

Rail Crossing/Neighborhood Issues along Pan Am Railways line



Note: Preliminary research was conducted by Town of Falmouth staff and has not been reviewed by other parties

Pan Am Railways Line

- Four (4) rail crossings in Falmouth: Blackstrap, Falmouth, Field, and Woodville roads
- One (1) crossing on private road: Muirfield Road/Birkdale Road (located in Cumberland, only road access is from Falmouth)
- Three (3) public crossings in Cumberland: Route 9, Tuttle, and Greely roads

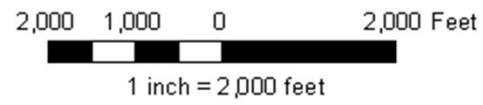


Railroad Crossings in Falmouth

Yarmouth



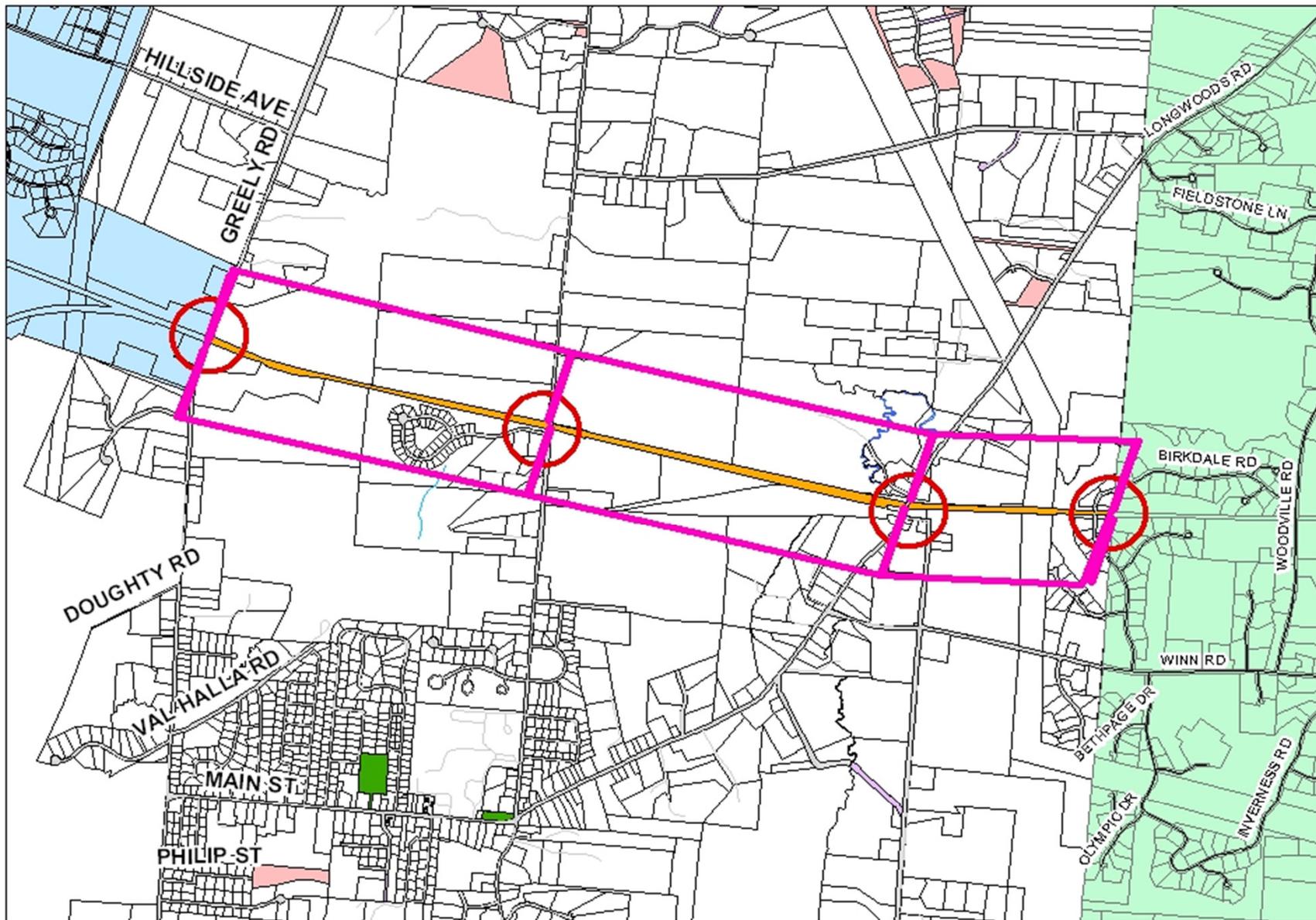
Falmouth



-  Pan Am Railroad
-  RR Crossings

Cumberland, Maine
August 8, 2011

Yarmouth



Falmouth



2,000 1,000 0 2,000 Feet
1 inch = 2,000 feet

-  Pan Am Railroad
-  RR Crossings

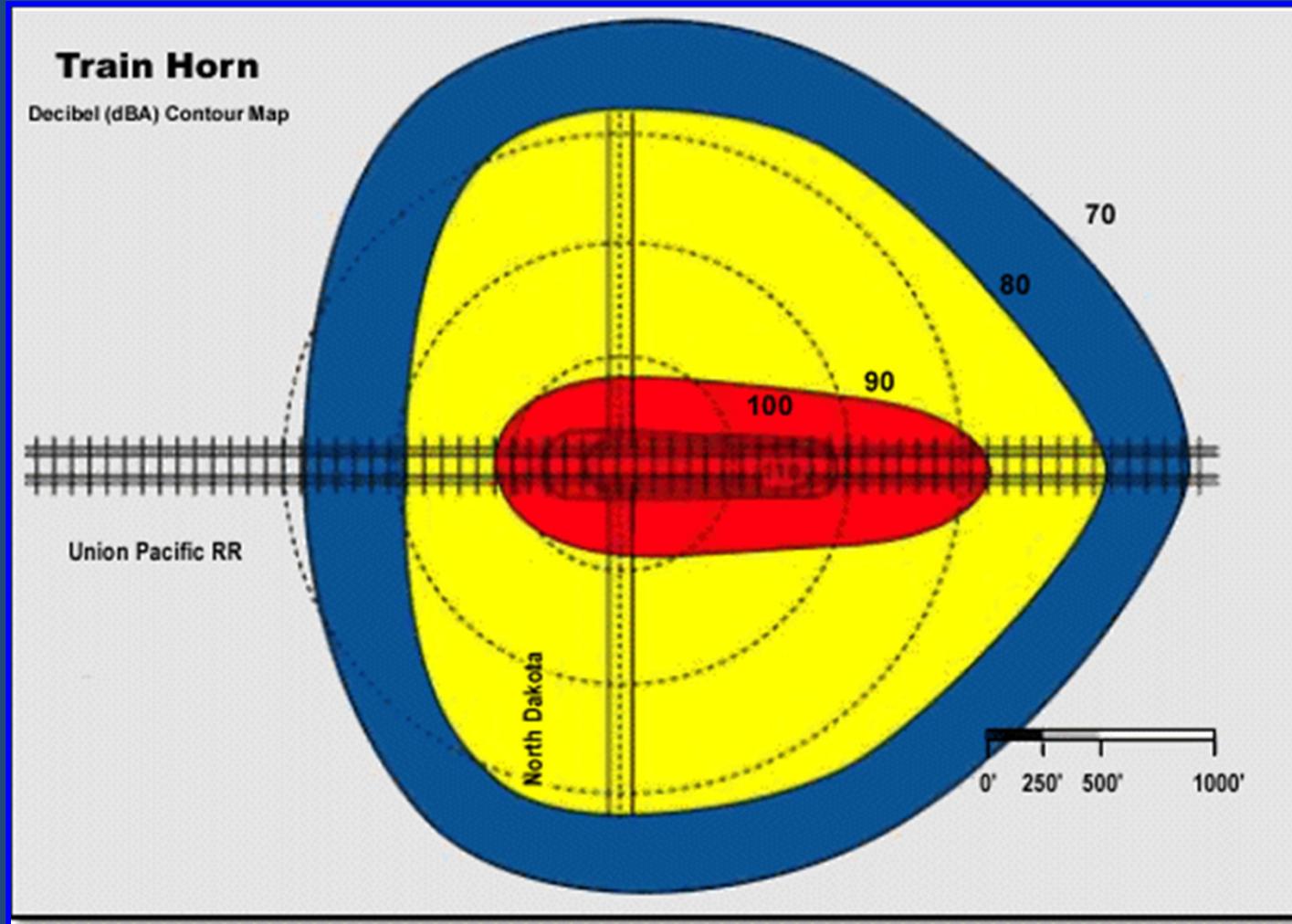
Cumberland, Maine
129 Properties
within 1,000' - 2.6 Miles

Federal Horn Rule

- Routine sounding of train horn for max. ¼ mile or max. 20 seconds before crossing
- Max. (110 dB) and min. (96dB) sound level set
- No horn is sounded if sufficient safety measures are in place (“Quiet Zone”)
 - Promote quality of life without compromising safety
- “44% more accidents at crossings with whistle ban and gates than without one”

(Source: Final Environmental Impact Statement, FRA, page 4-2)

Noise Impact



Decibel contour footprint impact of train horn

“Quiet Zone” (QZ)

- Blackstrap and Falmouth crossings are currently located in what is called a "Quiet Zone" (QZ) - approved by Federal Railroad Authority (FRA).
