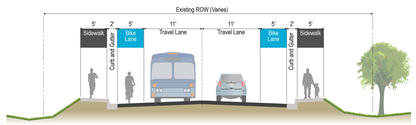
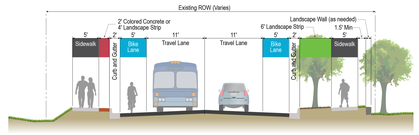
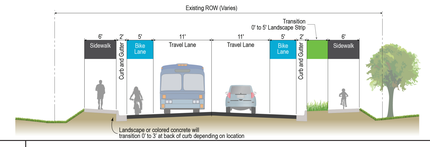
19th Street Multimodal Improvements

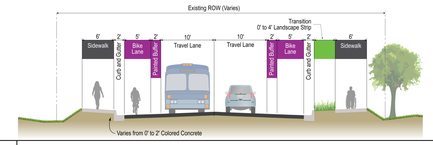
Construct Norwood to Sumac; Plan Sumac to Yarmouth

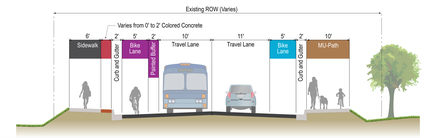
# Characteristics of the Conceptual Design Alternatives




| | Alternative 1: Attached Sidewalk and On-Street Bike Lanes | Alternative 2: Detached Sidewalk and On-Street Bike Lanes | Alternative 3: Combination of Attached & Detached Sidewalks and On-Street Bike Lanes | Alternative 4: Combination of Attached & Detached Sidewalks and Buffered Bike Lanes | Alternative 5: Multi-Use Path and On-Street Bike Lane on the east side, Attached sidewalk and Buffered Bike Lane on west side |
|---|---|---|---|---|---|
| **Safety** | | | | | |
| | • Over the last 5 years (10/2014-10/2019), there were a total of eight reported crashes along the 19th Street corridor between Norwood Avenue and Sumac Avenue. Most crashes were located at intersections, non-correctable, and property damage only. There was one injury crash involving a vehicle and a left-turning cyclist at 19th Street and Orchard Avenue. No crash trends were identified for mitigation as part of this analysis.<br>• The posted speed limit is being reduced to 25 mph.<br>• This alternative can include traffic calming devices which is intended to reduce speeding on 19th Street and supports the Vision Zero program goals of improving travel comfort and safety. | • Over the last 5 years (10/2014-10/2019), there were a total of eight reported crashes along the 19th Street corridor between Norwood Avenue and Sumac Avenue. Most crashes were located at intersections, non-correctable, and property damage only. There was one injury crash involving a vehicle and a left-turning cyclist at 19th Street and Orchard Avenue. No crash trends were identified for mitigation as part of this analysis.<br>• The posted speed limit is being reduced to 25 mph.<br>• This alternative can include traffic calming devices which is intended to reduce speeding on 19th Street and supports the Vision Zero program goals of improving travel comfort and safety. | • Over the last 5 years (10/2014-10/2019), there were a total of eight reported crashes along the 19th Street corridor between Norwood Avenue and Sumac Avenue. Most crashes were located at intersections, non-correctable, and property damage only. There was one injury crash involving a vehicle and a left-turning cyclist at 19th Street and Orchard Avenue. No crash trends were identified for mitigation as part of this analysis.<br>• The posted speed limit is being reduced to 25 mph.<br>• This alternative can include traffic calming devices which is intended to reduce speeding on 19th Street and supports the Vision Zero program goals of improving travel comfort and safety. | • Over the last 5 years (10/2014-10/2019), there were a total of eight reported crashes along the 19th Street corridor between Norwood Avenue and Sumac Avenue. Most crashes were located at intersections, non-correctable, and property damage only. There was one injury crash involving a vehicle and a left-turning cyclist at 19th Street and Orchard Avenue. No crash trends were identified for mitigation as part of this analysis.<br>• The posted speed limit is being reduced to 25 mph.<br>• This alternative can include traffic calming devices which is intended to reduce speeding on 19th Street and supports the Vision Zero program goals of improving travel comfort and safety. | • Over the last 5 years (10/2014-10/2019), there were a total of eight reported crashes along the 19th Street corridor between Norwood Avenue and Sumac Avenue. Most crashes were located at intersections, non-correctable, and property damage only. There was one injury crash involving a vehicle and a left-turning cyclist at 19th Street and Orchard Avenue. No crash trends were identified for mitigation as part of this analysis.<br>• The posted speed limit is being reduced to 25 mph.<br>• This alternative can include traffic calming devices which is intended to reduce speeding on 19th Street and supports the Vision Zero program goals of improving travel comfort and safety. |
| **Travel Experience** | | | | | |
