



Parker Road/Quincy Avenue/Smoky Hill Road Intersection Improvement Study

Comparative (Level 2) Screening Matrix

| Level 2 Evaluation Criteria | No Action | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|--|--|--|---|--|--|--|--|
| | No Action | Pedestrian/Bicyclist Crossing Modifications | Signing, Striping, and Signal Progression Modifications | Signing and Signal Modifications with Overhead Lane Control | Added Turn Lanes | Added Turn Lanes with Signal Phasing Modifications | Added Turn Lanes with Quincy Widening | Southbound Parker Loop and Smoky Hill Modifications | |
| Intersection 2020 and 2040 peak hour Level of Service (LOS) (AM/PM) | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: LOS F/E 2040: LOS F/F Quincy/Smoky Hill: 2020: LOS D/C 2040: LOS D/C | Parker/Quincy: 2020: F/F 2040: F/F Quincy/Smoky Hill: 2020: D/C 2040: D/C |
| 2020 and 2040 peak hour delay for intersection major movements (sec/veh) | AM Peak Hour: Parker/Quincy WB Right: 2020: 322.5 2040: 313.5 Parker/Quincy SB Left: 2020: 45.7 2040: 46.2 Quincy/Smoky Hill EB Right: 2020: 12.8 2040: 15.0 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.9 2040: 152.6 Quincy/Smoky Hill EB Right: 2020: 12.8 2040: 15.0 | AM Peak Hour: Parker/Quincy WB Right: 2020: 295.1 2040: 358.4 Quincy/Smoky Hill NB Left: 2020: 40.2 2040: 38.9 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.8 2040: 252.7 Quincy/Smoky Hill EB Right: 2020: 13.4 2040: 15.9 | AM Peak Hour: Parker/Quincy WB Right: 2020: 273.3 2040: 261.2 Quincy/Smoky Hill NB Left: 2020: 52.1 2040: 40.5 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.9 2040: 192.6 Quincy/Smoky Hill EB Right: 2020: 13.4 2040: 15.9 | AM Peak Hour: Parker/Quincy WB Right: 2020: 171.0 2040: 221.9 Quincy/Smoky Hill NB Left: 2020: 40.2 2040: 38.9 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.9 2040: 192.6 Quincy/Smoky Hill EB Right: 2020: 13.4 2040: 15.9 | AM Peak Hour: Parker/Quincy WB Right: 2020: 68.8 2040: 138.1 Quincy/Smoky Hill NB Left: 2020: 43.3 2040: 42.7 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.9 2040: 192.6 Quincy/Smoky Hill EB Right: 2020: 13.6 2040: 15.4 | AM Peak Hour: Parker/Quincy WB Right: 2020: 259.1 2040: 138.1 Quincy/Smoky Hill NB Left: 2020: 43.3 2040: 42.7 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.9 2040: 192.6 Quincy/Smoky Hill EB Right: 2020: 13.6 2040: 15.4 | AM Peak Hour: Parker/Quincy WB Right: 2020: 107.5 2040: 568 Quincy/Smoky Hill NB Left: 2020: 374 2040: 975 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.9 2040: 192.6 Quincy/Smoky Hill EB Right: 2020: 13.6 2040: 15.4 | AM Peak Hour: Parker/Quincy WB Right: 2020: 205.6 2040: 344.2 Quincy/Smoky Hill NB Left: 2020: 40.2 2040: 39.0 PM Peak Hour: Parker/Quincy SB Left: 2020: 142.9 2040: 388 Quincy/Smoky Hill EB Right: 2020: 13.4 2040: 15.9 | |
| Traffic Operations | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 | AM Peak Hour: Parker/Quincy WB Right: 2020: 58.4 2040: 58.4 Quincy/Smoky Hill NB Left: 2020: Tufts 2040: Tufts PM Peak Hour: Parker/Quincy SB Left: 2020: 79 2040: Lehigh Quincy/Smoky Hill EB Right: 2020: 52 2040: 63 |
| 2020 and 2040 percent of volume served | AM Peak Hour: Parker/Quincy WB Approach: 2020: 85 2040: 82 Quincy/Smoky Hill NB Approach: 2020: 93 2040: 81 PM Peak Hour: Parker/Quincy SB Approach: 2020: 99 2040: 92 Quincy/Smoky Hill EB Approach: 2020: 97 2040: 94 | AM Peak Hour: Parker/Quincy WB Approach: 2020: 85 2040: 79 Quincy/Smoky Hill NB Approach: 2020: 92 2040: 82 PM Peak Hour: Parker/Quincy SB Approach: 2020: 84 2040: 74 Quincy/Smoky Hill EB Approach: 2020: 94 2040: 77 | AM Peak Hour: Parker/Quincy WB Approach: 2020: 91 2040: 87 Quincy/Smoky Hill NB Approach: 2020: 93 2040: 84 PM Peak Hour: Parker/Quincy SB Approach: 2020: 83 2040: 73 Quincy/Smoky Hill EB Approach: 2020: 83 2040: 76 | AM Peak Hour: Parker/Quincy WB Approach: 2020: 100 2040: 96 Quincy/Smoky Hill NB Approach: 2020: 100 2040: 98 PM Peak