 - No routine train whistle will sound in this zone.
- QZ is only allowed if there are adequate supplemental safety measures in place that will ensure similar or greater safety related conditions than reliance on a train whistle.
 - Emergency sounding of horn is always permitted.

Downeaster Impact

- Current rail traffic: 8 freight trains/day
- New Downeaster extension of service from Portland to Brunswick: + 6 trains/day
- Corridor upgrades paid for by the Northern New England Passenger Rail Authority (NNEPRA), operator of the Downeaster.
- Rail upgrade will allow freight trains to travel at higher speeds (from 40 to 60 mph)

Crossing Upgrades

- NNEPRA-funded crossing upgrades may not be enough to either maintain QZ at Blackstrap and Falmouth Roads or add a new QZ to Field and Woodville Roads and into Cumberland.
 - Upgrades planned for September-October 2011
- There are supplemental safety measures (SSM's) that can be added to maintain or expand a QZ.
- Quiet zone measures are typically all Town cost

QZ Safety Improvement Options

- Quad gate system \$\$\$
- Gates with medians or channelization \$
- One way street with gates N/A
- Temporary closures N/A

No QZ, but reduced horn noise:

- Wayside horn \$\$
- Alternative Safety Measures may be possible

Quad gate system

- Gates at a crossing sufficient to block traffic from entering crossing when the gates are lowered
- When train approaches, all lanes on both sides of crossing are spanned by gates
- Upgrade from 2 to 4 gates: \$150K + road costs



