

CITY OF BOULDER: RAILROAD QUIET ZONES

WHAT IS A QUIET ZONE?

The Federal Railroad Administration (FRA) requires freight and passenger trains to sound horn for 10-15 seconds prior to reaching a public crossing, 24 hours a day, to warn bicyclists, pedestrians and vehicles that a train is approaching. A quiet zone is a street-level railroad crossing that includes additional safety measures in compliance with federal requirements that allow a train engineer to forgo sounding a horn at the crossing.

WHY IS THE CITY CONSIDERING QUIET ZONES?

In response to concerns expressed by community members regarding the impacts of train horn noise, city staff is working with agency partners to pursue the implementation of “quiet zones” for railroad crossings impacting Boulder.

WHAT ARE THE QUALIFICATIONS?

Per FRA requirements, a railroad crossing will qualify for a Quiet Zone designation if crossing safety improvements are implemented. Just one of the following safety improvements will suffice to create a Quiet Zone:

- Crossing closures
- One-way conversions
- Four quadrant gate system
- Approach gates with raised median
- Wayside horn

All of the safety improvements listed above will completely eliminate trains horn noise except for the wayside horn.



RAILROAD CROSSING: FRA SAFETY IMPROVEMENTS



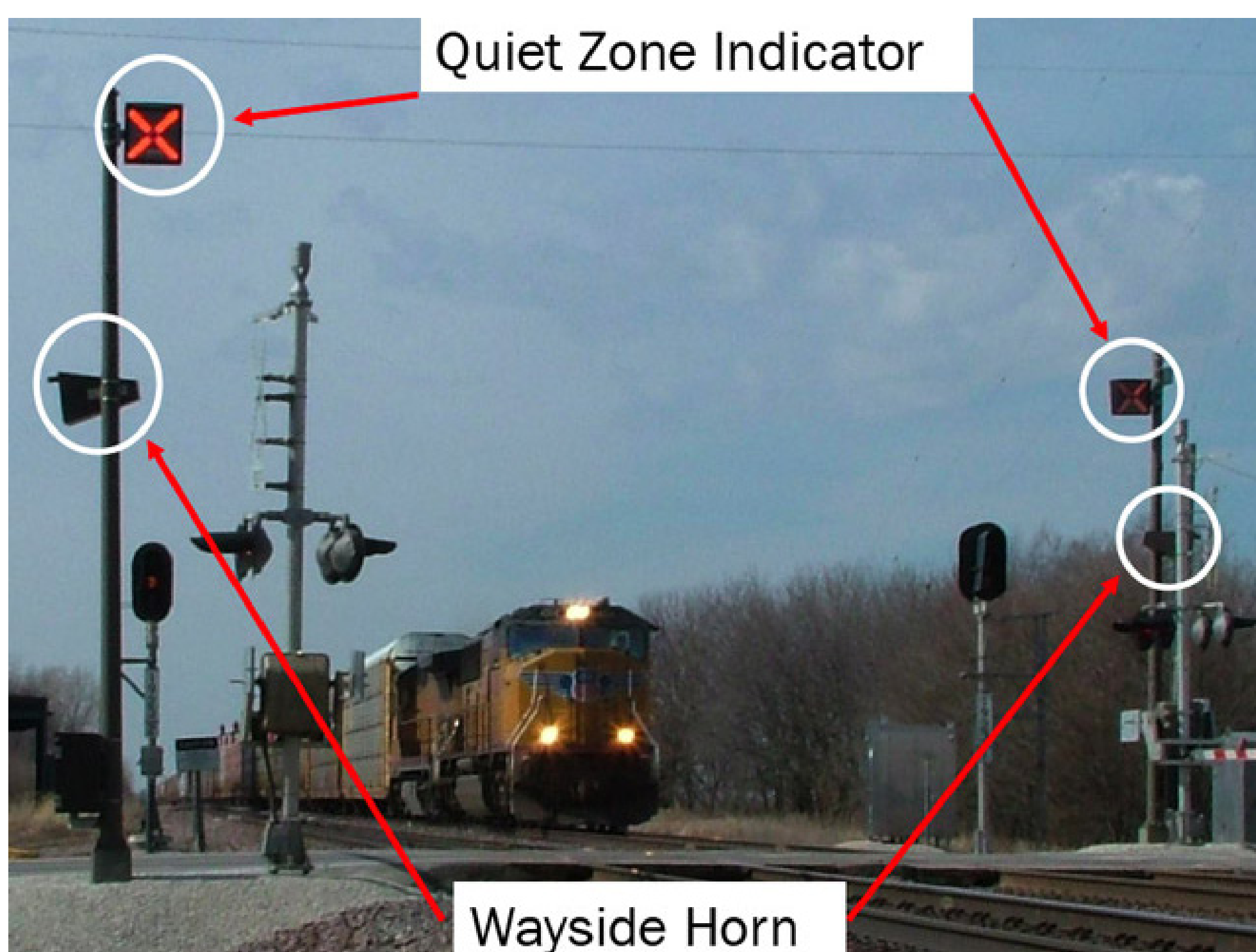
FOUR QUADRANT GATE SYSTEM

- Requires two gates on both sides of the track for both directions of automotive traffic
- Prevents drivers from illegally driving onto on-coming traffic and around lowered gates
- Fully eliminates train horn sound



