	1	24	\$100	\$2,400
12.73	24	RSB	48	1	24	\$250	\$6,000
13.16	36	CIP	24	1	36	\$100	\$3,600
13.87	24	RCP	24	1	24	\$100	\$2,400
14.12	36	CIP	24	1	36	\$100	\$3,600
14.58	48	CIP	24	1	48	\$100	\$4,800
14.81	60	CIP	24	1	60	\$100	\$6,000

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
14.96	24	CMP	24	1	24	\$100	\$2,400
15.15	24	CIP	24	1	24	\$100	\$2,400
15.26	49	CIP	24	1	49	\$100	\$4,900
15.87	60	CIP	24	1	60	\$100	\$6,000
16.04	101	CA	120	1	101	\$550	\$55,550
16.24	34	TP	24	1	34	\$100	\$3,400
16.46	40	TP	24	1	40	\$100	\$4,000
16.8	24	RCP	24	1	24	\$100	\$2,400
16.86	25	TP	24	1	25	\$100	\$2,500
16.97	24	RCP	24	1	24	\$100	\$2,400
17.14	24	RCP	24	1	24	\$100	\$2,400
17.26	24	CMP	36	1	24	\$100	\$2,400
17.82	24	RCP	24	1	24	\$100	\$2,400
17.91	24	RCP	36	1	24	\$100	\$2,400
18.32	44	CIP	24	1	44	\$100	\$4,400
18.45	41	RCP	36	1	41	\$100	\$4,100
18.55	35	CMP	36	1	35	\$100	\$3,500
18.66	47	CIP	24	1	47	\$100	\$4,700
18.73	51	CIP	24	1	51	\$100	\$5,100
18.87	67	CIP	24	1	67	\$100	\$6,700
19.14	32	RCP	24	1	32	\$100	\$3,200
19.28	51	CIP	24	1	51	\$100	\$5,100
19.41	42	CIP	24	1	42	\$100	\$4,200
19.57	24	CIP	24	1	24	\$100	\$2,400
19.77	35	CMP	36	1	35	\$100	\$3,500
19.96	40	RCP	24	1	40	\$100	\$4,000
20.37	40	RCP	24	1	40	\$100	\$4,000
21.29	48	RCP	24	1	48	\$100	\$4,800
21.39	72	CIP	24	1	72	\$100	\$7,200
21.69	94	CA	84	1	94	\$550	\$51,700
22.19	48	RCP	24	1	48	\$100	\$4,800
22.28	79	CA	48	1	79	\$250	\$19,750
22.49	8	RCP	24	1	8	\$100	\$800
22.56	48	RCP	36	1	48	\$100	\$4,800
22.8	57	RCP	42	1	57	\$250	\$14,250
22.98	50	TP	24	1	50	\$100	\$5,000
23.61	24	RCP	24	1	24	\$100	\$2,400

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
23.8	32	RCP	24	1	32	\$100	\$3,200
23.88	40	RCP	24	1	40	\$100	\$4,000
24.05	44	RCP	36	1	44	\$100	\$4,400
24.2	43	RCP	24	1	43	\$100	\$4,300
24.8	64	RCP	36	1	64	\$100	\$6,400
25.4	39	RCP	36	1	39	\$100	\$3,900
25.51	52	RCP	36	1	52	\$100	\$5,200
25.55	36	RCP	24	1	36	\$100	\$3,600
26.41	32	RCP	24	1	32	\$100	\$3,200
26.53	36	CIP	20	1	36	\$100	\$3,600
26.78	104	RCP	24	1	104	\$100	\$10,400
26.98	32	RCP	24	1	32	\$100	\$3,200
27.21	32	RCP	24	1	32	\$100	\$3,200
27.42	24	CIP	21	1	24	\$100	\$2,400
28.1	36	RCP	36	1	36	\$100	\$3,600
28.13	31	RCP	36	1	31	\$100	\$3,100
28.19	32	RCP	24	1	32	\$100	\$3,200
28.3	32	RCP	24	1	32	\$100	\$3,200
28.56	24	CMP	25	1	24	\$100	\$2,400
29.02	43	RCP	72	1	43	\$550	\$23,650
29.28	20	WB	24	1	20	\$100	\$2,000
29.44	32	RCP	24	1	32	\$100	\$3,200
29.44	62	RCP	42	1	62	\$250	\$15,500
29.93	31	RCP	36	1	31	\$100	\$3,100
30.47	32	RCP	24	1	32	\$100	\$3,200
30.71	32	RCP	24	1	32	\$100	\$3,200
30.8	27	RTB	48	1	27	\$250	\$6,750
31.17	32	RCP	24	1	32	\$100	\$3,200
31.5	52	RCP	24	1	52	\$100	\$5,200
31.75	44	RCP	24	1	44	\$100	\$4,400
31.89	39	RCP	36	1	39	\$100	\$3,900
32.05	48	RCP	36	1	48	\$100	\$4,800
32.33	40	RCP	24	1	40	\$100	\$4,000
32.7	40	RCP	24	1	40	\$100	\$4,000
32.82	44	RCP	36	1	44	\$100	\$4,400
32.96	39	RCP	36	1	39	\$100	\$3,900
33.31	32	RCP	24	1	32	\$100	\$3,200

