STAFF REPORT

To: Honorable Mayor and Members of Town Council

From: Public Works, Legal and Town Manager's Office

Title: Discussion / Direction: Downtown Railroad Quiet Zone

History of Past Town Council, Boards & Commissions, or Other Discussions

The following provides a summary of the past Town Council meetings where the quiet zone was discussed either as part of the Town Manager's report or as a separate agenda item.

Date of Meeting	Topic	Council Direction Provided
February 6, 2007	Overview of train horn rule	
June 3, 2008	Review of quiet zone supplemental safety measure (SSM) options including closing crossings, raised medians, one way streets or 4-quadrant gates	Due to budget concerns related to the undetermined North Meadows Extension budget, quiet zone was placed on hold pending future discussion
August 11, 2009	Preliminary design & Design contracts w/ railroad	Proceed with preliminary designs and cost estimates on four-quadrant gate system by entering into contract with railroad and then return to Council for final decision.
March 23, 2010	Public Utility Commission (PUC) Application	Proceed with preparation of the application to the PUC but do not file yet. Provide information on possible funding sources
May 11, 2010	Project status report	Proceed with researching options for forming a Public Improvement District (PID) to help cover project costs
Nov / Dec 2010	Budget discussion	Decision made not to pursue project. Boundaries of the PID boundary were difficult to define.
Nov / Dec 2012	Budget discussion	Begin pre-planning work to restart project in 2014, pending budget approval
March 5, 2013	Summary of past efforts	Update cost estimates and research funding partnership. Return with update later in year.
July 2, 2013	Project status report	Review all quiet zone options previously presented including four-quadrant gate system and wayside horns
November 19, 2013	4-quadrant gates or Wayside Horn options	Defer consideration of the project and remove it from 2014 budget. Retained the project in 3-year plan as a place holder in 2015.

December 3, 2013	Budget discussion	Formally removed the project from the 2014 budget
November 18, 2014	Budget discussion	Removed project from the 2015 budget but directed staff to review options for County participation in the process and verify railroad cost estimates were still valid.

Discussion

The intent of the federal rule is to maximize public safety at highway/rail grade crossings through standardization of train horn sounding. If communities desire to eliminate the sounding of train horns then the rule establishes methods that must be followed to compensate for the decrease in safety that results by implementing engineered treatments or programs that effectively compensate.

The total number of trains that run through Castle Rock each day on all tracks averages 30 to 40/day (close to 20 each side of I-25). The rule establishes a pattern of two long blasts, followed by one short blast, and concluded with a final long blast. The rule does not govern the duration of the long and short blasts. This pattern repeats for the full 15-20 seconds, but usually only one cycle is achieved prior to the first crossing. The Union Pacific (U.P.) and BNSF are the two main companies that operate through Town. The duration could be longer or shorter than the new requirements based on the train speed.

The rule is extremely detailed regarding the methods to establish quiet zones. There are a few key definitions that should be understood prior to discussing the methods:

1. Nationwide Significant Risk Threshold (NSRT): This is a single numeric risk index that averages the total accidents at all public grade crossings in the U.S. with train horns being sounded and each crossing being equipped with warning signals and gates.

2. Risk Index with Horns (RIWH): This is a single numeric risk index for the crossings within the specific corridor being considered for a quiet zone. For the three crossings in the downtown area this would be the single calculated risk for this specific corridor associated with trains blowing their horn and current treatments at each crossing. Essentially, it's the current safety risk. The Federal Railroad Administration considers this risk index to be lower (better) than the NSRT index.

3. Quiet Zone Risk Index (QZRI): This is a single numeric risk index for a corridor where trains no longer sound their horns at the crossing(s), but Supplemental Safety Measures (SSMs) or Alternative Safety Measures (ASMs) have been established at some or all of the crossings. In short, this is the safety risk associated with the horns silenced.

4. Supplemental Safety Measures (SSMs): These are approved engineering treatments that are designed to increase safety at crossings. They include closing of crossings, raised median dividers, four quadrant gate systems, and one-way streets.

5. Alternative Safety Measures (ASMs): These are either a modified SSM or a legal enforcement or education program that requires FRA approval prior to implementation.

There are four methods that communities can utilize in pursuing a quiet zone. The methods that follow are in order of decreasing safety effectiveness. They are also generally in decreasing order of cost, but increasing order of administrative work and quiet zone revocation risk. As such, the last two are subject to increased annual scrutiny with the highest potential to have quiet zone status revoked.

Regardless of the method chosen every crossing is required to have minimum equipment at each that include both active warning signals and gates. The signals must also have constant warning devices and power out indicators. While each of the crossings in the downtown area has warning signals and gates some additional improvements may still be required by the operating railroads associated with the warning devices.

