



Learn about an option for a quiet zone

Train horns promote safety at railroad crossings, because they alert those in the area a train is coming. Without that sound, something else must be done to reach a defined safety level, as measured by the Federal Railroad Administration's safety index.

To create a train horn quiet zone, any one or a combination of the available quiet zone methods at one or more of the crossings could be implemented in a zone.

The crossings at Second, Third and Fifth streets create one zone.

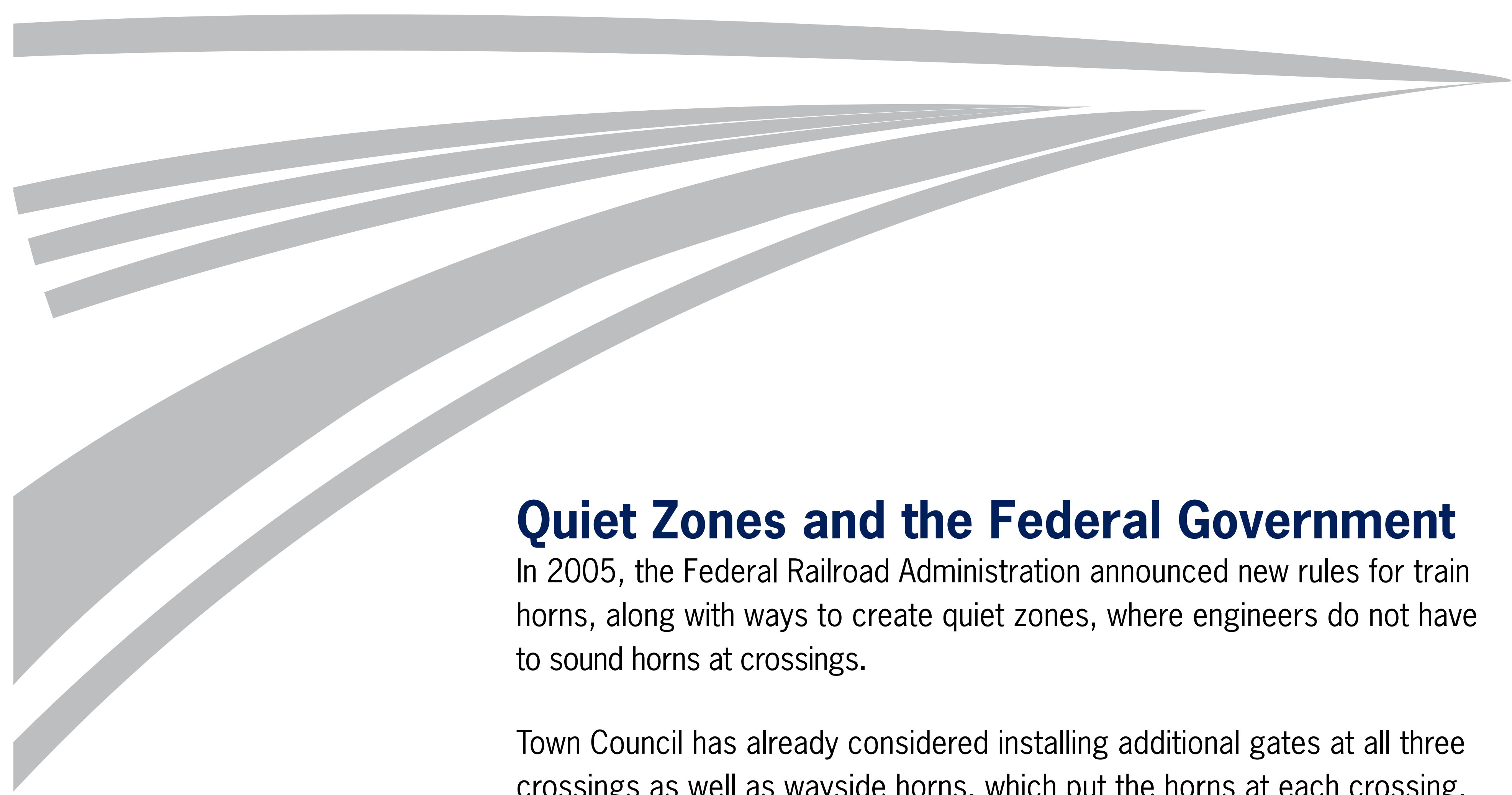
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Quiet Zones and the Federal Government

In 2005, the Federal Railroad Administration announced new rules for train horns, along with ways to create quiet zones, where engineers do not have to sound horns at crossings.

Town Council has already considered installing additional gates at all three crossings as well as wayside horns, which put the horns at each crossing, rather than on the train.

In addition, Town Council has been provided an overview of a variety of combinations that could be considered.

A few of these included: turning Second and Third streets into one-way streets, installing wayside horn systems that place a horn at the crossing to use in place of the horn on the train, and installing medians along Second and Third streets. Traffic impacts, emergency operational impacts and higher costs were the general reasons these were not pursued further.

Now, the Town is evaluating a quiet zone option that would close Second Street at the crossing and include improvements to Fifth Street.

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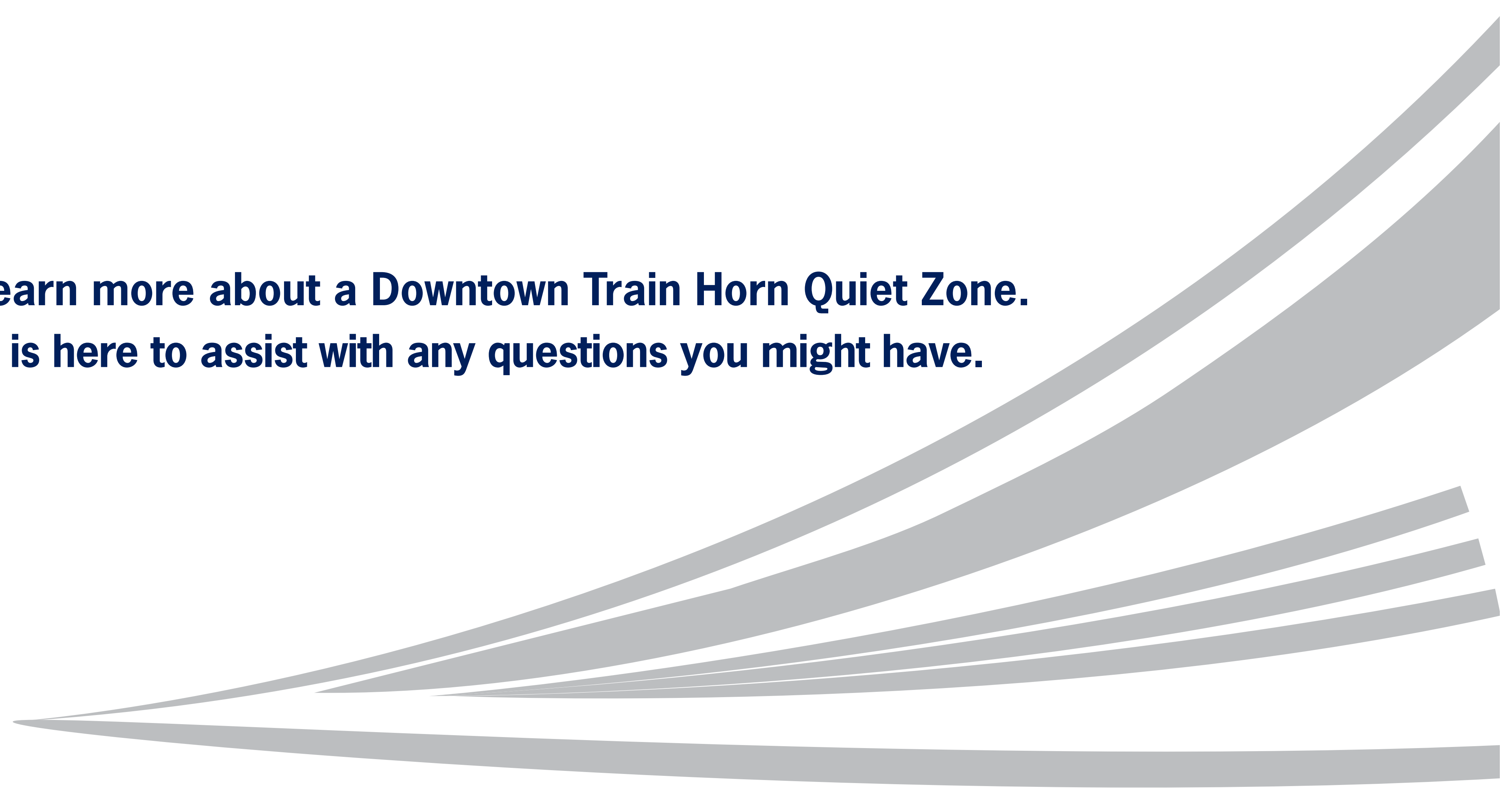
Come in, walk around, learn more about a Downtown Train Horn Quiet Zone. Ask questions. Town staff is here to assist with any questions you might have.