| Walking | • Continuous 5 foot sidewalks attached to curb on both sides of street.<br>• On-street bike lane provides a buffer between vehicle lanes and sidewalk.<br>• The pedestrian has a separate facility although there may occasionally be a bicyclist on the sidewalk as this is allowed on residential streets. Sidewalk alignment will vary at driveways. | • Continuous 5 foot sidewalks on both sides of the street.<br>• Sidewalk is detached from curb with a 6 foot area for landscaping on the east side and 2-4 foot area on the west side (except in the Wonderland Creek Floodplain which will have an attached sidewalk to meet floodplain development permit requirements).<br>• On-street bike lane provides buffer between vehicle lanes and sidewalks. The pedestrian has a separate facility although there may occasionally be a bicyclist on the sidewalk as this is allowed on residential streets. Sidewalk alignment does not vary at driveways. | • Combination of attached and detached 6 foot continuous sidewalks on both sides of the street.<br>• On the west side the detached area would range from a 2 foot colored concrete strip to a 3 foot landscaping area. On the east side the detached area would range from 0-5 foot landscaping area. (The Wonderland Creek Floodplain will have an attached sidewalk to meet floodplain development permit requirements).<br>• On-street bike lane provides buffer between vehicle lanes and sidewalks. The pedestrian has a separate facility although there may occasionally be a bicyclist on the sidewalk as this is allowed on residential streets. For attached sidewalk sections, sidewalk alignment will vary at driveways. | • Combination of attached and detached 6 foot continuous sidewalks on both sides of the street.<br>• On the west side the detached area would be a 2 foot colored concrete strip. On the east side the detached area would range from 0-4 foot. (The Wonderland Creek Floodplain will have an attached sidewalk to meet floodplain development permit requirements).<br>• On-street bike lane provides buffer between vehicle lanes and sidewalks. The pedestrian has a separate facility although there may occasionally be a bicyclist on the sidewalk as this is allowed on residential streets. For attached sidewalk sections, sidewalk alignment will vary at driveways. | • 10 foot multi-use path on the east side that pedestrians and bicyclists will share in both directions. 6 foot continuous sidewalk on the west side. There may occasionally be a bicyclist riding on the sidewalk as this is allowed on residential streets.<br>• The Wonderland Creek Floodplain will have an attached sidewalk to meet floodplain development permit requirements.<br>• On-street bike lane provides buffer between vehicle lanes and sidewalks. Sidewalk alignment will vary at driveways. |
| Cycling | • 5 foot on-street bike lane exclusive of gutter pan.<br>• Bicyclists have a choice to ride in on-street lane or off-street on sidewalk. | • 5 foot on-street bike lane exclusive of gutter pan.<br>• Bicyclists have a choice to ride in on-street lane or off-street on sidewalk. | • 5 foot on-street bike lane exclusive of gutter pan.<br>• Bicyclists have a choice to ride in on-street lane or off-street on sidewalk. | • 5 foot on-street bike lane exclusive of gutter pan with 2 foot painted buffer.<br>• Painted buffer provides additional horizontal separation between vehicles and bicyclists which is considered to be more appealing to a wider range of bicyclists.<br>• Bicyclists have a choice to ride in on-street lane or off-street on sidewalk. | • 10 foot multi-use path on the east side that pedestrians and bicyclists will share in both directions.<br>• The wider space of a multi-use path can better accommodate bike trailers, tandems and tag-along bikes.<br>• On the west side, there is a 5 foot on-street bike lane exclusive of gutter pan with 2 foot painted buffer. Painted buffer provides additional horizontal separation between vehicles and bicyclists which is considered to be more appealing to a wider range of bicyclists.<br>• Bicyclists have a choice to ride in on-street lane or off-street on sidewalk. |
