

Grafton and Upton  
Railroad Company

October 1, 2019

Grafton Board of Selectmen



*GU Creating "Public Private Partnerships" (PPP)*

# Follow-up from BoS Meeting on July 30, 2019

Presentation of following

- **Decision is solely the choice of Grafton Board of Selectmen**
- PARE's Intersection Study 7-29-19
  1. Existing (2019) Current Conditions
  2. Future (2026) No-Build (no changes are implemented)
  3. Future (2026) Alternative A – Existing intersection geometry with only rail crossing safety improvements
  4. Future (2026) Alternative B - The addition of the southbound left-turn lane and rail crossing safety improvements
  5. Future (2026) Alternative C - The addition of the southbound left-turn lane, rail crossing safety improvements, and the conversion of East Street to one-way eastbound only
- Video of traffic movement was shown and discussed
- Crossing improvements to be completed by school opening
- BOS indicated its' support of grant to mitigate noise impact
- BOS direction/decisions will need to occur in October
- BOS requested update on resident's request for "quiet zone"





The intersection currently operates below capacity with an overall LOS ‘C’ during the A.M. Peak hour and LOS ‘D’ during the P.M. Peak hour.

Given the substantial amount of background growth anticipated in the area of the study intersection, traffic conditions are expected to worsen under the future no-build condition. Overall intersection delay is expected to worsen to LOS ‘E’ during the morning peak hour and LOS ‘F’ during the evening peak hour.



420' ± EAST ST. APPROACH  
28 SEC. WARNING @ 10 M.P.H.



TRAFFIC SIGNALS

(W10-3)



RTE 140

RTE 140



(W10-3)

SIG.#1



12'

SIG.#3



12'

SIG.#5



12'

SIG.#7



12'

46'

220'

SIG.#2



12'

SIG.#4



12'

TEST BOX



4'x8' EQUIPMENT SHIELD



SIG./GATE#6



COMB W/BELL



TRAFFIC SIGNALS

TRAFFIC SIGNALS

EAST STREET  
MP 0.62  
DOT# 861-468H

(W10-1)

WATERVILLE STREET  
MP 0.57  
DOT# 861-069P

(W10-1)

- 1) SIG#1 22' ROAD GATE
- 2) SIG#2 22' ROAD GATE
- 3) SIG#3 6' PEDESTRIAN GATE
- 4) SIG#4 6' PEDESTRIAN GATE
- 5) SIG#5 24' ROAD GATE
- 6) SIG#6 15' WTF CANTILEVER COMBO W/24' ROAD GATE
- 7) SIG#7 6' PEDESTRIAN GATE

