

PAN AM RAILWAYS

PRELIMINARY CONSTRUCTION COST ESTIMATE

Freight Mainline - Waterville to Royal Junction improvements

PROJECT: Install CWR to eliminate joints, replace switches to ensure Class 2 compliance, improve grade crossings from Waterville to Royal Junction.

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM 1 - Rail Replacement

Install continuous welded rail to eliminate jointed and/or worn rail

<u>Description</u>	<u>Labor & Equipment</u>	<u>Materials</u>	<u>TOTAL</u>
1-1 Install 400,000 LF of CWR and 260 plug rails, weld joints (see attached estimate)	\$5,568,000.00	\$10,291,000.00	\$15,859,000.00
		ITEM 1 TOTAL	\$15,859,000.00

ITEM 2 - Mainline switch replacements

Replace mainline switches to ensure Class 2 condition. All will be replaced with new 115 lb switch packages.

<u>Description</u>	<u>Milepost</u>	<u>Labor & Equipment</u>	<u>Materials</u>	<u>TOTAL</u>
2-1 Replace LH #15 switch at CPF 111	111.5	\$55,000.00	\$60,000.00	\$115,000.00
2-2 Replace LH #10 switch at CPF 111	111.6	\$40,000.00	\$50,000.00	\$90,000.00
2-3 Replace LH #15 switch at CPF 112	112.8	\$55,000.00	\$60,000.00	\$115,000.00
2-4 Replace RH #10 switch at CPF 113	113.1	\$40,000.00	\$50,000.00	\$90,000.00
2-5 Replace RH #10 switch at Industrial Metals	118.5	\$40,000.00	\$50,000.00	\$90,000.00
2-6 Replace LH #10 switch at Oakland	119.7	\$40,000.00	\$50,000.00	\$90,000.00
2-7 Replace RH #10 switch at Bean	134.6	\$40,000.00	\$50,000.00	\$90,000.00
2-8 Replace LH #10 switch at Packard	135.5	\$40,000.00	\$50,000.00	\$90,000.00
2-9 Remove RH #10 switch at east end of Track 8 in Winthrop	141.4	\$10,000.00	\$10,000.00	\$20,000.00
2-10 Replace LH #10 switch at west end of Track 8 in Winthrop	141.5	\$40,000.00	\$50,000.00	\$90,000.00
2-11 Replace LH #10 switch at Cressey	149.7	\$40,000.00	\$50,000.00	\$90,000.00
2-12 Replace RH #10 switch at Wood	149.9	\$40,000.00	\$50,000.00	\$90,000.00
2-13 Replace LH #15 switch at Leeds Junction	150.2	\$55,000.00	\$60,000.00	\$115,000.00
2-14 Replace RH #10 switch at east end of Right track at Leeds Junction	150.4	\$40,000.00	\$50,000.00	\$90,000.00
2-15 Replace #10 crossover "A" switches at Leeds Junction	150.4	\$80,000.00	\$100,000.00	\$180,000.00
2-16 Replace LH #10 switch at west end of Right track at Leeds Junction	150.7	\$40,000.00	\$50,000.00	\$90,000.00
2-17 Replace RH #10 switch at Roy	151.1	\$40,000.00	\$50,000.00	\$90,000.00
2-18 Replace RH #8 switch at Maine Poly	152.4	\$40,000.00	\$40,000.00	\$80,000.00
2-19 Replace RH #10 switch at Den	159.2	\$40,000.00	\$50,000.00	\$90,000.00
2-20 Replace LH #10 switch at Libby	160.1	\$40,000.00	\$50,000.00	\$90,000.00
2-21 Replace RH #8 switch at Maine Metal	163.6	\$40,000.00	\$40,000.00	\$80,000.00
2-22 Replace RH #10 switch at Hacketts	164.9	\$40,000.00	\$50,000.00	\$90,000.00
2-23 Replace LH #10 switch at Poland	165.8	\$40,000.00	\$50,000.00	\$90,000.00
2-24 Replace LH #10 switch at Industrial Paper	166.6	\$40,000.00	\$50,000.00	\$90,000.00
2-25 Replace LH #10 switch to siding at Gray	176.7	\$40,000.00	\$50,000.00	\$90,000.00
			ITEM 2 TOTAL	\$2,325,000.00

ITEM 3 - Grade crossing reconstruction

Reconstruct grade crossings to ensure Class 2 condition

<u>Description</u>	<u>Milepost</u>	<u>Track & Surface work</u>	<u>Signal/AHCP work</u>	<u>TOTAL</u>
3-1 Fire Road (Waterville)	113.07	\$151,832.00	\$162,529.00	\$314,361.00
3-2 Chaplin Street (Waterville)	113.78	\$84,346.00	\$229,104.00	\$313,450.00
3-3 Main Street (Waterville)	113.88	\$0.00	\$272,973.00	\$272,973.00
3-4 Rice Rips Road (Oakland)	116.48	\$0.00	\$189,782.00	\$189,782.00
3-5 Fairfield Street (Oakland)	117.16	\$99,808.00	\$274,018.00	\$373,826.00
3-6 Pleasant Street (Oakland)	118.59	\$0.00	\$220,225.00	\$220,225.00
3-7 Oak Street (Oakland)	118.82	\$0.00	\$284,960.00	\$284,960.00
3-8 Augusta Road (Belgrade)	127.7	\$0.00	\$226,817.00	\$226,817.00
3-9 Depot Road (Belgrade)	127.8	\$0.00	\$169,097.00	\$169,097.00

3-10 Bartlett Road (Belgrade)	130.84	\$0.00	\$52,729.00	\$52,729.00
3-11 Plains Road (Readfield)	134.1	\$81,346.00	\$103,608.00	\$184,954.00
3-12 Main Street (Readfield)	135.7	\$0.00	\$168,876.00	\$168,876.00
3-13 Summer Street (Winthrop)	141.01	\$0.00	\$166,872.00	\$166,872.00
3-14 Central Street (Winthrop)	141.1	\$70,002.00	\$204,406.00	\$274,408.00
3-15 Main Street (Winthrop)	141.29	\$104,230.00	\$123,796.00	\$228,026.00
3-16 Annabessacook Road (Winthrop)	142.4	\$93,038.00	\$211,744.00	\$304,782.00
3-17 Annabessacook Road (Monmouth)	144.36	\$0.00	\$96,909.00	\$96,909.00
3-18 Berry Road (Monmouth)	146.33	\$0.00	\$96,188.00	\$96,188.00
3-19 Main Street (Monmouth)	146.85	\$110,750.00	\$200,761.00	\$311,511.00
3-20 Cressey Road (Monmouth)	149.6	\$0.00	\$162,258.00	\$162,258.00
3-21 Leeds Junction Road (Leeds)	150.29	\$117,758.00	\$189,998.00	\$307,756.00
3-22 Sprague Mill Road (Greene)	152.33	\$0.00	\$160,306.00	\$160,306.00
3-23 Barrel Shop Road (Greene)	153.49	\$0.00	\$155,465.00	\$155,465.00
3-24 Sawyer Road (Greene)	153.69	\$74,154.00	\$202,202.00	\$276,356.00
3-25 College Road (Greene)	154.07	\$0.00	\$139,131.00	\$139,131.00
3-26 Sullivan Road (Greene)	154.69	\$74,154.00	\$120,506.00	\$194,660.00
3-27 Merrill Road (Lewiston)	157.26	\$66,192.00	\$184,549.00	\$250,741.00
3-28 Stetson Road (Lewiston)	158.42	\$81,576.00	\$166,106.00	\$247,682.00
3-29 Strawberry Avenue (Lewiston)	159.88	\$137,324.00	\$206,419.00	\$343,743.00
3-30 Whipple Street (Lewiston)	160.6	\$75,654.00	\$240,562.00	\$316,216.00
3-31 Holland Street (Lewiston)	160.72	\$75,654.00	\$220,507.00	\$296,161.00
3-32 Middle Street (Lewiston)	161.1	\$0.00	\$211,516.00	\$211,516.00
3-33 Spring Street (Auburn)	161.49	\$83,666.00	\$211,516.00	\$295,182.00
3-34 Hampshire Street (Auburn)	161.55	\$0.00	\$280,977.00	\$280,977.00
3-35 Library Avenue (Auburn)	161.61	\$80,654.00	\$249,505.00	\$330,159.00
3-36 Court Street (Auburn)	161.67	\$0.00	\$79,084.00	\$79,084.00
3-37 Elm Street (Auburn)	162.06	\$77,154.00	\$97,979.00	\$175,133.00
3-38 High Street (Auburn)	162.15	\$77,154.00	\$50,242.00	\$127,396.00
3-39 Albiston Way (Auburn)	162.37	\$0.00	\$13,197.00	\$13,197.00
3-40 Hackett Road (Auburn)	164.81	\$0.00	\$206,788.00	\$206,788.00
3-41 Sampson Crossing (Auburn)	166.19	\$0.00	\$169,135.00	\$169,135.00
3-42 Black Cat Road (Auburn)	166.83	\$0.00	\$195,493.00	\$195,493.00
3-43 Danville Junction Road (Auburn)	167.36	\$0.00	\$15,045.00	\$15,045.00
3-44 Route 231 (New Gloucester)	172.1	\$0.00	\$189,771.00	\$189,771.00
3-45 Morse Road (New Gloucester)	175.47	\$0.00	\$32,905.00	\$32,905.00
3-46 Depot Road (Gray)	176.73	\$75,654.00	\$48,598.00	\$124,252.00
3-47 Porter's Mill Road (North Yarmouth)	178.8	\$0.00	\$200,074.00	\$200,074.00

