

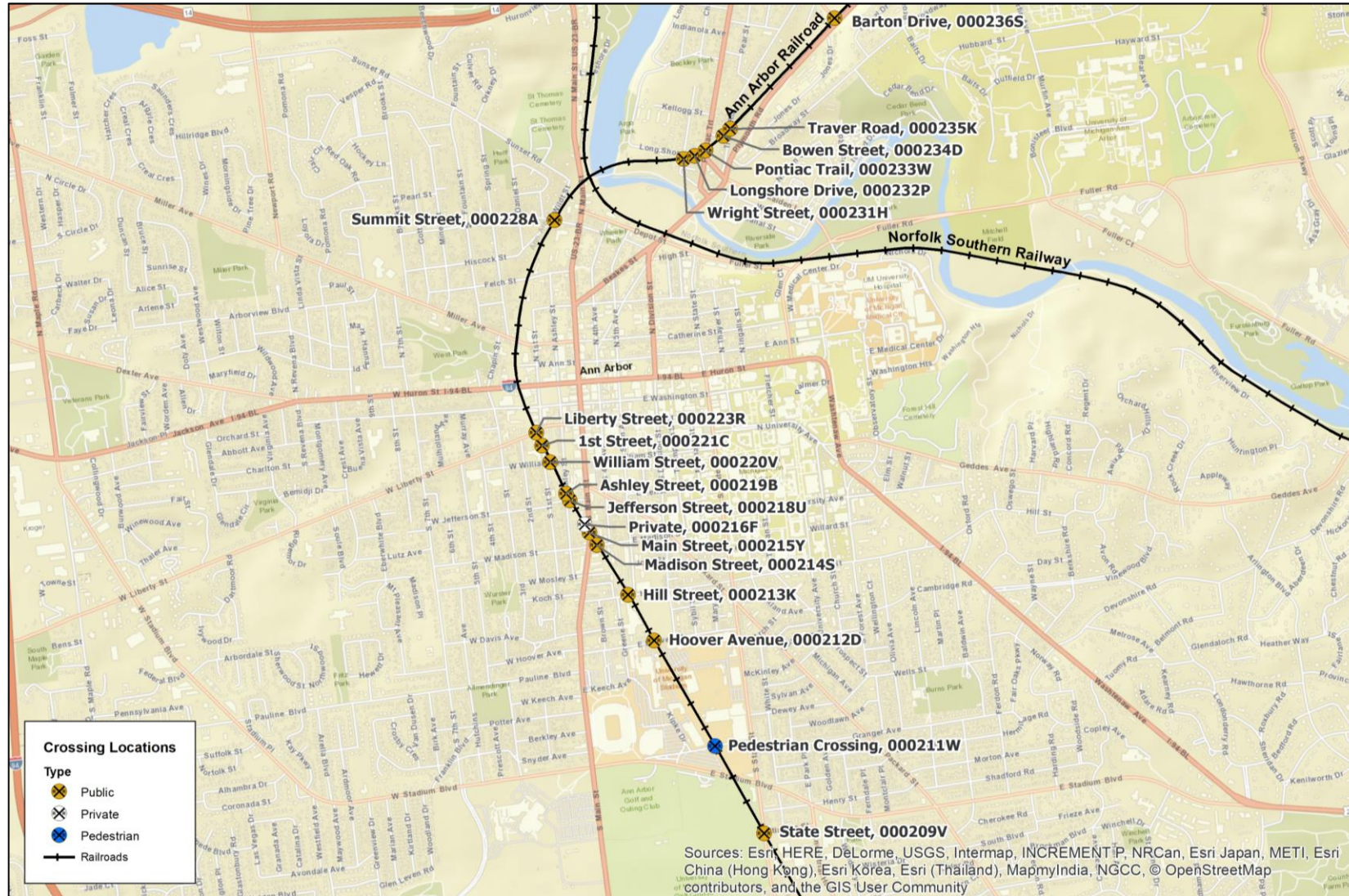


City of Ann Arbor

Ann Arbor, Michigan - Quiet Zone Assessment

Presentation to Ann Arbor Transportation Commission
February 20, 2019

Proposed Quiet Zone Crossings



Train Horn Rule Background

- 1994: Congress mandates Federal regulation of horns at grade crossings with exceptions to allow “quiet zones”
- 1994-2003: FRA solicits input from stakeholders
- 2005: Train Horn Rule goes into effect

What does a quiet zone do?