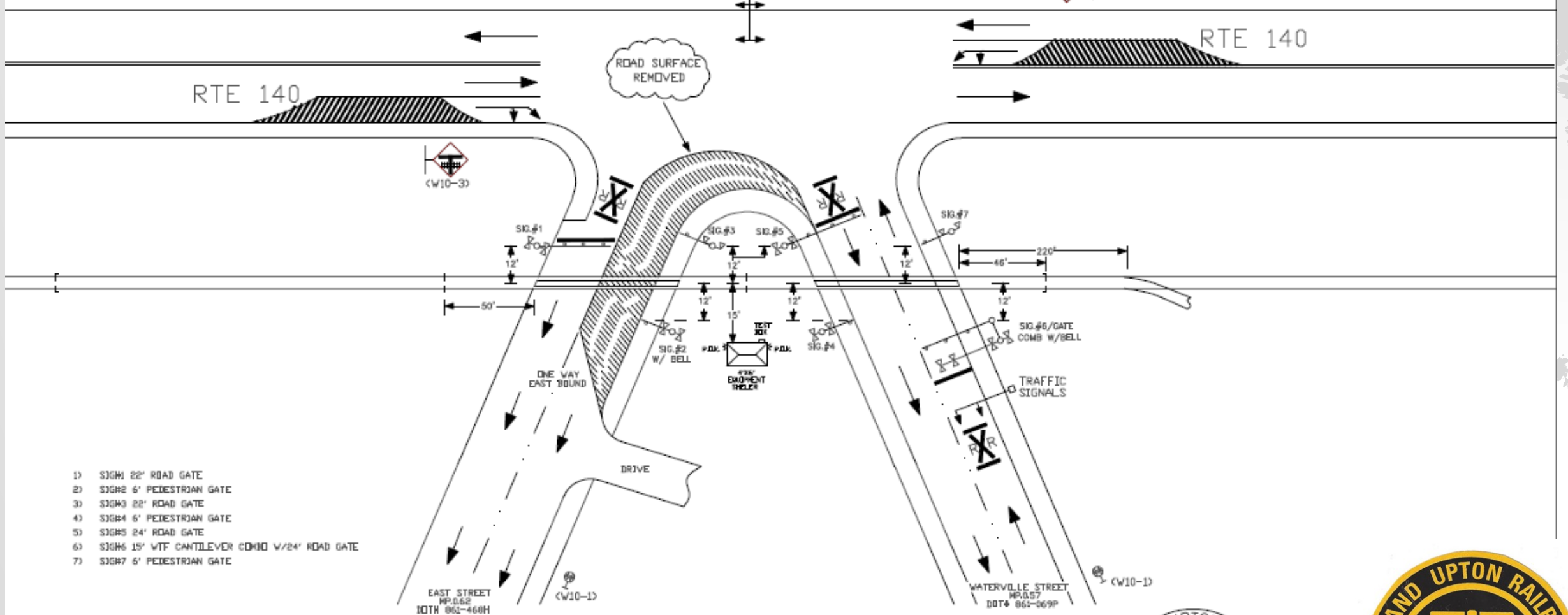
**FIGURE 2 - ALTERNATIVE B**



10/08/2018



420' ± EAST ST. APPROACH  
28 SEC. WARNING @ 10 M.P.H.



- 1) SIG#1 22' ROAD GATE
- 2) SIG#2 6' PEDESTRIAN GATE
- 3) SIG#3 22' ROAD GATE
- 4) SIG#4 6' PEDESTRIAN GATE
- 5) SIG#5 24' ROAD GATE
- 6) SIG#6 15' VTF CANTILEVER COMB W/24' ROAD GATE
- 7) SIG#7 6' PEDESTRIAN GATE

EAST STREET  
MP.062  
10TH 061-460H

WATERVILLE STREET  
MP.057  
DOT# 861-069P

**FIGURE 3 - ALTERNATIVE C**



F  
WA  
WATERVIL  
MF  
10/08/2018 D.A.G.

**Table 4: Intersection Capacity Analysis Results**

Intersection	Movement	2019 Existing			Future (2034) No-Build			2034 Alternative A			2034 Alternative B			2034 Alternative C			
		LOS	Delay <sup>1</sup>	Queue Length <sup>2</sup>	LOS	Delay <sup>1</sup>	Queue Length <sup>2</sup>	LOS	Delay <sup>1</sup>	Queue Length <sup>2</sup>	LOS	Delay <sup>1</sup>	Queue Length <sup>2</sup>	LOS	Delay <sup>1</sup>	Queue Length <sup>2</sup>	
N. Main Street, Waterville Street, and East Street	<i>Weekday AM Peak Hour</i>																
	NB	T	C	30.6	346	E	71.7	742	D	42.2	897	C	28.7	671	B	19.1	648
		R	C	25.1	66	C	27.6	105	C	24.0	128	C	22.9	95	C	20.9	92
	SB	L,T	C	28.2	108	F	128.8	#392	E	79.5	444	-	-	-	-	-	-
		L	-	-	-	-	-	-	-	-	-	E	57.9	7	D	51.3	7
	WB	T	-	-	-	-	-	-	-	-	-	A	8.4	126	A	6.4	122
		L,T,R	D	43.9	77	D	47.9	26	E	77.2	58	C	34.8	12	E	58.0	78
	NWB	L,T,R	D	36.5	13	D	45.0	32	E	70.8	66	C	33.5	17	-	-	-
	Intersection		C	30.4		E	74.4		D	50.6		C	24.5		B	19.8	
	<i>Weekday PM Peak Hour</i>																
	NB	T	C	30.7	227	C	33.9	359	D	35.8	480	C	34.2	616	C	28.6	537
		R	C	26.2	53	C	27.0	75	C	24.8	100	D	37.7	126	D	35.3	112
	SB	L,T	C	34.3	375	F	180.9	#947	E	79.9	1133	-	-	-	-	-	-
		L	-	-	-	-	-	-	-	-	-	E	55.0	18	D	44.8	15
WB	T	-	-	-	-	-	-	-	-	-	E	55.5	#973	D	41.7	838	
	L,T,R	F	102.6	145	F	209.7	#271	F	277.5	#505	E	60.9	245	E	68.5	301	
NWB	L,T,R	C	34.5	10	D	36.5	13	F	73.7	44	D	49.4	24	-	-	-	
Intersection		D	41.8		F	118.7		F	87.7		D	47.6		D	41.0		

- # The 50<sup>th</sup> percentile volume exceeds capacity, queue may be longer.
- 1. Delay is measured in seconds/vehicle.
- 2. Queue Length shown represents the 50<sup>th</sup> percentile queue length in feet.



**Under alternative A,** intersection operation improves due to optimization of signal timings, however, the decrease in delay is limited without implementation of geometric improvements at the intersection.

**Under alternative B,** a significant decrease in vehicle delay is anticipated with the addition of the southbound left-turn lane on N. Main street. The addition of the left-turn lane provides an area for southbound vehicles to queue during an active railroad crossing condition, allowing southbound through traffic to pass with limited impact.

**Under alternative C,** a greater decrease in vehicle delay is anticipated with the removal of the signal phase servicing east street. Additionally, this alternative removes a movement crossing the railroad, reducing vehicle conflicts with the railroad and increasing safety. This alternative includes the same benefits associated with the southbound left-turn lane on N. Main street as included in Alternative B. **Alternative C results in the greatest reduction in vehicle delay,** however, impacts existing traffic patterns to neighborhoods.