ITEM 3 TOTAL \$9,747,328.00

ITEM 4 - Extend New Gloucester Siding

Remove existing Penney switch (MP 173.53) and construct new track 4,800 feet east on existing roadbed. Use relay rail cascaded from FML between MP 174.4 and 172.1 to construct new track and replace existing rail in the siding. Install a new #15 switch in the FML at MP 174.42 to become the new west end of New Gloucester siding. Replace the existing #10 switch at Blake (MP 172.12) with a #15 switch.

<u>Description</u>	<u>Milepost</u>	<u>Labor & Equipment</u>	<u>Materials</u>	<u>TOTAL</u>
4-1 Siding extension & upgrade (see attached estimate)	174.42	\$442,000.00	\$563,818.00	\$1,005,818.00

ITEM 4 TOTAL \$1,005,818.00

ITEM 5 - Signal system improvements

Replace interlockings with modernized equipment at CPF-111, CPF-112, and CPF 113. Install interlocking at Leeds Junction and add additional wayside locations to complete signal system between Leeds Junction and Danville Junction. Install inerlockings at both ends of the extended New Gloucester Siding and add additional wayside locations to complete signal system between Danville Junction and Royal Junction.

<u>Description</u>	<u>Milepost</u>	<u>Labor & Equipment</u>	<u>Materials & Contracted Service</u>	<u>TOTAL</u>
5-1 CPF-111	111.57	\$161,366.00	\$470,575.00	\$631,941.00
5-2 CPF-112	112.81	\$143,789.00	\$392,994.00	\$536,783.00
5-3 CPF-113	113.90	\$135,001.00	\$307,334.00	\$442,335.00
5-4 Automatic Signal 1143/1144	114.30	\$26,960.00	\$91,730.00	\$118,690.00
5-5 Automatic Signal 1476	147.60	\$26,960.00	\$88,705.00	\$115,665.00
5-6 CPF-150	150.20	\$135,001.00	\$445,517.00	\$580,518.00
5-7 Automatic Signal 1518/1517	151.80	\$26,960.00	\$108,265.00	\$135,225.00
5-8 CPF-155 Holding Signal	154.69	\$73,682.00	\$175,210.00	\$248,892.00

5-9 Automatic Signal 1574/1573	157.20	\$26,960.00	\$145,511.00	\$172,471.00
5-10 Automatic Signal 1594/1593	159.40	\$26,960.00	\$90,049.00	\$117,009.00
5-11 Automatic Signal 1604/1603	160.40	\$26,960.00	\$92,611.00	\$119,571.00
5-12 Automatic Signal 1632/1631	163.20	\$26,960.00	\$92,606.00	\$119,566.00
5-13 Automatic Signal 1647/1648	164.81	\$44,537.00	\$120,857.00	\$165,394.00
5-14 CPF-166 Holding Signal	165.80	\$73,682.00	\$175,912.00	\$249,594.00
5-15 CPF-167	166.83	\$143,789.00	\$479,295.00	\$623,084.00
5-16 Automatic Signal 1706/1707	170.65	\$9,383.00	\$29,885.00	\$39,268.00
5-17 CPF-172	172.10	\$135,001.00	\$396,604.00	\$531,605.00
5-18 CPF-174	174.35	\$126,413.00	\$398,088.00	\$524,501.00
5-19 Automatic Signal 1767/1768	176.73	\$18,172.00	\$166,755.00	\$184,927.00
5-20 Automatic Signal 1800/1801	180.00	\$9,383.00	\$28,962.00	\$38,345.00

ITEM 5 TOTAL \$5,695,384.00

ITEM 6 - Bridge deck replacement

Replace bridge deck timbers

<u>Description</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
6-1 Replace timbers on Bridge #79.88 at MP 118.12 (8" x 8" x 12')	EA	25	\$200.00	\$5,000.00
6-2 Replace timbers on Bridge #67.42 at MP 130.56 (8" x 8" x 12')	EA	56	\$200.00	\$11,200.00
6-3 Replace timbers on Bridge #60.13 at MP 137.87 (8" x 12" x 12')	EA	72	\$250.00	\$18,000.00
6-4 Replace timbers on Bridge #47.75 at MP 150.25 (8" x 8" x 12')	EA	14	\$200.00	\$2,800.00
6-5 Replace timbers on Bridge #41.36 at MP 156.64 (8" x 8" x 12')	EA	16	\$200.00	\$3,200.00
6-6 Replace timbers on Bridge #36.57 at MP 161.43 (8" x 10" x 12')	EA	74	\$225.00	\$16,650.00
6-7 Replace timbers on Bridge #34.28 at MP 163.72 (8" x 8" x 12')	EA	124	\$200.00	\$24,800.00
6-8 Replace timbers on Bridge #20.84 at MP 177.16 (8" x 10" x 12')	EA	60	\$225.00	\$13,500.00

ITEM 6 TOTAL \$95,150.00

ITEM 7 - Farm crossing rehabilitations

Replace wood planking and install signage at 42 farm/private crossings

<u>Description</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
7-1 Replace timber planking & install signage at farm crossing	EA	42	\$5,000.00	\$210,000.00

ITEM 7 TOTAL \$210,000.00

PROJECT TOTAL \$34,937,680.00

September 5, 2018

PAN AM RAILWAYS

PRELIMINARY CONSTRUCTION COST ESTIMATE

Freight Mainline - Waterville to Royal Junction improvements

PROJECT: Rail replacement

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM 1 - Rail Replacement

Install continuous welded rail to eliminate jointed and/or worn rail

Replace rail with new CWR at locations:

	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
MP 113 to MP 114	LF	10,600	\$22.00	\$233,200.00
MP 115.3 to MP 115.9	LF	6,400	\$22.00	\$140,800.00
MP 116.5 to MP 117	LF	5,300	\$22.00	\$116,600.00
MP 118.55 to MP 119	LF	4,800	\$22.00	\$105,600.00
MP 126 to MP 127	LF	10,600	\$22.00	\$233,200.00
MP 127.7 to MP 128.1	LF	4,200	\$22.00	\$92,400.00
MP 130.2 to MP 143	LF	135,200	\$22.00	\$2,974,400.00
MP 146.6 to MP 162.3 both rails	LF	165,800	\$22.00	\$3,647,600.00
MP 163.9 to MP 164 both rails	LF	400	\$22.00	\$8,800.00
MP 164 to MP 164.2 north rail	LF	1,000	\$22.00	\$22,000.00
MP 165 to MP 166.83 both rails	LF	19,400	\$22.00	\$426,800.00
MP 167.7 to MP 168 both rails	LF	3,200	\$22.00	\$70,400.00
MP 168.35 to MP 168.5 both rails	LF	1,300	\$22.00	\$28,600.00
MP 168.5 to MP 169 low rail	LF	2,500	\$22.00	\$55,000.00
MP 169 to MP 169.3 both rails	LF	3,200	\$22.00	\$70,400.00
MP 169.8 to MP 170.2 both rails	LF	4,200	\$22.00	\$92,400.00
MP 171 to 171.6 both rails	LF	6,600	\$22.00	\$145,200.00
MP 172.1 to MP 175 both rails	LF	15,300	\$22.00	\$336,600.00
	TOTAL	400,000	SUBTOTAL	\$8,800,000.00

