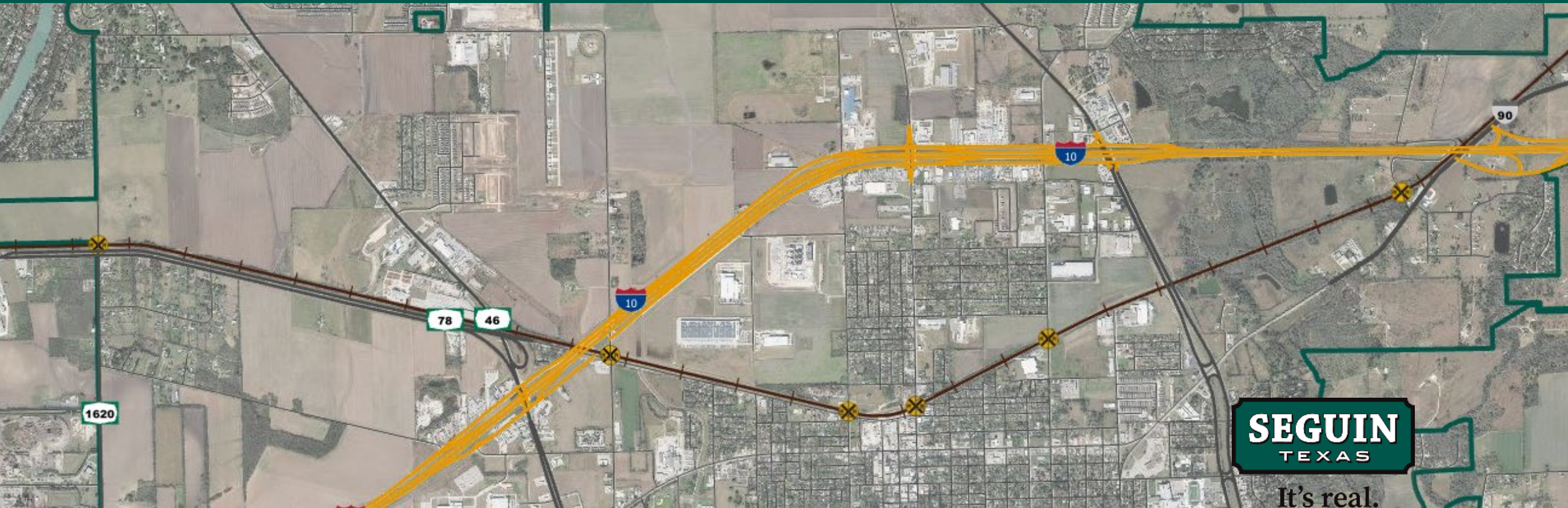


# CITY OF SEGUIN

# SEPTEMBER 20, 2022

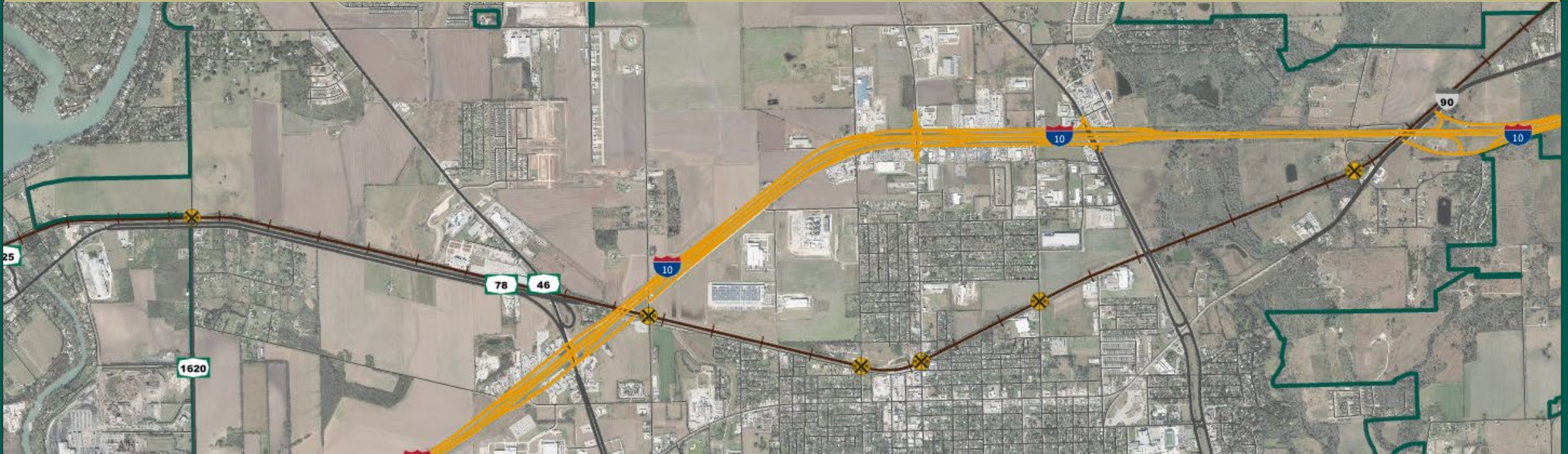
## RAILROAD QUIET ZONES

Presenting: ■ Melissa Reynolds, PE, CFM ■ Mary Hamann, PE





# Railroad Crossings in Seguin



- 6 at-grade rail crossings
- 4 grade separated crossings
- Average of 25 trains per day



It's real.



# What is a Quiet Zone?

- A quiet zone is an FRA exemption to the rule requiring trains to **routinely** sound their horns when approaching public highway-rail grade crossings.
- A quiet zone is a section of rail line at least one-half mile in length that contains one or more consecutive public grade crossings or a single public grade crossing at which locomotive horns are not **routinely** sounded
- What to expect within a quiet zone:
  - Upgraded warning devices and additional safety measures installed at grade crossings.
  - The community requesting the quiet zone is responsible for funding the installation of additional safety measures.
  - **Train horns may still sound.** Quiet zones only prohibit horns to be routinely sounded as a train approaches a grade crossing. *Train crews can and will still sound horns in emergency situations or for other safety reasons.*



It's real.

# How do you get a Quiet Zone?

- Only a public agency may request a quiet zone through the FRA
- *It's all about risk – Risk Index*
- A Quiet Zone Risk Index (QZRI) must meet one of the following:
  - QZRI less than or equal to the Risk Index With Horns (RIWH)
  - QZRI less than the National Significant Risk Threshold (NSRI)
- Each at-grade crossing within a proposed “zone” must be equipped with minimum safety measures
  - Flashing lights
  - Gates
  - Constant warning timing



It's real.



# Appropriate “Zones” for Seguin

- Crossings with minimum safety measures
  - Krueger Road lacks all necessary minimum safety measures
- Minimum zone length of one-half mile
- All Crossings should have gates, lights, bells, and constant warning time (CWT)
- Will these crossings allow for Supplemental Safety Measures (SSMs)?
- Which SSM is appropriate where?



It's real.

# Safety Improvement Options (FRA)

- Supplemental Safety Measures (SSM)

- Four-Quadrant Gate Systems
- Medians or Channelization Devices
- One-Way Streets with Gates
- Permanent Closure