## New Information since last BOS update on July 30, 2019

MassDOT Rail Division submitted federal funding request from FHWA for Ray Street crossing upgrade to tie into existing intersections improvements.

Preliminary engineering analysis completed on “Quiet Zone” to analyze geometric improvements that would have to occur within right-of-way

Federal FRA CRISI grant application framework and scope nearing completion. Project will be a public private partnership between Federal FRA, MassDOT, MBTA, CSX, and GU that will provide CSX with tracks to leave and pick up railcars without entering railyard at 1am.





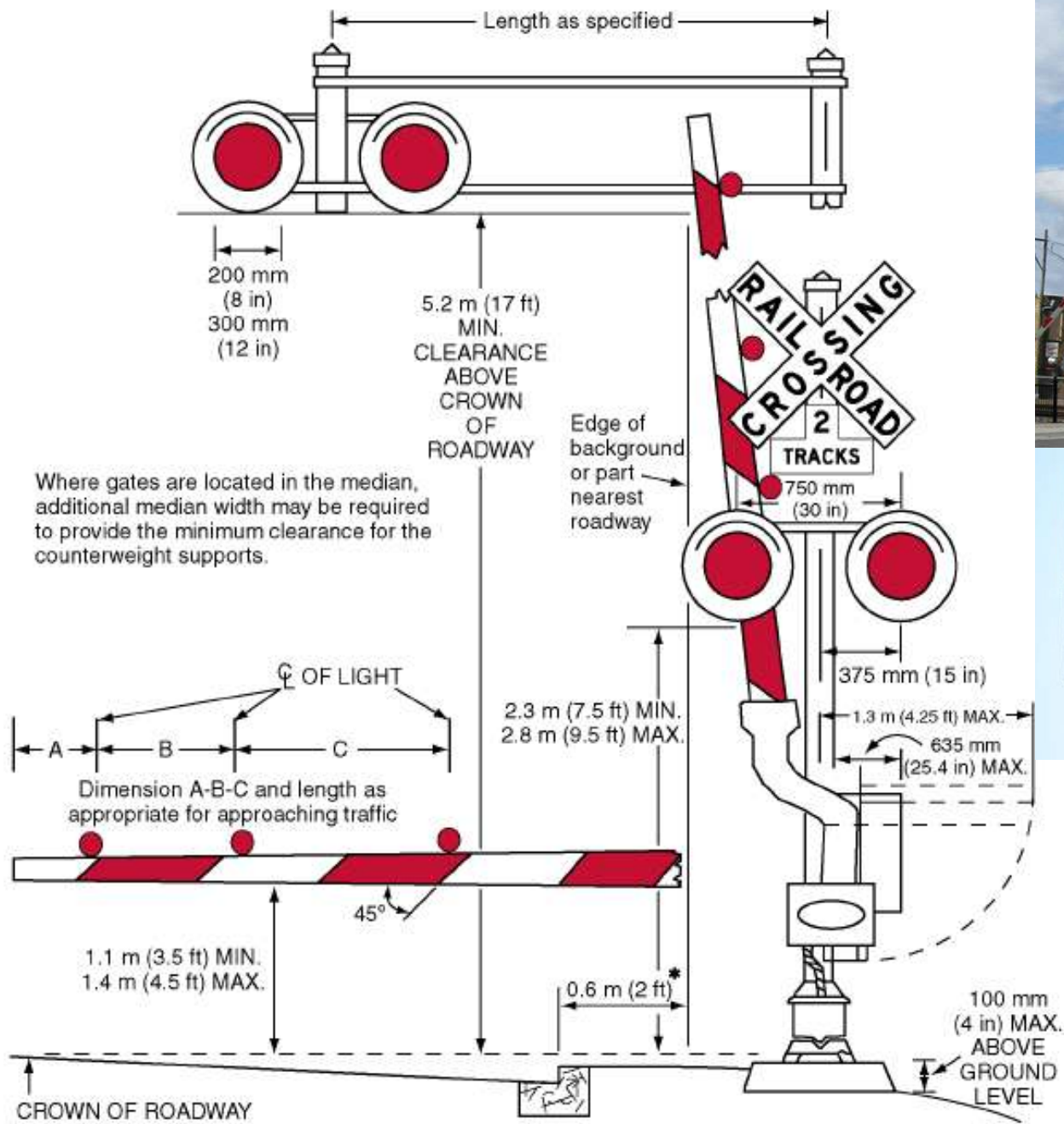
# Quiet Zone

Application to be submitted by the Town of Grafton Board of Selectmen to petition FRA to designate a “Quiet Zone”.

Funding associated with “Quiet Zone” will need to be secured from additional grants or state Transportation Bond Bill, first hearing on October 8<sup>th</sup> with the Joint Transportation Committee. Representative Muradian will support will of Grafton Board of Selectmen with funding amendment request.