Additional Material needed for rail replacement work

	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
Plug rails (39 ft)	EA	260	\$850.00	\$221,000.00
Tie plates	EA	25,000	\$14.00	\$350,000.00
Spikes	EA	250,000	\$0.75	\$187,500.00
Rail anchors	EA	150,000	\$2.50	\$375,000.00
Weld kits	EA	700	\$225.00	\$157,500.00
			SUBTOTAL	\$1,291,000.00

Rail installation cost

	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
Install CWR	LF	400,000	\$12.50	\$5,000,000.00
Install plug rails	EA	260	\$300.00	\$78,000.00
Weld joints	EA	700	\$300.00	\$210,000.00
			SUBTOTAL	\$5,288,000.00

Surfacing after rail installation

	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
Surfacing crew (tamper & regulator)	TM	40	\$7,000.00	\$280,000.00
Ballast	TON	8,000	\$25.00	\$200,000.00
			SUBTOTAL	\$480,000.00

RAIL REPLACEMENT TOTAL \$15,859,000.00

September 5, 2018

PAN AM RAILWAYS

CONSTRUCTION ESTIMATE

NEW GLOUCESTER SIDING EXTENSION

PROJECT: EXTEND NEW GLOUCESTER SIDING 4,800 FEET EAST TO MP 174.42. UPGRADE EXISTING PORTION OF THE SIDING.

PRELIMINARY CONSTRUCTION COST ESTIMATE

<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
Extend New Gloucester siding				
<i>Remove existing Penney switch (MP 173.53) and construct new track 4,800 feet east on existing roadbed. Use relay rail cascaded from FML between MP 174.4 and 172.1 to construct new track and replace existing rail in the siding. Install a new #15 switch in the FML at MP 174.42 to become the new west end of New Gloucester siding. Replace the existing #10 switch at Blake (MP 172.12) with a #15 switch.</i>				
Railroad labor & equipment costs				
1-1 Remove existing Penney switch (MP 173.53), replace with track panel	CD	4	\$6,000.00	\$24,000.00
1-2 Construct & install new #15 switch at MP 174.42	CD	6	\$6,000.00	\$36,000.00
1-3 Construct new track using relay rail from FML (4,800 ft)	CD	30	\$6,000.00	\$180,000.00
1-4 Replace existing siding rail with relay rail from FML (6,900 ft)	CD	10	\$6,000.00	\$60,000.00
1-5 Replace existing #10 switch at Blake (MP 172.12) with #15 switch	CD	6	\$6,000.00	\$36,000.00
1-6 Surface track & switches after installation	CD	8	\$7,000.00	\$56,000.00
			SUBTOTAL	\$392,000.00
Material costs				
1-1 Remove existing Penney switch (MP 173.53)				
115 lb rail (new, 39 ft lengths)	LF	234	\$22.00	\$5,148.00
7" x 9" x 8.5' crossties	EA	70	\$65.00	\$4,550.00
Tie plates	EA	140	\$14.00	\$1,960.00
Spikes	EA	280	\$0.75	\$210.00
Joint bars w/bolts	PR	4	\$175.00	\$700.00
Rail anchors	EA	140	\$2.50	\$350.00
Weld kits	EA	8	\$225.00	\$1,800.00
Ballast	TON	200	\$25.00	\$5,000.00
1-2 Construct & install new #15 switch at MP 174.42				
115 lb #15 Turnout complete switch package	EA	1	\$60,000.00	\$60,000.00
Ballast	TON	800	\$25.00	\$20,000.00
1-3 Construct new track using relay rail from FML (4,800 ft)				
7" x 9" x 8.5' crossties	EA	2,875	\$65.00	\$186,875.00
Tie plates	EA	5,750	\$14.00	\$80,500.00
Spikes	EA	11,500	\$0.75	\$8,625.00
Rail anchors	EA	6,000	\$2.50	\$15,000.00
Ballast	TON	2,000	\$25.00	\$50,000.00
1-4 Replace existing siding rail with relay rail from FML (6,900 ft)				
Tie plates	EA	2,000	\$14.00	\$28,000.00
Spikes	EA	16,800	\$0.75	\$12,600.00
Rail anchors	EA	1,000	\$2.50	\$2,500.00
1-5 Replace existing #10 switch at Blake (MP 172.12) with #15 switch				
115 lb #15 Turnout complete switch package	EA	1	\$60,000.00	\$60,000.00
Ballast	TON	800	\$25.00	\$20,000.00
			SUBTOTAL	\$563,818.00
Contracted Services costs				
1-1 Assist with excavation and installation of track panel and switch installations	LS	1	\$50,000.00	\$50,000.00
			SUBTOTAL	\$50,000.00
			PROJECT TOTAL	\$1,005,818.00

Summary Estimate (Labor, Equipment & Material)
Communications & Signal Department
for
M.P. 161.55 - DOT 365087C
Hampshire Street - Auburn, ME
AHCP Design & Installation

<i>Item No.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Price</i>	<i>Total</i>
11	Preliminary Engineering				
	Labor	M/Day	0	\$350	\$0
	Labor Additives	%	70%	-	\$0
	Expenses	LS	0	\$200	\$0
	Total Preliminary Engineering				\$0
12	Office Engineering				
	Labor	M/Day	1	\$350	\$350
	Labor Additives	%	70%	-	\$245
	Expenses	LS	0	\$200	\$0
	Total Design				\$595
15	Contract Services				
	Design Drawings	Day	7	\$1,820	\$12,740
	House Wiring	LS	1	\$5,000	\$5,000
	Meter Service Installation	LS	1	\$2,500	\$2,500
	Brush Cutting	LS	1	\$5,000	\$5,000
	Pavement Markings	LS	1	\$1,000	\$1,000
	Total Contract Services				\$26,240
14	Installation & Testing				
	Labor	C/Day	8	\$3,052	\$24,416
	Labor Additives	%	70%	-	\$17,091
	Expenses	C/Day	8	\$1,200	\$9,600
	Equipment	C/Day	8	\$2,400	\$19,200
	Materials				
	House Materials (Cases, Electronics, Batteries)				\$69,630
	Ground Materials (Cable, Conduit)				\$11,691
	Wayside (Signals & Switches)				\$0
	AHCP (Flashers & Gates)				\$78,535
	Freight & Handling	15%			\$23,979
	Total Installation & Testing				\$70,307
	Materials				\$183,835
	Total Labor & Equipment				\$70,902
	Total Materials				\$183,835
	Total Contracted Services				\$26,240
	Total C&S Project				\$280,977