Gates with medians or channelization

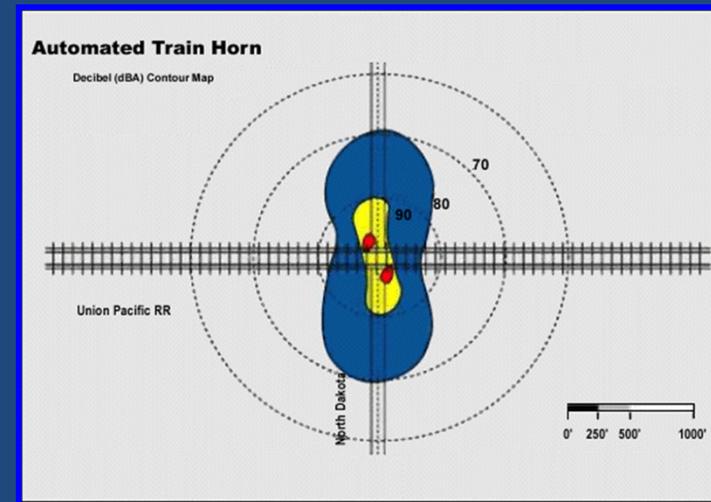
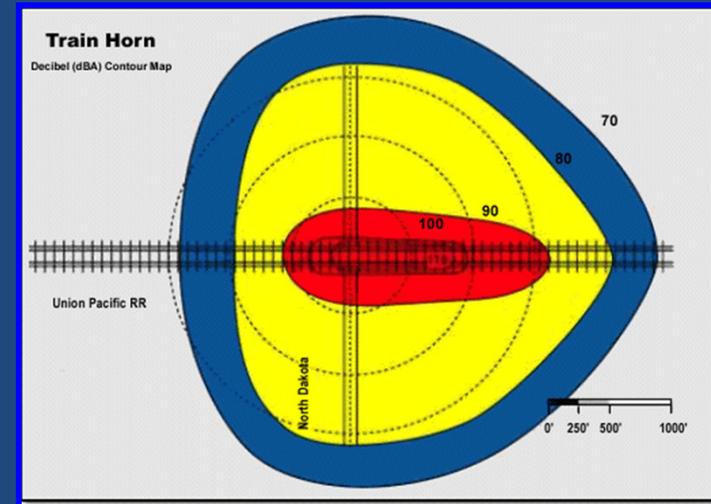
- Reboundable vertical panels on raised curb
- Prevents drivers from circumventing the gates by switching into oncoming traffic lane and driving around the lowered gates to cross the tracks
- Must extend at least 60-100 feet from the gate arm
- Cost: \$13K





Wayside horn

- Stationary horn system mounted at crossing rather than at train
- Automatically activated when train approaches
- Sounds like a train horn
- Activated until train reaches crossing
- Sound impact much more limited, but constant
- Cost: \$100K



1. Maintain Existing QZ in Falmouth?

- NNEPRA:
 - Will make min. required crossing improvements
 - Limited to 2 gates at crossings (these already exist at Blackstrap and Falmouth)
 - Supports train horn
 - Environmental Assessment states “no noise impact”
- May not maintain QZ. Whose responsibility is it to maintain existing quiet zone?

2. Expand QZ or Add New QZ?

- Field and Woodville Road improvements are Town of Falmouth responsibility
- Muirfield/Birkdale improvements are private responsibility, but may require municipal endorsement(s)
- Add New QZ in Cumberland too?

Quiet Zone Qualifications

- Nationwide Significant Risk Threshold (NSRT)
 - = average risk with flashers, gates and train horns
- Risk Index with Horns
 - = risk at a crossing within QZ with train horns
- Quiet Zone Risk Index (QZRI)
 - = average risk for all crossings in a QZ: added risk due to no horns minus reduced risk due to safety measures

FRA's Quiet Zone Calculator

- Type of warning device
- Vehicles per day
- Trains per day
- Trains per daylight hours
- Number of tracks
- (Un)paved road
- Max. train speeds
- Number of lanes
- Number of years for accident analysis
- Number of accidents during analysis years

QZ Preliminary Options

Crossing Location	Option 1	Option 2	Option 3
Blackstrap	Channelization/one-way road (Davis Farm Road)	Quad gates	Wayside Horn (no QZ)
Falmouth	Channelization/road realignment (Leighton Road)	Quad gates	Wayside Horn (no QZ)
Field	Channelization	Wayside Horn (no QZ)	Quad gates
Woodville	Channelization	Wayside Horn (no QZ)	Quad gates
(Muirfield/Birkdale)	Channelization	Wayside Horn (no QZ)	Quad gates
Main St/Route 9	Channelization	Wayside Horn (no QZ)	Quad gates
Tuttle	Channelization (may require realignment of Crossing Brook Road)	Wayside Horn (no QZ)	Quad gates
Greely	Channelization	Wayside Horn (no QZ)	Quad gates



Blackstrap Road : Channelization?