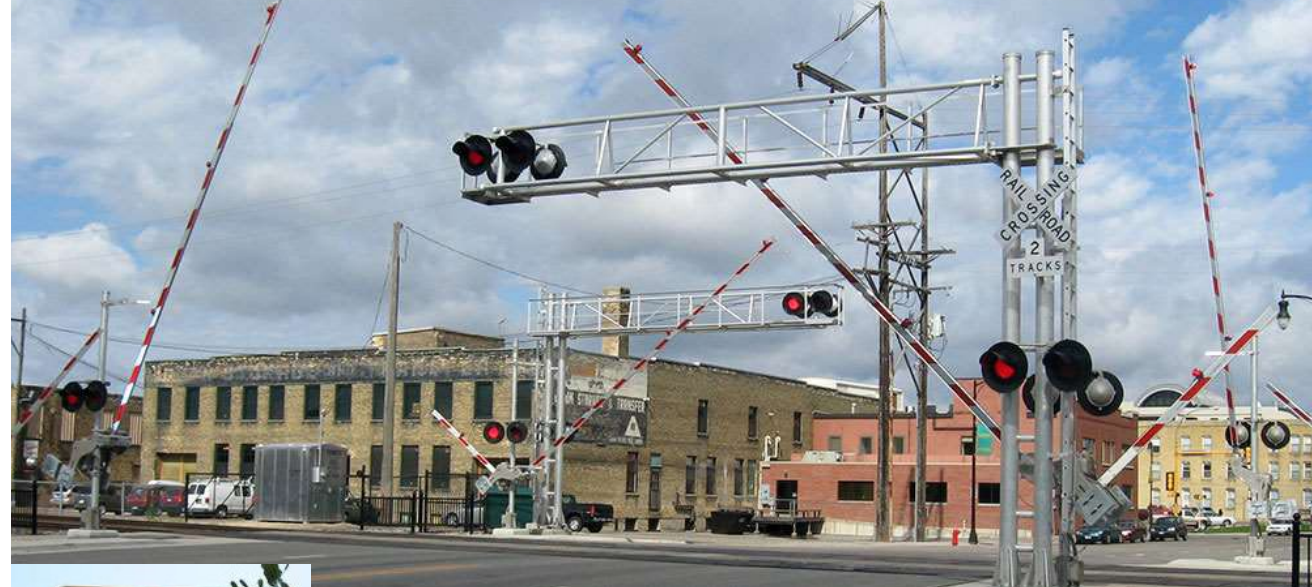
Preliminary engineering analyzed geometric improvements to rail and road geometry and limited right-of-way it appears that only Alternative C will adequately support a “Quiet Zone” given additional equipment and median.

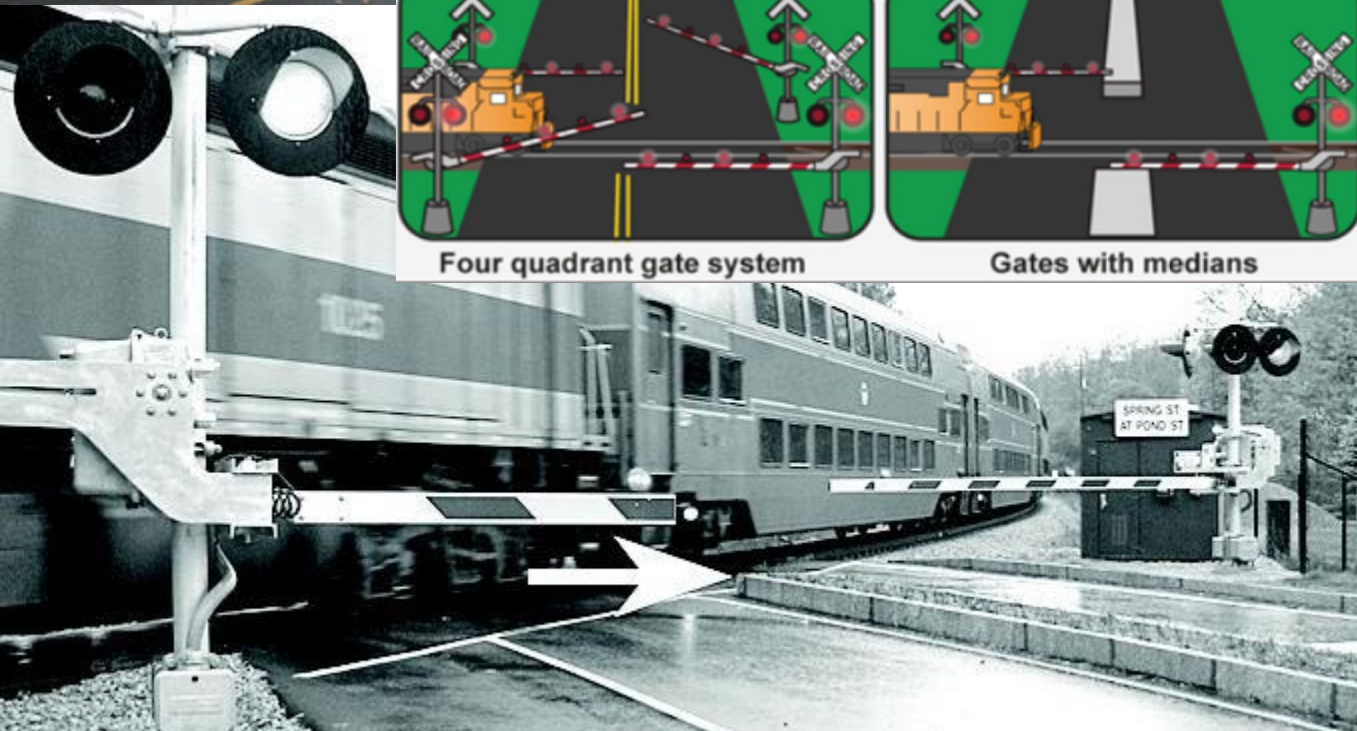
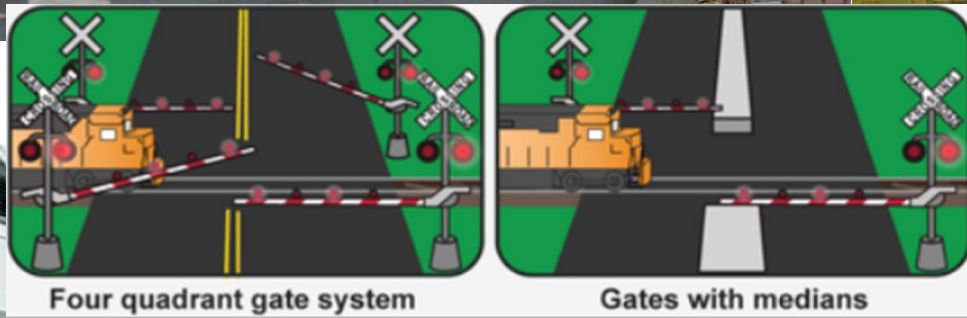




