

Appendix E

Recommendations Evaluation Matrix



Notes: * Minor improvements to Operational Level of Service due to the implementation of a two-way left-turn lane result in an estimated 13-minute reduction on average over the corridor per day.
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| Improvement Category | Description | US 25 Milepoint Location | Design Cost | Right-of-Way Cost | Utilities Cost | Construction Cost | Benefit-Cost Ratio** | Additional Benefits | Considerations | Operational Level of Service (2045) | | Stakeholder, Local Officials, and Public Involvement Feedback | Document Only | Recommend Short-Term to Mid-Term Implementation | Recommend Long-Term Implementation | Include with Long-Term Recommendation, Resurfacing, or Other Project | Concept | Justification and Additional Notes | |
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| | | | | | | | | | | AM | PM | | | | | | | | |
| Corridor | No-build | MP 13.5 to 16.7 | - | - | - | - | - | - | <ul style="list-style-type: none"> Does not meet safety and mobility goals Unrestricted access Higher crash rates Lack of pedestrian and bicycle facilities | C | C | | X | | | | N/A | The no-build alternate does not meet the safety and mobility goals outlined in the Purpose and Need statement. | |
| | Access management (graded bioswales) | MP 14.0 to 16.3 | \$ 10,000 | - | - | \$ 100,000 | 42.3 | <ul style="list-style-type: none"> Delineates entrances Improves drainage conditions | <ul style="list-style-type: none"> Lower cost Potential medium impacts to utilities Parcel owners may remove or backfill bioswales | - | - | Stakeholders, local officials, and public survey recommended clarifying entrance locations and improvements for vehicles turning in and out of entrances. | | | | X | N/A | Higher cost, recommend including entrance delineation with long-term capital improvements. Lots with excessively long access may be implemented with Quick Kurb curb and delineator posts in the interim at lower cost. | |
| | Paved shoulder widening for entrance aprons | | \$ 50,000 | - | - | \$ 500,000 | 0.0 | <ul style="list-style-type: none"> Delineates entrances Improves consistency of tire-ground friction for vehicles entering gaps in traffic | <ul style="list-style-type: none"> Higher cost Potential gravel tracking on aprons Potential low impacts to utilities | - | - | | | | X | N/A | Higher cost and relatively low proven safety benefit. Recommend including concrete entrance aprons to be included in future capital improvements along with entrance delineation. | | |
| | Bicycle and pedestrian improvements | - Alternate A: Shared-use path and sidewalk | MP 13.5 to 16.4 | \$ 450,000 | | | \$ 4,500,000 | | <ul style="list-style-type: none"> Pedestrian and bicycle facility Improved comfort and safety for both bicyclists and pedestrians | <ul style="list-style-type: none"> Wider cross section than Alternate B High potential impacts to utilities, environment, and right-of-way in constrained locations | - | - | Frequent pedestrians and bicyclists were noted through stakeholder engagement and public survey on both US 25 and adjacent roads. | | | | | X | Shared-use path on one side and sidewalk on the other is the current best practice for accommodating bicyclists and pedestrians on a high-speed roads (greater than or equal to 45 MPH). However, a minimum of sidewalk on both sides is recommended to provide connectivity and access on both sides for pedestrians, and may be sufficient to accommodate the occasional bicyclist. Although bicycle and pedestrian crashes are currently low, comfort for these users and potential near-misses are not captured in crash data. Bicycle and pedestrian improvements should be paired with traffic calming and pedestrian crossings. |
| | | - Alternate B: Sidewalk on each side | | \$ 340,000 | | | | | | | | | | | | | | | |