- Alternative Safety Measures (ASM) *\*Require FRA Approval*

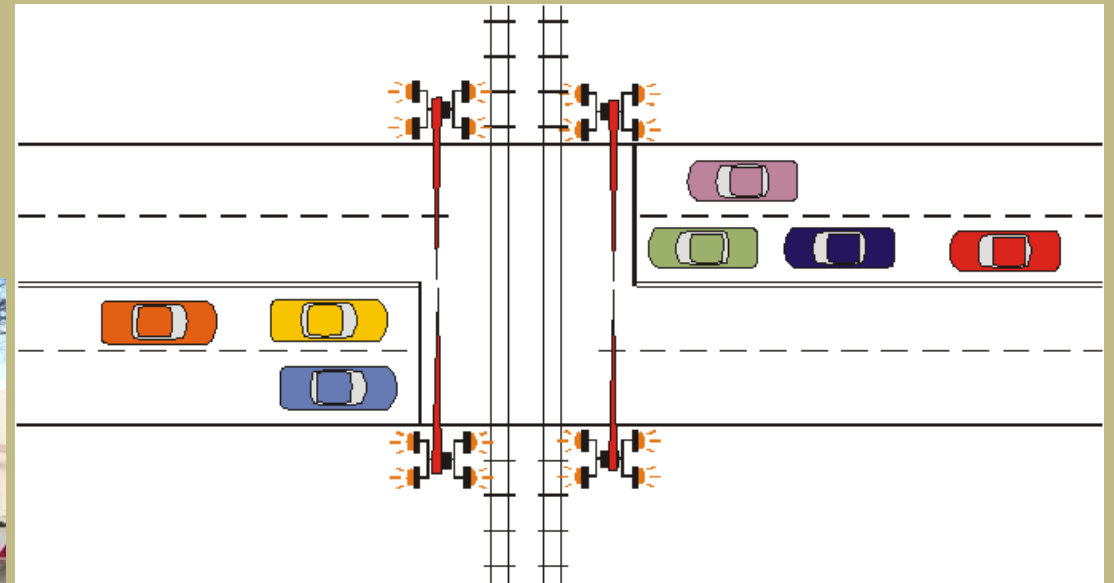
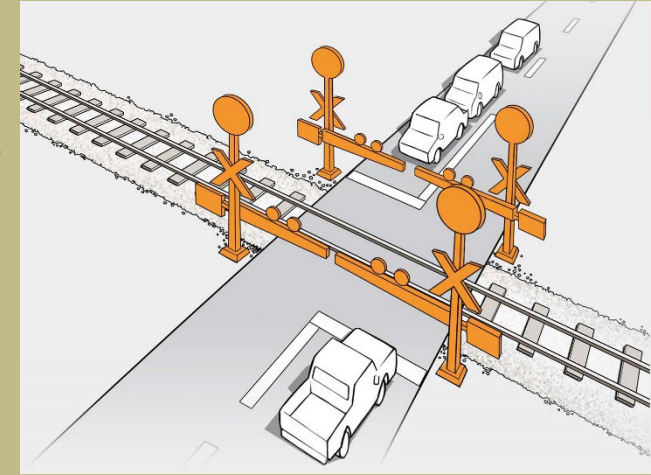
- Modified SSMs (i.e. Non-Complying Medians, Three-Quadrant Gates, etc.)
- Engineered ASMs (i.e. Geometric Improvements)
- Non-Engineered ASMs (i.e. Programmed Enforcement, Photo Enforcement, Education, etc.)



It's real.

# SSM – Four Quadrant Gates

- A four-quadrant gate is a type of grade crossing barrier gate.
- Gate mechanism on each side of the tracks for both directions of vehicular traffic.
- **Cost estimate: \$250,000** \**plus potential construction and maintenance agreement*

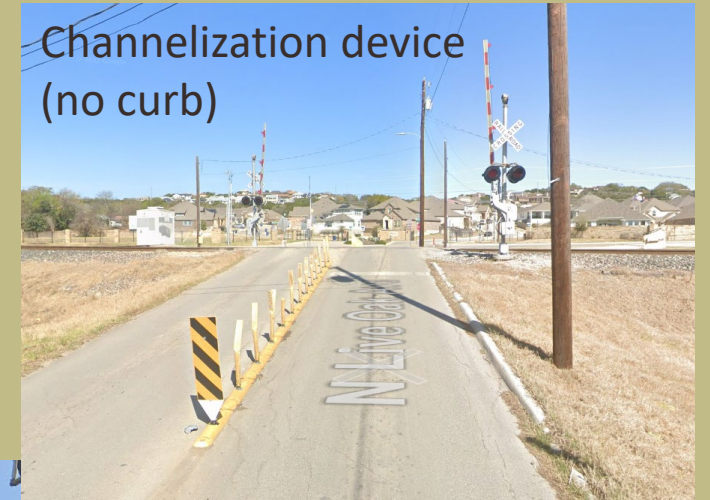


It's real.



# SSM – Medians or Channelization Devices

- Traffic channelization devices or median barriers separate vehicular traffic.
- Prevents vehicular traffic from circumventing the gate arms
- **Cost estimate: \$10,000 – \$30,000**



It's real.