- Eliminates routine sounding of horns at crossings
- Horns can still sound:
 - In an emergency (vehicle, people, or animal on tracks)
 - If construction activity is occurring adjacent to crossing
 - Signaling during yard or siding track operations

Step 1: Minimum Quiet Zone Requirements

- Quiet Zone must be at least 1/2-mile long and include all crossings within the quiet zone limits
- All public grade crossings must meet pre-qualifying criteria:
 - Gates and flashing lights
 - Power-out indicators
 - Constant warning time detectors

Crossing Conditions

Crossing Name	Gates	Flashing Lights	CWT
S State Street	No	Yes	Yes
U-M Pedestrian Crossing	n/a	n/a	n/a
E Hoover Avenue	No	Yes	Yes
Hill Street	No	Yes	Yes
E Madison Street	No	Yes	No
S Main Street	No	Yes	No
Private Crossing	n/a	n/a	n/a
W Jefferson Street	No	Yes	No
Ashley Street	No	Yes	No
William Street	No	Yes	No

Crossing Name	Gates	Flashing Lights	CWT
S First Street	No	Yes	No
W Liberty Street	No	Yes	No
W Summit Street	No	Yes	Yes
Wright Street	No	No	Yes
Longshore Drive	No	No	Yes
Pontiac Trail	No	Yes	Yes
Bowen Street	No	No	No
Traver Road	No	Yes	Yes
Barton Drive	No	Yes	Yes
Traver Road – GLC	No	No	No
Dhu Varren Road - GLC	Yes	Yes	Yes