APPROACH GATES W/ RAISED MEDIANS

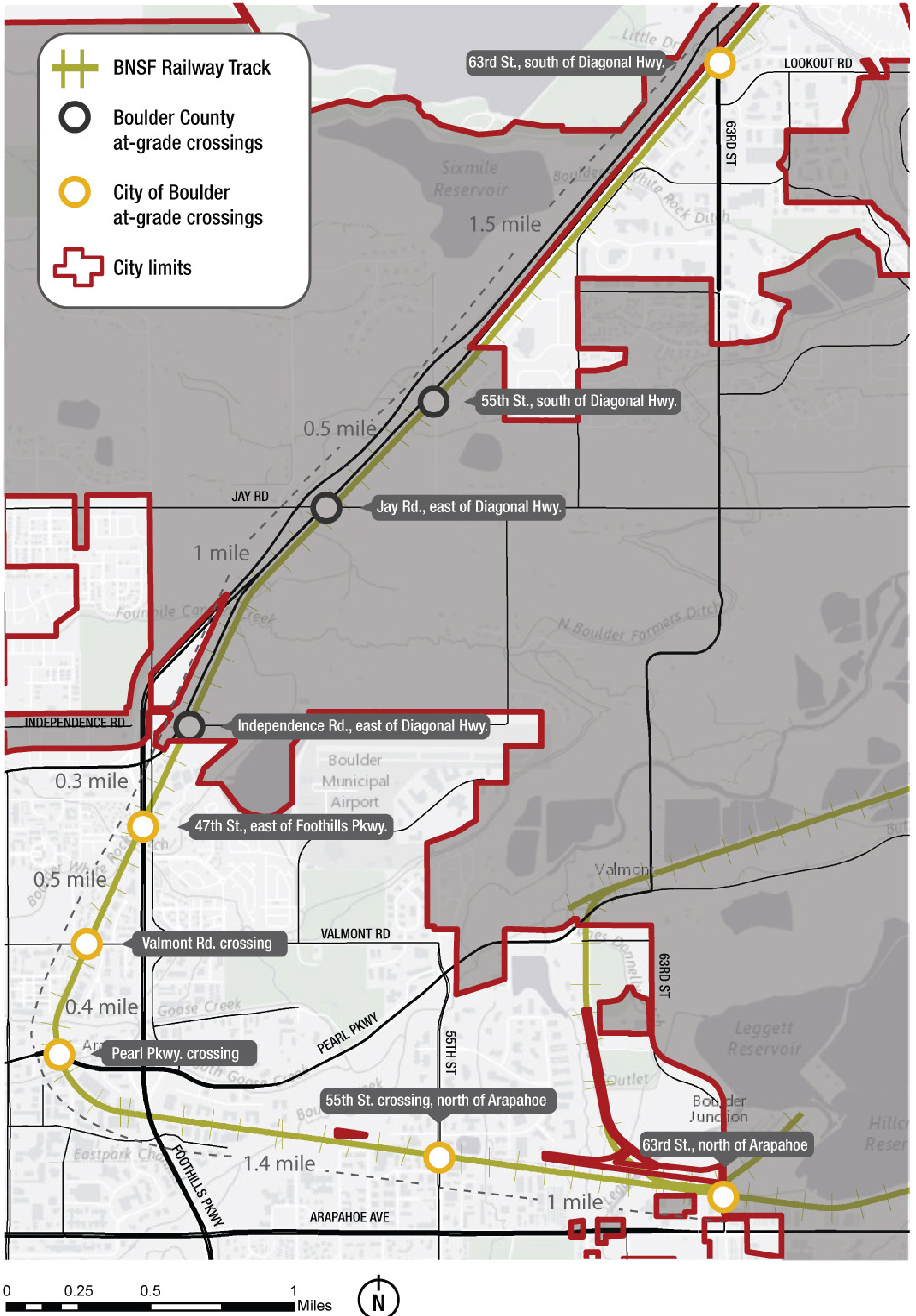
- Requires one gate on both sides of the track for both directions of automotive traffic
- Median island between gates
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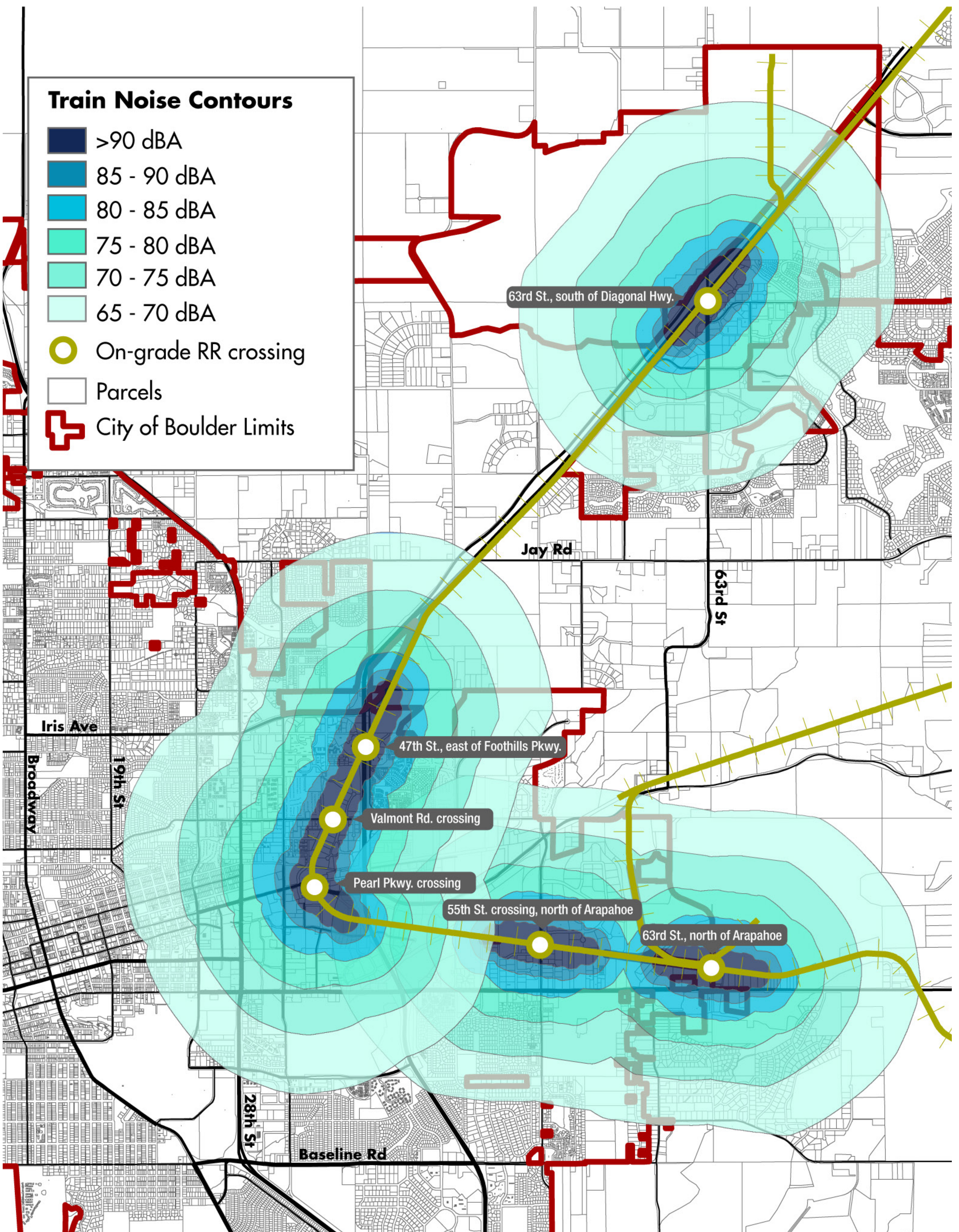
WAYSIDE HORN

- Stationary horn system designed to sound like a train horn
- Mounted at the crossing and horn is directed toward street
- Reduces noise pollution in neighborhoods located near at grade crossings
- Train horn sounds until train reaches the crossing

CITY OF BOULDER: RAILROAD CROSSING LOCATIONS



RAILROAD CROSSING: SOUND CLOUD ANALYSIS



Sound cloud estimate decibels of sound emanating from the train horn.