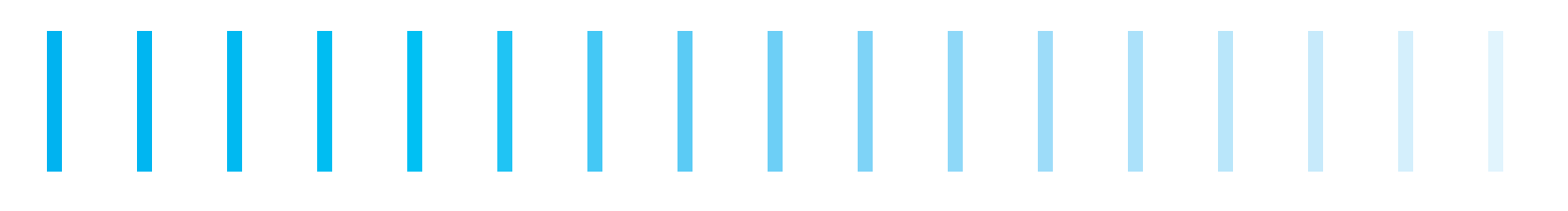


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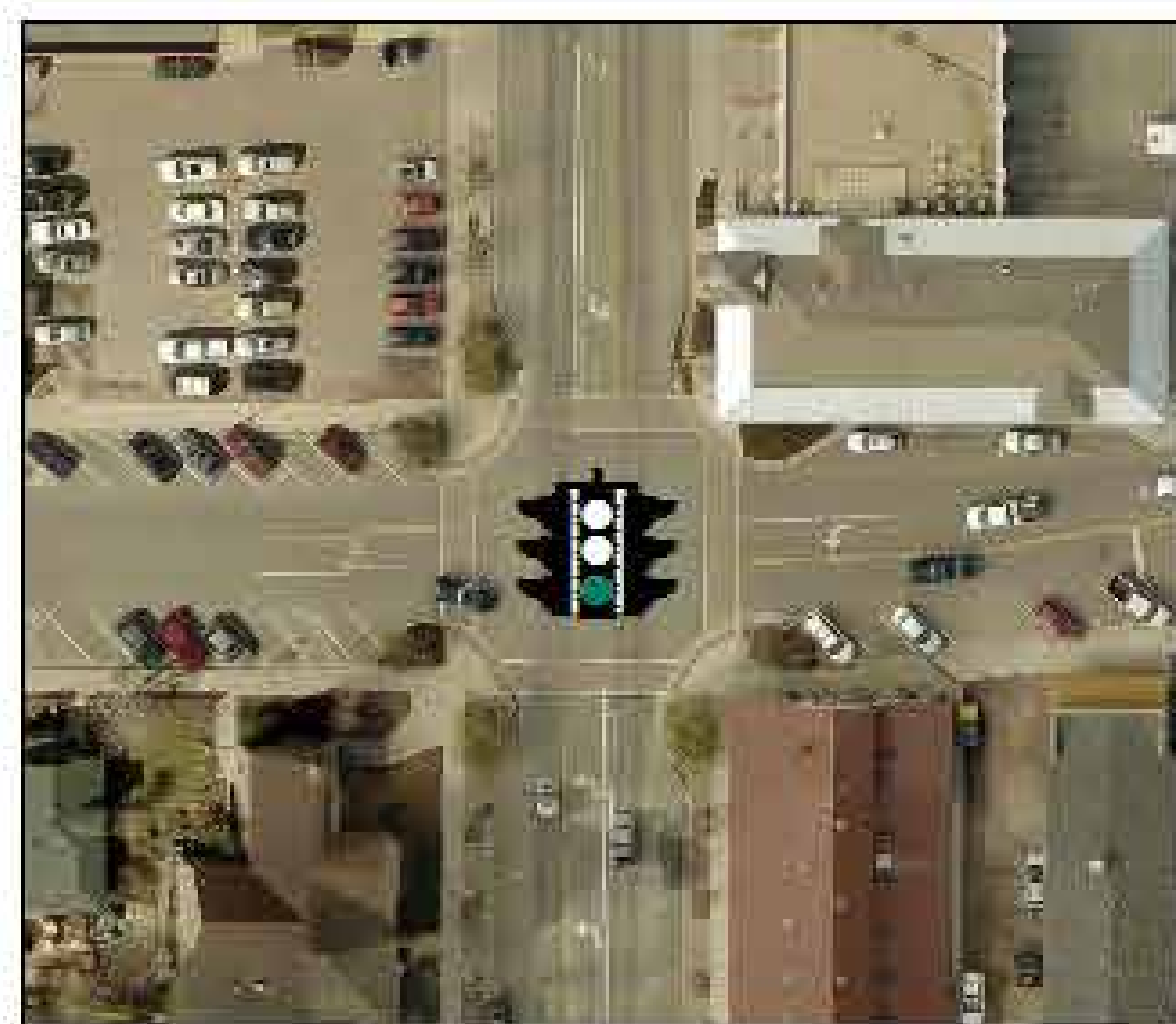


Improvements Concept



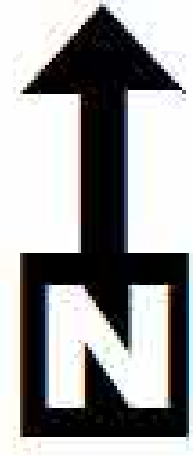
Fifth Street Crossing

- Extend median, if required
- Close alley access, if required by Federal Railroad Administration



Perry Street at Third Street

- Signal or roundabout already needed with planned Festival Park expansion in 2017



Second and Third Street Crossings

- Add curb and gutter
- Add wrought iron fencing
- Remove hardscaping and return to native grass

Lowest cost train horn quiet zone option, which can be implemented with current 2016 Budget appropriation