Blackstrap



Looking Northeast



Looking East

Blackstrap



Looking Southeast



Looking South

Blackstrap

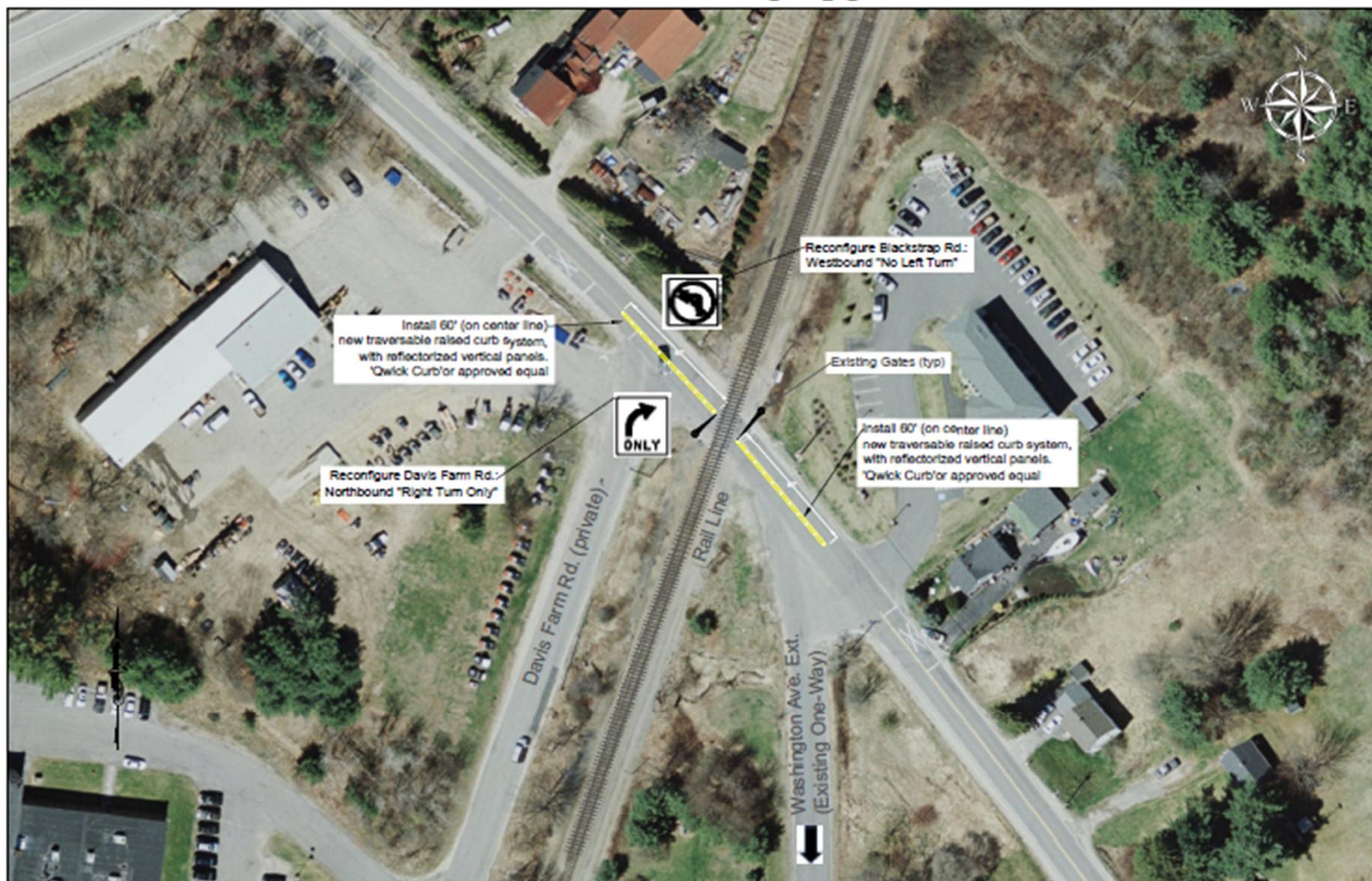


Looking Southwest



Looking West

Town of Falmouth - Blackstrap Road Railroad Crossing Upgrades



Scale: 1"=60'

Option 2 (Channelization/Traffic Pattern Changes)
Preliminary Cost Estimate: \$13,000

Town of Falmouth
Parks and Public Works Department

Falmouth



Looking East



Looking Northeast

Falmouth



Looking Northwest



Looking West

Falmouth

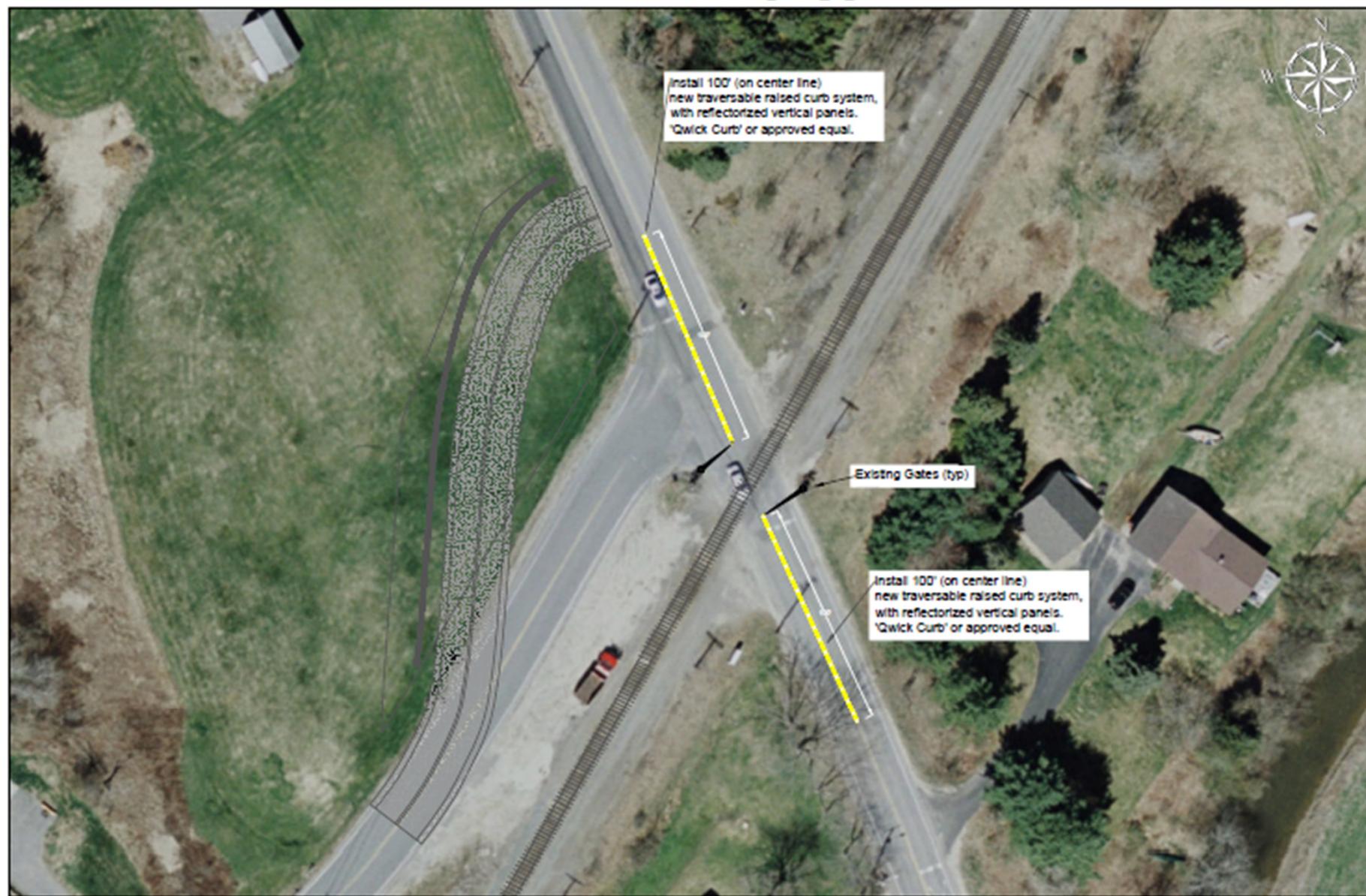


Looking Southeast



Looking Southwest

Town of Falmouth - Falmouth Road Railroad Crossing Upgrades



Scale: 1"=60'