| | Alternate 1: Widen US 25 to a three-lane typical section with one travel lane in each direction and a center two-way left-turn lane (TWLTL). | - Modified swale drainage | MP 13.8 to 16.4 | \$ 490,000 | \$ 2,100,000 | \$ 2,700,000 | \$ 4,900,000 | 5.6 | <ul style="list-style-type: none"> Traffic calming Improved safety and operations with TWLTL Opportunity for median refuge islands and shorter pedestrian crossing distance Swale delineates access and provides substantial horizontal separation from the travel lane for pedestrians and bicyclists Curb and gutter delineates access, provides vertical and horizontal separation from the travel lane for pedestrians and bicyclists | <ul style="list-style-type: none"> Wider cross section than no-build Potential driver frustration with slow vehicles Medium-to-high potential impacts to right-of-way, utilities, and environment depending on drainage alternate chosen Debris can clog storm pipes Property owners may backfill or damage swale Property owners may use swale for parking or accessing their property Swale is significantly wider than the curb and gutter drainage alternate Curb and gutter increases drainage demand with lower Tc, locates pedestrians and bicyclists closer to the travel lane, and has higher potential ROW cost for tie-in | C* | C* | Stakeholders, local officials, and public survey indicated the need for improvements along the corridor to address safety, congestion, and provide facilities for people walking and bicycling. Most frequent comments included the need for a turn lane to access businesses and side streets, identify frequent crashes, and near-misses occurring with people walking and bicycling. | | | | | X | Alternate 1 meets the safety and mobility goals outlined in the Purpose and Need. The specific location of modified sale drainage with a shallow drop box inlet system provides substantial separation for bicyclists and pedestrians with a higher benefit-cost ratio. However, curb and gutter may provide additional traffic calming context clues to encourage a 45 MPH target speed for motor vehicle drivers. In addition, a curb and gutter typical section may be preferred in constrained locations due to the narrower footprint. To avoid replacement of the structure over Wood Creek, the three-lane section may transition to a two-lane section without impacting any high turnover commercial entrances. Benefit-cost ratio includes the cost of sidewalk and shared-use path from Alternate A. *Note: An estimated 10% of traffic turning left from the TWLTL instead of the through-lane results in an estimated 13 minutes of average delay savings over a 24-hour period. |
| | | - Curb and gutter drainage | | \$ 950,000 | \$ 9,500,000 | 2.9 | C* | C* | | | | | | | | | | | |
| | Alternate 2: Widen US 25 to a four-lane typical section with two travel lanes in each direction. | - Modified swale drainage | MP 13.8 to 16.4 | \$ 600,000 | - | - | \$ 6,000,000 | - | <ul style="list-style-type: none"> Four-lane section provides an additional lane for passing slower or turning vehicles Swale delineates access and provides substantial horizontal separation from the travel lane for pedestrians and bicyclists Curb and gutter delineates access, provides vertical and horizontal separation from the travel lane for pedestrians and bicyclists | <ul style="list-style-type: none"> Traffic volume does not warrant two travel lanes in each direction Widest cross-section alternate Higher utility and environmental impacts over a three-lane section Four-lane section can encourage speeding Does not provide a center two-way left-turn lane to reduce in-lane crashes for vehicles turning Debris can clog storm pipes Property owners may backfill or damage swale Property owners may use swale for parking or accessing their property Curb and gutter increases drainage demand with lower time of concentration, locates pedestrians and bicyclists closer to the travel lane, and has higher potential right-of-way cost for tie-in | - | - | | | | | | N/A | Four-lane and wider cross-sections are not warranted by traffic volumes, increase future predicted crash rates, and significantly negatively impact safety for all users. Safety and operations are negatively impacted without left-turn lanes or a center two-way left-turn lane. |
| | | - Curb and gutter drainage | | \$ 1,200,000 | \$ 12,000,000 | - | | | | | | | | | | | | | |

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| US 25 at KY 80 Intersection | No-build (Existing signal timing) | - | - | - | - | - | - | - | • Heavy congestion • Increased future congestion and delay | E | E | | X | | | | N/A | The no-build alternate does not meet the safety and mobility goals outlined in the Purpose and Need statement. | |
