Downtown Bryan Railroad Quiet Zone

Gary W. Schatz, P.E., PTOE, PTP
Railroad Quiet Zone Process

- **Use of Locomotive Horns at Highway-Rail Grade Crossings; Final Rule** (49 CFR Parts 222 and 229)
  - All at-grade crossings have risk of crash (Risk Index)
  - No train horn – Risk Index increases 66.8%
  - Enhance crossing safety to reduce Risk Index

- **Required Documents for Federal Railroad Administration (FRA)**
  - Notice of Intent (NOI)
  - Public Agency Application (PAA)
  - Notice of Establishment (NOE)
Project History

• 2006 – FRA publishes Amended Final Rule
• 2007 to 2014 – Education, preliminary investigation, discussions
• July 2015 – Efforts resume to implement quiet zones
• December 2015 – Railroad Quiet Zone Advisory Committee formed
• May 2016 – Wayside Horn demonstration
• July 2016 – Quiet Zone Diagnostic Inspection conducted
• April 2017 – Notices of Intent Issued
• August 2017 – Council direction received for preferred strategies
• March 2018 – Preliminary Engineering Agreement with UPRR
Railroad Crossing Inventory

At-Grade Main Line Crossings:

- City of Bryan: 28
- TxDOT (FM 158/WJB): 1
- Pedestrian Crossing @ Library: 1

Total: 30

Legend

- Bryan Sub
- Navasota Sub

* Average value per UPRR
Train Horn Impact Area

- Train Horn Sound Contours

Image courtesy of CTC, Inc.
Downtown Quiet Zone

*Proposed Downtown Quiet Zone – 25 Crossings:*

<table>
<thead>
<tr>
<th>Navasota Sub:</th>
<th>Bryan Sub:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pease (Trk 2)</td>
<td>S. Parker</td>
</tr>
<tr>
<td>Groesbeck (Trk 1)</td>
<td>S. Sims</td>
</tr>
<tr>
<td>Groesbeck (Trk 2)</td>
<td>S. Reed</td>
</tr>
<tr>
<td>W. 32(^{nd})</td>
<td>Brazos</td>
</tr>
<tr>
<td>W. 29(^{th})</td>
<td>Graham</td>
</tr>
<tr>
<td>Bryan/W. 28(^{th})</td>
<td>W. 28(^{th})</td>
</tr>
<tr>
<td></td>
<td>S. Main</td>
</tr>
<tr>
<td></td>
<td>E. 32(^{nd})</td>
</tr>
<tr>
<td></td>
<td>E. 29(^{th})</td>
</tr>
<tr>
<td></td>
<td>E. 28(^{th})</td>
</tr>
<tr>
<td></td>
<td>Library Walkway</td>
</tr>
<tr>
<td></td>
<td>E. 26th</td>
</tr>
<tr>
<td></td>
<td>E. WJB/FM 158</td>
</tr>
<tr>
<td></td>
<td>E. 23(^{rd})</td>
</tr>
<tr>
<td></td>
<td>E. 22(^{nd})</td>
</tr>
<tr>
<td></td>
<td>E. Martin L. King</td>
</tr>
<tr>
<td></td>
<td>E. 15(^{th})</td>
</tr>
<tr>
<td></td>
<td>N. Sims</td>
</tr>
</tbody>
</table>
Quiet Zone Benefit Area
# Bryan Sub Quiet Zone Railroad Crossings

<table>
<thead>
<tr>
<th>DOT No.</th>
<th>Location</th>
<th>Proposed Safety Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>743201T</td>
<td>UPRR at S. Main Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743203G</td>
<td>UPRR at E. 32nd Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743200L</td>
<td>UPRR at E. 29th Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743199U</td>
<td>UPRR at E. 28th Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>748594V</td>
<td>UPRR at Library Walkway</td>
<td>Pedestrian Gateway System (Decorative Fencing)</td>
</tr>
<tr>
<td>743198M</td>
<td>UPRR at E. 26th Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743197F</td>
<td>UPRR at Wm. J Bryan Pkwy/FM 158</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743196Y</td>
<td>UPRR at E. 24th Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743195S</td>
<td>UPRR at E. 23rd Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743194K</td>
<td>UPRR at E. 22nd Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743191P</td>
<td>UPRR at E. Martin L. King Blvd.</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743189N</td>
<td>UPRR at E. 15th Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>743187A</td>
<td>UPRR at N. Sims Avenue</td>
<td>Gates with Channelization Devices</td>
</tr>
</tbody>
</table>
32\textsuperscript{nd} at S. Main Street
Downtown Quiet Zone for City of Bryan, Texas
DOT No. 743200L
Bryan Sub at E. 29th St.

1 – 10 ft. from near rail to median

Notes:

- Construct Sidewalk
- Extend Crossing Planking
- Flashing Lights, Gate, and Bell Assembly
- Extend Crossing Planking
- Flasing Lights, Gate, and Bell Assembly
- Construct Sidewalk

12 Ft. Wide Raised Median

E. 29th St.

S. Tabor Ave.

S. Tabor Ave.
Notes:
1 – Fencing, 42" high minimum
2 – Switchback walkway 6 ft wide x 25 ft. long minimum. Actual length determined by ADA ramp dimension requirements
Downtown Quiet Zone for City of Bryan, Texas
DOT No. 743191P
Bryan Sub at E. MLK Blvd

Notes:
1 – 10 ft. from near rail to median
2 – 10 ft. wide raised median
3 – 4 ft. to 10 ft. wide raised median
Flashing Lights, Gate, and Bell Assembly

Downtown Quiet Zone for City of Bryan, Texas
DOT No. 743189N
Bryan Sub at E. 15th St.