House Material

PTMW						
6x6 Steel Bungalow	Assy	1	90000747	\$14,000.00	\$14,000.00	
Alstom Signal Operations LLC						
9 Slot XP4 1 Tk Redundant	EA	1	16-220000400-0	\$21,231.00	\$21,231.00	
Crossing Lamp Controller (XLC)	EA.	2	250991-000	\$1,136.00	\$2,272.00	
XLC Base	EA	2	251071-100	\$101.00	\$202.00	
Vital Logic Gate (VLG) 2in - 2 Out	EA	1	250948-020	\$729.00	\$729.00	
VLG Base	EA	1	251071-010	\$85.00	\$85.00	
NBS-2 XXXHZ	EA	2	250568-XXX	\$599.00	\$1,198.00	
Alstom Signaling Inc.						
B1 Relay Plugboard w/ terminals	EA	3	569686-005-04	\$200.00	\$600.00	
B1 Relay 1E Post	EA	3	42788-001-02	\$12.50	\$37.50	
B1 Relay Neutral 500 Ohm	EA	3	56001-783-02	\$1,065.00	\$3,195.00	
Siemens						
Adjustable Resistor 6.3 Ohm	EA	6		\$69.25	\$415.50	
36" Buss Straps	EA	10	23827	\$20.00	\$200.00	
Heavy Duty Equalizers w/ Bakelite Base	EA.	5	4000-44700-005X	\$35.93	\$179.65	
Model 614 Bakelite Fuse Block	EA.	2	027614-1X	\$89.06	\$178.12	
Heavy Duty Lightning Arrestor	EA.	50	4000-44615-001X	\$31.00	\$1,550.00	
Multi-Connection Battery Terminal	EA	0	023100-X	\$168.00	\$0.00	
Universal Model 390 Terminal Blocks 12 Post	EA	10	023390-11X	\$42.45	\$424.50	
HD Arreste w/ 3 Post Blocks	EA	4	4000-44700-004X	\$66.00	\$264.00	
2 3/8 Terminal Block	EA	6	023612-1X	\$21.45	\$128.70	
2 3/8 Test Link	EA	4	024620-4X	\$6.89	\$27.56	
Argus Wayside Recorder	Assy	1	8000-80311-0002	\$2,113.00	\$2,113.00	
Ilod	Assy	2	8000-80271-0001	\$785.00	\$1,570.00	
L&W Industries						
Ground Plate	EA	2	FA23000-X	\$52.43	\$104.86	
Hex Locks	EA	2	ZB46023	\$40.00	\$80.00	
Manual Control Box	EA	1	3A8000-X	\$183.75	\$183.75	
Locks						
Master Locks	EA	1	TBD	\$50.00	\$50.00	
Abloy						
Electronic Padlock	EA	1	TBD	\$350.00	\$350.00	
Erico						
EPD 12/24 VDC Secondary Power Protector	EA	1	EPD1224ATAAR	\$249.80	\$249.80	
EPD 120 VAC Secondary Power Protector	EA	2	EPD120TDAARB	\$249.80	\$499.60	
4 Post Terminal Block	EA	60	B2700A2C1WH	\$23.72	\$1,423.20	
48" Buss Strip	EA	2	B2700HC48T	\$39.41	\$78.82	
Railway Equipment Co (RECO)						
40A 12V Rectifier	EA	2	40ETC-12V	\$590.00	\$1,180.00	
20A 12 V Rectifier	EA	0	20ETC-12V	\$455.00	\$0.00	

NRS

ELM-500	EA	12	EILM 500	\$550.00	\$6,600.00
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Okonite / Hurley

TC Blue #10 Tower and Case Wire	FT	1000	152-11-3038	\$0.58	\$575.00
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TC Blue #14 Tower and Case Wire	FT	2000	152-11-3024	\$0.40	\$790.00
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Electrical Supply

Lug Ring 16-14	EA	250	Amp 327743	\$0.50	\$125.00
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Lug Ring 12-10	EA	250	Amp 35273	\$0.50	\$125.00
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Panduit Cable Marker Ties	PK	1	SSM2S-C	\$100.00	\$100.00
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30 Amp Fuse	EA	5	FRN-R-30	\$9.77	\$48.85
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Duct Seal	EA	5	DS5	\$10.32	\$51.60
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Potter Brumfield 12V Relay	EA	2	KRPA-11DN-12	\$18.88	\$37.76
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Potter Brumfield 120V Relay	EA	1	KRPA-11AN-120	\$16.58	\$16.58
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Wall Socket	EA	3	27E122	\$9.98	\$29.94
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Prewired House Engineering/Administration Costs					\$6,330.03
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Total House					\$69,630.32
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Ground Material

Okonite / Hurley

TW#6 Track Wire	FT	300	150-12-3933	\$2.50	\$750.00
19C (6#6, 13#14) Gate Cable	FT	750	206-11-6283	\$13.00	\$9,750.00
5C#9 Signal Cable	FT	0	206-11-6925	\$4.00	\$0.00
#6 Soft Drawn Copper Ground Wire	FT	50	BS6S	\$1.00	\$50.00
3C#2 Power Cable	FT	50	112-10-3874	\$7.00	\$350.00

L&W

Bootleg Hoses	EA	4	CA1755	\$10.00	\$40.00
Sleeves Strand to Strand	EA	25	BA2367J	\$1.25	\$31.25
Sleeves Strand to #6	EA	25	BA2363J	\$1.25	\$31.25
Bond Strand	FT	50	DA6625	\$1.50	\$75.00
Track Clips	EA	4	CA248B	\$3.50	\$14.00

Erico

Rail Head Bonds	EA	25	SBS24882	\$4.81	\$120.25
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Electrical Supply

5/8" x 8' Ground Rod	EA	7	615880	\$17.12	\$119.84
5/8" Clamp for Ground Rod	EA	7	CP58	\$2.55	\$17.85
Conduit- 4" Sch 80	FT	114	PVC-80-4	\$3.00	\$342.00

Total Ground \$11,691.44

Wayside Material

Total Wayside \$0.00

Automatic Highway Crossing Protection

ANSALDO

Model 95 Gate Mech w/Ped Gate Option	Assy	3	N46780403	\$6,081.17	\$18,243.51
Maintenance Switch	Assy	3	N46709202	\$253.01	\$759.03
120V Gate Heater		3	N467048-01	\$253.01	\$759.03
Left Hand Gate Arm Support		3	N46730101	\$476.38	\$1,429.14
Right Hand Gate Arm Support		3	N46730201	\$462.60	\$1,387.80
Conduit Kit		3	X46700002	\$99.40	\$298.20
Stud Plate Kit		6	X46700001	\$94.27	\$565.62
Pivot Clamp	Assy	3	X46705402	\$107.12	\$321.36
Weight Kit for 32' Gate	Assy	2	X46740157	\$1,004.61	\$2,009.22
Rigid Wind Bracket	Assy	2	J7051915820	\$183.55	\$367.10

WCH

5" Mast 15'6" Length	Each	3	715-24-2	\$339.00	\$1,017.00
5" Junction Box Base	Assy	3	2149-A-111-G	\$481.00	\$1,443.00
5" Back to Back Light Set for Gate Assy	Assy	3	975-804-5-MF	\$1,668.00	\$5,004.00
5" One Way Light Set for Doll Mast	Assy	0	970-304-5	\$952.00	\$0.00
Gate arm w/ lights 32'	Assy	3	38-7504-70	\$516.00	\$1,548.00
Crossbuck HI for 5" MTG	Assy	3	3380-780-811-5	\$186.00	\$558.00

Progress Rail

Cantilever Gate Combo	Assy	1	TBD	\$16,000.00	\$16,000.00
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Dixie Precast

Cantilever Foundation	Assy	1	DP-4B	\$4,000.00	\$4,000.00
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GSI

Electronic Bell	Assy	2	EB-3-360-5	\$195.00	\$390.00
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NEG

Gate Savers	Assy	2	385102GS2W	\$1,250.00	\$2,500.00
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L&W Industries

Steel Foundations Gate	Assy	3	8A20140-10X	\$800.00	\$2,400.00
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Traffic Sign and Safety

ENS Signs Mast Mount	Assy	2		\$50.00	\$100.00
Advance Warning Signs and Posts	Assy	2		\$200.00	\$400.00
XC Signs and Posts	Assy	2		\$100.00	\$200.00
2 Track Signs	Assy	0		\$75.00	\$0.00
Whistle Post Signs	Assy	2		\$75.00	\$150.00

Assembly

Gate Wiring/Crating	EA	2		\$2,000.00	\$4,000.00
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Pelmac

Camera Setup	Assy	1		\$6,500.00	\$6,500.00
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Prewired AHCP Engineering/Administration Costs \$6,185.00