| Transit | • There will be waiting areas at the bus stops on the outside of the sidewalk. The transit rider will board or alight from the sidewalk which may increase the instances of conflicts between riders and pedestrians and bicyclists. | • At the bus stop, the transit rider will board or alight from the bus stop waiting area located in the landscape strip which is adjacent to the curb which may decrease the number of conflicts between riders and the pedestrian or bicyclist on the sidewalk. | • There will be some bus stops where riders will board or alight from the sidewalk and other locations where riders will board or alight from the bus stop waiting area.<br>• Separate boarding and alighting spaces from the sidewalk may decrease the number of conflicts between riders and the pedestrian or bicyclist on the sidewalk. | • There will be some bus stops where riders will board or alight from the sidewalk and other locations where riders will board or alight from the bus stop waiting area.<br>• Separate boarding and alighting spaces from the sidewalk may decrease the number of conflicts between riders and the pedestrian or bicyclist on the sidewalk. | • The transit rider will board or alight from the multi-use path or sidewalk which may increase the instances of conflicts between riders and pedestrians and bicyclists. |
| Driver | • Number of lanes and the 11 foot lane width remain the same as existing condition.<br>• On-street parking on 19th St will not be available. | • Number of lanes and the 11 foot lane width remain the same as existing condition.<br>• On-street parking on 19th St will not be available. | • Number of lanes and the 11 foot lane width remain the same as existing condition.<br>• On-street parking on 19th St will not be available. | • Number of lanes remain the same; 10 foot lane with a painted buffer.<br>• On-street parking on 19th St will not be available. | • Number of lanes remain the same as existing condition. For the northbound direction the 11 foot vehicle lane width remains the same as the current condition. The southbound vehicle lane width is 10 feet with a painted buffer.<br>• On-street parking on 19th St will not be available. |
| **City Plans** | | | | | |
| Supports the North Boulder Subcommunity Action Plan of Detached Sidewalks | Does not support the Plan | Supports the Plan | In support of the Plan where there are detached sidewalks. | In support of the Plan where there are detached sidewalks. | Does not support the Plan. |
| Supports the TMP Low Stress Walk and Bike Network for On-Street Bike Lanes, preferably buffered and improved travel comfort for pedestrian with continuous sidewalks | Supports the Plan | Supports the Plan | Supports the Plan | Supports the Plan | Supports the Plan; multi-use path, which is a vertical separated bike facility, exceeds the plan recommendation. |
| **Cost Estimate, Property Impacts and Maintenance** | | | | | |
| Cost estimate | Approximately $3.6 million | Approximately $4.4 million | Approximately $3.9 million | Approximately $4.2 million | Approximately $4.3 million |
| Property impacts | • No permanent easements needed.<br>• There will be some impacts to the adjacent property including items such as mailbox relocation or landscaping removal. | • No permanent easements needed.<br>• There will be some impacts to the adjacent property including items such as mailbox relocation or landscaping removal. | • No permanent easements needed.<br>• There will be some impacts to the adjacent property including items such as mailbox relocation or landscaping removal. | • No permanent easements needed.<br>• There will be some impacts to the adjacent property including items such as mailbox relocation or landscaping removal. | • No permanent easements needed.<br>• There will be some impacts to the adjacent property including items such as mailbox relocation or landscaping removal. |
| Sidewalk path maintenance | • Sidewalk maintenance, including snow removal is the responsibility of adjacent property owners. With the addition of new sidewalk or wider sidewalk, maintenance duties may be new or greater to adjacent property owners. | • Sidewalk maintenance, including snow removal is the responsibility of adjacent property owners. With the addition of new sidewalk or wider sidewalk, maintenance duties may be new or greater to adjacent property owners. | • Sidewalk maintenance, including snow removal is the responsibility of adjacent property owners. With the addition of new sidewalk or wider sidewalk, maintenance duties may be new or greater to adjacent property owners. | • Sidewalk maintenance, including snow removal is the responsibility of adjacent property owners. With the addition of new sidewalk or wider sidewalk, maintenance duties may be new or greater to adjacent property owners. | • Multi-use path will be maintained by the City of Boulder. Sidewalk maintenance on the west side, including snow removal is the responsibility of adjacent property owners. With the addition of new sidewalk or wider sidewalk, maintenance duties may be new or greater to adjacent property owners. |