Option 2 (Road Realignment and Channelization)
Preliminary Cost Estimate: \$200,000

Town of Falmouth
Parks and Public Works Department

Field

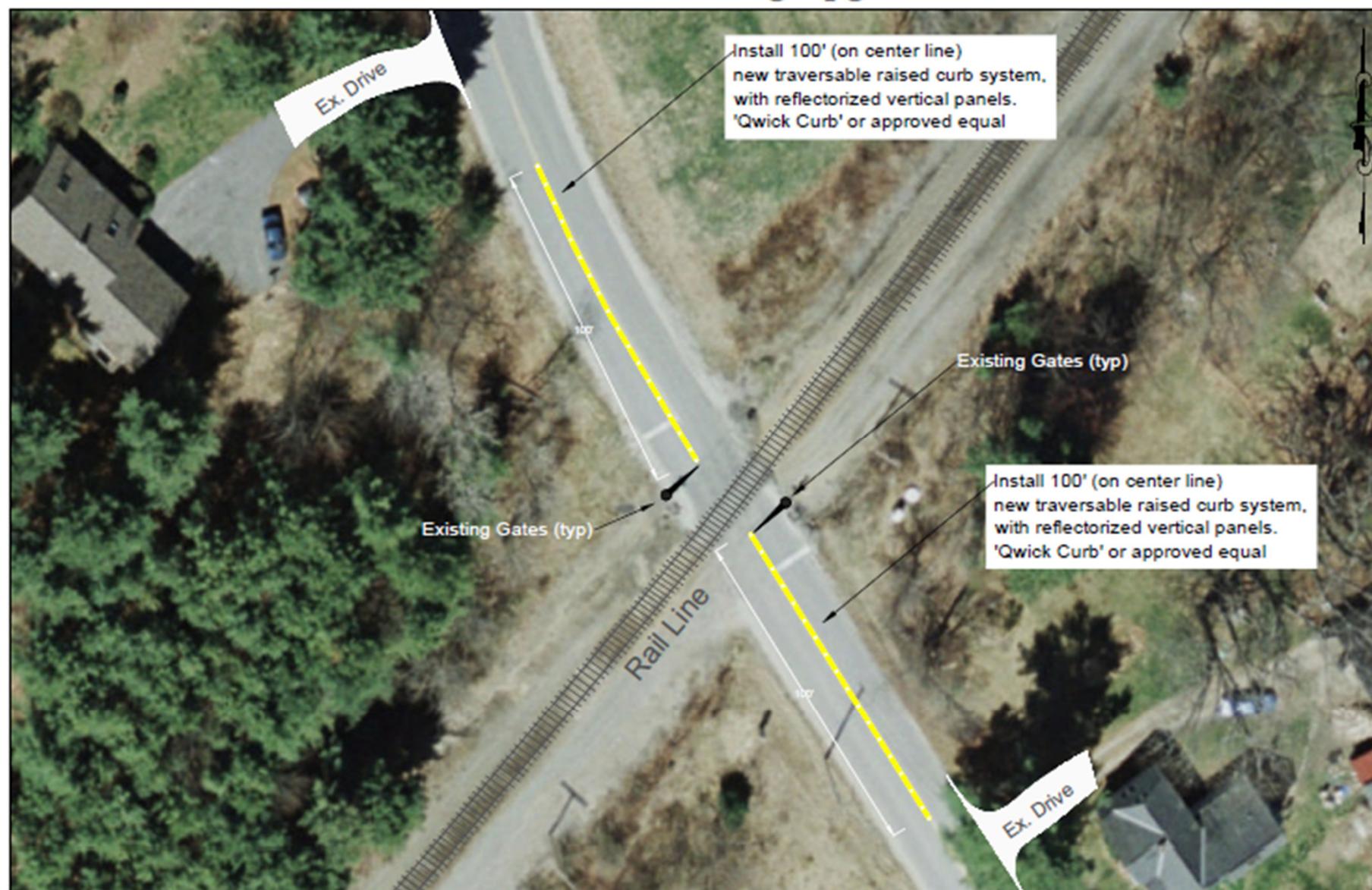


Looking Northwest



Looking Southeast

Town of Falmouth - Field Road Railroad Crossing Upgrades



Scale: 1"=40'

Option 1 (channelization)
Preliminary Cost Estimate: \$13,000

Town of Falmouth
Parks and Public Works Department

Woodville



Looking East



Looking West

Town of Falmouth - Woodville Road Railroad Crossing Upgrades



Scale: 1"=60'