Total AHCP \$78,535.01

Summary Estimate (Labor, Equipment & Material)
Communications & Signal Department
for
CPF-174 New Gloucester, ME
Wayside Signal Design & Installation

<i>Item No.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Price</i>	<i>Total</i>
11	Engineering Support				
	Labor	M/Day	5	\$350	\$1,750
	Labor Additives	%	70%	-	\$1,225
	Expenses	LS	2	\$200	\$400
	Total Preliminary Engineering				\$3,375
12	Contract Engineering				
	Design/ Admin	M/Day	15	\$1,820	\$27,300
	Meter Service Installation	LS	1	\$10,000	\$10,000
	Total Design				\$37,300
16	Contract Wiring				
	Labor	LS	1	\$8,000	\$8,000
	Brush Cutting	LS	1	\$5,000	\$5,000
	Total Contract Wiring				\$13,000
14	Installation & Testing				
	Labor	C/Day	14	\$3,052	\$42,728
	Labor Additives	%	70%	-	\$29,910
	Expenses	C/Day	14	\$1,200	\$16,800
	Equipment	C/Day	14	\$2,400	\$33,600
	Materials				
	House Materials (Cases, Electronics, Batteries)				\$146,497
	Ground Materials (Cable, Conduit)				\$39,922
	Wayside (Signals & Switches)				\$116,006
	Freight & Handling	15%			\$45,364
	Total Installation & Testing				\$123,038
	Materials				\$347,789
	Total Labor & Equipment				\$126,413
	Total Materials				\$347,789
	Total Contracted Services				\$50,300
	Total C&S Project				\$524,501

House Material

PTMW

8x12 Steel Bungalow	Assy	1	90000286	\$18,000.00	\$18,000.00
Pole Mount Case	Assy	1	801000687	\$1,500.00	\$1,500.00

Alstom Signal Operations LLC

ITC-A	EA	1	800-081012-000	\$526.00	\$526.00
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Alstom Signaling Inc.

B1 Relay Plugboard w/ terminals	EA	10	569686-005-04	\$200.00	\$2,000.00
B1 Relay 1E Post	EA	10	42788-001-02	\$12.50	\$125.00
B1 Relay Neutral Heavy Duty 500 Ohm	EA	1	56001-822-02	\$1,014.90	\$1,014.90
B1 Relay Neutral 500 Ohm	EA	5	56001-783-02	\$1,065.00	\$5,325.00
B1 Switch Control Relay 500 Ohm	EA	2	56001-926-01	\$1,045.00	\$2,090.00
B1 Track Relay 4 Ohm	EA	2	56001-787-01	\$1,014.90	\$2,029.80

Ansaldo

General Purpose Chassis	EA	1	N16902101	\$1,792.00	\$1,792.00
LCP Module	EA	1	N16901301	\$652.61	\$652.61
NVIO LCP Version	EA	1	N17000601	\$924.90	\$924.90
Cable for NVIO LCP Version	EA	1	N16912502	\$841.56	\$841.56
Power Supply No Faceplate	EA	1	N16601203	\$1,190.10	\$1,190.10
Cable Power Supply Module	EA	1	N16911702	\$309.00	\$309.00
CPU Module	EA	1	N17067602	\$3,713.15	\$3,713.15
Cable CPU Module	EA	1	N16915602	\$456.51	\$456.51
Genysis CPU	EA	1	N17061302	\$2,108.10	\$2,108.10
Cable CPU Module	EA	1	N16920601	\$280.92	\$280.92
Mixed Vital I/O 8In/8Out	EA	1	N17061601	\$1,074.20	\$1,074.20
Cable for Mixed Vital I/O	EA	1	N16912402	\$695.35	\$695.35
Isolation Module Bipolar	EA	1	N34800301	\$600.31	\$600.31
LED 12 Module	EA	3	N17066101	\$1,520.49	\$4,561.47
Cable for LED 12 Module	EA	3	N16919802	\$433.81	\$1,301.43
Ecode Track Module	EA	0	N17063901	\$1,459.92	\$0.00
Ecode Track Interface Panel	EA	0	N17600101	\$1,503.72	\$0.00
Microtrax Track Module	EA	2	N4519100701	\$1,459.92	\$2,919.84
Microtrax Track Interface Panel	EA	3	N4518350101	\$1,287.40	\$3,862.20
Cable for Track Module	EA	2	N16913102	\$293.97	\$587.94
Constant Current Regulator	EA	9	N34801401	\$373.89	\$3,365.01
PCB Protection Board	EA	27	N46205202	\$206.00	\$5,562.00
Single Plate Blank	EA	1	N4518502902	\$37.18	\$37.18
Double Plate Blank	EA	1	N4518502901	\$52.02	\$52.02
PN150 Overload Relay	EA	1	N322512002	\$2,018.70	\$2,018.70
PN 150 GRS Compatible Plugboard	EA	1		\$150.00	\$150.00

Siemens

Adjustable Resistor 6.3 Ohm	EA	3	029603-3X	\$69.25	\$207.75
36" Buss Straps	EA	10	23839-12	\$20.00	\$200.00
Heavy Duty Equalizers w/ Bakelite Base	EA.	10	4000-44700-005X	\$35.93	\$359.30
Model 614 Bakelite Fuse Block	EA.	6	027614-1X	\$89.06	\$534.36
Heavy Duty Lightning Arrestor	EA.	20	4000-44615-001X	\$31.00	\$620.00
Multi-Connection Battery Terminal	EA	2	023100-X	\$168.00	\$336.00
Universal Model 390 Terminal Blocks 12 Post	EA	12	023390-11X	\$42.45	\$509.40

HD Arreste w/ 3 Post Blocks	EA	12	4000-44700-004X	\$66.00	\$792.00
ST-2 500 Ohm Relay	EA	1	450000	\$2,659.00	\$2,659.00
ST-2 Base	EA	1	452000-40X	\$70.00	\$70.00
PSO 4000 Receiver	EA	2	7000-7A473-0001	\$2,685.00	\$5,370.00
PSO 4000 Couplers	EA	2	7000-7A355-xxxx	\$1,200.00	\$2,400.00
Transtector					
Surge Arrestor	EA	27	1101-707	\$85.00	\$2,295.00
Progress Rail					
Program	EA	1	TBD	\$25,000.00	\$25,000.00
Custom LCP	EA	0	TBD	\$7,500.00	\$0.00
RJ Cormin					
Power Off Light	EA	1	TBD	\$181.20	\$181.20
L&W Industries					
Ground Plate	EA	2	FA23000-X	\$52.43	\$104.86
19" Rack	EA	4	2A900163-19	\$500.00	\$2,000.00
Relay Bars	EA	20	2A900176-19	\$50.00	\$1,000.00
Tie Bars	EA	20	2a900069-19	\$50.00	\$1,000.00
Hex Locks	EA	2	ZB46023	\$40.00	\$80.00
Abloy					
Electronic Locks	EA	2	TBD	\$350.00	\$700.00
Erico					
EPD 12/24 VDC Secondary Power Protector	EA	1	EPD1224ATAAR	\$249.80	\$249.80
EPD 120 VAC Secondary Power Protector	EA	2	EPD120TDAARB	\$249.80	\$499.60
4 Post Terminal Block	EA	130	B2700A2C1WH	\$23.72	\$3,083.60
48" Buss Strip	EA	4	B2700HC48T	\$39.41	\$157.64
Railway Equipment Co (RECO)					
40A 12V Rectifier	EA	1	40ETC-12V	\$590.00	\$590.00
Site Specific Solutions					
12-24V Power Supply	EA	1	SSS-12-24-ISO-48	\$400.00	\$400.00
Remote Site Products					
Modem	EA	1	LLM-336DVR2	\$660.80	\$660.80
NRS					
ELM-500	EA	6	ELM-500	\$550.00	\$3,300.00
Power Pack	EA	1	ELC 120/6	\$2,400.00	\$2,400.00
Okonite / Hurley					
TC Blue #10 Tower and Case Wire	FT	2000	152-11-3038	\$0.58	\$1,150.00
TC Blue #14 Tower and Case Wire	FT	2000	152-11-3024	\$0.40	\$790.00
Electrical Supply					
Lug Ring 16-14	EA	500	Amp 327743	\$0.50	\$250.00
Lug Ring 12-10	EA	500	Amp 35273	\$0.50	\$250.00
Wago Kit	Lot	2	Varies	\$500.00	\$1,000.00