Where gates are located in the median, additional median width may be required to provide the minimum clearance for the counterweight supports.

\* For locating this reference line at other than curb section installation, see Section 8D.01.





INSERT SLIDE FOR QUIET ZONE

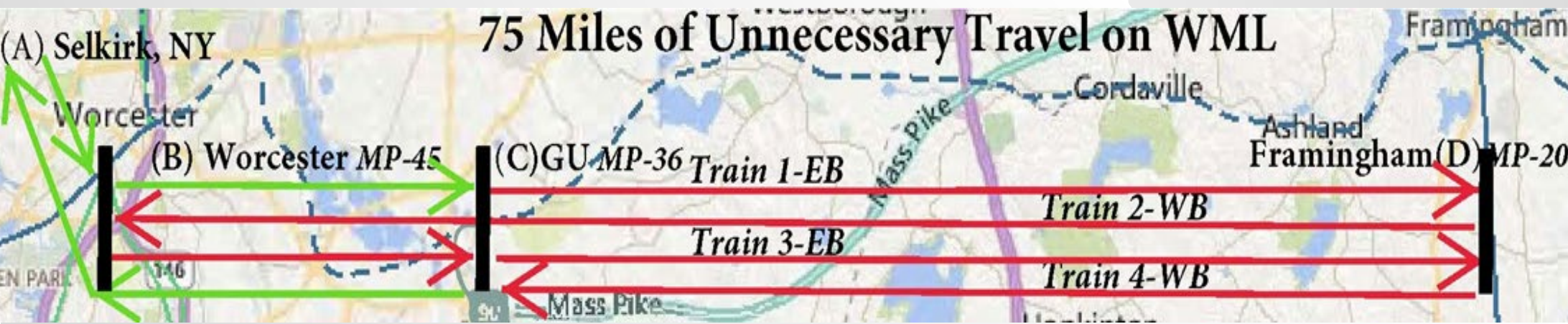


Federal Railroad Administration (FRA) for a Consolidated Rail Infrastructure and Safety Improvements (CRISI) grant

**This grant must be submitted by October 14, 2019. The goal is to reduce extra mileage by 75 miles of travel, improve WML freight and commuter rail operations, increase capacity on the WML, reduce emissions, reduce interchange delivery impact at 1am to the residents of North Grafton, and additional dwell time on railcars with improved velocity through interchange with CSX on the reinstalled interchange track. A win-win for all.**



The PPP project will increase interchange operational efficiency, enhance safety and utilization of the corridor. It will provide CSX with enough track space to make a set-off directly to the GU during daylight hours instead of continuing east to Framingham from Selkirk, thereby removing nearly 75 trip miles of the Worcester Main Lind as well as eliminating a minimum of four days of extra travel and redundant switching to multiple trains.