Staff reached out to several Colorado jurisdictions with established quiet zones. Of the six jurisdictions we talked with, all six have utilized method #1. The majority have installed raised medians with a few installing new crossing gates or four quadrant gates. One jurisdiction, Douglas County, utilized an Automated Wayside Horn at one of their crossings. It is worth noting that even with a quiet zone implemented train engineers can still blow the horn in the case of an emergency. The agencies we spoke with stated that this was rare though. The following table provides a summary of the information received from each Colorado jurisdiction we spoke with.

Jurisdiction	Method(s) Used	Number of Crossings	Construction Cost	RR Maintenance Agreement	Timeframe to Complete
Arvada	Medians / Four-Quad Gates	8	$164,000 / $1.8M	Yes	5 Years
Douglas County	Medians / Wayside Horn	7	$160,000	Yes	About 2.5 years
Fort Morgan	Medians	6	$500,000	No	About 2 years
Monument	Medians	1	$11,000	No	About 2 years
Windsor	Medians / Gates	13	$3.3M	Yes	2 to 3 years
Winter Park	Medians / Gates	2	$500,000	Yes	2 and 5 years

Each of the quiet zone methods available to the Town is described below along with some pros and cons provided for each:

METHOD #1 Install Supplemental Safety Measures at each crossing: This method is considered to be the most effective form of compensation for safety as a result of removing the train horn. Under this method, one of the approved SSMs (closure, median dividers, one-way streets, or four quad gate systems) is required to be installed at each of the crossings. This could be a combination of any of the SSMs. This method does not utilize any of the risk calculation factors as the installation of SSMs at each crossing is viewed as the safest approach. For example one option could include minor improvements to the median dividers at both approaches on Fifth Street, the closure of the crossing at Second Street and the installation of four quadrant gates at Third Street. (this example is illustrative only and not meant to be a recommendation).

Some pros for pursuing this method include:

1. Maximizes safety
2. Local control of process (no FRA application or approval)
3. No annual reporting requirements to the FRA (must report on status to FRA every 5 years)
4. Lowest threat of quiet zone status revocation

Some cons for pursuing this method include:

1. Most expensive upfront capital improvement costs. Dependent on the SSM option chosen, the cost to install SSMs could run between the tens of thousands of dollars up to approximately $900,000. The closure of a crossing would be the least expensive option as it requires the least amount of construction at a given location. Next would be the construction of raised medians, followed by one-way streets and the most expensive, four quadrant gates. All of the available SSM options allowed by the FRA have been considered in past discussions with Council in one form or another. Most of the options are associated with the 2nd Street and 3rd Street crossings since the 5th Street crossing already has raised medians that only require minor modification to meet the requirements of the FRA rule. The following provides a summary of the potential costs per crossing associated with each SSM.

Supplemental Safety Measure	Cost per Crossing
Permanent Closure	$5,000 to $10,000
Raised Medians	$15,000 to $20,000
One-way street w/ Gates	$125,000 to $150,000
Four-Quadrant Gates	$400,000 to $500,000
Wayside Horn (not a SSM)	$100,000

Generally, the options with the four-quadrant gates tend to be the most expensive options due to both construction costs and ongoing maintenance costs for the Town. The options installing the raised medians would be the least expensive from both an operations and maintenance perspective but would have a greater

impact to the functionality of the nearby roadways and driveways. One other consideration during the past discussions associated with the raised medians included impacts to the response time for both Police and Fire given that the raised medians would restrict movements to/from both the Police and Fire driveways on 2nd Street and 3rd Street. Finally, there would likely be annual operation and maintenance (O&M) costs associated with each treatment that impacts the equipment in the railroad's right-of-way. The railroad company would be responsible for O&M costs of systems such as the four-quadrant gates located completely within their right-of-way.

2. Major initiative involving significant staff time. This includes updating each crossing inventory, concept development and public outreach, noticing requirements that include two 60-day public comment periods, and budgeting for capital improvements.

METHOD #2 Install Supplemental Safety Measures at one or more crossing to achieve a Quiet Zone Risk Index less than the Risk Index with the Horn: This method is viewed as being the next in line regarding increased safety. In this method the RIWH is calculated for the entire corridor that considers train horns being blown and each of the three downtown crossings and each crossing equipped with the required lights and gates. Then a QZRI would need to be calculated for concepts that involve the installation of SSMs at one or more crossing. For example, if the Second Street crossing was closed, minor modifications were made to the medians / accesses at 5th Street and nothing else was done to the Third Street crossing other than adding "No Train Horn" warning signs, the calculated QZRI for this option would be 13,285 while the RIWH for the area would be 18,125. Given this a quiet zone could be established under this method.

Some pros associated with this method include:

1. Safer than or as-safe as existing condition
2. Local control of process (no FRA application or approval)
3. No annual FRA reporting
4. Lower threat of quiet zone status termination

Some cons include:

1. Upfront capital costs for SSMs and annual O&M costs. Not as expensive as method #1 however due to SSMs being installed at only a few of the crossings.
2. Same as the #2 con listed under method one with the addition of extra time associated with having to calculate risk indexes.
3. Must report on status to FRA every 3 years.