Option 1 (channelization)
Preliminary Cost Estimate: \$13,000

Town of Falmouth
Parks and Public Works Department

Muirfield/Birkdale



Looking East



Looking West

Muirfield/Birkdale



Looking Southeast



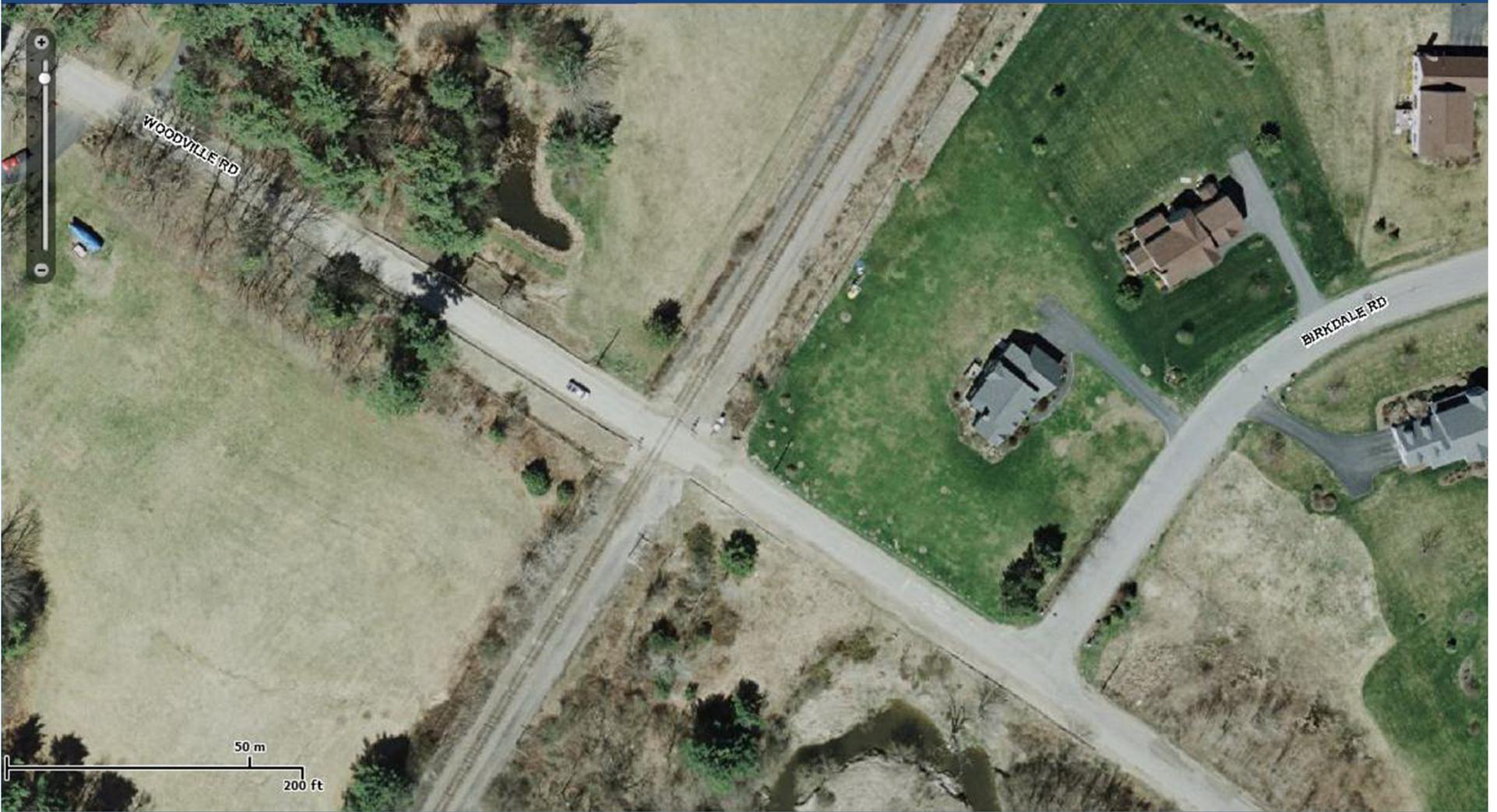
Looking West



Falmouth Road: Channelization?



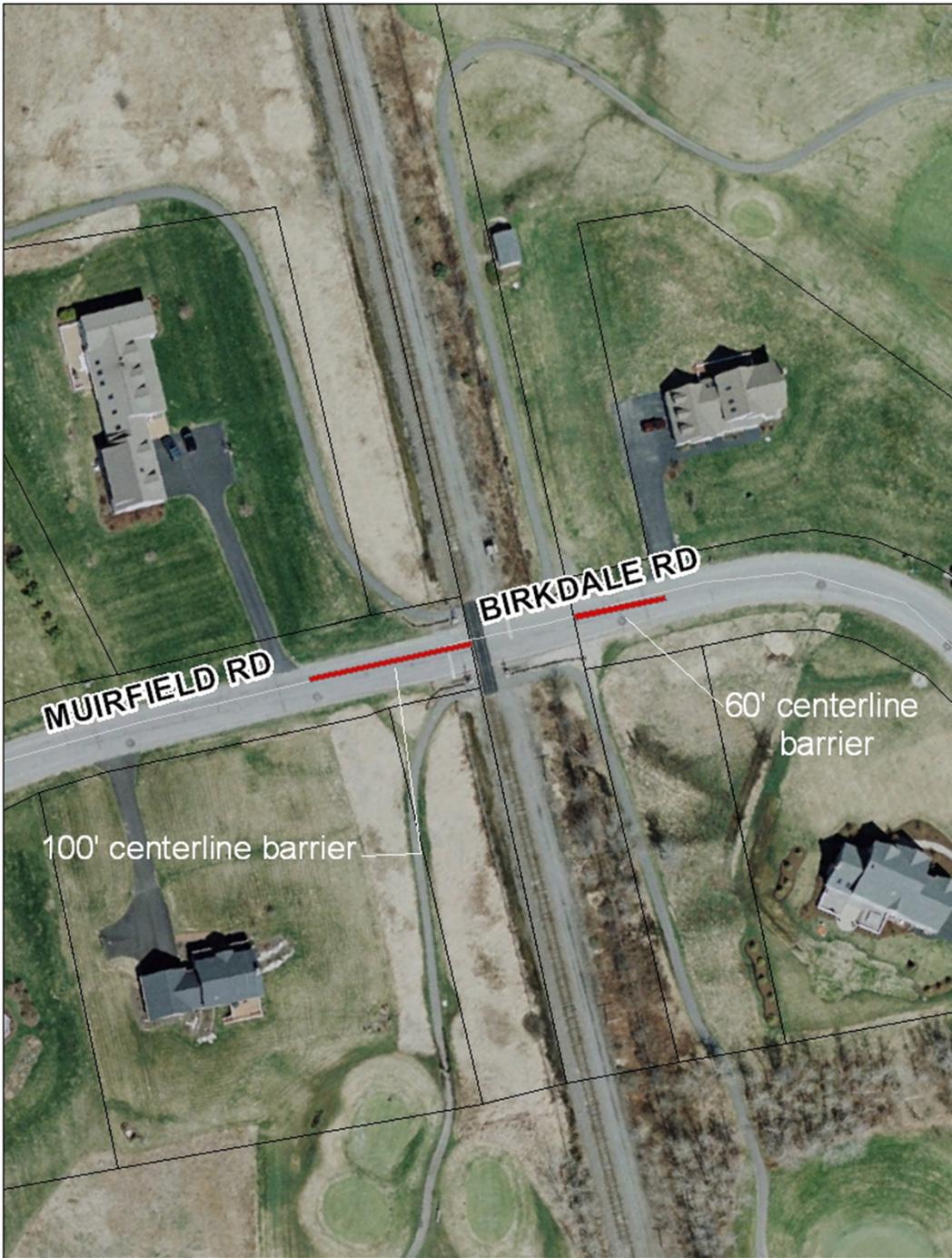
Field Road: Channelization?