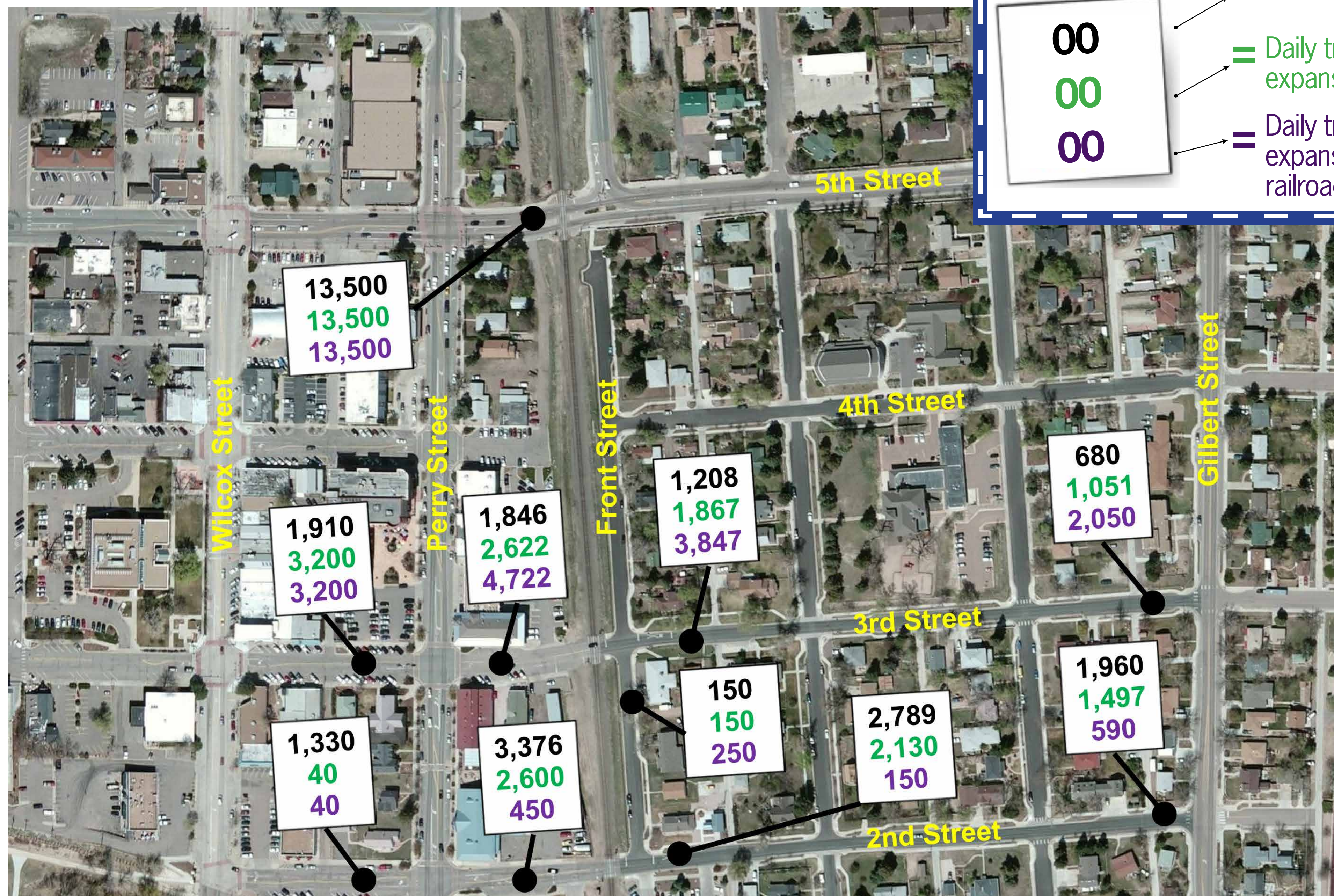
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DOWNTOWN TRAIN HORN QUIET ZONE

Daily Traffic (vehicles per day)



LEGEND

- Existing daily traffic
- Daily traffic with Festival Park expansion
- Daily traffic with Festival Park expansion and Second Street railroad closure

About these maps

Traffic counts are done by placing tubes across streets. Tubes were placed at each of the black dots on the maps.

Black: Today's traffic counts.

Green: Traffic is already expected to increase with the closure of Second Street near Festival Park.

Purple: Overall, this analysis indicates traffic on Third Street would be expected to increase about three times with the closure of the Second Street crossing and the closure related to the Festival Park expansion. The analysis assumes all traffic from Second Street would use Third.

What can streets handle?

Streets are built according to national standards with certain capacities, based on size and number of lanes. The maximum capacity of streets like Second and Third streets (two-lane streets) is about 5,000 vehicles per day, or about 10 vehicles per minute. Even with the closure of the Second Street crossing, traffic volumes are expected to stay well below that threshold.

Afternoon Rush Hour (vehicles per minute)



LEGEND

- Existing vehicle per minute (PM peak)
- Vehicle per minute with Festival Park expansion (PM peak)
- Vehicle per minute with Festival Park expansion and Second Street railroad closure (PM peak)

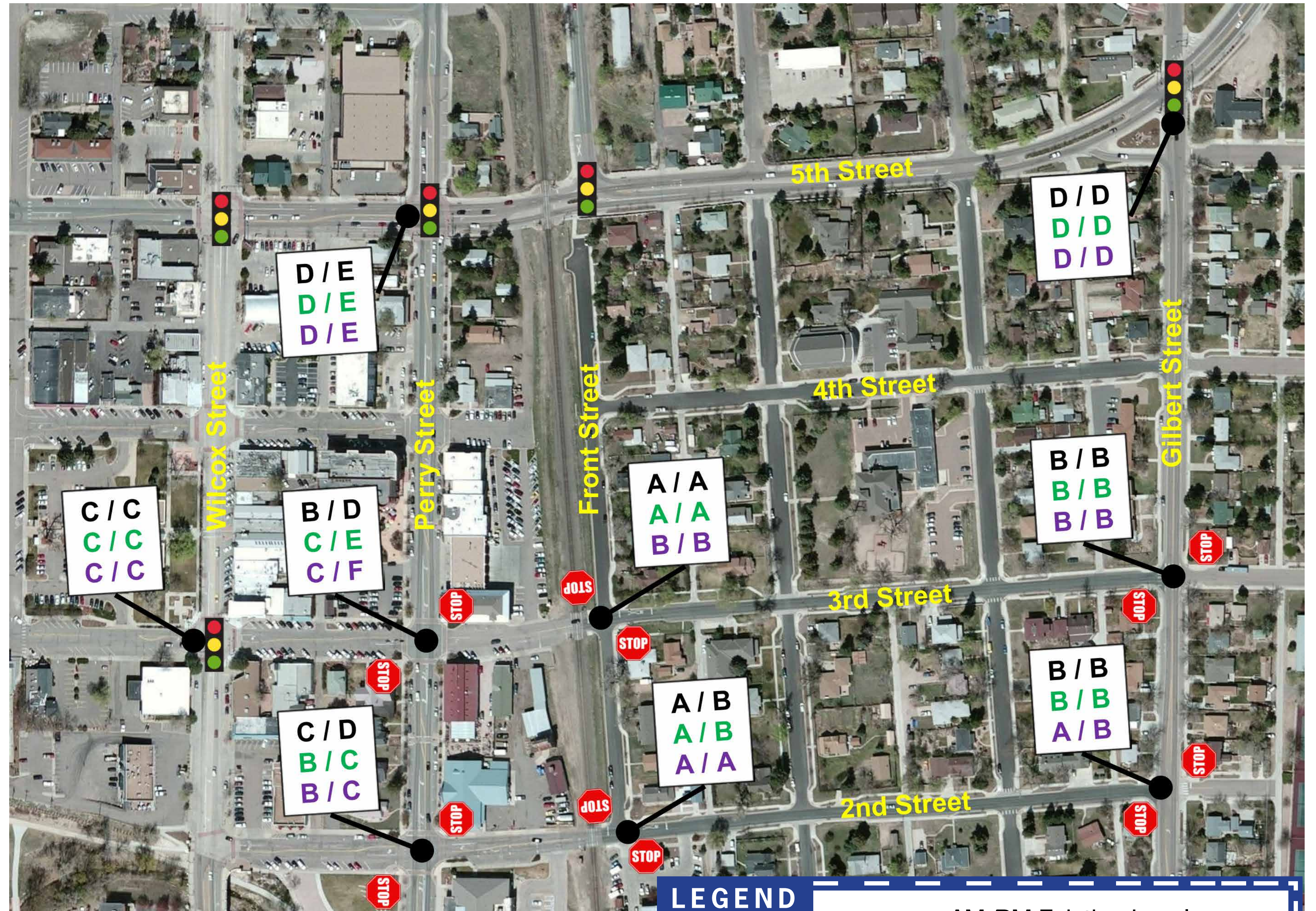
Speed studies done at the same time indicate there would be little change in speeds along Third Street. The Town does not anticipate speeds will increase with the closure of the Second Street railroad crossing.