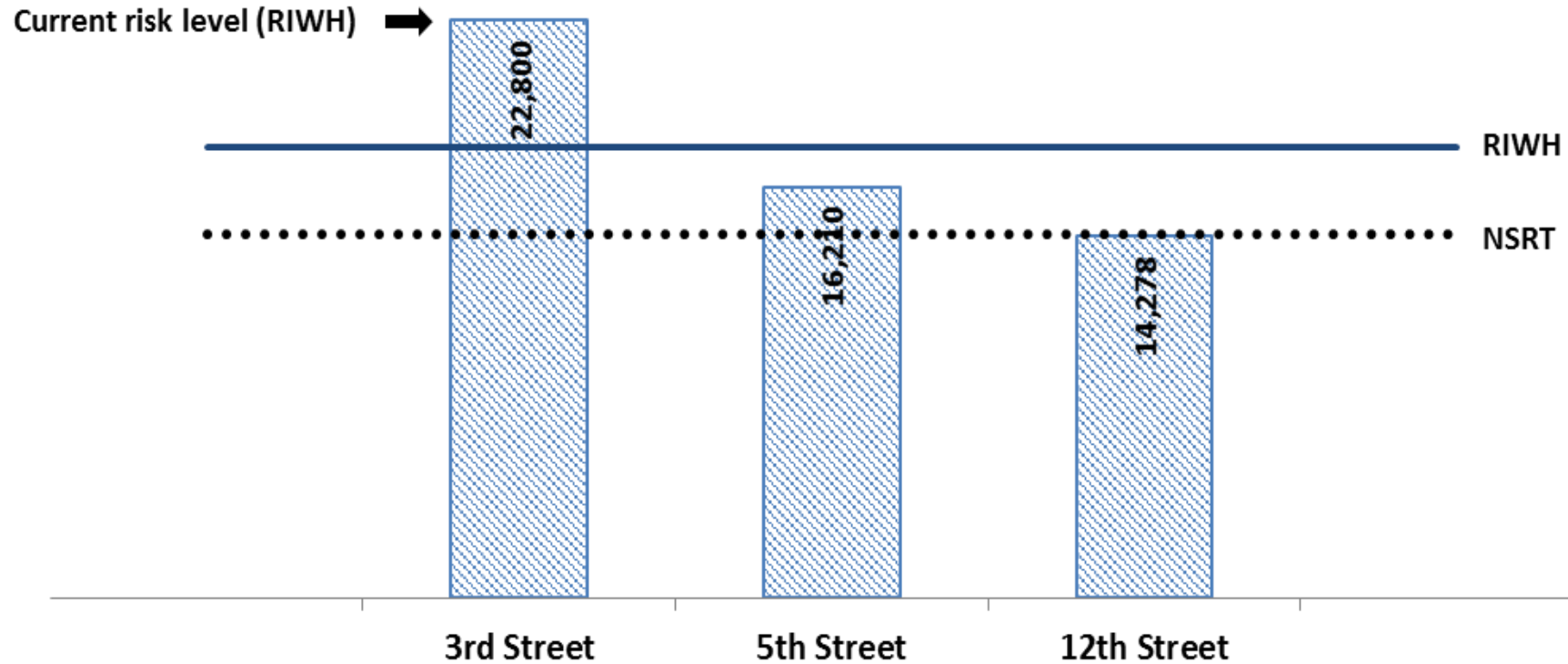
Step 2: Quiet Zone Risk Analysis

- Quiet Zone Implementation based on risk analysis
- DOT Accident Prediction Model
 - Highway volumes
 - Rail volumes and speed
 - Crossing surface and geometry
 - Previous crash history (5 years)
 - Estimated cost by crash type

Step 2: Quiet Zone Risk Analysis (cont.)

- FRA Quiet Zone Risk Calculator Estimates Risk Levels
- Key Risk Thresholds
 - **NSRT**: National average of risk
 - **RIWH**: Existing risk levels
 - **Baseline QZRI**: Risk levels after horn elimination
 - **Final QZRI**: Risk levels after additional improvements
- Quiet Zone Implementation Thresholds
 - Final QZRI < RIWH
 - Final QZRI < NSRT