Notes:
1 – 10 ft. from near rail to median
2 – 2 ft. wide x 60 ft. long (from gate arm) raised median
3 – 2 ft. wide x 100 ft. long (from gate arm) raised median

Directional Splitter Island 45 ft. Long
Channelizing Bulb Out 6 ft. x 35 ft.
# Navasota Sub Quiet Zone Railroad Crossings

<table>
<thead>
<tr>
<th>DOT No.</th>
<th>Location</th>
<th>Proposed Safety Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>430139U</td>
<td>UPRR (Track 2) at W. Pease Street</td>
<td>Wayside Horns</td>
</tr>
<tr>
<td>743202A</td>
<td>UPRR (Track 1) at Groesbeck Street</td>
<td>Four Quadrant Gate System + Two Traffic Signals + Reconstruct Roadway + Railroad Equipment Upgrades</td>
</tr>
<tr>
<td>430140N</td>
<td>UPRR (Track 2) at Groesbeck Street</td>
<td>Four Quadrant Gate System + Two Traffic Signals + Reconstruct Roadway + Railroad Equipment Upgrades</td>
</tr>
<tr>
<td>430141V</td>
<td>UPRR at W. 32nd Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>430142C</td>
<td>UPRR at W. 29th Street</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>430143J</td>
<td>UPRR at S. Bryan Ave./W. 28th St.</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>430144R</td>
<td>UPRR at S. Parker Avenue</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>430146E</td>
<td>UPRR at S. Sims Avenue</td>
<td>Gates with Channelization Devices + Auxiliary Gate</td>
</tr>
<tr>
<td>430152H</td>
<td>UPRR at S. Reed Avenue</td>
<td>Closure of Crossing</td>
</tr>
<tr>
<td>430153P</td>
<td>UPRR at S. Brazos Avenue</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>430154W</td>
<td>UPRR at Graham Drive</td>
<td>Gates with Channelization Devices</td>
</tr>
<tr>
<td>430156K</td>
<td>UPRR at W. 28th Street</td>
<td>Gates with Channelization Devices + Driveway Relocation</td>
</tr>
</tbody>
</table>
Image courtesy of CTC, Inc.
Wayside Horns for W. Pease Street
Downtown Quiet Zone for City of Bryan, Texas
DOT No. 743202A
Navasota Sub Trk. 1 at Groesbeck St.
DOT No. 430140N
Navasota Sub Trk. 2 at Groesbeck St.

Notes:
1 – UPRR Navasota Sub Track 1
2 – UPRR Navasota Sub Track 2

Flashing Lights, Gate, and Bell Assembly
Notes:
1 – 10 ft. from near rail to median
2 – 2 ft. wide x 100 ft. long raised median
3 – 12 ft. wide x 74 ft. long raised median
4 – Remove NB and SB Stop signs
5 – Raised median; width varies from 2 ft min to 12 ft. max
6 – 10 ft. gap for existing cross walk
Notes:
1 – 10 ft. from near rail to median
2 – 2 ft. wide raised median
3 – 12 ft. wide x 74 ft. long raised median
4 – Remove NB and SB Stop signs
5 – Raised median; width varies from 2 ft. min to 12 ft. max.
Notes:
1 – 10 ft. from near rail to median
2 – 4 ft. wide raised median
3 – Risk reduction calculated to here (12 ft. from gate arm)
4 – Directional Bulb Out Island approx. 14 ft. x 27 ft.
5 – Directional Bulb Out Island approx. 18 ft. x 14 ft.
Notes:
1 – 10 ft. from near rail to median
2 – 2 ft. wide raised median
3 – 1 ft. wide raised median

Flashing Lights, Gate, and Bell Assembly

Remove Existing Driveway

Construct New Driveway

Downtown Quiet Zone for City of Bryan, Texas
DOT No. 430156K
Navasota Sub at W. 28th St.
## Downtown Quiet Zone Risk Indices

<table>
<thead>
<tr>
<th>Risk Index</th>
<th>Bryan Sub</th>
<th>Navasota Sub</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/ Horns</td>
<td>11,095</td>
<td>14,428</td>
</tr>
<tr>
<td>w/out Horns</td>
<td>18,042</td>
<td>30,956</td>
</tr>
<tr>
<td>w/out Horns + Mitigation</td>
<td>7,402</td>
<td>6,733</td>
</tr>
</tbody>
</table>

Nationwide Significant Risk Threshold (a/o 11/26/13) = 14,347
Downtown Quiet Zone Budget

- 12 Crossings – Channelization Only + Ancillary Work $465,988
- 6 Crossings – Channelization + Ancillary Work + Railroad Equipment Upgrades $1,172,001
- E. 15th Street – Full Closure $36,124
- S. Sims – Channelization + Ancillary Work + Auxiliary Gate + Railroad Equipment Upgrades $632,290
- S. Reed – Full Closure $40,900
- Library Walkway – Pedestrian Fencing System $314,120
- Pease – Wayside Horns + Railroad Equipment Upgrades $194,011
- Groesbeck – Quad Gates + Two Traffic Signals + Reconstruct Roadway + Railroad Equipment Upgrades $2,835,218

- Total Estimated Budget $5,690,652
Next Steps

• July 2018 – Preliminary Engineering kickoff meeting with UPRR
• August 2018 – Develop and Issue Public Authority Applications
• Fall 2018 – Begin design of improvements
• Summer 2019 – Begin construction of improvements
• Summer 2020 – Issue Notices of Establishment
Questions?
Downtown Bryan Railroad Quiet Zone

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