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
33.41	32	RCP	24	1	32	\$100	\$3,200
33.51	32	RCP	24	1	32	\$100	\$3,200
33.6	34	CIP	24	1	34	\$100	\$3,400
33.8	32	RCP	24	1	32	\$100	\$3,200
34.38	29	CIP	20	1	29	\$100	\$2,900
34.57	34	CIP	18	1	34	\$100	\$3,400
34.77	20	RTB	72	1	20	\$550	\$11,000
35.05	32	RCP	36	1	32	\$100	\$3,200
35.4	32	RCP	24	1	32	\$100	\$3,200
35.6	40	RCP	24	1	40	\$100	\$4,000
35.67	32	RCP	36	1	32	\$100	\$3,200
35.78	24	RCP	24	1	24	\$100	\$2,400
35.96	24	RTB	72	1	24	\$550	\$13,200
36.14	32	RCP	24	1	32	\$100	\$3,200
36.34	32	RTB	48	1	32	\$250	\$8,000
36.45	32	RCP	24	1	32	\$100	\$3,200
36.56	24	RTB	72	1	24	\$550	\$13,200
36.63	32	RCP	24	1	32	\$100	\$3,200
36.78	32	RCP	24	1	32	\$100	\$3,200
37.22	38	RCP	18	1	38	\$100	\$3,800
37.32	48	RTB	48	1	48	\$250	\$12,000
37.39	40	CMP	24	1	40	\$100	\$4,000
37.52	45	CMP	24	1	45	\$100	\$4,500
37.64	42	RCP	24	1	42	\$100	\$4,200
37.86	39	CMP	18	1	39	\$100	\$3,900
38.08	25	TP	24	1	25	\$100	\$2,500
38.15	32	RCP	36	1	32	\$100	\$3,200
38.48	34	TP	24	1	34	\$100	\$3,400
38.67	24	CMP	18	1	24	\$100	\$2,400
39.1	16	WB	18	1	16	\$100	\$1,600
39.23	24	CMP	18	1	24	\$100	\$2,400
39.69	48	RTB	24	1	48	\$100	\$4,800
39.85	32	RCP	36	1	32	\$100	\$3,200
40.03	32	RCP	36	1	32	\$100	\$3,200
40.2	41	RCP	36	1	41	\$100	\$4,100
40.45	31	CMP	24	1	31	\$100	\$3,100
40.51	19	RCP	18	1	19	\$100	\$1,900