METHOD #3 Install Supplemental Safety Measures at one or more crossing to achieve a Quiet Zone Risk Index less than the Nationwide Significant Risk Threshold: The difference in this method from that of #2 is that the QZRI is compared to the higher risk index of the NSRT.

Some pros associated with this method include:

1. Local control of process (no FRA application or approval)
2. No annual FRA reporting (must report on status to FRA every 3 years)

Some cons include:

1. Could decrease safety over current conditions
2. Annual FRA review of QZRI and NSRT that could result in threat of termination of quiet zone status
3. Capital expense (however likely to be less than either methods #1 or #2)
4. Same as #2 con listed under method #2 with the increased time needed for annual reporting.

METHOD #4 Install Alternative Safety Measures at one or more crossing to achieve a Quiet Zone Risk Index less than the Nationwide Significant Risk Threshold: This method differs from #3 in that ASMs are utilized instead of SSMs. ASMs are either a modified SSM or an approved education and/or enforcement program geared at improving safety by raising public awareness.

Some pros associated with this method include:

1. Lowest initial cost (however, longer term administrative costs could make this more expensive)

Some cons include:

1. Could decrease safety over current conditions
2. FRA application and approval required
3. Annual FRA review of QZRI and NSRT that could result in threat of termination of quiet zone status
4. Additional reporting requirement in first year
5. ASM annual expense
6. Same major initiative as listed in previous three methods

An application to and approval from the FRA is only needed if the fourth method is pursued. If communities pursue one of the first three methods they must coordinate with both the railroad companies and the state regulatory agency (Public Utilities Commission in the case of Colorado) related to the SSM installation and follow specific notification procedures. Once followed, local communities can declare quiet zones and notify the FRA. The community is then required to follow up with the FRA on a 3 to 5 year period dependent on the method chosen.

The methods listed above are in order of decreasing first time capital improvement costs, but increasing long-term administrative costs. Due to the potential decrease in safety associated with methods #3 and #4, the significant administrative requirements, and the higher threat of status change it is recommended that these two methods not be considered for further investigation.

Other Considerations related to Railroad Traffic

There are also some additional considerations that should be kept in mind when ascertaining potential quiet zone status:

1. Way-side horns: These are devices that are installed at the crossing that essentially automate the horn down each approach to the crossing. The benefit to this type of system is it takes the horn sounding control out of human hands and automates it at the crossing to provide a consistent pattern and duration. These systems typically minimize the total surrounding area affected by the noise because the horn is stationary. The drawback is that it does not eliminate the horn noise completely. Cost per crossing starts close to $100,000 and go higher dependent on specific conditions.

2. Freight train relocation to eastern Colorado: There has been discussion and investigation by various organizations to possibly build new rail lines outside of urban areas along eastern Colorado to relocate freight rail traffic. It's not known if/when this might occur, but would effectively remove the number of trains that come through Town.

3. Relocation of the downtown tracks to the west side of I-25: This concept was assessed in 2000. The purpose was to build new tracks along the west side of I-25 adjacent to the existing tracks in order to eliminate the grade crossings downtown. The cost to the Town was estimated at close to $25M and Town Council opted not to pursue this due to cost and split public opinion (the citizens on the east side of I-25 were essentially in favor while the citizens on the west side were not). This concept could be reconsidered.

4. Future commuter rail: Statewide discussion is occurring as to the possibility of establishing a commuter train line that would run between Pueblo and Fort Collins. While the freight train relocation initiative could remove the freight traffic, should a commuter line utilize the existing tracks the train horn rule would apply to this utilization.

Liability associated with Quiet Zones

Under the Colorado Governmental Immunity Act (CGIA) the Town generally has immunity from tort claims. A tort claim arises from personal injury or property damage as a result of the negligent action or inaction of a person or entity (including a municipal corporation). A claim brought against the Town arising from an accident at a railroad crossing would almost certainly be a tort claim. Although there are certain exceptions to the Town's immunity under the CGIA, a lawsuit based on the fact that a quiet zone was established, in and of itself, will be barred by the CGIA. Moreover, as discussed above, maintenance of public safety at the crossings through alternative or supplemental measures is a condition to quiet zone approval.

However, we have observed instances in Colorado quiet zones where the railroad has shifted some portion of its potential liability for claims arising within the quiet zone to the local government through a contractual indemnity. Whether that will be an issue with

this quiet zone is unknown, but depending on the need for and terms of a contract with the railroad, this could impact the Town's general immunity from liability.

Impact to Downtown Economic Development

In the past, the Castle Rock Downtown Development Authority (DDA) has provided input associated with the impact of train noise on the economic development of the downtown area. A letter dated November 7, 2013 from the DDA has been attached to the staff report that explains their stance on the quiet zone at the time.

Attachments

Attachment A: Castle Rock DDA Letter