# SSM – Permanent Closure

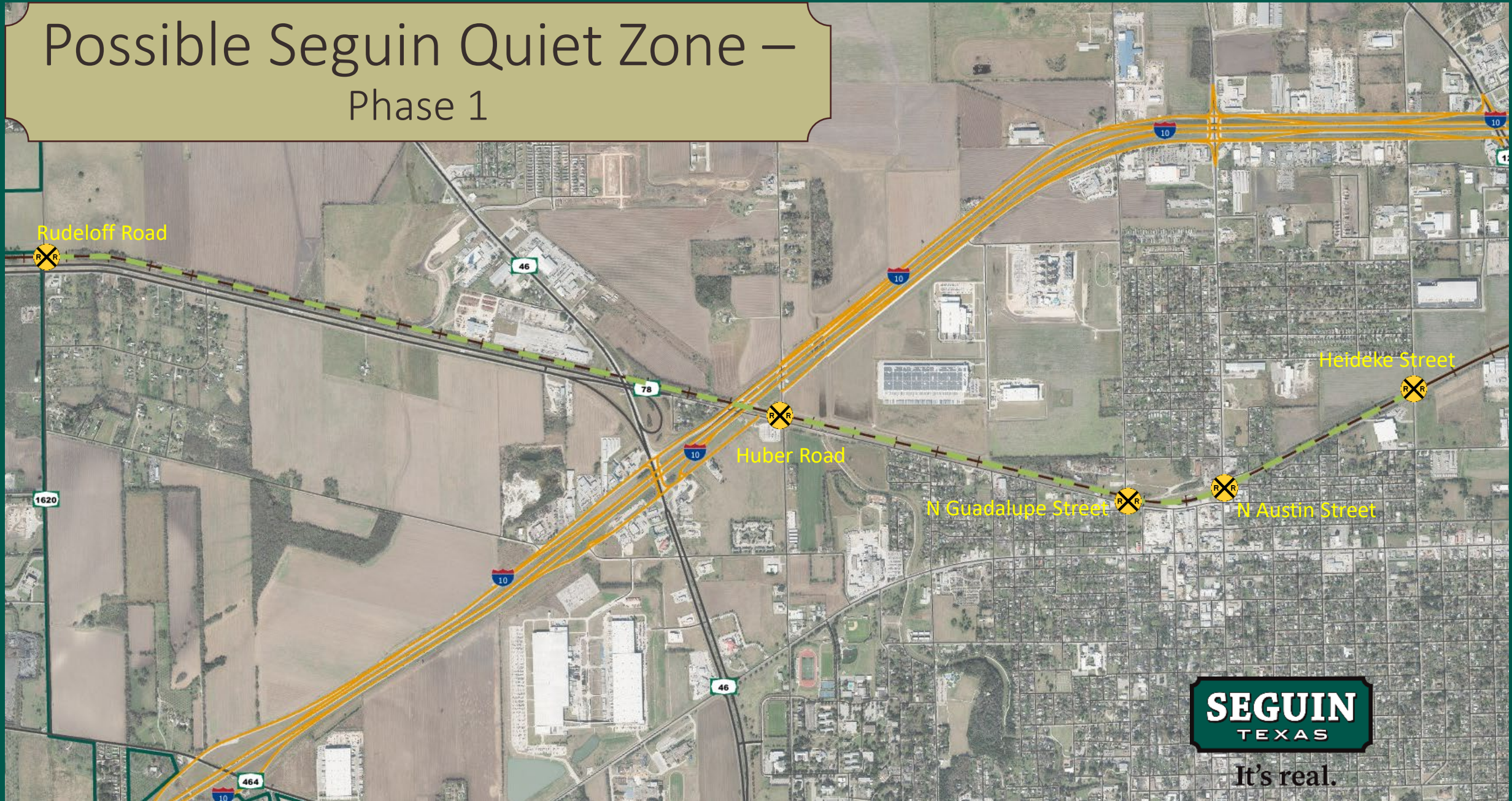
- The most effective option for risk removal is removal of the crossing all together.
- The roadway would be closed on either side of the crossing and traffic re-routed.
- **Cost estimate: \$5,000 – 15,000**



It's real.