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
40.72	32	RCP	48	1	32	\$250	\$8,000
41.89	44	WB	24	1	44	\$100	\$4,400
41.96	20	CMP	18	1	20	\$100	\$2,000
42.47	24	RCP	24	1	24	\$100	\$2,400
43.14	24	RCP	24	1	24	\$100	\$2,400
43.63	31	ORCP	36	1	31	\$100	\$3,100
43.9	32	RCP	36	1	32	\$100	\$3,200
44.54	24	RCP	36	1	24	\$100	\$2,400
45.13	24	RCP	24	1	24	\$100	\$2,400
45.25	24	RCP	24	1	24	\$100	\$2,400
45.42	24	RCP	24	1	24	\$100	\$2,400
45.58	24	RCP	36	1	24	\$100	\$2,400
45.78	36	RCP	48	1	36	\$250	\$9,000
46.99	35	TP	24	1	35	\$100	\$3,500
47.39	33	RCP	24	1	33	\$100	\$3,300
47.8	32	RCP	24	1	32	\$100	\$3,200
48.53	24	ORCP	24	1	24	\$100	\$2,400
48.67	32	RCP	24	1	32	\$100	\$3,200
49.17	24	RCP	36	1	24	\$100	\$2,400
49.74	32	CIP	24	1	32	\$100	\$3,200
49.99	24	RCP	24	1	24	\$100	\$2,400
50.03	33	RCP	36	1	33	\$100	\$3,300
50.18	24	RCP	24	1	24	\$100	\$2,400
51.98	27	TP	24	1	27	\$100	\$2,700
52.48	39	RCP	24	1	39	\$100	\$3,900
53.15	35	CMP	24	1	35	\$100	\$3,500
53.83	32	RCP	24	1	32	\$100	\$3,200
51.14	24	RCP	24	1	24	\$100	\$2,400
54.73	24	CMP	24	1	24	\$100	\$2,400
55.87	36	CMP	24	1	36	\$100	\$3,600
56.83	28	TP	24	1	28	\$100	\$2,800
57.53	26	TP	24	1	26	\$100	\$2,600
57.74	34	TP	24	1	34	\$100	\$3,400
58.02	47	RCP	24	1	47	\$100	\$4,700
58.19	49	TP	24	1	49	\$100	\$4,900
60.35	39	RCP	24	1	39	\$100	\$3,900
60.72	40	RCP	24	1	40	\$100	\$4,000

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
61.18	40	RCP	24	1	40	\$100	\$4,000
62.27	58	TP	24	1	58	\$100	\$5,800
63.09	14	CMP	36	1	14	\$100	\$1,400
6.2	40	RCP	30	1	40	\$100	\$4,000
63.36	57	RCP	36	1	57	\$100	\$5,700
63.84	24	RCP	36	1	24	\$100	\$2,400
64.68	16	RCP	24	1	16	\$100	\$1,600
64.85	24	CMP	36	1	24	\$100	\$2,400
64.87	32	RCP	36	1	32	\$100	\$3,200
65.07	24	CMP	24	1	24	\$100	\$2,400
65.25	24	RCP	24	1	24	\$100	\$2,400
65.56	24	RCP	24	1	24	\$100	\$2,400
66.05	24	RCP	24	1	24	\$100	\$2,400
66.18	30	TP	24	1	30	\$100	\$3,000
66.29	24	RCP	24	1	24	\$100	\$2,400
66.76	55	TL	48	1	55	\$250	\$13,750
66.94	67	TL	48	1	67	\$250	\$16,750
67.52	24	RCP	24	1	24	\$100	\$2,400
68.05	16	CMP	12	1	16	\$100	\$1,600
68.94	24	CMP	36	1	24	\$100	\$2,400
70.32	24	CMP	24	1	24	\$100	\$2,400
70.71	24	TP	24	1	24	\$100	\$2,400
71.39	29	CMP	36	1	29	\$100	\$2,900
71.91	31	RCP	24	1	31	\$100	\$3,100
72.43	24	RCP	24	1	24	\$100	\$2,400
72.54	32	RCP	24	1	32	\$100	\$3,200
73.94	76	CMP	48	1	76	\$250	\$19,000
75.02	24	RCP	24	1	24	\$100	\$2,400
75.27	24	RCP	24	1	24	\$100	\$2,400
75.43	24	RCP	24	1	24	\$100	\$2,400
76.08	24	RCP	24	1	24	\$100	\$2,400
77.38	40	RCP	48	1	40	\$250	\$10,000
78.03	38	CMP	36	1	38	\$100	\$3,800
78.24	16	WB	12	1	16	\$100	\$1,600
78.73	47	RCP	36	1	47	\$100	\$4,700
78.85	32	RCP	24	1	32	\$100	\$3,200
79.03	27	CIP	24	1	27	\$100	\$2,700



CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
79.18	18	CMP	18	1	18	\$100	\$1,800
79.88	39	RCP	36	1	39	\$100	\$3,900
80.25	41	CMP	24	1	41	\$100	\$4,100
80.5	93	CA	72	1	93	\$550	\$51,150
80.89	55	RCP	24	1	55	\$100	\$5,500
81.33	28	CMP	18	1	28	\$100	\$2,800
81.52	43	RCP	36	1	43	\$100	\$4,300
81.62	45	TP	24	1	45	\$100	\$4,500
81.74	40	CMP	24	1	40	\$100	\$4,000
82.27	56	CMP	36	1	56	\$100	\$5,600
82.45	72	TP	24	1	72	\$100	\$7,200
82.4	24	RCP	24	1	24	\$100	\$2,400
82.8	25	TP	24	1	25	\$100	\$2,500
82.85	12	CIP	20	1	12	\$100	\$1,200
83.21	48	TP	24	1	48	\$100	\$4,800
83.35	64	TP	24	1	64	\$100	\$6,400
84.12	62	RCP	48	1	62	\$250	\$15,500
84.33	73	TL	48	1	73	\$250	\$18,250
84.49	52	TP	24	1	52	\$100	\$5,200
84.72	43	RCP	48	1	43	\$250	\$10,750
85.73	16	RCP	24	1	16	\$100	\$1,600
86.47	49	RCP	72	1	49	\$550	\$26,950
86.54	23	RCP	48	1	23	\$250	\$5,750
87.08	31	CMP	24	1	31	\$100	\$3,100
87.2	16	WB	24	1	16	\$100	\$1,600
87.56	48	CP	60	1	48	\$550	\$26,400
87.82	20	WB	36	1	20	\$100	\$2,000
87.97	24	RCP	24	1	24	\$100	\$2,400
88.41	24	RCP	36	1	24	\$100	\$2,400
88.69	76	RCP	48	1	76	\$250	\$19,000
88.98	22	TP	24	1	22	\$100	\$2,200
89.01	26	CMP	36	1	26	\$100	\$2,600
89.41	24	RCP	24	1	24	\$100	\$2,400
89.72	61	RCP	72	1	61	\$550	\$33,550
89.87	24	CMP	24	1	24	\$100	\$2,400
90.03	36	TP	24	1	36	\$100	\$3,600
90.17	38	TP	24	1	38	\$100	\$3,800

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
90.29	62	RCP	48	1	62	\$250	\$15,500
90.38	38	TP	24	1	38	\$100	\$3,800
90.47	52	TP	24	1	52	\$100	\$5,200
90.55	36	TP	24	1	36	\$100	\$3,600
90.65	41	RCP	36	1	41	\$100	\$4,100
90.7	34	TP	24	1	34	\$100	\$3,400
90.78	36	TP	24	1	36	\$100	\$3,600
90.92	40	RCP	36	1	40	\$100	\$4,000
91.09	18	WB	24	1	18	\$100	\$1,800
91.45	30	CMP	24	1	30	\$100	\$3,000
92.79	24	RCP	24	1	24	\$100	\$2,400
92.93	42	RCP	72	1	42	\$550	\$23,100
93.65	39	RCP	48	1	39	\$250	\$9,750
93.84	50	MPP	84	1	50	\$550	\$27,500
94.26	55	RCP	89	1	55	\$550	\$30,250
95.33	62	RCP	48	1	62	\$250	\$15,500
95.73	45	TP	24	1	45	\$100	\$4,500
95.9	52	CA	48	1	52	\$250	\$13,000
96.36	60	RCP	72	1	60	\$550	\$33,000
96.49	30	TP	24	1	30	\$100	\$3,000
96.62	68	CA	72	1	68	\$550	\$37,400
97.04	50	TP	24	1	50	\$100	\$5,000
97.25	61	RCP	42	1	61	\$250	\$15,250
97.38	62	CMP	24	1	62	\$100	\$6,200
97.64	77	TL	48	1	77	\$250	\$19,250
97.81	67	RCP	72	1	67	\$550	\$36,850
97.98	54	TP	24	1	54	\$100	\$5,400
98.4	38	TP	24	1	38	\$100	\$3,800
99.05	24	RCP	24	1	24	\$100	\$2,400
99.43	24	RCP	24	1	24	\$100	\$2,400
100.1	24	CMP	24	1	24	\$100	\$2,400
100.39	28	TP	24	1	28	\$100	\$2,800
100.53	28	TP	24	1	28	\$100	\$2,800
100.69	40	CMP	48	1	40	\$250	\$10,000
101.22	64	RCP	36	1	64	\$100	\$6,400
104.22	35	CMP	30	1	35	\$100	\$3,500
104.28	24	RCP	24	1	24	\$100	\$2,400