Potential traffic impacts at intersections Downtown

About this map

Nationwide, there is a standard for grading the operational efficiency at intersections, resulting in an A, B, C, D, E or F grade, based on how well traffic moves through the intersection. The Town values operational efficiency and regularly measures all of its intersections.

This map indicates how both the closure of Second Street for Festival Park (in green) and the potential closure of the Second Street railroad crossing (in purple) impact intersections Downtown. Today's grade is shown in black. The first letter is for the morning peak hours, and the second letter is for the afternoon rush.



LEGEND

- B / B = AM/PM Existing Level of Service
- B / B = AM/PM Level of Service with Festival Park Expansion
- A / B = AM/PM Level of Service with Festival Park expansion and Second Street railroad closure

About the grades

Level of Service	Signalized Intersection vehicle delay	Stop Controlled Intersection vehicle delay	Definition
A	≤10 sec	≤10 sec	Free flow traffic
B	10–20 sec	10–15 sec	Reasonably free flow traffic
C	20–35 sec	15–25 sec	Stable flow at or near free flow
D	35–55 sec	25–35 sec	Approaching congested flow. Town's goal for peak hour operations is D or better
E	55–80 sec	35–50 sec	Congested flow operating at capacity
F	≥80 sec	≥50 sec	Over capacity

Proposed intersection improvements

- Third Street and Wilcox Street
 - Minor traffic signal timing modifications
- Third Street and Perry Street
 - Modified traffic control needed (i.e. roundabout or traffic signal)
- Third Street and Gilbert Street
 - New northbound left turn lane may be needed
- Third Street (Front Street to Gilbert Street)
 - Monitor vehicle speeds
 - Currently, over 85% of drivers travel at or below 29 miles per hour (mph) on Third Street. This is expected to continue into the future.
 - If this metric increases to above 30 mph, the Town's Neighborhood Traffic Calming Program would be utilized to implement educational, enforcement or engineering measures to reduce vehicle speeds on Third Street.

Note: many of these improvements are already needed with the Festival Park expansion and related closure of Second Street near the park.



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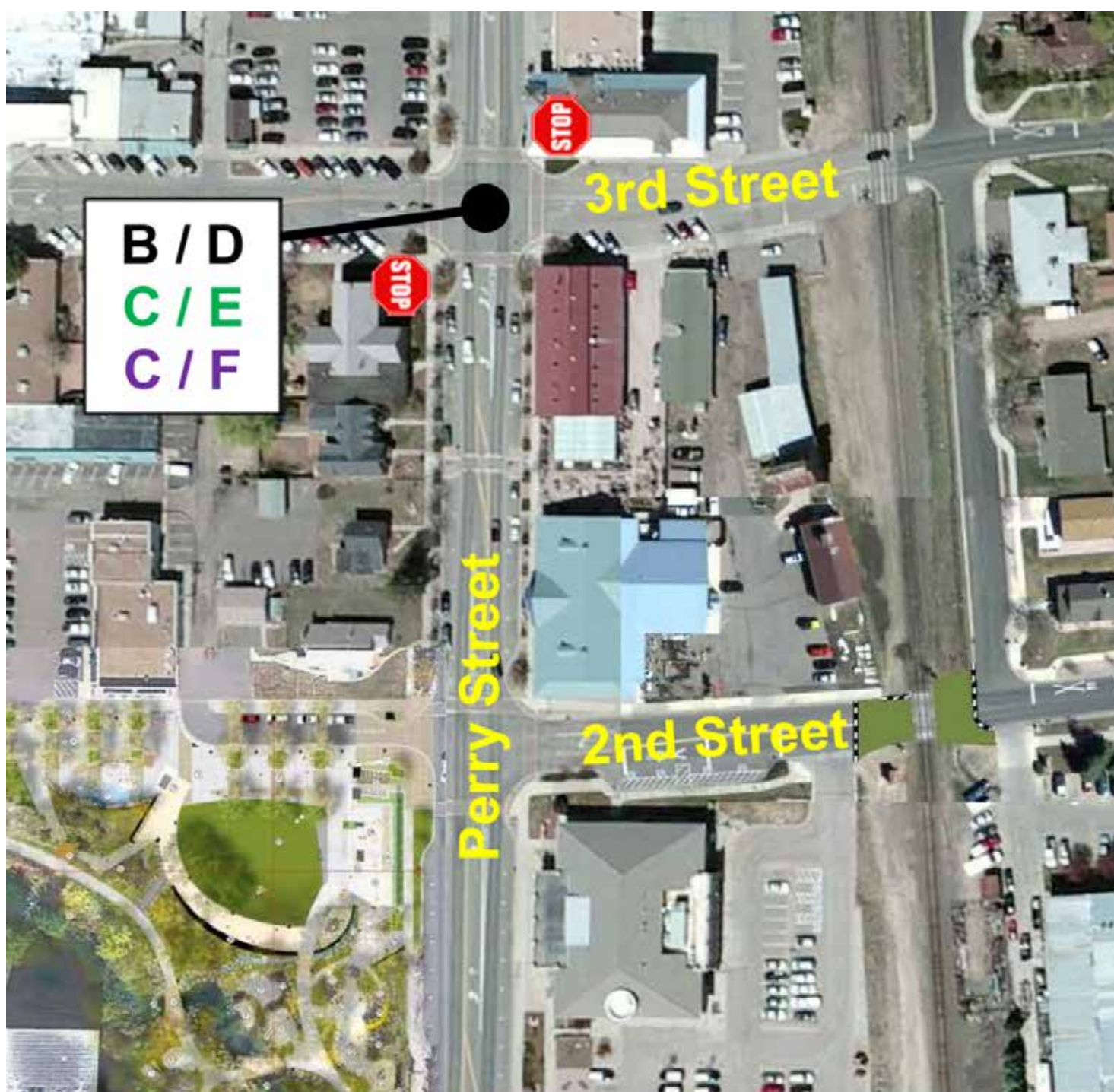
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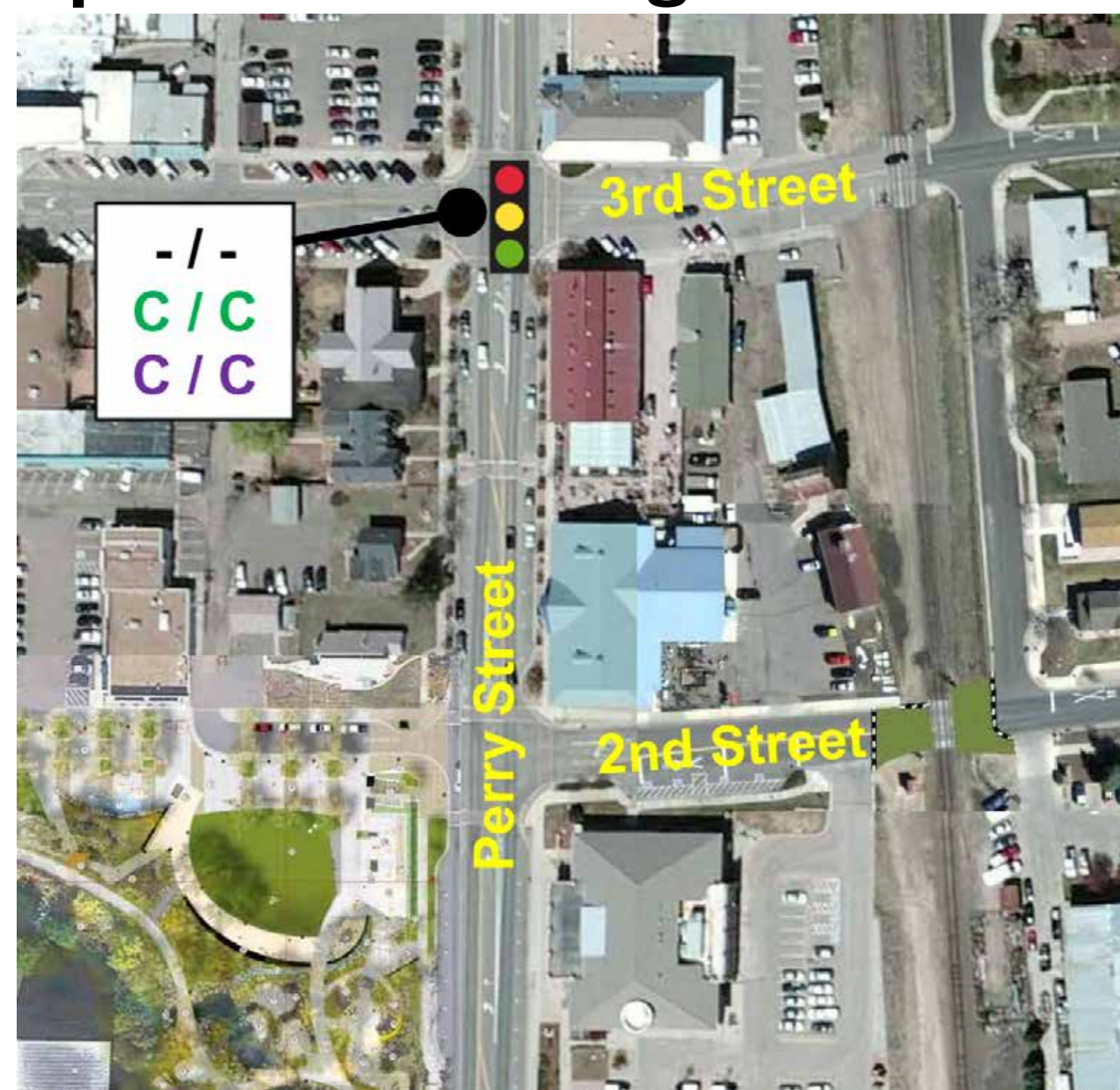
Options for improving the intersection of Third and Perry streets