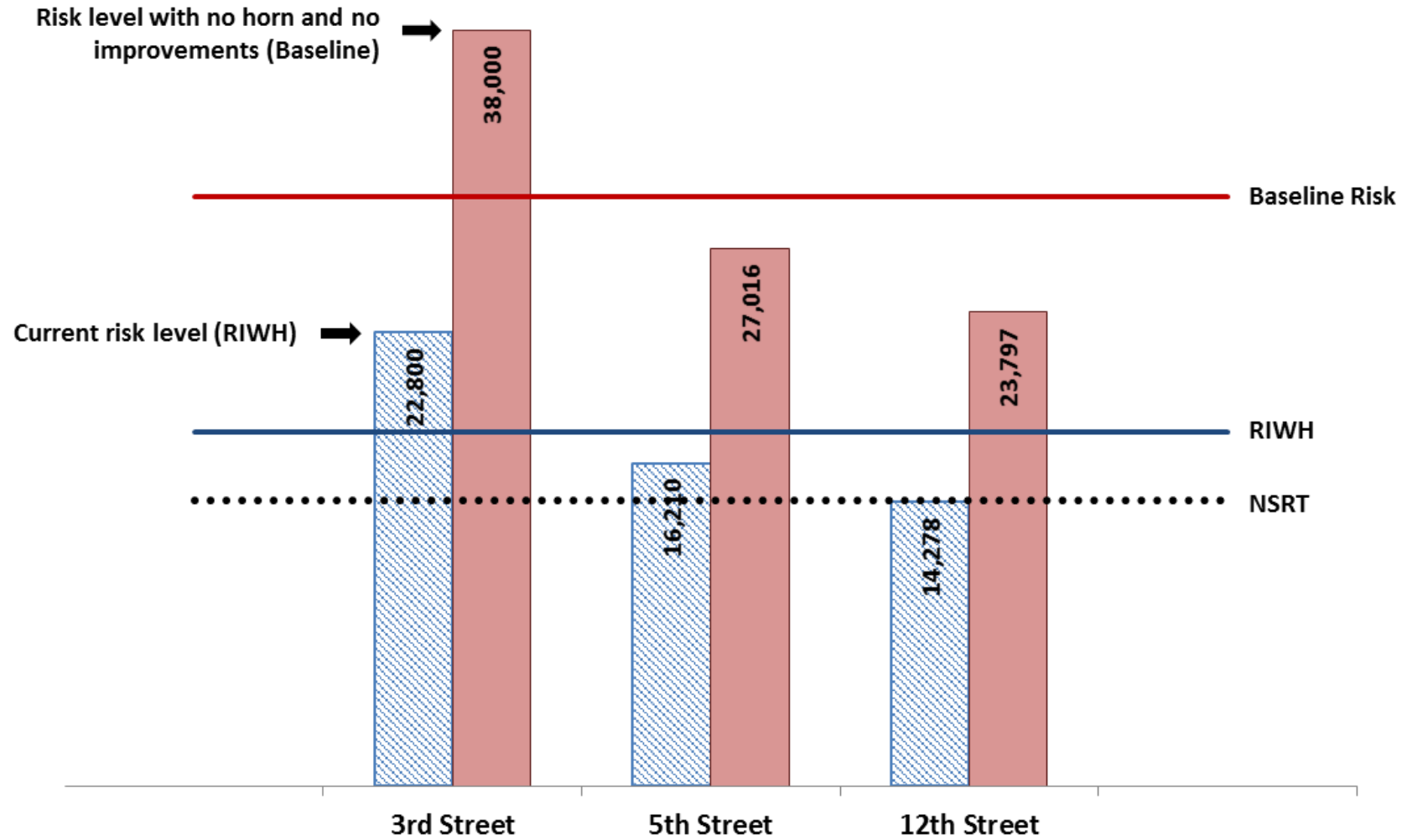
Quiet Zone Risk Example



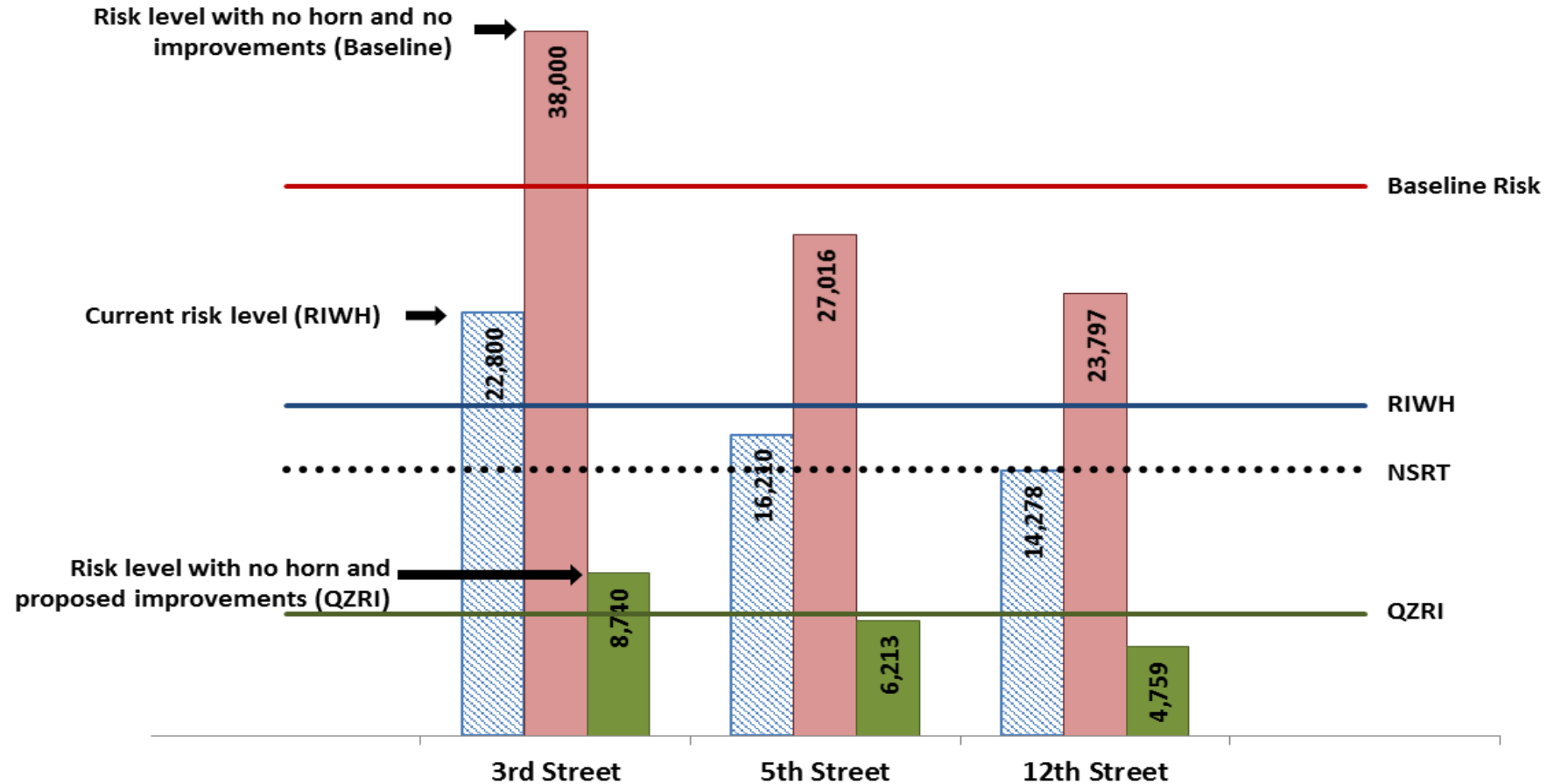
RIWH – Risk Index With Horns

NSRT – Nationwide Significant Risk Threshold

Quiet Zone Risk Example

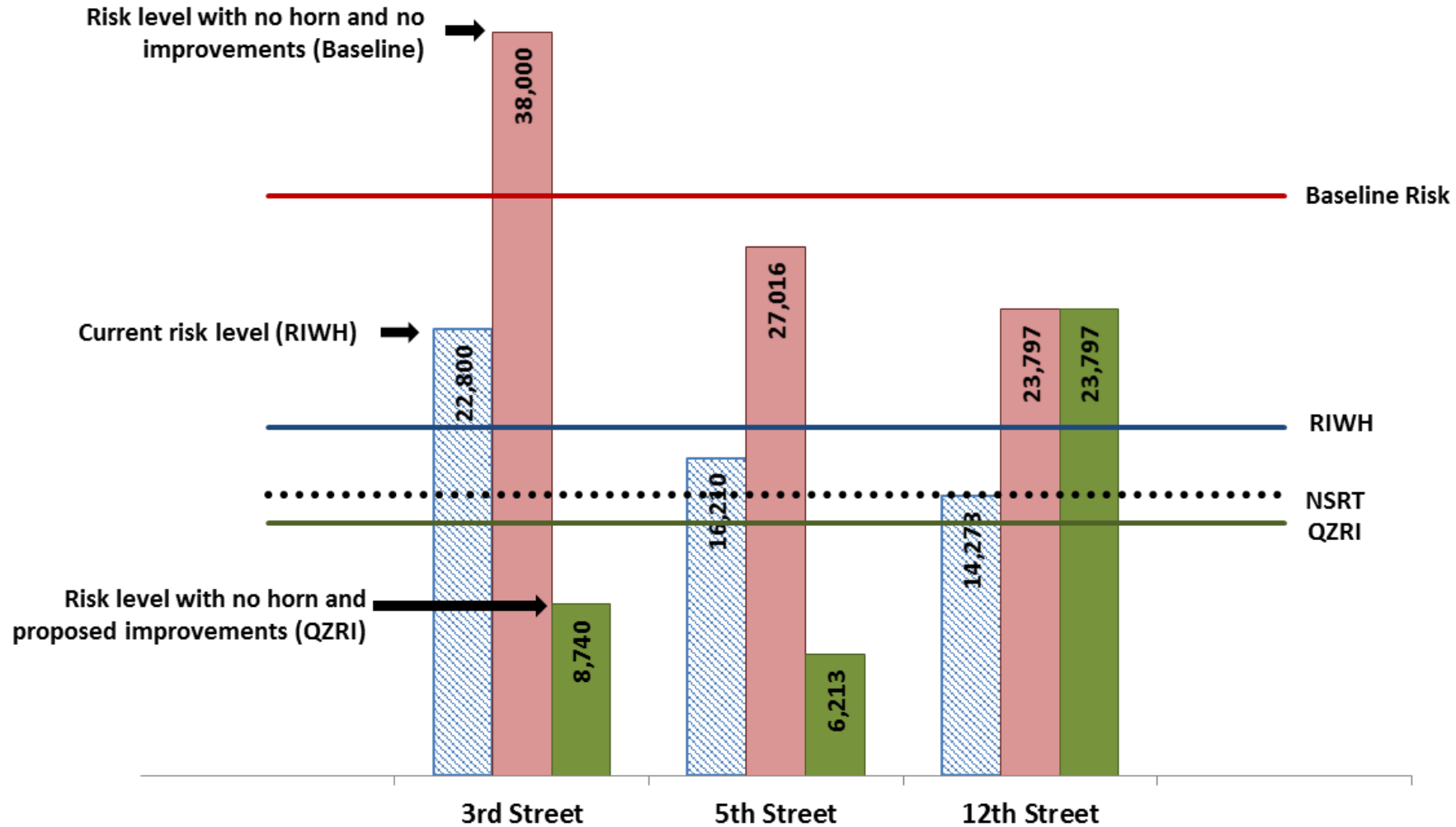


Quiet Zone Risk Example