CW SUBDIVISION

CW CULVERT REPLACEMENT							
CULVERT LOCATION	CULVERT LENGTH L.F.	CULVERT TYPE	CULVERT SIZE (INCHES)	# TIMES REPLACED	TOTAL L.F. REPLACED	UNIT PRICE	TOTAL PRICE
104.32	24	TP	24	1	24	\$100	\$2,400
104.47	28	TP	24	1	28	\$100	\$2,800
104.74	20	WB	24	1	20	\$100	\$2,000
104.84	24	RCP	24	1	24	\$100	\$2,400
104.91	23	CMP	18	1	23	\$100	\$2,300
105.07	24	RCP	24	1	24	\$100	\$2,400
105.4	28	CMP	24	1	28	\$100	\$2,800
105.54	24	TP	24	1	24	\$100	\$2,400
105.7	24	TP	24	1	24	\$100	\$2,400
105.78	24	TP	24	1	24	\$100	\$2,400
105.91	30	TP	24	1	30	\$100	\$3,000
106.18	24	TP	24	1	24	\$100	\$2,400
106.31	24	RCP	24	1	24	\$100	\$2,400
106.38	24	WB	16	1	24	\$100	\$2,400
106.51	24	TP	24	1	24	\$100	\$2,400
106.93	24	WB	48	1	24	\$250	\$6,000
107.32	24	RCP	36	1	24	\$100	\$2,400
108.13	24	CMP	24	1	24	\$100	\$2,400
108.42	52	WB	12	1	52	\$100	\$5,200

- 1) Smaller than 36" dia pipe replaced at \$100 per liner foot
- 2) 36" dia to 48" dia pipe replaced at \$250 per liner foot
- 3) Pipe larger than 48" dia replaced at \$550 per liner foot (includes all structures with openings greater than 48")
- 4) Culvert lengths are approximate.

LENGTH OF CW SUB (MILES) = 107.44

TOTAL PRICE = \$1,757,950  
 ANNUAL PRICE PER TRACK MILE = \$218

CW SUBDIVISION

CW DITCHING						
M.P. BEGIN	M.P. END	DITCH L.F.	# TIMES EXCAVATED	TOTAL L.F. RESTORED	UNIT PRICE	TOTAL PRICE
1	108.44	189,094	2	378,189	\$10.00	\$3,781,890

1) 1/6 of overall subdivision length will be ditched 2 times in 75 years - both sides of track.