Hour: Parker/Quincy SB Approach: 2020: 82 2040: 81 Quincy/Smoky Hill EB Approach: 2020: 84 2040: 85 | AM Peak Hour: Parker/Quincy WB Approach: 2020: 83 2040: 98 Quincy/Smoky Hill NB Approach: 2020: 94 2040: 100 PM Peak Hour: Parker/Quincy SB Approach: 2020: 82 2040: 81 Quincy/Smoky Hill EB Approach: 2020: 83 2040: 85 | AM Peak Hour: Parker/Quincy WB Approach: 2020: 94 2040: 100 Quincy/Smoky Hill NB Approach: 2020: 94 2040: 100 PM Peak Hour: Parker/Quincy SB Approach: 2020: 79 2040: 93 Quincy/Smoky Hill EB Approach: 2020: 85 2040: 93 | AM Peak Hour: Parker/Quincy WB Approach: 2020: 94 2040: 100 Quincy/Smoky Hill NB Approach: 2020: 94 2040: 100 PM Peak Hour: Parker/Quincy SB Approach: 2020: 79 2040: 93 Quincy/Smoky Hill EB Approach: 2020: 85 2040: 93 | AM Peak Hour: Parker/Quincy WB Approach: 2020: 94 2040: 97 Quincy/Smoky Hill NB Approach: 2020: 100 2040: 100 PM Peak Hour: Parker/Quincy SB Approach: 2020: 95 2040: 84 Quincy/Smoky Hill EB Approach: 2020: 94 2040: 97 | |
| SUMMARY | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | |
| Pedestrian LOS at signalized intersections | Parker/Quincy: 2020: PLOS D 2040: PLOS D Quincy/Smoky Hill: 2020: PLOS E 2040: PLOS E | Parker/Quincy: 2020: PLOS D 2040: PLOS D Quincy/Smoky Hill: 2020: PLOS D 2040: PLOS D | Parker/Quincy: 2020: PLOS D 2040: PLOS D Quincy/Smoky Hill: 2020: PLOS D 2040: PLOS D | Parker/Quincy: 2020: PLOS D 2040: PLOS D Quincy/Smoky Hill: 2020: PLOS D 2040: PLOS D | Parker/Quincy: 2020: PLOS D 2040: PLOS D Quincy/Smoky Hill: 2020: PLOS D 2040: PLOS D | Parker/Quincy: 2020: PLOS D 2040: PLOS D Quincy/Smoky Hill: 2020: PLOS D 2040: PLOS D | Parker/Quincy: 2020: PLOS D 2040: PLOS D Quincy/Smoky Hill: 2020: PLOS D 2040: PLOS D | Parker/Quincy: 2020: PLOS E 2040: PLOS E Quincy/Smoky Hill: 2020: PLOS D 2040: PLOS D | |
| Safety | Near-miss conflicts from left turning vehicles from Quincy Avenue to Parker Road and pedestrians crossing Parker Road. Bus stop on south side of Quincy Avenue east of shopping center signal creates conflict with bus stopping in lane. | Decreases conflict of turning vehicles with removal of crossing across Parker and across Quincy at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. | Decreases conflict of turning vehicles with removal of crossing across Quincy Avenue at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. | Decreases conflict of turning vehicles with removal of crossing across Quincy Avenue at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. | Decreases conflict of turning vehicles with removal of crossing across Quincy Avenue at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. | Decreases conflict of turning vehicles with removal of crossing across Quincy Avenue at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. | Decreases conflict of turning vehicles with removal of crossing across Quincy Avenue at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. | Decreases conflict of turning vehicles with removal of crossing across Quincy Avenue at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. | Decreases conflict of turning vehicles with removal of crossing across Quincy Avenue at Smoky Hill. Higher EB right turn speeds at Smoky Hill decreases pedestrian/bicyclist comfort and safety crossing south leg. |
| Vehicular and multimodal conflicts | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | |
| SUMMARY | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | |
| Connections for area pedestrian/bicyclist movements | Relatively high volume of pedestrian/bicyclist movements on south side of Quincy Avenue. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. | Elimination of both crossings decreases access for pedestrian/bicyclists, especially at Parker Road crossing. Increased sidewalk width and access along Parker Road allows for more comfortable connections. | Elimination of crossing across Quincy Avenue at Smoky Hill decreases access for pedestrian/bicyclists. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. | Elimination of crossing across Quincy Avenue at Smoky Hill decreases access for pedestrian/bicyclists. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. | Elimination of crossing across Quincy Avenue at Smoky Hill decreases access for pedestrian/bicyclists. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. | Elimination of crossing across Quincy Avenue at Smoky Hill decreases access for pedestrian/bicyclists. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. | Elimination of crossing across Quincy Avenue at Smoky Hill decreases access for pedestrian/bicyclists. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. | Elimination of crossing across Quincy Avenue at Smoky Hill decreases access for pedestrian/bicyclists. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. | Elimination of crossing across Quincy Avenue at Smoky Hill decreases access for pedestrian/bicyclists. Connection across Parker is uncomfortable due to high vehicular volumes and turning movements. |
| Multimodal Connectivity | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | |
| Travel mode interconnectivity | Pedestrians/bicyclists have access to bus stops along Quincy Avenue from shopping center and Cherry Creek Park. RTD adding new bus route on Parker with planned stops at Quincy intersection. | Sidewalks improve access to existing bus stops along Parker. Substantial impacts to new SB bus stop at Quincy. Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. | May increase queuing at the bus stop on eastbound Quincy Avenue with longer cycle length. Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. | Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. | Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. | Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. | Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. | Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. | Higher EB right turn speeds at Smoky Hill may create safety concern with buses stopped at stop in SW corner. |
| Potential environmental impacts and required clearances | N/A | Five potential hazardous material sites | None | None | Four potential hazardous material sites | Four potential hazardous material sites | Four potential hazardous material sites | Five potential hazardous material sites | |
| Right-of-Way required (acres) | N/A | 0.08 acres | 0.003 acres | 0.02 acres | 0.56 acres | 0.82 acres | 1.27 acres | 4.24 acres | |
| Right-of-Way required (properties) | N/A | Residential: None Commercial: 2 properties | Residential: 1 property Commercial: None | Residential: 1 property Commercial: 1 property | Residential: 4 properties Commercial: 1 property | Residential: 4 properties Commercial: 3 properties | Residential: 5 properties Commercial: 5 properties | Residential: 1 property Commercial: 4 properties Other: 1 property (State Park) | |
| Access modifications | N/A | Access modifications with increased center south access on Parker Road south of Quincy. | None | None | Access reconstruction at shopping center south access on Parker Road north of Quincy. | Access reconstruction at shopping center south access on Parker Road north of Quincy. | Access reconstruction with roadway widening, but no changes to access. | Major changes to available access to property remaining west of Parker and Quincy intersection. | |
| Constructability | N/A | Sidewalk improvements north of Quincy Avenue requires walls and substantial residential fence modifications. | No substantial issues | No substantial issues | Widening Quincy Avenue to north may require short walls to minimize property impacts. | Widening Quincy Avenue to north may require short walls to minimize property impacts. | Widening Quincy Avenue may impact loading dock operations of business on south end of shopping center. | Lane shifts along Parker Road may require median and roadway reconstruction north and south of Quincy Avenue. | |