# Possible Seguin Quiet Zone – Phase 1





# Process for Quiet Zone Implementation

Staff

- **Feasibility Study – Staff Level**
- **Data Collection** – Traffic counts, crash data, updating FRA train data
- **Quiet Zone Risk Index (QZRI) Calculation:** The collected traffic and train data and proposed safety improvements are entered into the FRA's QZRI calculator to ensure that QZ can be established.

3<sup>rd</sup> Party

- **Identify Funding & Enlist Professional Services**
- **Complete Design:** Design plans are prepared to include the safety improvements and signage and pavement markings modifications.
- **Notice of Intent (NOI):** NOI and design plans are submitted to stakeholders, such as FRA, UPRR, Amtrak, TXDOT, etc. The stakeholders are required to respond within a 60-day timeframe.

\*

- **Complete Safety Improvement Construction:** Contractor to build the geometric and traffic improvements.
- **Final Inspection:** An inspection is done by the diagnostic team to verify the safety improvements.
- **Notice of Establishment (NOE):** NOE application and as-built plans are submitted to stakeholders, such as FRA, UPRR, Amtrak, TXDOT, etc. The stakeholders are required to respond within a 30-day timeframe.



It's real.

# Is a Quiet Zone Possible? - Risk


RISK OF POSSIBLE QZ WITH NO IMPROVEMENTS					
Crossing	Street	Traffic	Warning Device	SSM	QZ Risk
742655N	Rudeloff Road	1,900	Gates	no	43,015.23
742660K	Huber Road	547	Gates	no	87,946.97
742714N	North Guadalupe Street	650	Gates	no	29,024.16
742709S	North Austin Street	7,400	Gates	no	44,725.99
742708K	Heideke Street	760	Gates	no	30,172.88
Quiet Zone Risk Index:					46,977.05
Risk Index with Horns:					28,163.70
Nationwide Significant Risk Threshold:					15,488.00




It's real.



# Is a Quiet Zone Possible? - Risk


RISK OF POSSIBLE QZ WITH CLOSURE AT HUBER ROAD						
Crossing	Street	Traffic	Warning Device	SSM	Proposed QZ Risk	Original Risk
742655N	Rudeloff Road	2,447	Gates	no	45,638.66	43,015.23
<b>742660K</b>	<b>Huber Road</b>	<b>0</b>	<b>Gates</b>	<b>CLOSURE</b>	<b>0</b>	<b>87,946.97</b>
742714N	North Guadalupe Street	650	Gates	no	29,024.16	29,024.16
742709S	North Austin Street	7,400	Gates	no	44,725.99	44,725.99
742708K	Heideke Street	760	Gates	no	30,172.88	30,172.88
Quiet Zone Risk Index:					29,912.34	
Risk Index with Horns:					28,163.70	
Nationwide Significant Risk Threshold:					15,488.00	

# Is a Quiet Zone Possible? - Risk


RISK OF POSSIBLE QZ WITH CLOSURE AT HUBER ROAD & MEDIANS ON HEIDEKE						
Crossing	Street	Traffic	Warning Device	SSM	Proposed QZ Risk	Original Risk
742655N	Rudeloff Road	2,447	Gates	no	45,638.66	43,015.23
742660K	<b>Huber Road</b>	<b>0</b>	<b>Gates</b>	<b>CLOSURE</b>	<b>0</b>	87,946.97
742714N	North Guadalupe Street	650	Gates	no	29,024.16	29,024.16
742709S	North Austin Street	7,400	Gates	no	44,725.99	44,725.99
<b>742708K</b>	<b>Heideke Street</b>	<b>760</b>	<b>Gates</b>	<b>MEDIANS</b>	<b>6,034.58</b>	30,172.88
Quiet Zone Risk Index:					<b>25,084.68</b>	
Risk Index with Horns:					<b>28,163.70</b>	
Nationwide Significant Risk Threshold:					<b>15,488.00</b>	