QZRI – Quiet Zone Risk Index

Quiet Zone Risk Example



Supplementary Safety Measures (SSMs)

- Four-quadrant vehicle gates
- Medians/channelization devices
- Closure
- One-way street



Alternative Safety Measures (ASMs)

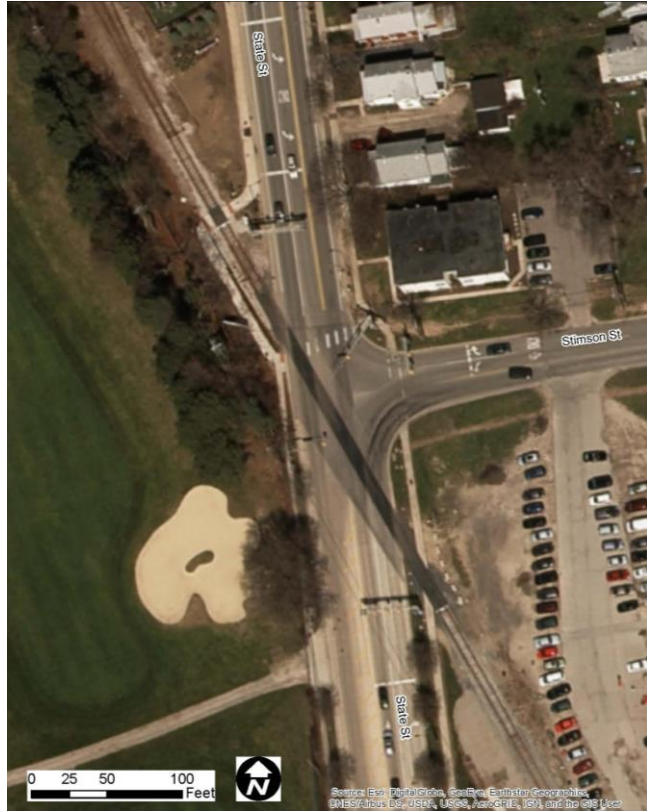
- Reduced-Length Medians/Channelization Devices



Diagnostic Meeting

- Site visit reviewed all 21 RR crossings (October 3, 2018)
- Representatives from:
 - City
 - Michigan DOT
 - Federal Railroad Administration (FRA)
 - Ann Arbor Railroad
 - Private Crossing Stakeholders
- Identified Potential Crossing Improvements