Traffic flow through the intersection of Third and Perry streets is already expected to be impacted by the expansion of Festival Park and related Second Street closure. That's why the Town has already evaluated three traffic-control options for this intersection. An all-way stop was reviewed as a fourth option, but it leads to long vehicle queues on Perry Street during the afternoon rush hour. As such, it is not a very feasible option for future traffic control at this intersection.

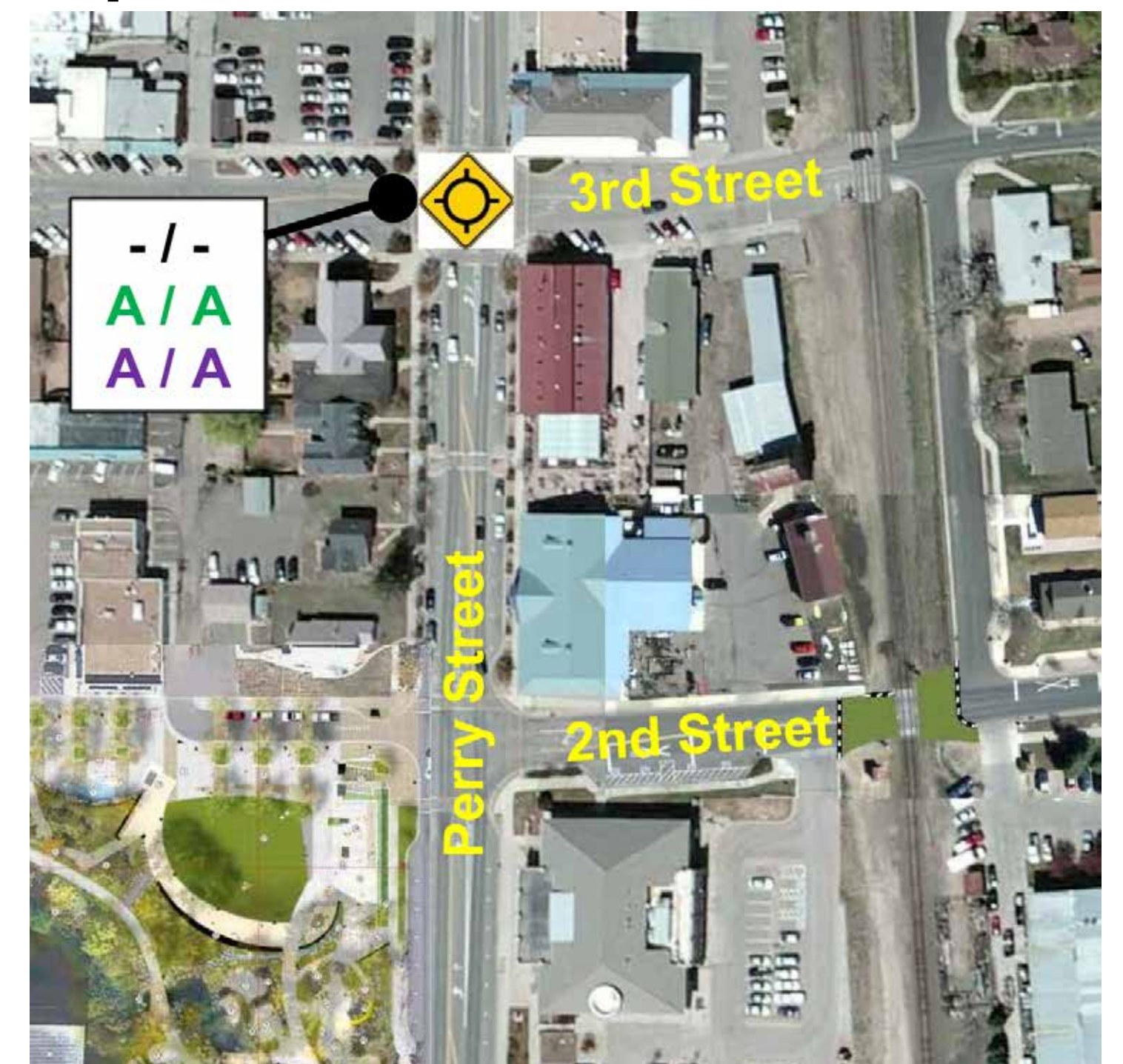
Option 1: Two-way stop (current)



Option 2: Traffic signal



Option 3: Roundabout



Traffic queue evaluation after a train goes through Town

Numbers used to calculate predictions

Average trains per day: 14 to 20

Average trains between 6 a.m. and 6 p.m.: 7 to 10

A train occupies the crossing for 3 to 4 minutes.