Panduit Cable Marker Ties	PK	1	SSM2S-C	\$100.00	\$100.00
30 Amp Fuse	EA	5	FRN-R-30	\$9.77	\$48.85
Duct Seal	EA	5	DS5	\$10.32	\$51.60
Potter Brumfield 12V Relay	EA	2	KRPA-11DN-12	\$18.88	\$37.76
Potter Brumfield 120V Relay	EA	2	KRPA-11AN-120	\$16.58	\$33.16
Wall Socket	EA	4	27E122	\$9.98	\$39.92

Prewired House Engineering/Administration Costs \$13,317.88

Total House \$146,496.68

Ground Material

Okonite / Hurley

TW#6 Track Wire	FT	3000	150-12-3933	\$2.50	\$7,500.00
7C#14 Signal Cable	FT	2700	206-11-6927	\$4.00	\$10,800.00
15C Switch Cable	FT	500	206-11-8255	\$11.00	\$5,500.00
12C Interconnect Cable	FT	0	206-11-6892	\$5.00	\$0.00
#6 Soft Drawn Copper Ground Wire	FT	100	BS6S	\$1.00	\$100.00
3C#2 Power Cable	FT	100	112-10-3874	\$7.00	\$700.00
Comm Cable	FT	500	PE39196	\$1.50	\$750.00

Dixie Precast

Signal Foundations	EA	2	DPS-2A	\$800.00	\$1,600.00
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L&W

Bootleg Hoses	EA	20	CA1755	\$9.05	\$181.00
Sleeves	EA	100	BA2367J	\$1.07	\$107.00
Sleeves	EA	100	BA2363J	\$1.07	\$107.00
Bond Strand	FT	1000	DA6625	\$1.07	\$1,070.00
Track Clips	EA	20	CA248B	\$3.50	\$70.00

Erico

Rail Head Bonds	EA	100	SBS24882	\$4.59	\$459.00
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Electrical Supply

5/8" x 8' Ground Rod	EA	10	615880	\$15.72	\$157.20
5/8" Clamp for Ground Rod	EA	10	CP58	\$1.78	\$17.80
Conduit- 4" Sch 80	FT	3000	PVC-80-4	\$3.00	\$9,000.00
Kevlar Mule Tape	EA	2	WP2500P/3000FT	\$334.97	\$669.94
Burial Tape	EA	2	42-201	\$47.53	\$95.06
Pull String	EA	1	430G	\$43.89	\$43.89
Brady Tags. Labels	EA	1	HX-375-2-WT-2	\$994.00	\$994.00

Total Ground \$39,921.89

Wayside Material

Lindsay					
3 Position Home Signal MLP	Assy	3	0190702	\$9,500.00	\$28,500.00
Triangular Housings	Assy	9	1804776	\$2,000.00	\$18,000.00
Ansaldo					
8 3/8" Green LED	Assy	9	N46212802	\$458.35	\$4,125.15
8 3/8" Yellow LED	Assy	9	N46212803	\$458.35	\$4,125.15
8 3/8" Red LED	Assy	9	N46212801	\$458.35	\$4,125.15
8 3/8" Gasket	EA	27	M4519161301	\$12.26	\$331.02
M23 'Switch Machine and Layout	Assy	1	TBD	\$25,000.00	\$25,000.00
Latch Stands	Assy	2	TBD	\$500.00	\$1,000.00
Thermal Flex					
1 Circuit Snow Melter Cabinet	Assy	1	TBD	\$12,000.00	\$12,000.00
Rail Heaters	Assy	1	TBD	\$8,000.00	\$8,000.00
A&K					
Glue Plugs	EA	6	TBD	\$1,200.00	\$7,200.00
Weld Kits	EA	12	TBD	\$300.00	\$3,600.00
Total Wayside					\$116,006.47

Automatic Highway Crossing Protection

Total AHCP \$0.00

STATEMENT OF WORK

Maine Department of Transportation Pan Am Railways Mainline Upgrades and Rail Crossing Safety Improvements Consolidated Rail Infrastructure and Safety Improvements

1.0 BACKGROUND

On July 19, 2018, the U.S. Department of Transportation's (USDOT) Federal Railroad Administration issued a Notice of Funding Availability (NOFA) for the Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program. In response, Maine DOT has submitted an application for eligibility and ranking with the criteria outlined in the NOFA.

Preserving a vibrant rail system has long been a goal of the Maine DOT. Due to Maine's geographic location, light density of population, and abundance of natural resources, connecting Maine to the broader U.S. and international economy is vital.

While Maine enjoys the benefits of the local connections and the dedication of numerous short line (Class II and Class III) railroads, it is one of only three states in the U.S. that does not have a Class I railroad, a critical void in the transportation system of the region. Without the national reach of a major system and the resulting revenues that can be enjoyed by shipping commodities long distances across the same rail network, it has proven difficult for Maine's railroads to make the kinds of investments required to keep rail lines competitive through modernization of rail track and signal systems.

Through this project and resulting improvements to the infrastructure, there will be significant improvements in the safety for both rail and highway users as well as reliability and transit time improvements for existing rail customers, making them more cost competitive. This will afford the railroads more traffic and revenues, allowing for further and continuous investment for their properties.

2.0 OBJECTIVE

This Project will improve safety, efficiency and reliability on approximately 75 miles of Pan Am Railways (PAR) freight mainline between their freight yard in Waterville and Royal Jct. in North Yarmouth, Maine. This will be accomplished through modernization and improvements to rail track, signal and highway/rail grade crossings.

The work to be accomplished is described generally below and in detail in Section 4.0 Description of Work

2.1 Task 1- Project Management

During the final design and project scheduling, MaineDOT will work with its consultant and PAR to finalize any needed design work, environmental approvals and coordination that will be complete prior to execution of the CRISI grant agreement. The project

management, construction engineering and inspection during the construction phase will be completed by MaineDOT and MaineDOT will ensure project schedule, budget and provide the required reporting to FRA throughout the project. This task will be funded by MaineDOT as part of the Project Match.

2.2 Task 2 - Install 37 track miles of new continuously welded rail (CWR)

Replace the remaining old jointed rail that is at the end of its useful life in the corridor with modern welded rail.

2.3 Task 3 - Upgrade 25 mainline switches

Replace all the mainline rail switches in the corridor.

2.4 Task 4 - Reconstruct 47 highway/rail grade crossings

Signal modernization at all 47 grade crossings and surface reconstruction at 23 of these crossings.

2.5 Task 5 - Extend New Gloucester Siding

This will extend an existing siding by 4800' and modernize the remainder of the siding so that longer trains can meet and pass in the corridor.

2.6 Task 6 - Wayside Track Signal Improvements

Install wayside signals at Leeds Jct. and complete signal systems between Danville Jct. and Royal Jct. This will improve rail safety and efficiency and fill in the gaps where track signals do not currently exist in the corridor. Improving safety and efficiency.

2.7 Task 7 - Bridge Deck Timber Replacements

Replace bridge deck timbers on 8 bridges.

2.8 Task 8 - Private Crossing Rehabilitations

Replace planking and install modern signage at 42 private rail crossings resulting in increased safety at these crossings.