| Relative construction costs | None Low <= \$1 M Moderate: \$1 M - \$3 M High: \$3 M - \$6 M Very High: > \$6 M | Parker/Quincy: Moderate Quincy/Smoky Hill: Low Overall: Moderate | Parker/Quincy: Low Quincy/Smoky Hill: Low Overall: Low | Parker/Quincy: Low Quincy/Smoky Hill: Low Overall: Moderate | Parker/Quincy: Moderate Quincy/Smoky Hill: High Overall: High | Parker/Quincy: Moderate Quincy/Smoky Hill: High Overall: High | Parker/Quincy: Moderate Quincy/Smoky Hill: High Overall: Very High | Parker/Quincy: High Quincy/Smoky Hill: Low Overall: High | |
| Compatibility with area long-term plans | Long-term plans include large-scale capacity improvements with a grade separation at Parker and Quincy intersection. | Sidewalk improvements surrounding the Parker and Quincy intersection would need reconstructed with ultimate interchange. | No thoroughway improvements with ultimate interchange construction. | Minimal thoroughway improvements (NE corner) with ultimate interchange construction. | Minimal thoroughway improvements (NE corner) with ultimate interchange construction. | Moderate thoroughway improvements (NE corner) with ultimate interchange construction. | Additional capacity of westbound lane on Quincy Avenue not needed with implementation of ultimate improvements at Parker and Quincy. | Property impacts at Parker and Quincy may be consistent with ultimate interchange configuration. | |
| SUMMARY | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | |
| SUMMARY OF RESULTS | CARRIED FORWARD | NOT RECOMMENDED | NOT RECOMMENDED | CARRIED FORWARD | NOT RECOMMENDED | CARRIED FORWARD | NOT RECOMMENDED | NOT RECOMMENDED | |
| Notes | Further analysis is the No Action Alternative for comparison to recommended improvements. | This alternative is not recommended for further consideration because it does not reduce congestion or provide adequate operational performance benefits at the study area intersections and impacts area pedestrian and bicyclist connectivity. | This alternative is not recommended for further consideration because it does not reduce congestion or provide adequate operational performance benefits at the study area intersections. | This alternative is carried forward as a potential improvement project because it reduces delay and queue lengths at the study intersections with a relatively low to moderate cost. | This alternative is not recommended for further consideration because it does not reduce congestion or provide adequate operational performance benefits at the study area intersections with relatively moderate to high cost. | This alternative is carried forward as a potential improvement project because it reduces delay and queue lengths at the study area intersections with reasonably moderate to high cost. | This alternative is carried forward as a potential improvement project because it reduces delay and queue lengths at the study area intersections with implementation of ultimate improvements at Parker and Quincy. | This alternative is not recommended for further consideration because it would result in comparably higher property impacts and relatively high cost without substantially better traffic operations and safety benefits. | This alternative is not recommended for further consideration because it would result in comparably higher property impacts and relatively high cost without substantially better traffic operations and safety benefits. |

● GREEN = Comparatively beneficial and/or minor impacts
 ○ BLACK = Comparatively neutral benefits and/or moderate impacts
 ● RED = Comparatively minor or no benefits and/or major impacts

CARRIED FORWARD = Alternative will be evaluated further with conceptual design as a potential improvement project
 NOT RECOMMENDED = Alternative will not be evaluated further in the study due to comparatively negligible benefits and major impacts