LEGEND

- B / B → AM/PM Existing Level of Service (LOS)
- B / B → AM/PM LOS with Festival Park Expansion
- A / B → AM/PM LOS with Festival Park Expansion and Second Street railroad closure

	Frequency during typical 24-hour day	Roundabout has better operation	Traffic Signal has better operation
Normal operations (no train)	89% of the time	X	
Operations with train at crossing	Approximately 6% of the time		X
Recovery time after train crosses	Approximately 5% of the time	X	



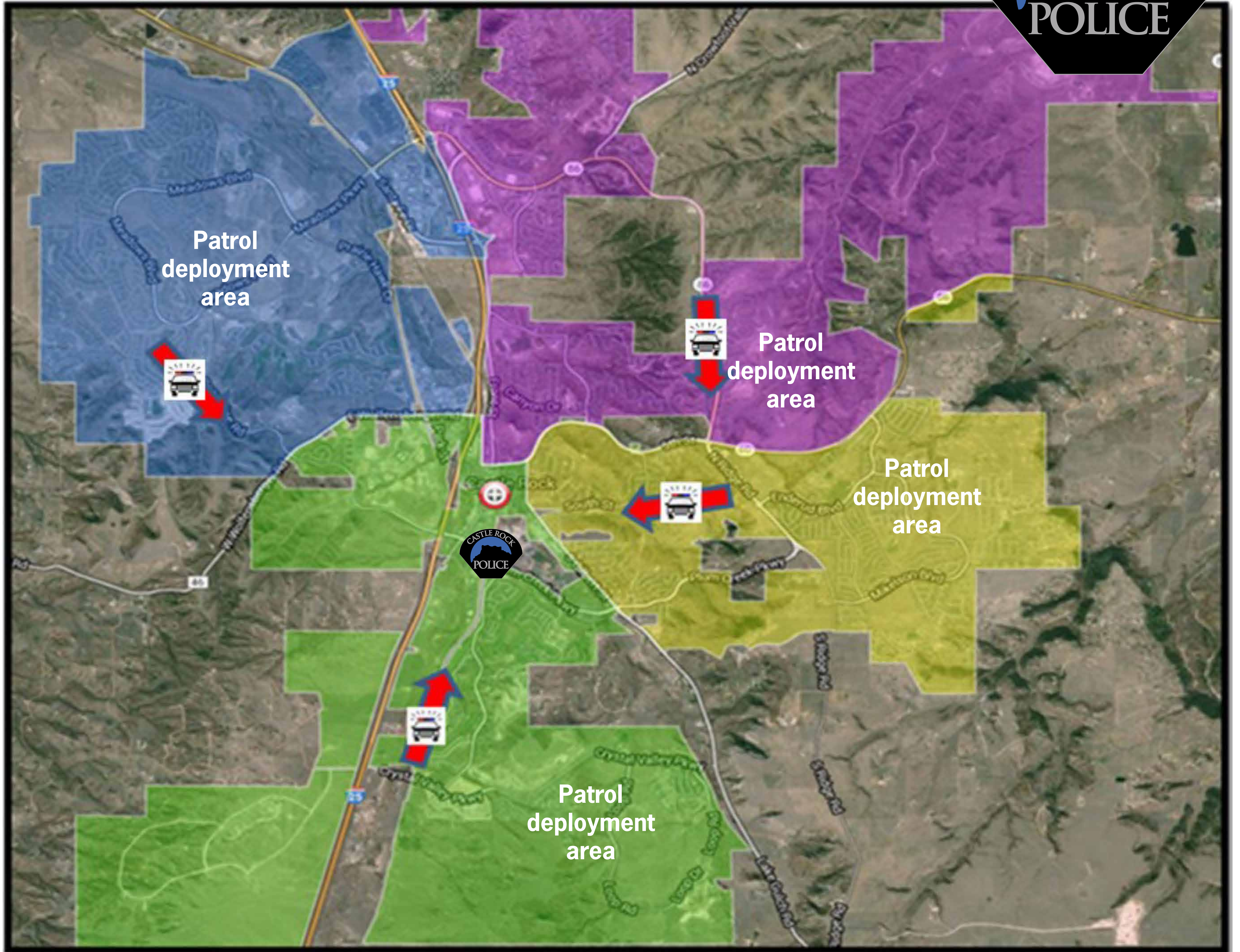
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DOWNTOWN TRAIN HORN QUIET ZONE

Closing Second Street does not affect Castle Rock Police response times. Police respond from their patrol deployment areas.



Castle Rock Police Department



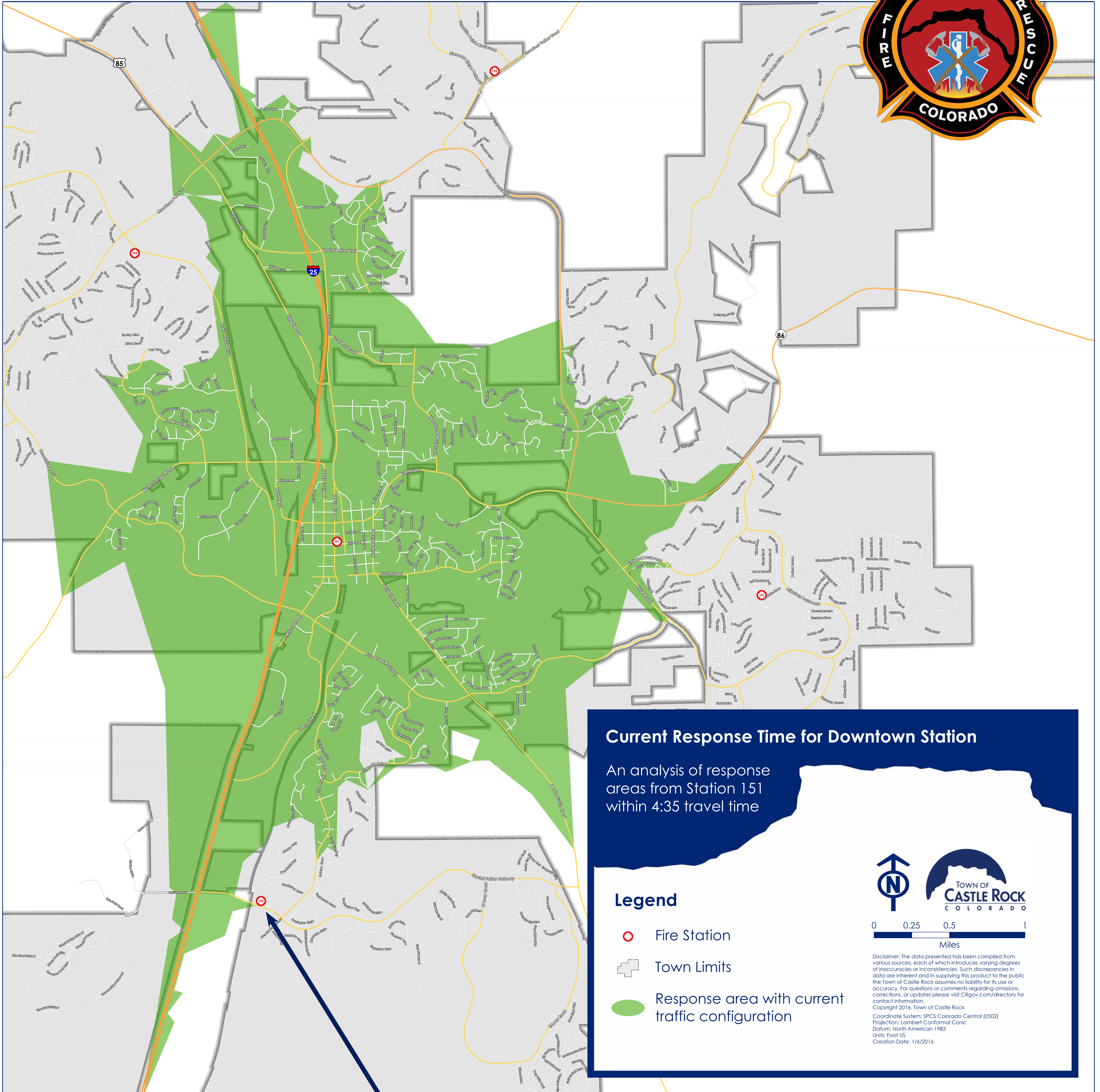
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DOWNTOWN TRAIN HORN QUIET ZONE