LENGTH OF CW SUB (MILES) = 107.44

TOTAL PRICE = \$3,781,890

ANNUAL PRICE PER TRACK MILE = \$469

CW SUBDIVISION

CW TURNOUTS						
M.P. BEGIN	STATION	RAIL WEIGHT	FROG	REPAIR ALLOWANCE	UNIT PRICE	TOTAL PRICE
1.15	Cheney	112	11	1	\$45,000	\$45,000
10.41	Medical Lake	112	9	1	\$45,000	\$45,000
21.06	Hite	112	11	1	\$45,000	\$45,000
21.37	Hite	112	11	1	\$45,000	\$45,000
26.32	Reardan	115	9	1	\$45,000	\$45,000
26.57	Reardan	115	9	1	\$45,000	\$45,000
26.88	Reardan	90	9	1	\$60,000	\$60,000
27.05	Reardan	90	9	1	\$60,000	\$60,000
33.98	Mondovi	112	9	1	\$45,000	\$45,000
34.3	Mondovi	112	9	1	\$45,000	\$45,000
41.09	Davenport	112	11	1	\$45,000	\$45,000
41.3	Davenport	112	11	1	\$45,000	\$45,000
41.31	Davenport	90	9	1	\$60,000	\$60,000
41.79	Davenport	90	9	1	\$60,000	\$60,000
41.82	Davenport	90	9	1	\$60,000	\$60,000
41.94	Davenport	112	9	1	\$45,000	\$45,000
47.84	Rocklyn	112	9	1	\$45,000	\$45,000
48.14	Rocklyn	112	9	1	\$45,000	\$45,000
63.01	Webb	100	9	1	\$60,000	\$60,000
63.57	Webb	100	9	1	\$60,000	\$60,000
64.32	Creston	115	9	1	\$45,000	\$45,000
65.06	Creston	115	9	1	\$45,000	\$45,000
73.86	Wilbur	90	9	1	\$60,000	\$60,000
74.54	Wilbur	90	9	1	\$60,000	\$60,000
74.57	Wilbur	90	9	1	\$60,000	\$60,000
80.78	Govan	90	9	1	\$60,000	\$60,000
81.18	Govan	90	9	1	\$60,000	\$60,000
87.59	Almira	90	9	1	\$60,000	\$60,000
87.61	Almira	90	9	1	\$60,000	\$60,000
87.89	Almira	90	9	1	\$60,000	\$60,000
87.94	Almira	90	9	1	\$60,000	\$60,000
88.01	Almira	90	9	1	\$60,000	\$60,000
88.12	Almira	90	9	1	\$60,000	\$60,000
88.47	Almira	90	9	1	\$60,000	\$60,000
91.44	Hanson	90	9	1	\$60,000	\$60,000
96.59	Hartline	90	9	1	\$60,000	\$60,000
96.6	Hartline	90	9	1	\$60,000	\$60,000

CW SUBDIVISION

CW TURNOUTS						
M.P. BEGIN	STATION	RAIL WEIGHT	FROG	REPAIR ALLOWANCE	UNIT PRICE	TOTAL PRICE
96.61	Hartline	90	9	1	\$60,000	\$60,000
96.68	Hartline	90	9	1	\$60,000	\$60,000
96.92	Hartline	90	9	1	\$60,000	\$60,000
96.96	Hartline	90	9	1	\$60,000	\$60,000
103.46	Cement	90	9	1	\$60,000	\$60,000
103.83	Cement	90	9	1	\$60,000	\$60,000
106.68	Odair	85	9	1	\$60,000	\$60,000
106.69	Odair	90	9	1	\$60,000	\$60,000
106.99	Odair	90	9	1	\$60,000	\$60,000
108.21	Coulee City	90	9	1	\$60,000	\$60,000
108.42	Coulee City	90	9	1	\$60,000	\$60,000
108.44	Coulee City	90	9	1	\$60,000	\$60,000

LENGTH OF P&L SUB (MILES) = 83.04

TOTAL PRICE = \$2,715,000  
 ANNUAL PRICE PER TRACK MILE = \$436

## Appendix B – FRA Track Safety Standards

When discussing railroad track conditions, one often hears reference to “Class of track.” One might hear reference to “Class 1” or “Class 2” or “excepted track.” These terms originate from the USDOT Federal Railroad Administrations (FRA) Track Safety Standards - CFR 49 Part 213. The FRA Part 213 Standards establish, describe, and enforce the federal government’s rules concerning the minimum acceptable condition for a particular track for a particular use. The classes of track are “minimum level” of condition that the government has determined that must be present for certain track speeds and track uses. They have also established the frequency of inspection and the methods of record keeping as well as how railroads are to respond to exceptions and violations of the standards when found. The classes of track in the FRA 213 Standards should not be confused with the terms “Class 1, 2, or 3 Railroad,” which have to do with the minimum revenue levels (and general size category) of a railroad as designated by the American Association of Railroads. For example the Union Pacific Railroad (UP) and the BNSF Railway (BNSF) are Class 1 railroads, where most shortlines are Class 3 railroads.

