



Memorandum

Date: April 13, 2023
Project: US 36/Broadway Multimodal Improvements
To: Tracy Sanders
Town of Lyons
From: Chris Jain, PE, CFM
Re: Railroad Avenue Multi-Use Path Design Considerations

Introduction

This memo summarizes the design considerations and discussions regarding the Railroad Avenue options for continuing the multi-use path from 3rd Avenue east to 2nd Avenue as part of the US 36/Broadway Multimodal Improvements project.

The original direction of the project to complete the trail section between 3rd Avenue and 2nd Avenue, was to keep the multi-use path adjacent to US 36/Broadway like it is proposed between 5th Avenue and 3rd Avenue. However, after the project team reviewed all the survey data, it was determined that limited right of way and conflicts with existing drainage infrastructure would add significant costs and schedule delays to the project if that trail alignment option was pursued. Discussions and evaluations of alternative alignments led to the Railroad Avenue corridor being the best location to cost-effectively accomplish the project's objectives.

Railroad Avenue Design Considerations

The following are considerations that were part of the development of the shared street or on-street multi-use path options along Railroad Avenue:

- Limited right of way
 - Town right of way along the south side of Railroad is near the edge of pavement for a short distance in the middle of the block and even extends into the existing pavement, creating a pinch point.
 - The acquisition of permanent right of way, permanent easements, or temporary construction easements would all need to follow the CDOT right of way process, including the appropriate environmental clearances.
- Site constraints
 - The existing pavement varies from approximately 24' wide to 19.5' wide. The preferred widths are 11-12' for each vehicle land and 10' for a shared-use or multi-use path. Adding a buffer between the path and vehicle traffic, would require between 32' to 34' to accommodate the path and vehicles in both directions.

- Widening the road or adding the multi-use path adjacent to the existing pavement would require grading, retaining walls, drainage improvements, and possible easements to construct the pavement widening or separated path.
- Existing fire district and parking lot driveways, including the steep grade of the fire district driveway. Widening the road to the north would make the fire district's driveway steeper with the limited right of way available to work in to make improvements to the driveway.

The evaluation of Railroad Avenue shared street options included the following elements in determining location of the on-street multi-use path and shared street impacts:

- Existing conditions
 - Locations of existing ADA curb ramps on both the west (3rd Avenue) and east (2nd Avenue) ends of the block.
 - At 3rd Avenue and Railroad Avenue, the existing ADA curb ramp on the west side of 3rd Avenue near the Post Office aligns best with the north side of Railroad Avenue for the installation of a crosswalk across 3rd Avenue.
 - At 2nd Avenue and Railroad Avenue, the existing trail and curb ramps are along the north side of Railroad Avenue for the trail that continues east along US 36/Broadway towards Black Bear Hole and beyond.
 - Large trees along the south side of Railroad Avenue limit the sunlight that reaches the street during the winter, creating areas of snow and ice that persist throughout the winter, making conditions unsafe for pedestrians.
- For nighttime pedestrian safety, the desire was to install low-level lighting along the multi-use path.
 - Solar bollard lighting that casts light in a small area to illuminate the path but not the night sky was determined to be a cost-effective solution that has been used elsewhere along trails in Town parks. Installing the solar bollards directly adjacent to the multi-use path was necessary since they are designed to limit the light that is cast to the area around the bollards.
 - The solar bollards are less expensive than larger streetlights that would also require the installation of conduit for electrical power.
 - Installing the solar lighting along the north side of Railroad Avenue would improve the chances of the lights receiving adequate sunshine during the winter days because of the large, tall existing trees along the south side of Railroad Avenue.
- The vehicle lane on the south side of Railroad Avenue improves the turning movement by allowing a larger turning radius for vehicles turning off of US 36/Broadway and onto Railroad Avenue.

Summary

Existing site constraints, right of way limits, and cost-effective alternatives were all considered and evaluated during the development of options to construct the section of multi-use path between 3rd Avenue and 2nd Avenue to fulfill the project's objectives.