Current response area for Castle Rock Fire and Rescue from Downtown Fire Station 151.

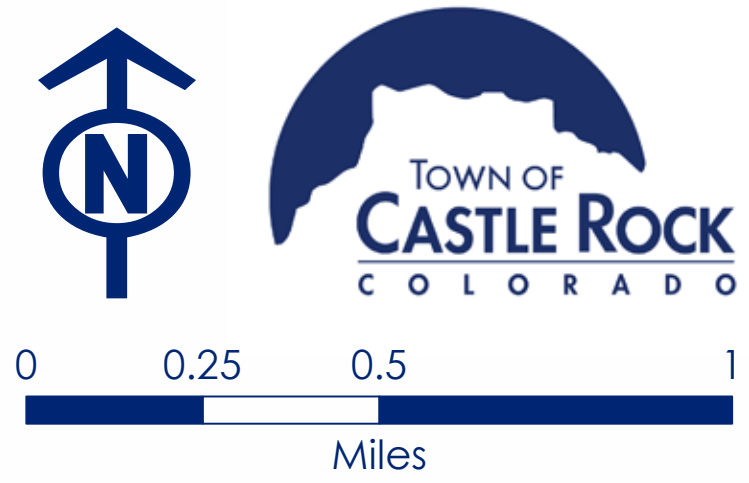


Current Response Time for Downtown Station

An analysis of response areas from Station 151 within 4:35 travel time

Legend

- Fire Station
- Town Limits
- Response area with current traffic configuration



Disclaimer: The data presented has been compiled from various sources, each of which introduces varying degrees of inaccuracies or inconsistencies. Such discrepancies in data are inherent and in supplying this product to the public the Town of Castle Rock assumes no liability for its use or accuracy. For questions or comments regarding omissions, corrections, or updates please visit CRgov.com/directory for contact information.
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Datum: North American 1983
Units: Foot US
Creation Date: 1/6/2016

Future Castle Rock Fire Station, opening 2017.



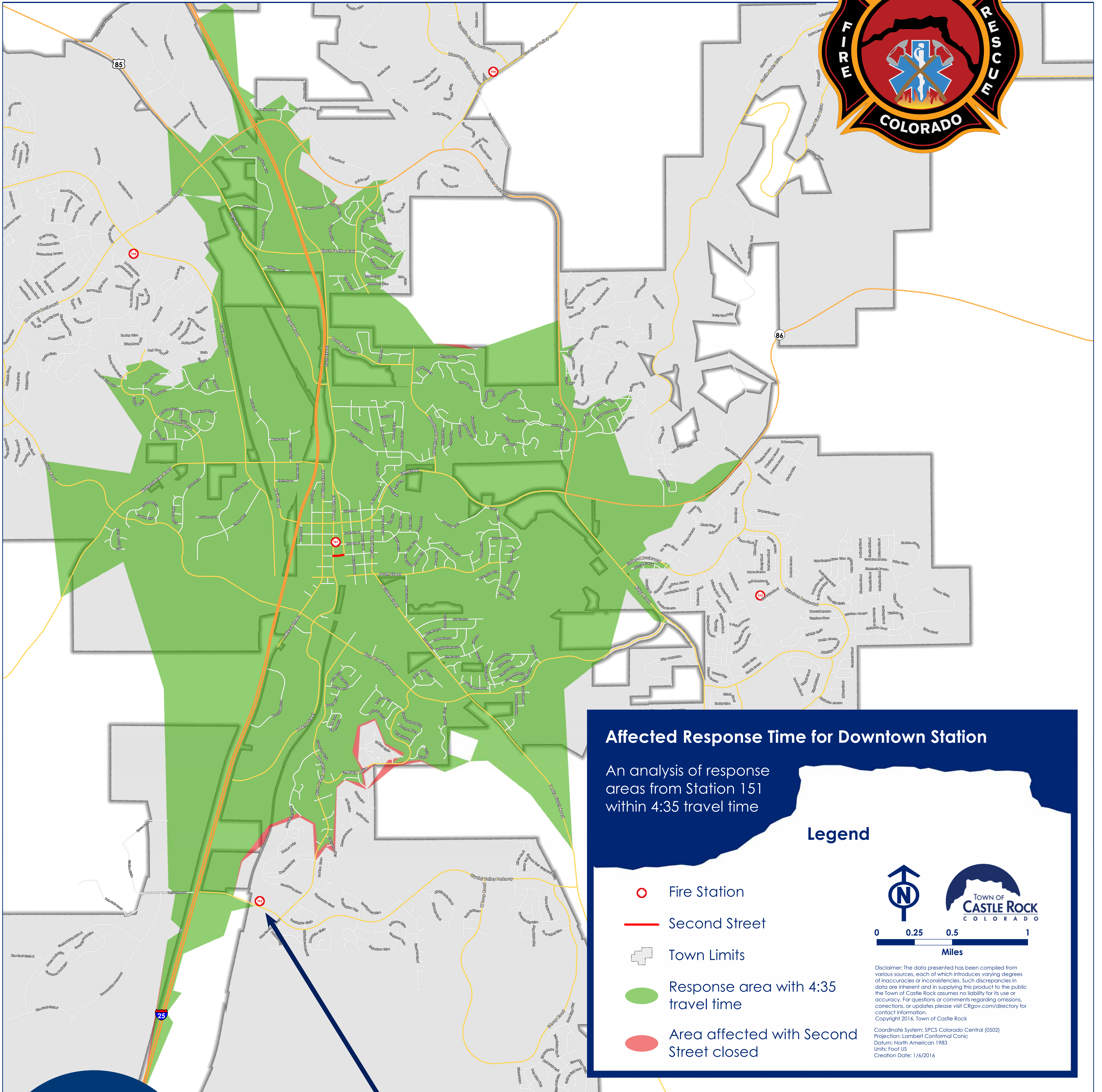
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DOWNTOWN TRAIN HORN QUIET ZONE

Estimated response times for Castle Rock Fire and Rescue with potential closure of the Second Street crossing. The proposed closure of the Second Street crossing will have a minimal impact on response times for Downtown Station 151. Response from other stations will not be impacted.