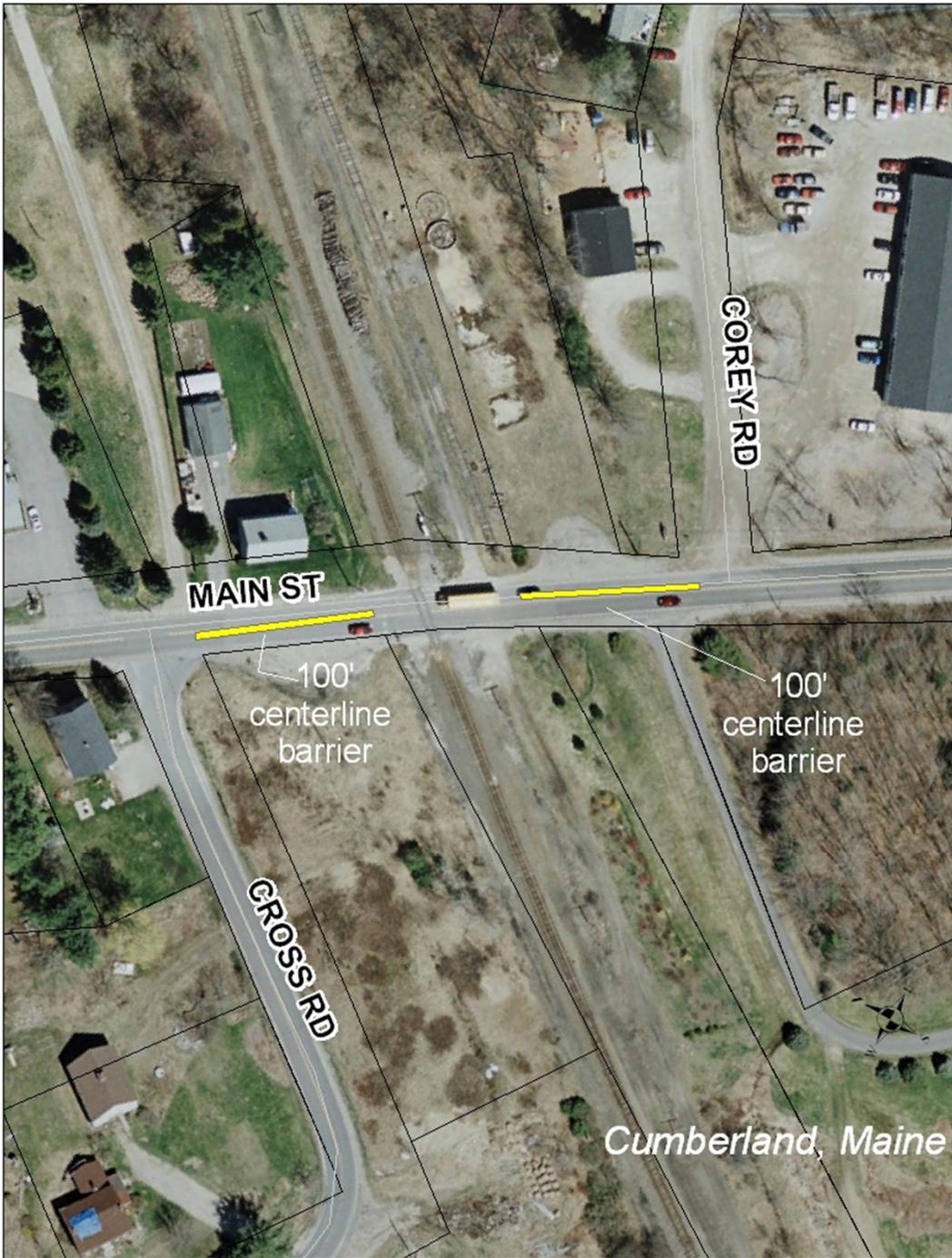
Woodville Road: Channelization?