| **Natural Areas or Features** | | | | | |
| Tree removal due to poor condition, non-native and/or undesirable tree species and to allow for construction of sidewalk or multi-use path | Approximately 297 | Approximately 323 | Approximately 323 | Approximately 300 | Approximately 324 |
| Opportunity to plant trees and landscaping | • Approximately 40-45 small trees could be planted outside or behind the sidewalk. | • Approximately 60-65 medium size trees and landscaping could be planted in the detached area on the east side.<br>• Approximately 35-40 small trees and landscaping can be planted in the 4 foot detached area on the west side of the street. | • Approximately 20-25 small trees and landscaping could be planted in the detached area on the east side.<br>• Landscaping can be planted in the 3 foot detached area on the west side. | • No detached landscaping area on the west side.<br>• Approximately 20-25 small trees and landscaping can be planted in the 4 foot detached area on the east side. | • No detached landscaping areas on either side of the street. |
| Encroachment upon the 100-year, conveyance or high hazard flood zones | • The project will construct a larger box culvert for Wonderland Creek at 19th Street and there will be attached sidewalks in the Wonderland Creek floodplain section. | • The project will construct a larger box culvert for Wonderland Creek at 19th Street and there will be attached sidewalks in the Wonderland Creek floodplain section. | • The project will construct a larger box culvert for Wonderland Creek at 19th Street and there will be attached sidewalks in the Wonderland Creek floodplain section. | • The project will construct a larger box culvert for Wonderland Creek at 19th Street and there will be attached sidewalks in the Wonderland Creek floodplain section. | • The project will construct a larger box culvert for Wonderland Creek at 19th Street and there will be attached sidewalks in the Wonderland Creek floodplain section. |
| Change in hardscape and impact on water quality | • No change on east side from existing. Additional impervious surface area on the west side for the sections of sidewalk that do not exist today. Water quality treatment installation will occur to meet requirements. | • No change on east side from existing. Additional impervious surface area on the west side for the sections of sidewalk that do not exist today. Water quality treatment installation will occur to meet requirements. | • Additional impervious surface area on the east and west sides for the sections of sidewalk that do not exist today. Water quality treatment installation will occur to meet requirements. | • Additional impervious surface area on the east and west sides for the sections of sidewalk that do not exist today. Water quality treatment installation will occur to meet requirements. | • Additional impervious surface area on the east and west sides from what exists today. Water quality treatment installation will occur to meet requirements. |
| Change in storm drainage | • A new storm sewer pipe and drainage inlets will be installed from Sumac Avenue to Wonderland Creek which is intended to result in no adverse impact. | • A new storm sewer pipe and drainage inlets will be installed from Sumac Avenue to Wonderland Creek which is intended to result in no adverse impact. | • A new storm sewer pipe and drainage inlets will be installed from Sumac Avenue to Wonderland Creek which is intended to result in no adverse impact. | • A new storm sewer pipe and drainage inlets will be installed from Sumac Avenue to Wonderland Creek which is intended to result in no adverse impact. | • A new storm sewer pipe and drainage inlets will be installed from Sumac Avenue to Wonderland Creek which is intended to result in no adverse impact. |