3.0 PROJECT LOCATION

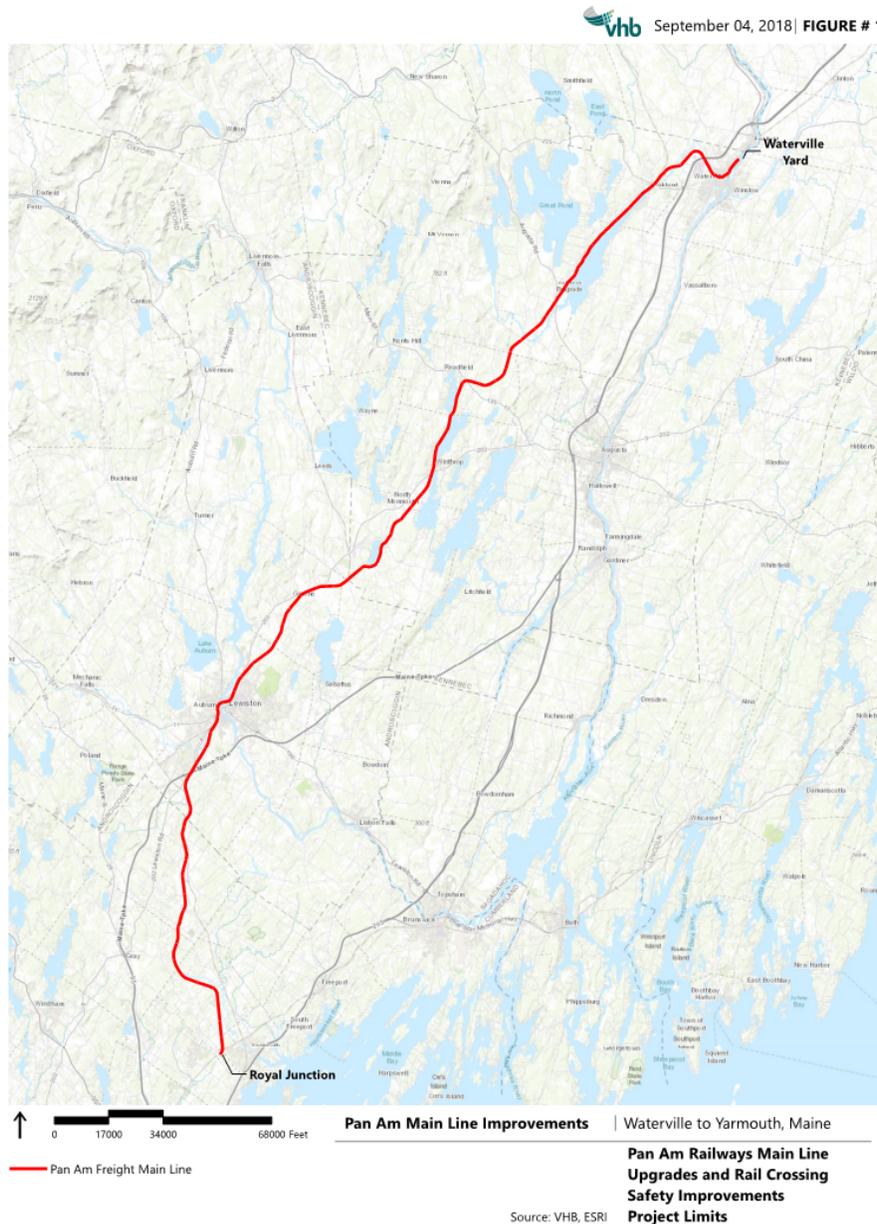
Pan Am Railways – Freight Mainline, Waterville, MP 111.57 to North Yarmouth, MP 184.40.

The Project will involve upgrades along Pan Am Railways Freight Mainline within three different counties in Maine, Kennebec, Androscoggin and Cumberland and is shown in the Project Location Map in Section 4.1.

4.0 DESCRIPTION OF WORK

4.1 Geographic Boundaries

The Project Map (**Figure 1: Pan Am Railways Mainline Upgrades and Rail Crossing Safety Improvements** below) as well as other sections in this document provide an overview of the project work and physical locations.



4.2 Environmental Determination

MaineDOT has had a Categorical Exclusion worksheet prepared and submitted as part of this application. Approval date by FRA will be added to this document upon a project award and CE approval.

4.3 Scope of Services

The Project consists of railroad construction work on Pan Am Railways and includes signal and track mainline improvements. Detailed breakdowns of project work is provided below. A scope of services is comprised of the following tasks:

- Task 1: Project Management/Engineering
- Task 2: Install 37 track miles of new CWR
- Task 3: Upgrade 25 mainline switches
- Task 4: Modernize 47 highway/rail grade crossings
- Task 5: Extend New Gloucester Siding
- Task 6: Wayside Signal Improvements
- Task 7: Bridge Deck Timber Replacements
- Task 8: Private Crossing Rehabilitations

Task 1: PROJECT MANAGEMENT

As part of the Project Management approach, the Grantee will ensure that the project stays on schedule and within budget. The Grantee will develop a detailed Project Work Plan that contains the work tasks necessary for completing the scope of work. The Project Work Plan will include information on the project team organization, team decision making, roles and responsibilities, and interaction with FRA. In further detail, the plan will include communication standards, invoicing and progress reporting methods and procedures, and the scope of work. The Grantee will prepare and submit a Project Management Plan (PMP) outlining project management and quality control. The Grantee will submit quarterly progress reports and invoices to include tracking of budgets and schedules. The Grantee will also perform Quality Assurance and Quality Control (QA/QC) of all deliverables prior to submission to FRA for approval.

Quarterly Progress Reports and Monthly Invoices

The Grantee will prepare detailed quarterly progress reports and invoices, and will submit them to FRA for approval within 30 days of each period completed.

Bi-weekly Project Progress Meetings

The Grantee will meet with its consultant team and project partners on a bi-weekly basis, either in person or via conference call, to monitor progress and review upcoming tasks. In addition, the Grantee and project partners will meet with FRA regularly, either bi-weekly or monthly, either in person or via conference call, to report progress, provide status updates on milestones achieved, outline work to be accomplished, and review the schedule and budget. The Grantee shall submit Progress Reports, Meeting Minutes of Progress Meetings to FRA for review.

Detailed Project Work Plan

The Grantee shall submit a detailed Project Work Plan to FRA for review and acceptance.

The Grantee acknowledges that work on subsequent tasks will not commence until the Detailed Project Work Plan, Budget, and Schedule has been completed, submitted to FRA, and the Grantee has received approval in writing from FRA. The FRA will not reimburse the Grantee for costs incurred in contravention of this requirement.

Final Performance Report

2 CFR §200.328(b)(1) requires all grant recipients to submit a final performance report detailing the cumulative activities completed during the life of the project, including a complete description of the recipient's achievements with respect to the project objectives and milestones.

ENGINEERING DESIGN

The Grantee will complete and submit the following Preliminary Engineering requirements to FRA for approval:

Preliminary Engineering Design

- The Grantee will provide a sufficiently annotated set of track charts may be sufficient for adequately defining the work limits for these elements, instead of scaled drawings. For supplementary alterations, the track charts may require additional details, including scaled drawings of minor reconfigurations and enhancements.
- The Grantee will prepare design plan drawings (as needed) overlaid on maps/photography showing existing right-of-way limits along with the railroad ownership. Proposed track changes include: removals and installations, track centers, track speeds, turnout sizes curve and spiral data, vertical profiles and grades of existing and proposed construction, typical cross sections to scale showing the proposed work to existing conditions for each change in track configuration and at other locations requiring retaining walls or right-of-way acquisitions, public and private at-grade crossings, passenger stations, building(s), platforms, parking, access to primary highway system in the area, and public transit services and facilities.
- The Grantee will prepare drawings of existing and proposed signal design as required. The drawings will include route and aspect charts, preliminary block design, and signal equipment locations.
- Design submittals will include a title sheet identified with a drawing revision number or date, an index identifying various plan sheets comprising the drawing set, and a legend of symbols or abbreviations.

- The Grantee will obtain signature approval of the preliminary engineering cover sheet by all stakeholders impacted by the proposed track configuration and signal plan.
- The Grantee will provide a preliminary detailed project budget, based upon FRA line items – Standard Cost Category (SCC)

Final Design

Pending FRA acceptance of the Preliminary Engineering Design, the Grantee will be able to enter into the Final Design stage in which the Preliminary Engineering Design deliverables and project budget will be updated, if necessary, and submitted to FRA for acceptance.