Categories of a sound cloud are: 65-70 dBA, 70-75 dBA, 75-80 dBA, 80-85 dBA, 85-90 dBA, and >90 dBA

QUIET ZONES: COST ESTIMATES PER CROSSING

CROSSING	STREET	M.P.	SSM Options			Wayside Horns	(2) Opinion of Construction Cost Rounded	Comments/Assumptions
			Raised Medians	Channelizing Devices	4-Quad Gates ⁽¹⁾			
244827V	North 63rd Street	35.29			X		\$620,000	CWT upgrade & new gates
						X	\$400,000	CWT upgrade & 3 horns
244824A	North 55th Street	33.77			X		\$480,000	CWT upgrade & new gates
						X	\$310,000	CWT upgrade & 2 horns
				X			\$110,000	1-60 ft & 1-100 ft channelizing devices
			X				\$280,000	1-60 ft & 1-100 ft medians; some curb/gutter
244823T	Jay Road	33.25			X		\$560,000	3 exit gates & CWT upgrade
						X	\$320,000	CWT upgrade & 2 horns
244822L	Independence Road	32.33			X		\$450,000	CWT upgrade; 2 exit gates; stub channeliz.
					X		\$480,000	CWT upgrade; 2 exit gates; stub medians
						X	\$310,000	CWT upgrade & 2 horns
				X			\$110,000	1-60 ft & 1-100 ft channelizing devices
			X				\$300,000	1-60 ft & 1-100 ft medians; full curb/gutter
244821E	47th Street	32.04	X				\$280,000	South median extension to 100 ft
244818W	Valmont Road	31.45	X				\$620,000	CWT upgrade & new gates
					X		\$480,000	CWT upgrade & new gates
244815B	Pearl Parkway	27.83			X		\$480,000	CWT upgrade & new gates
244813M	55th Street (south end)	26.38	X				\$250,000	CWT upgrade & new gates
						X	\$310,000	CWT upgrade & 2 horns
244811Y	63rd Street (south end)	25.37	X				\$360,000	Extension of 4 medians to 60 ft
					X		\$780,000	CWT upgrade & new gates
						X	\$350,000	CWT upgrade & 4 horns

Range of Costs: \$2,780,000 (Low)
\$4,610,000 (High)

WHAT IS ESTIMATED IN THE COST OF EACH CROSSING?

The cost range for each crossing can cost anywhere from \$250,000 to more than \$500,000. This is mostly due to the different crossing improvements where it may need capital improvements and circuitry upgrade to operate any additional gates and flashers installed on the crossing. Other costs that are factored in are:

- Equipment
- Materials & labor
- Construction design & plans
- Easement (where assumed to be needed)
- Survey (where needed)
- Construction administration

PROJECT FUNDING

Recently, the city has been awarded \$1.3 million in grant funding from the Denver Regional Council (DRCOG) and will continue to pursue additional funding strategies and partnerships to implement the 6 railroad crossings into quiet zones.

NORTH 63RD STREET

Railroad Crossing	Supplemental Safety Measure Options				Cost	Number of people living within sound cloud analysis	Number of Jobs within sound cloud analysis
	Raised Median	Channelizing Devices	4- Quad Gates	Wayside Horns			
North 63rd Street					\$620,000	1,311	8,722
47th Street					\$400,000		
Valmont Road					\$280,000	25,939	28,916
					\$620,000		
Pearl Parkway					\$480,000		
South 55th Street					\$480,000		
South 63rd Street					\$250,000	3,468	16,560
					\$310,000		
					\$360,000		
					\$780,000		
					\$350,000		