The FRA makes the owner (operator) responsible for deciding what level or class of track will be used for inspection, and the minimum threshold for track conditions, on each segment of track. Commonly, shortlines use FRA Class 1, Class 2, and “excepted track” to designate their track segments. (There are a total of 10 classes: Excepted and 1 through 5 which are progressively more stringent and set criteria from 10 to 90 miles per hour for passenger trains. Classes 6 through 9 are provided for higher speeds.) Per the FRA, Class 2 allows for the operation of 25 mph freight train and 30 mph passenger train operations. Class 1 allows for 10 mph freight train and 15 mph passenger train operations. Excepted track allows for 10 mph freight train operations with special restrictions and does not allow for passenger operations. The FRA 213 Standards provide specifics on how many “defective or substandard components” and the largest allowable geometry deviations that are acceptable for the Class 1 and 2 tracks. Naturally, the higher class of track has greater minimum thresholds or have “tighter” requirements, due to the fact that higher speeds generate higher dynamic forces that are placed on the track structure. Excepted track is a special category. It is a track that a track owner (operator) desires to operate that may not meet the FRA Track Safety Standards for any (other) class of track. Operators usually designate a track “excepted track” because of poor track structure conditions. On excepted track, owners (operators) can operate freight trains only and not containing more than five hazardous material cars per train, at 10 mph maximum speed, understanding and accepting the risks involved. By the nature of the FRA 213 Standards, one can quickly see that the classes of track do not establish a maintenance or construction standard. In fact, the FRA’s own information indicates that the FRA 213 Standards are not a maintenance or construction standard and do not apply for these purposes. For example, if an owner said lets maintain a particular track to Class 1; they would only need to ensure that the minimum track geometry, tie and other component conditions need to meet the minimum standards for that moment. Class 1 track conditions are actually quite poor because the FRA says nothing about some very relevant subjects. One subject is marginal ties (they only have defective or non-defective ties), which may become “defective” soon after an inspection. The track would then not

meet Class 1 Standard. However, in the shortline world, the FRA 213 Standards can be used, to a degree, to establish a lower level threshold projected to a future date. With respect to tie condition, the above situation could be avoided if enough ties were replaced so that all of the marginal ties that could be expected to fail within—say five years—would also be replaced to the degree that the Class 1 threshold would not be exceeded.

The following is an excerpt from Appendix B of the WSDOT Evaluation of the PCC Railroad Report 2003—that further explains the idea of classes of track, tie condition, and maintenance standards. There is a general level of tie condition that is necessary to support a safe and reliable track speed. The FRA has set minimal safety standards for tie condition, which if literally interpreted, would allow for train speeds of 10 mph with up to 76 percent of all ties being defective. This requires that the remaining 24 percent of non-defective ties be judiciously spaced. This is not practical, nor is it sustainable. Our experience has shown that tie condition must be such that there is an extremely high probability that at least one good or excellent tie is spaced within 24 inches of each rail joint and that no more than three defective ties in a row exist. Additionally, the existing tie distribution should be such that these conditions will not be exceeded between now and the next tie renewal program. Our experience has shown that once the number of defective ties exceeds 33 percent, the track is not likely to support safe and sustainable 10-mph operations. At this point, the track should be taken out of service, ties installed to break up the clusters of defective ties, or the track lowered to FRA classification for EXCEPTED TRACK and closely monitored.

“Class of track” designations do not apply to railroad bridge structures (except for the portions of the bridge that can be considered as part of the track). FRA 213 Standards does address bridges in Appendix C of Part 213. The FRA is in the process of implementing further comprehensive bridge structure inspection policies and standards to become Part 237.