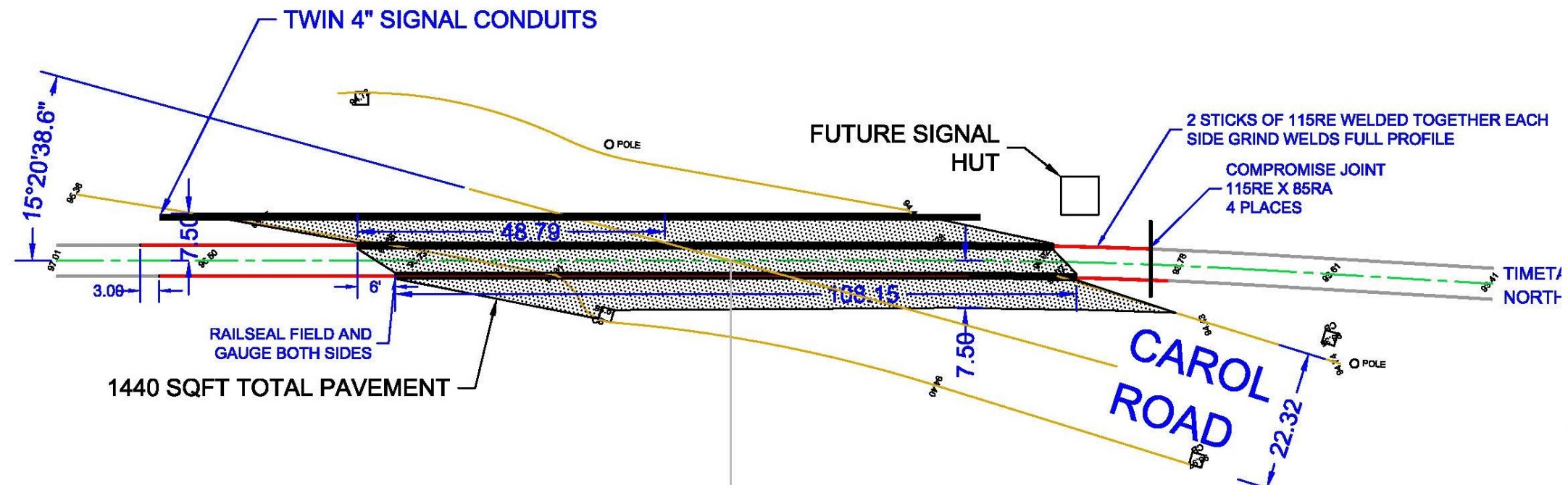
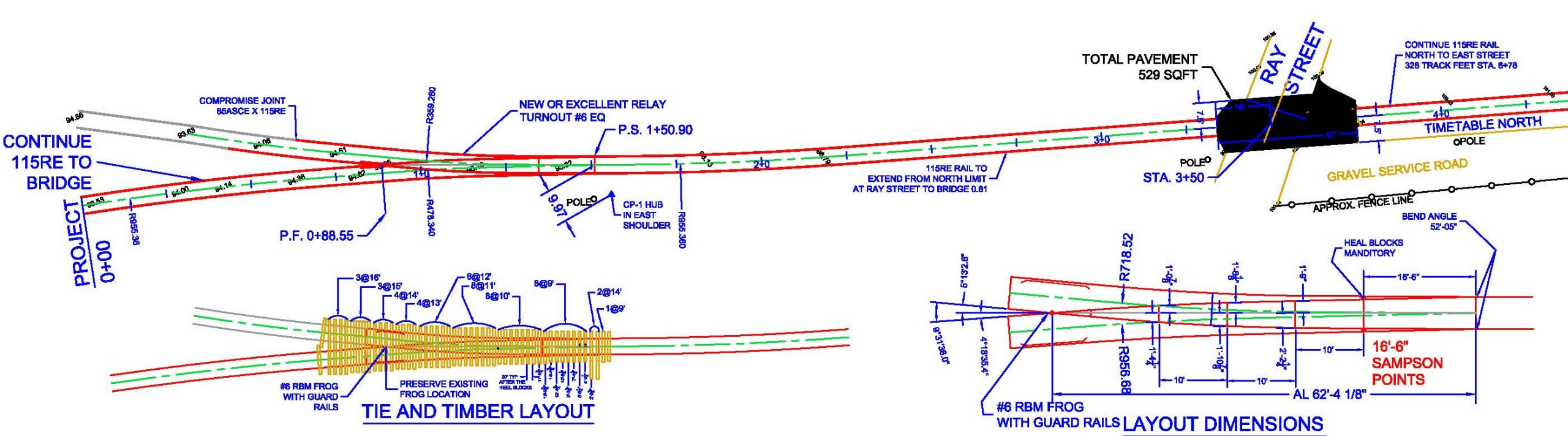
The CRISI project includes reinstalling the interchange siding (~2,400') that will be controlled by two (2) electric lock switches, one east bound and the second westbound on the WML. This will allow for daytime interchange from CSX rather than the current 1am transfer that occurs, unnecessary impacting sleeping neighbors when the same could be done in safer daylight hours. A CSX freight train setting off properly blocked cars to GU will now be able to complete this interchange by using the siding that will have an east and west bound wye. This allows the freight train to clear passing commuter trains allowing them to remain on schedule rather than an approximate 2-hour interchange transfer.