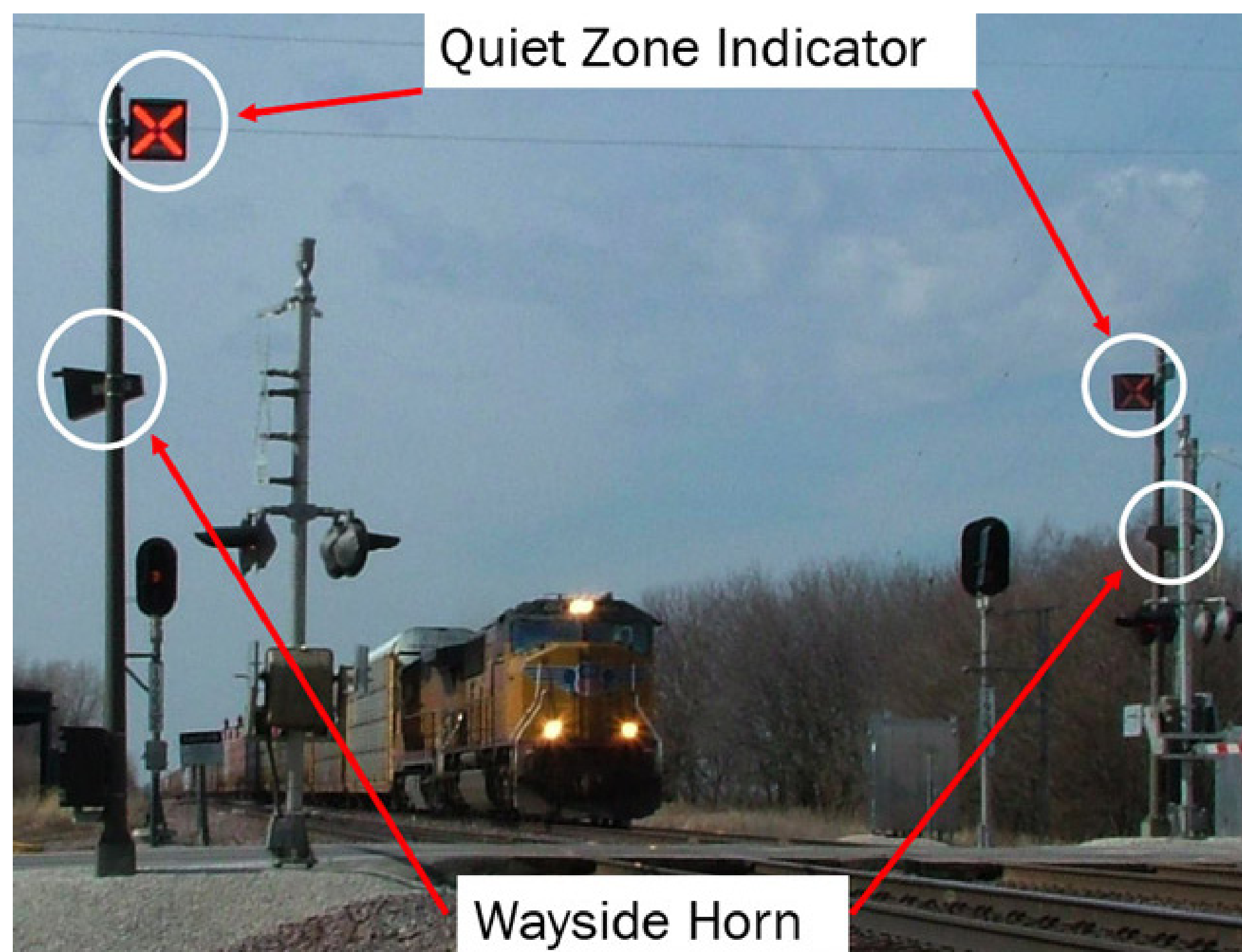
Population is based on a 98.33% occupancy rate and 2.16 people per dwelling unit added to any group quarters population that may occur.

SAFETY MEASURE IMPROVEMENT OPTIONS



FOUR QUADRANT GATE SYSTEM

- Requires two gates on both sides of the track for both directions of automotive traffic
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- Fully eliminates train horn sound



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47TH STREET, VALMONT ROAD, & PEARL PARKWAY

Railroad Crossing	Supplemental Safety Measure Options				Cost	Number of people living within sound cloud analysis	Number of Jobs within sound cloud analysis
	Raised Median	Channelizing Devices	4- Quad Gates	Wayside Horns			
North 63rd Street					\$620,000 \$400,000	1,311	8,722
47th Street					\$280,000	25,939	28,916
Valmont Road					\$620,000 \$480,000		
Pearl Parkway					\$480,000		
South 55th Street					\$250,000 \$310,000		
South 63rd Street					\$360,000 \$780,000 \$350,000	3,468	16,560

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SOUTH 55TH STREET & SOUTH 63RD STREET