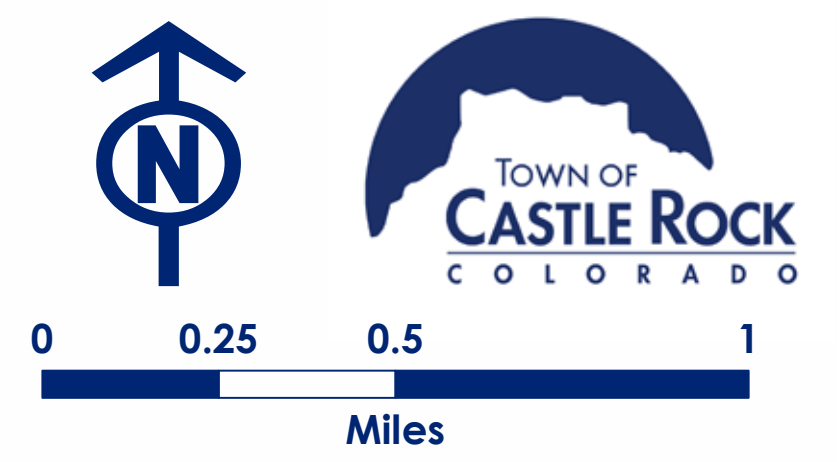


Affected Response Time for Downtown Station

An analysis of response areas from Station 151 within 4:35 travel time

Legend

- Fire Station
- Second Street
- ⊕ Town Limits
- Response area with 4:35 travel time
- Area affected with Second Street closed



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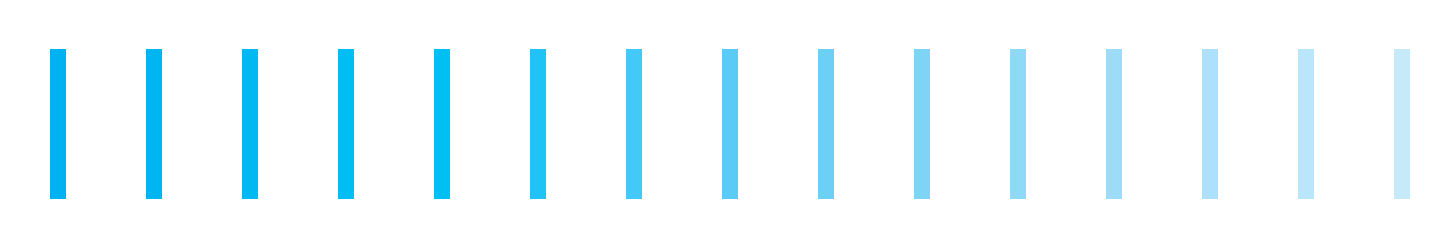


Future Castle Rock Fire Station, opening 2017

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Colorado Comparison

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

- Arvada is still implementing its second train horn quiet zone.
- All other Colorado jurisdictions listed have completed their train horn quiet zones.
- The RR Maintenance Agreement means there is an ongoing cost to the local jurisdiction for maintenance of the quiet zone crossing.



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Festival Park redesign

PREFERRED CONCEPT



- LEGEND**
- ① ROCK WATER WALL & SPLASH PLAY
 - ② ENTRY GATEWAY
 - ③ CHRISTMAS TREE PLAZA
 - ④ SHADED 2ND STREET PLAZA
 - ⑤ BIKE CORRAL
 - ⑥ CANOPY PERCHES
 - ⑦ WOODLAND OVERLOOK
 - ⑧ STREAM SIDE PICNIC AREAS
 - ⑨ BRIDGE
 - ⑩ CHILDREN'S SLIDE
 - ⑪ CHILDREN'S OVERLOOK PLATFORMS
 - ⑫ POTENTIAL FIRE PIT LOCATION
 - ⑬ WATER QUALITY RUNNEL
 - ⑭ COMMUNITY PAVILION
 - ⑮ BUILDING RAIN GARDEN
 - ⑯ FARM TABLE
 - ⑰ THE "BLEACHERS"
 - ⑱ LAWN
 - ⑲ OUTDOOR CLASSROOM
 - ⑳ WATER "GET DOWN" AREA
 - ㉑ FIRE PLACE FEATURE
 - ㉒ PARENT'S BENCH
 - ㉓ MOVABLE CAFE SEATINGS
 - ㉔ WI-FI ZONE & MOVABLE CAFE SEATINGS
 - ㉕ GRAND STAIRS
 - ㉖ CLIMBING WALL
 - ㉗ CLIMBING / PLAY ELEMENTS
 - ㉘ BATTERED RETAINING WALL
 - ㉙ NATURAL WATER DROP STRUCTURE



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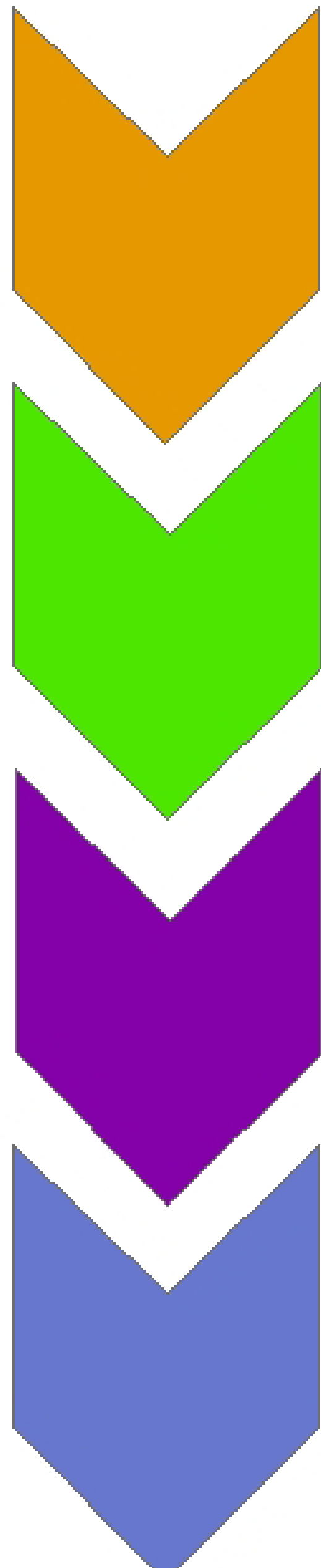
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Next Steps

- 1) Town Council review and feedback
- 2) If Council directs Town staff to proceed, the following general process occurs:



- Coordinate with Federal Railroad Administration, Railroad and Public Utilities Commission
- Update concept and inventories
- Complete any Public Utilities Commission or Federal Railroad Administration application
- Place required signs
- Update National Inventory
- Send affirmation every 2.5 – 3 years
- Send updated inventory
- Total timeframe from start is approximately 2 to 3 years. (Could be shorter, depending on review with stakeholders.)
- Inventory: refers to a list the Federal Railroad Administration keeps of every at-grade railroad crossing in the country and the safety equipment used.



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