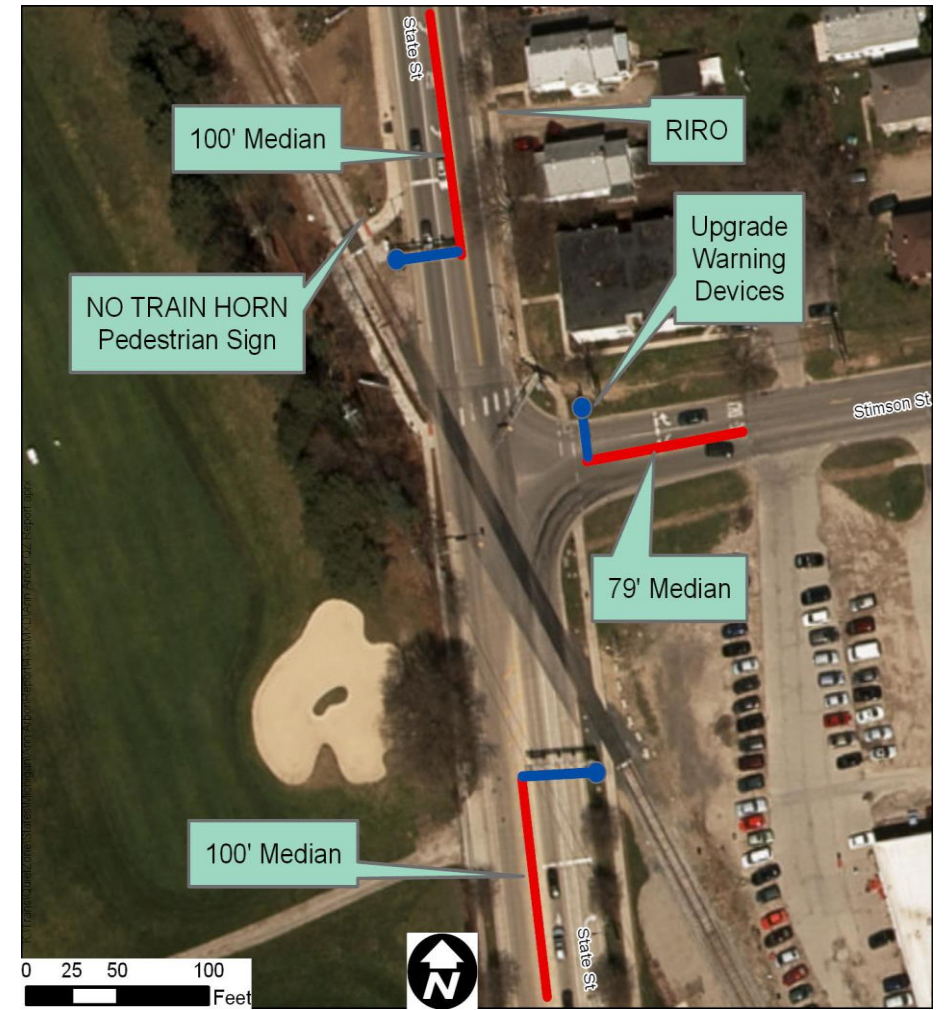
South State Street



Existing Conditions



Gates and Signals



Gates Plus
Supplemental Safety Measures

Crossing Improvement Scenarios

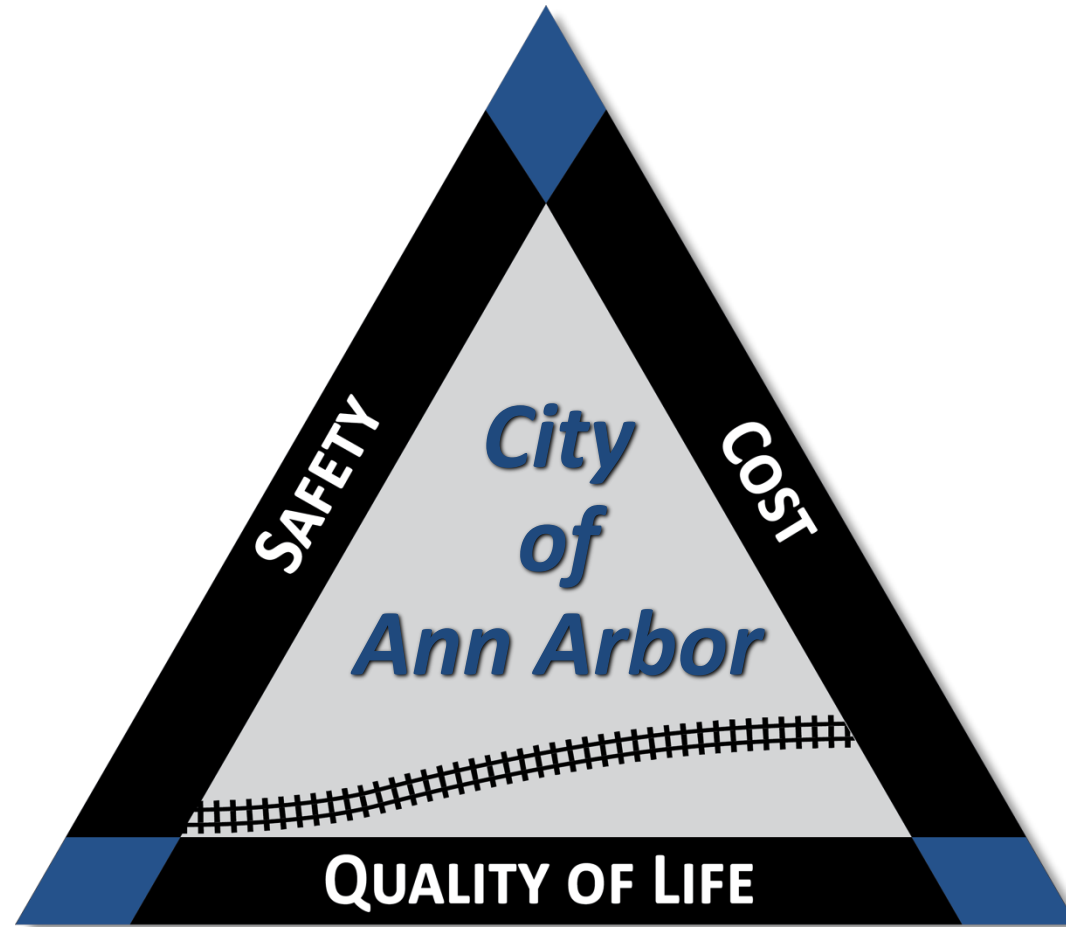
Improvement Scenario	Signal Costs	Roadway Costs	Utility Contingency	TOTAL	Annual Maint. Costs
Scenario 1: Signal Upgrades Only	\$5,200,000	\$2,000	\$1,440,000	\$6,642,000	\$39,000
Scenario 2: Cost Effective	\$5,200,000	\$474,000	\$1,440,000	\$7,114,000	\$39,000
Scenario 3: Cost Effective with One Closure	\$4,950,000	\$474,000	\$1,360,000	\$6,784,000	\$37,000
Scenario 4: Cost Effective with Two Closures	\$4,650,000	\$442,500	\$1,280,000	\$6,372,500	\$35,000
Scenario 5: High Safety	\$5,400,000	\$1,047,700	\$1,440,000	\$7,887,700	\$39,000
Scenario 6: Phased, North	\$1,800,000	\$166,000	\$560,000	\$2,526,000	\$14,400
Scenario 7: Phased, South	\$3,400,000	\$308,000	\$880,000	\$4,588,000	\$24,600

Quiet Zone Implementation Steps

1. Diagnostic Meeting
2. Determine Necessary Crossing Improvements - We are here
3. Notice of Intent
4. Quiet Zone Application (If ASMs are Used)
5. Construction and Installation of Crossing Improvements
6. Notice of Establishment

Typical Quiet Zone Project takes 1-2 Years for full implementation

Quiet Zone Decision Process



Questions?

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