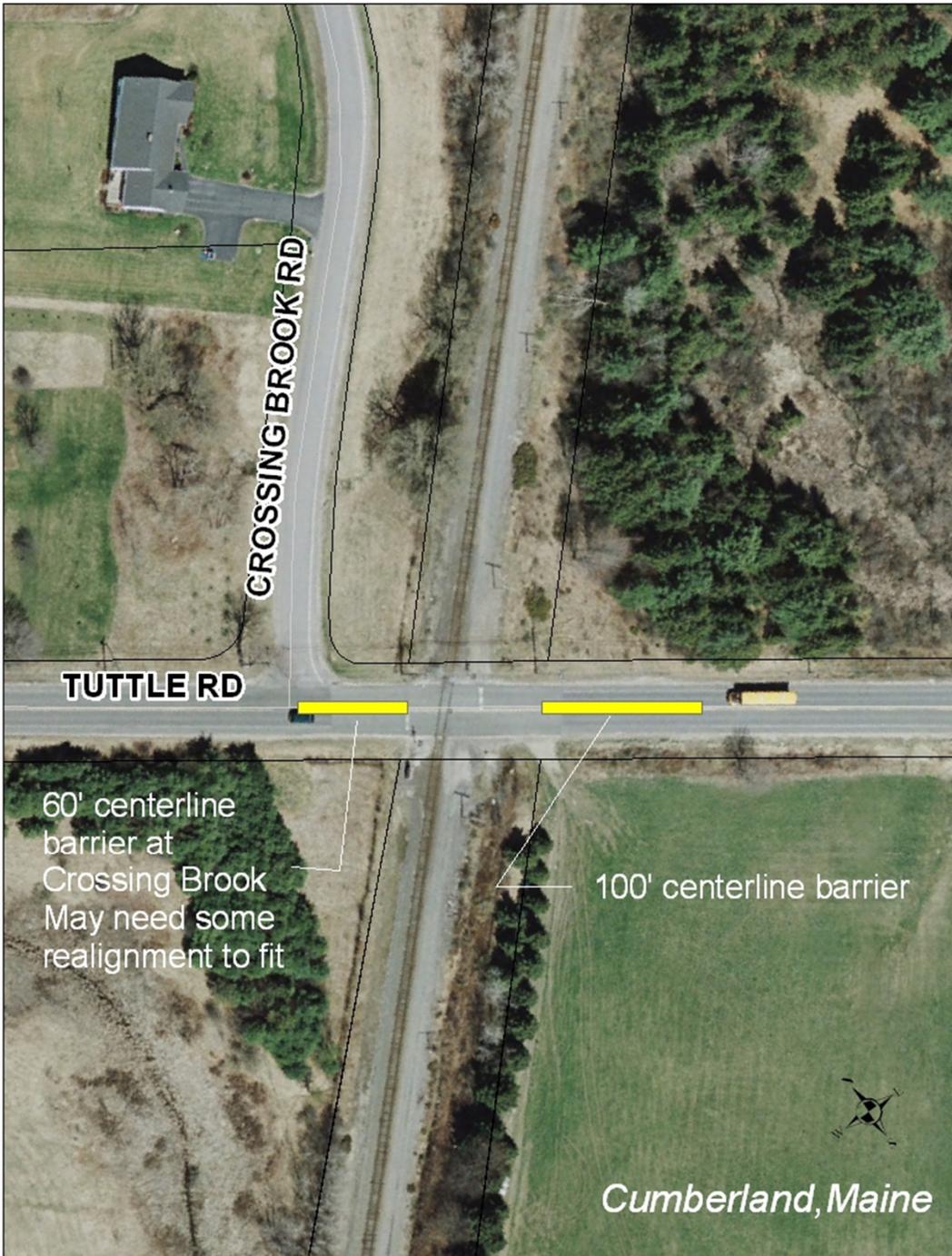
Muirfield Road/Birkdale Road: Channelization?



Falmouth Country Club at Birkdale & Muirfield Rd



Longwoods Road Near Corey & Cross Road Cumberland



Tuttle Road At Crossing Brook Rd

60' centerline
barrier at
Crossing Brook
May need some
realignment to fit

100' centerline barrier

Cumberland, Maine



Greely Road Spring Brook Farm & Twin Brook Park

Cumberland, Maine

Crossing	Type	Traffic count (ADT)	Town	Automatic flashing lights + 2-gates (as planned by NNEPRA; min. required)		Channelization (allows work to be done outside RR right of way)		Upgrade to Quad gates (requires work to be done by railroad in RR right of way)	
				QZRI	Cost to towns of Falmouth or Cumberland	QZRI	Cost	QZRI	Cost
Blackstrap	Public	4,522	Falmouth	21,075.34	\$0	5,268.83	\$13K	3,793.56	\$150K+
Falmouth	Public	3,739	Falmouth	19,326.51	\$0	4,831.63	\$200K	3,478.77	\$150K+
Field	Public	225	Falmouth	10,254.37	\$0	2,563.59	\$13K	1,845.79	\$130K
Woodville	Public	620	Falmouth	15,547.17	\$0	3,886.79	\$13K	2,798.49	\$129K
Muirfield/Birkdale	Private		Cumberland						
Route 9	Public	5,207	Cumberland	37,249.69	\$0	9,312.42	\$13K	6,704.94	\$130K
Tuttle	Public	2,615	Cumberland	28,074.12	\$0	7,018.53	\$13K	5,053.34	\$129K
Greely	Public	1,619	Cumberland	23,057.36	\$0	5,764.34	\$13K	4,150.33	\$129K

- Quiet zones can be a combination of contiguous crossings each with a combination of improvements as long as average QZRI is less than 14,007.00 (=NSRT).
- All crossings in new QZ must have safety measures added regardless how low their risk indexes may be.

Summary chart

Option	Quiet Zone	Safety Measures	QZRI	Town of Falmouth Cost	Muirfield/Birkdale Cost	Town of Cumberland Cost
1	Blackstrap-Falmouth	Channelization (2)	5,050.23	\$213K	\$0	\$0
2	Blackstrap-Muirfield/Birkdale	Channelization (5)	4,137.71	\$239K	\$13K	\$0
3	Blackstrap-Route 9	Channelization (6)	5,172.65	\$239K	\$13K	\$39K
4	Blackstrap-Greely	Channelization (8)	5,520.88	\$239K	\$13K	\$39K
5	Blackstrap-Greely	Quad gates (8)	3,975.03	\$559K+	TBD	\$388K

Process for new or expanded QZ

1. Submit a Notice of Intent (NOI) to Expand or Create a New Quiet Zone to FRA, Pan Am, NNEPRA, MDOT
2. 60-day comment period for FRA, Pan Am, NNEPRA, MDOT
3. Prepare final design. Incorporate comments received in design, if warranted
4. Recommend review with FRA before construction
5. Update Grade Crossing Inventory Forms for every crossing to be included in New Quiet Zone

QZ Process (continued)

6. Install Advance Warning Signs and install treatments
7. Update National Grade Crossing Inventory to reflect current conditions at each public crossing within the Quiet Zone
8. Submit a Notice of Quiet Zone Establishment (NOE) to FRA, Pan Am, NNEPRA, MDOT.
9. Quiet zone takes automatically effect – applies to all freight and passenger trains
10. Submit periodic updates, including updated USDOT Grade Crossing Inventory Forms, to FRA every 5 +/- years.

Next Steps

- ✓ September 19: Informational meeting with FRA
- Review by Falmouth and Cumberland Town Councils
 - Other questions that need to be answered
 - Pursue Quiet Zone or not?