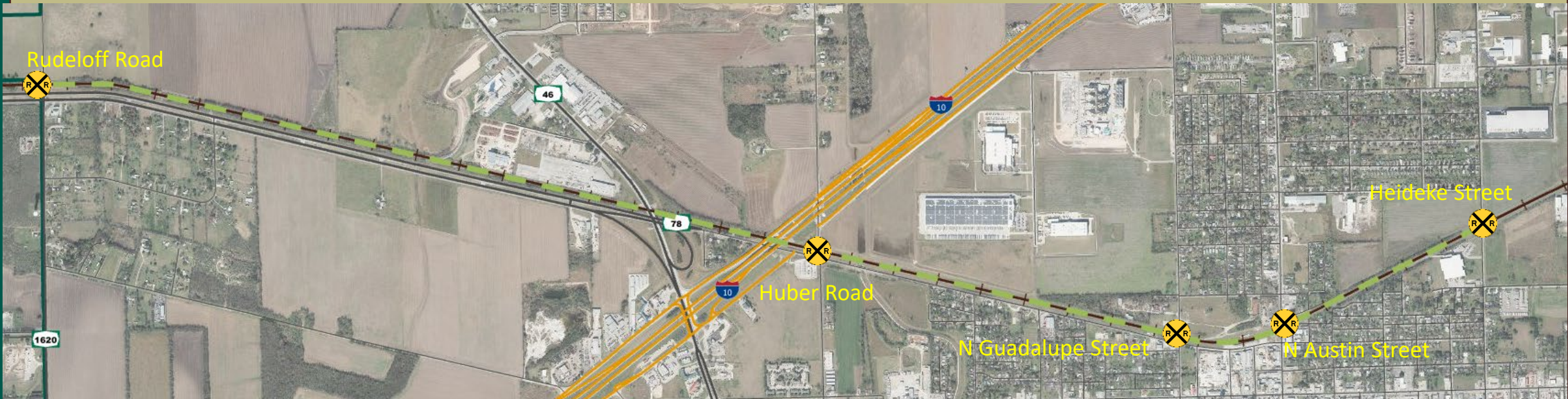
# Is a Quiet Zone Possible? - Risk

RISK OF POSSIBLE QZ WITH MEDIANS ON RUDELOFF & HUBER						
Crossing	Street	Traffic	Warning Device	SSM	Proposed QZ Risk	Original Risk
742655N	Rudeloff Road	1,900	Gates	MEDIANS	8,603.05	43,015.23
742660K	Huber Road	547	Gates	MEDIANS	17,589.39	87,946.97
742714N	North Guadalupe Street	650	Gates	no	29,024.16	29,024.16
742709S	North Austin Street	7,400	Gates	no	44,725.99	44,725.99
742708K	Heideke Street	760	Gates	no	30,172.88	30,172.88
Quiet Zone Risk Index:					26,023.09	 It's real.
Risk Index with Horns:					28,163.70	
Nationwide Significant Risk Threshold:					15,488.00	

# Is a Quiet Zone Possible? - Risk

RISK OF POSSIBLE QZ WITH MEDIANS ON HUBER & HEIDEKE						
Crossing	Street	Traffic	Warning Device	SSM	Proposed QZ Risk	Original Risk
742655N	Rudeloff Road	1,900	Gates	no	43,015.23	43,015.23
<b>742660K</b>	<b>Huber Road</b>	<b>547</b>	<b>Gates</b>	<b>MEDIANS</b>	<b>17,589.39</b>	<b>87,946.97</b>
742714N	North Guadalupe Street	650	Gates	no	29,024.16	29,024.16
742709S	North Austin Street	7,400	Gates	no	44,725.99	44,725.99
<b>742708K</b>	<b>Heideke Street</b>	<b>760</b>	<b>Gates</b>	<b>MEDIANS</b>	<b>6,034.58</b>	<b>30,172.88</b>
Quiet Zone Risk Index:					28,077.87	 It's real.
Risk Index with Horns:					28,163.70	
Nationwide Significant Risk Threshold:					15,488.00	

# Next Steps:



- Data Collection – Traffic counts, crash data, updating FRA train data
- Quiet Zone Risk Index (QZRI) Verification: updated data entered into the FRA QZRI calculator
- Identify Funding & Enlist Professional Services → Design → NOI → Construction → **NOE**



It's real.



Questions?



It's real.