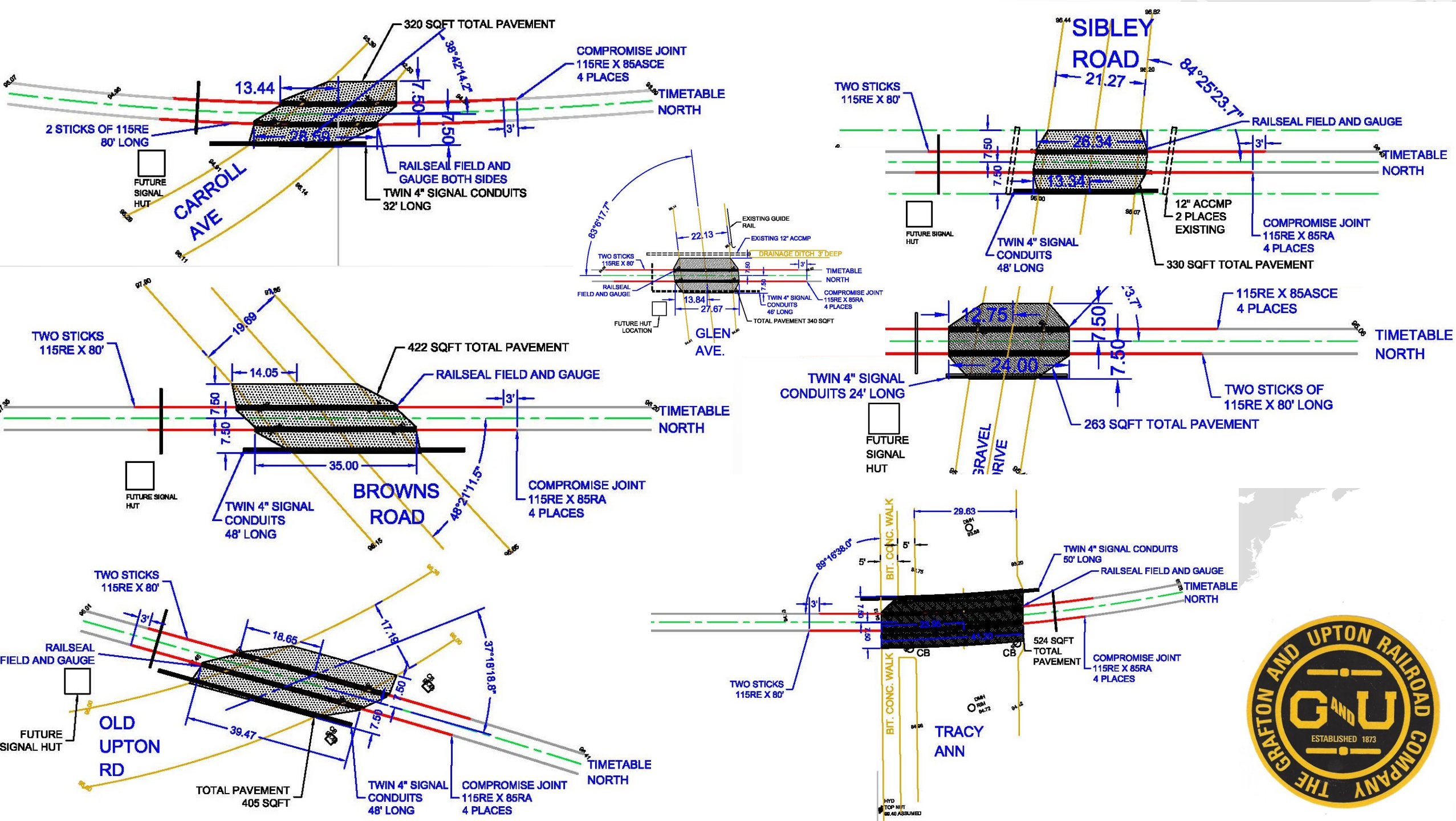


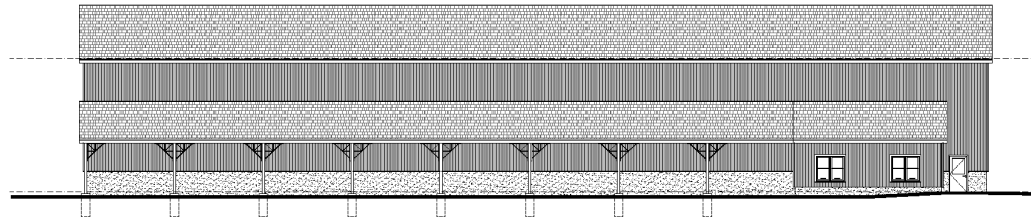
In addition The CRISI project will improve the resilience of the main line from North Grafton to Upton. The main line currently consists of 85lb rail that was built over 70 years ago. This route is identified as the hazardous materials route (including deicer for Logan airport and solvents for Gillette to wax for Yankee Candle), placing a higher priority on replacing this rail and improving the overall right of way by adding more ballast stone and upgrading the ties to support the new 115 rail. In addition, nine railroad crossings will be upgraded to include new rail, crossing surfaces as well as improved sight, drainage, signage, road markings and safety to motorists. Completing these upgrades will improve rail infrastructure to class 2 track, reduce risks and costs associated with a derailment stemming from rail failure and improve safety and resilience.