Railroad Crossing	Supplemental Safety Measure Options				Cost	Number of people living within sound cloud analysis	Number of Jobs within sound cloud analysis
	Raised Median	Channelizing Devices	4- Quad Gates	Wayside Horns			
North 63rd Street					\$620,000	1,311	8,722
47th Street					\$400,000		
Valmont Road					\$280,000	25,939	28,916
Pearl Parkway					\$620,000		
South 55th Street					\$480,000		
South 63rd Street					\$480,000	3,468	16,560
					\$250,000		
					\$310,000		
					\$360,000		
					\$780,000		
					\$350,000		

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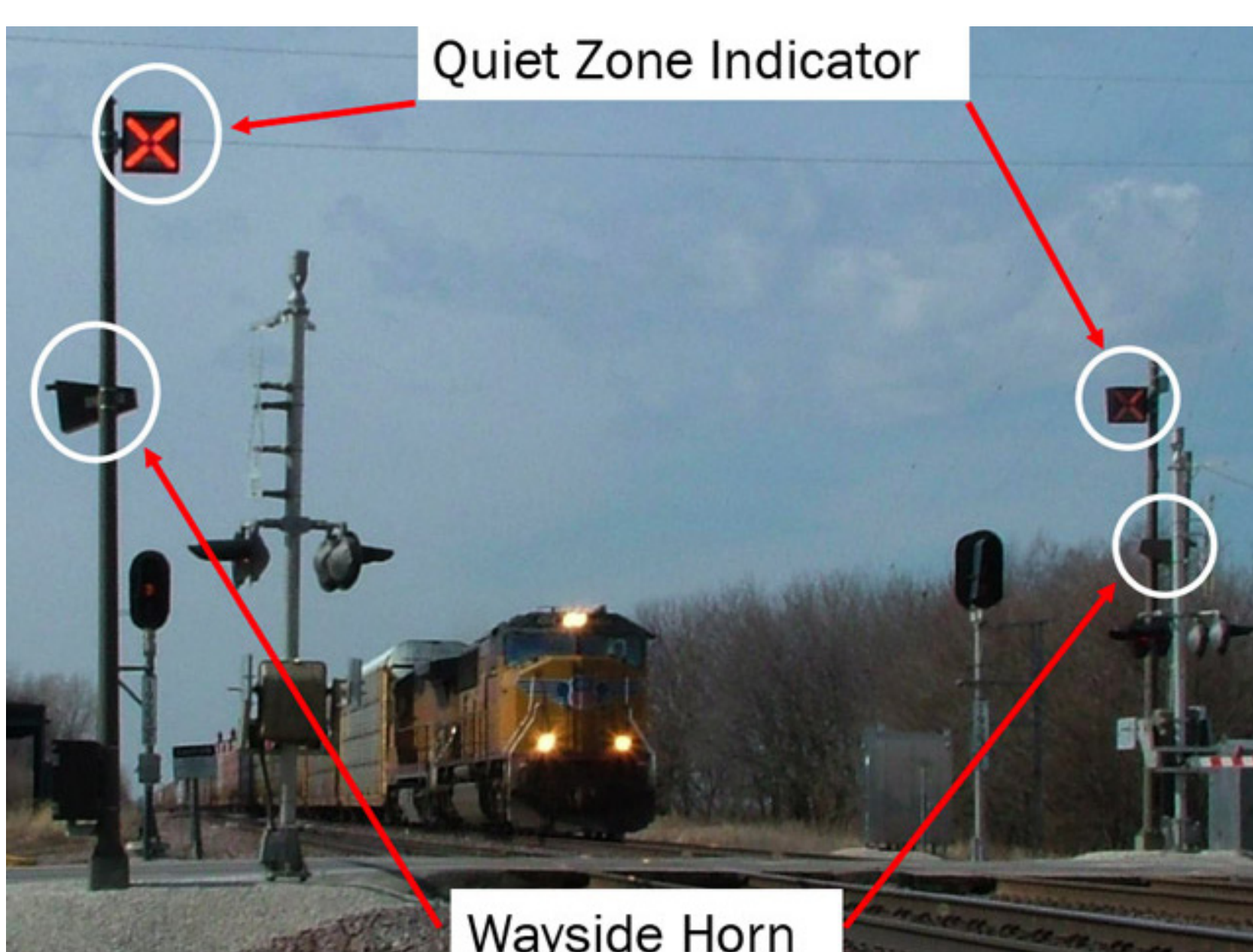
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