Task 1 Deliverable(s):

- Detailed Project Work Plan, PMP, Budget, and Schedule
- Completion of all engineering and design documents
- Quarterly Progress Reports
- Status of task breakdown and percent complete
- Changes and reason for change in project's scope, schedule and/or budget
- Description of unanticipated problems and any resolution since the immediately preceding progress report
- Summary of work scheduled for the next progress period
- Final Performance Report

Task 2: Install 37 track miles of Continuously Welded Rail

Replace the remaining dated jointed rail that is at the end of its useful life in the corridor with modern welded 115lb. RE rail to complement the 38 miles of existing CWR in the corridor previously installed by Pan Am. This will improve RR safety in the corridor and increase reliability and put the rail condition in a state of good repair. A salvage credit shall be issued to the Project for the value of the removed scrap rail.

Task 2 Deliverables:

- Bi-weekly progress meeting summaries and weekly Project highlights
- Updated Project schedule and budget as required by Task 2 Progress
- Salvage credit issued to Project for scrap rail removed

Task 3: Upgrade 25 Mainline track switches

Replace all the rail switches in the corridor (most of these are at the end of their life) with modern 115lb. switches improving RR safety and efficiency. Some switches will be upgraded to power switches that allows control of the switch by the dispatcher as opposed to manual hand-throw switches. This increases reliability as well as efficiency of train movements within the corridor. Switch upgrade locations are identified in the Project map in Section 4.1, see more detail and MP locations in attached Project Budget.

Task 3 Deliverables:

- Bi-weekly progress meeting summaries and weekly Project highlights

- Updated Project schedule and budget as required by Task 3 Progress

Task 4: Reconstruct and Modernize 47 highway/rail grade crossings

Signal modernization at all 47 grade crossings and surface reconstruction at 23 of these crossings. This will bring modern constant warning signals to each of the signalized crossing with modern 12” LED signal flashers replacing outdated highway signal systems in the corridor, some dating back to the 1950’s. This will improve both rail safety and highway safety in the corridor. All installed warning systems will meet MUTCD standards. Crossing upgrade locations are laid out in the project map in Section 4.1, see more detail of upgrades by location in submitted Construction Budget.

Task 4 Deliverables:

- Bi-weekly progress meeting summaries and weekly Project highlights
- Updated Project schedule and budget as required by Task 4 Progress

Task 5 - Extend New Gloucester Siding

This will extend an existing siding by 4800’ and upgrade the remainder of the siding so that longer trains can meet and pass in the corridor, improving efficiency by allowing more trains in the corridor in a shorter time frame as well as longer more efficient trains in the corridor. Remove existing Penney switch (MP 173.53) and construct new track 4,800 feet east on existing roadbed. Use relay rail cascaded from FML between MP 174.4 and 172.1 to construct new track and replace existing rail in the siding. Install a new #15 switch in the FML at MP 174.42 to become the new west end of New Gloucester siding. Replace the existing #10 switch at Blake (MP 172.12) with a #15 switch.

Task 5 Deliverables:

- Bi-weekly progress meeting summaries and weekly Project highlights
- Updated Project schedule and budget as required by Task 5 Progress

Task 6 - Wayside Track Signal Improvements

Improving safety and efficiency. Replace interlockings with modernized equipment at CPF-111, CPF-112, and CPF 113. Install interlocking at Leeds Junction and add additional wayside locations to complete signal system between Leeds Junction and Danville Junction. Install interlocking’s at both ends of the extended New Gloucester Siding and add additional wayside locations to complete signal system between Danville Junction and Royal Junction.

Task 6 Deliverables:

- Bi-weekly progress meeting summaries and weekly Project highlights
- Updated Project schedule and budget as required by Task 6 Progress

Task 7 - Bridge Deck Timber Replacements

Replace bridge deck timbers on 8 bridges. This will improve safety and increase/maintain track speeds over these bridges. Bridge deck locations are laid out by bridge # in the project map in Section 4.1, see more detail of upgrades by location in submitted Construction Budget.

Task 7 Deliverables:

- Bi-weekly progress meeting summaries and weekly Project highlights
- Updated Project schedule and budget as required by Task 7 Progress

Task 8 - Private Crossing Rehabilitations

Replace planking to improve surface and safety for crossing users and install modern signage at 42 private rail crossings resulting in increased safety at these crossings.

Task 8 Deliverables:

- Bi-weekly progress meeting summaries and weekly Project highlights
- Updated Project schedule and budget as required by Task 8 Progress

5.0 PROJECT SCHEDULE AND DELIVERABLES

The period of performance for all work will be approximately 36 months, from 01/19 to 12/21. The deliverables associated with this Grant/Cooperative Agreement are listed below. The Grantee must complete these deliverables to FRA's satisfaction to be authorized for funding reimbursement and for the Project to be considered complete.

<u>Task #</u>	<u>Deliverable Name</u>	<u>Due Date</u>
1	-Project Management Plan, Detailed Work Plan, Engineering Design plans and Detailed Project Budget for FRA approval.	Within 5 months of Project Award
2-8	-Start of Construction Tasks	Within 6 months of Project Award
2-8	-Completion of Construction Tasks	Within 34 months of Project Agreement execution
Attachment #TBD	-Project Performance Measurement Reports	Quarterly or as required by FRA grant funding agreement
Attachment #TBD	-Project Closeout Documentation	Within 90 days of Project completion date

6.0 PROJECT ESTIMATE/BUDGET.

The total estimated cost of the Project is \$35,505,772 for which the FRA grant will contribute up to 49.2% of the total project costs, not to exceed \$17,468,840. Any additional expense required beyond that provided in this grant to complete the Project shall be borne by the Grantee.

A detailed total project budget based on the tasks above will be provided within the Project Work Plan as part of the deliverable for Task 1. FRA must approve in writing any modifications to the budget before they may take effect.

The following is a summary of the funding sources and the total estimated project cost.

Project Estimate by Task

Task #	Task Name	Total Cost
1	Project Management/Engineering Oversight	\$ 568,092
2	Install Continuously Welded Rail (CWR)	\$ 15,859,000
3	Upgrade/replace mainline switches	\$ 2,325,000
4	Reconstruct highway/rail grade crossings	\$ 9,747,328
5	Extend New Gloucester siding	\$ 1,005,818
6	Wayside signal improvements	\$ 5,695,384
7	Bridge deck timber replacements	\$ 95,150
8	Private crossing rehabilitations	\$ 210,000
Total Project Cost		\$ 35,505,772

Project Estimate Contributions

Funding Source	Project Contribution Amount	Percentage of Total Project Cost
FRA Grant	\$ 17,468,840	49.2%
MaineDOT	\$ 568,092	1.6%
Pan Am Railways	\$ 17,468,840	49.2%
Total Project Cost	\$ 35,505,772	100%

7.0 PROJECT COORDINATION

The MaineDOT shall perform all tasks required for the Project through a coordinated process, including all affected railroad owners, operators, and funding partners, including:

- Pan Am Railways
- State of Maine, Department of Transportation, MaineDOT
- FRA, Grantor

8.0 PROJECT MANAGEMENT

The Grantee is responsible for facilitating the coordination of all activities necessary for implementation of the Project. Upon award of the Project, the Grantee will monitor and evaluate the Project's progress through regular meetings scheduled throughout the period of performance. The Applicant/Grantee will:

- Participate in a project kickoff meeting with FRA
- Complete necessary steps to hire a qualified consultant/contractor to perform required Project work
- Hold regularly scheduled Project meetings with FRA
- Inspect and approve work as it is completed
- Review and approve invoices as appropriate for completed work
- Perform Project close-out audit to ensure contractual compliance and issue close-out report
- Submit to FRA all required Project deliverables and documentation on-time and per schedule, including periodic receipts and invoices
- Comply with all FRA Project reporting requirements, including, but not limited to:
 - a. Status of project by task breakdown and percent complete
 - b. Changes and reason for change in project's scope, schedule and/or budget
 - c. Description of unanticipated problems and any resolution since the immediately preceding progress report
 - d. Summary of work scheduled for the next progress period
 - e. Updated Project schedule
 - f. Provide quarterly reports/performance measures as required by the FRA grant agreement.
- Provide weekly project highlights/updated to FRA