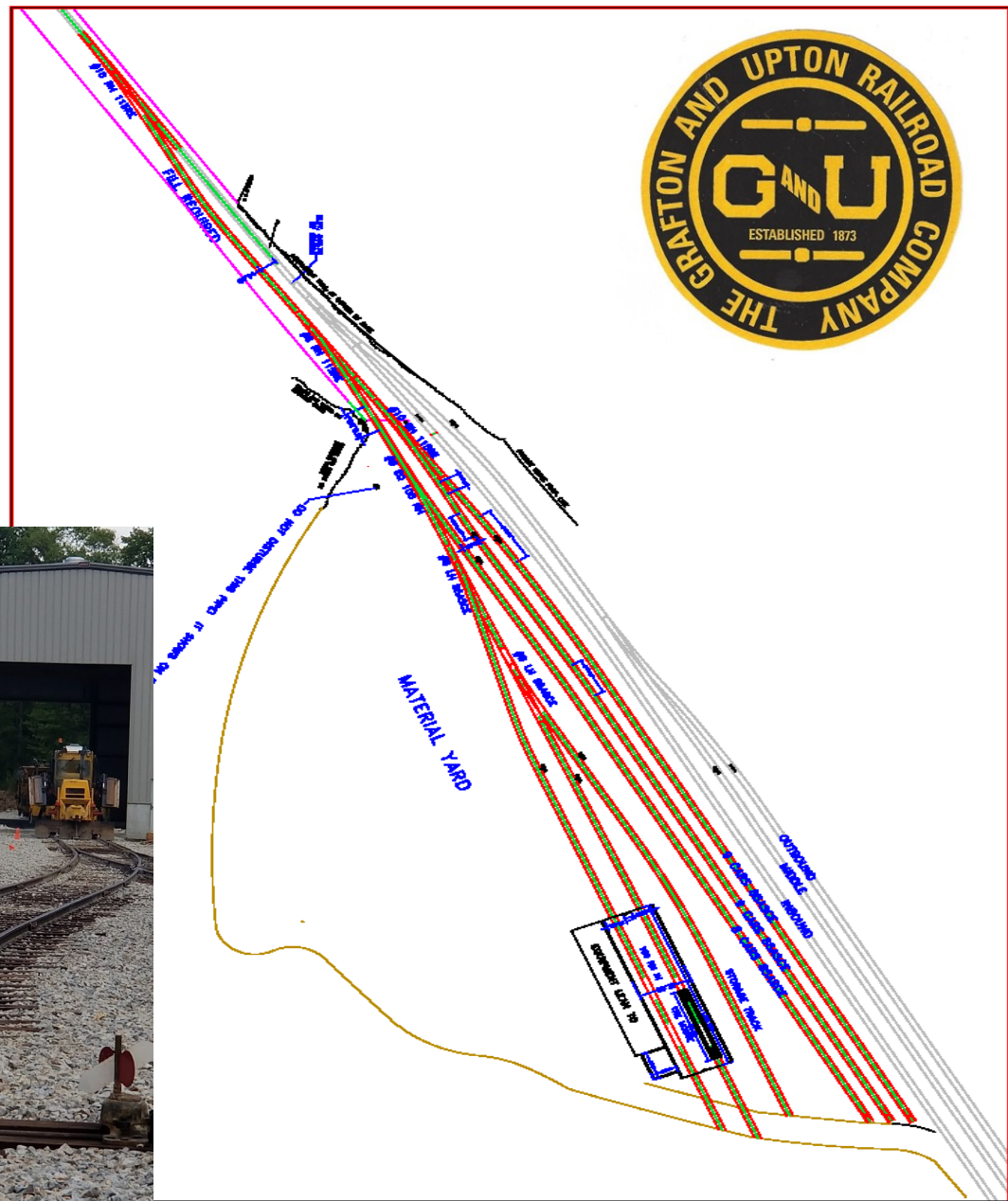
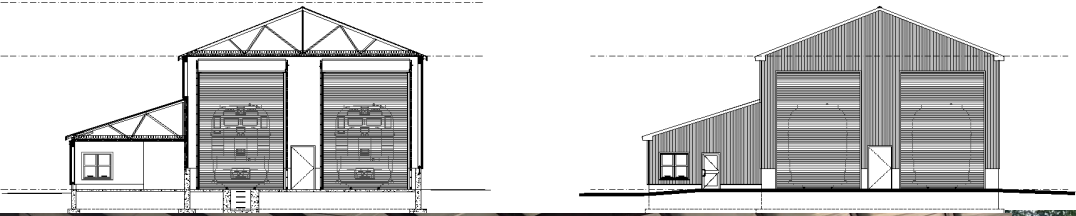








1 EAST SIDE ELEVATION



PROPOSED NEW TRACKS AND ENGINE HOUSE FOR NORTH GRAFTON YARD GRAFTON AND UPTON RR

SEE F/D	VA	TRAVEL
---------	----	--------

**GRAFTON AND UPTON RAILROAD**  
 42 WESTBORG ROAD, NORTH GRAFTON MA 01858  
 PHONE 508-481-6095