| | Mill and resurface asphalt shoulder to address roadside deterioration causing ice glaze on westbound KY 80 lane and shoulder at State Police Road | MP 11.1 (KY 80) | - | - | - | \$ 25,000 | - | • Reduces out-of-control crash potential caused by ice • Improves condition of asphalt/concrete interface | • Asphalt surface will continue to degrade over time at the asphalt/concrete interface | - | - | A stakeholder identified the seasonal ice glaze, and the frequent near-miss conditions she experiences when traveling to work in this location. | | X | | | B1 | Relatively low-cost installation that addresses a seasonal deficiency, and may be implemented with district maintenance. In the long-term, consideration may be given to developing a concrete right-turn lane, or replacing the shoulder to remove or improve the asphalt/concrete interface during implementation of one of the intersection capital improvements. | |
| | Vegetation control on east side of northbound US 25 curve | MP 13.65 to 13.85 | - | - | - | \$ 20,000 | - | • Improved sight distance | • Environmental impacts to adjacent trees | - | - | | | X | | | | | Vegetation control can be included in regular roadside maintenance. |
| | Retroreflective signal backplates | MP 13.6 | \$ 2,500 | - | - | \$ 25,000 | 48.3 | • Improved visibility of signal | • Maintenance of traffic | - | - | | | X | | | | | Relatively low cost, easy installation, and high benefit for reducing predicted crashes. |
| | Channelize or eliminate WB KY 80 to NB US 25 acceleration lane | MP 13.6 | \$ 500 | - | - | \$ 5,000 | - | • Reduced merge conflicts | • Removal of refuge island | - | - | Stakeholders, local officials, and public survey identified merging issues at this lane, with most frequent comments including drivers ignoring the merge lane and performing a right turn directly into the through lane. | | X | | | B2 | Low-cost implementation to improve driver behavior at conflict point. Channelization or conversion to a right-turn lane clarifies the intended merge location. | |
| | Restrict left turns | - Left turn from State Police Road and CVB Drive to KY 80 | MP 11.09 (KY 80) | \$ 1,000 | - | - | \$ 10,000 | 281.8 | • Reduced crashes | • Slight driver delay to travel to adjacent signal and U-turn • Implementing both locations may require additional consideration of circulation to I-75 and/or downtown London | - | - | Stakeholders and local officials identified the intersection of US 25 and KY 80 as congested and unsafe and left-turning traffic from adjacent CVB Drive and State Police Road contributing to safety concerns. Public survey also indicated specific safety concerns at this intersection, including merging behavior. | | X | | | B3 | Relatively low cost with high safety benefit. |
| | | - Left turn from CVB Drive to US 25 | MP 13.5 | \$ 1,000 | - | - | | 93.9 | | | | | | | | | | | |
| | Park and Ride study | | - | - | - | - | \$ 20,000 | - | • Potential for improved capacity and operations | • May require siting of new potential park and ride locations | - | - | Stakeholders, local officials, and public survey indicated overflow of the park and ride and proximity to the intersection of State Police Road causes safety and access concerns. Vehicles frequently park on the roadside when the park and ride is full, and high turnover conflicts with traffic at the intersection. | | X | | | N/A | A park and ride study would identify potential future locations, benefits, constraints, impacts, and maintenance and security needs. |
| | KY 80 Planning Study | | MP 9.8 (KY 80) to 0.2 (HR 9006) | - | - | - | \$ 150,000 | - | • Potential for improved capacity and operations along KY 80 with a coordinated system and/or alternative intersections | | | | | X | | | | N/A | A planning study would identify potential improvements to the mobility and safety along Hal Rogers Parkway (KY 80/HR 9006). Capital improvements suggested in the US 25 should be considered along with access control, intersection design, new local supporting circulation/connections. |
| | Update signal timing | | MP 13.6 | - | - | - | - | - | • Improved motor vehicle operations through reduced delay and congestion | • Improved motor vehicle circulation through the KY 80 corridor may require additional coordination of adjacent signalized intersections | C | D | Stakeholders and local officials identified the intersection of US 25 and KY 80 as congested and unsafe, with people walking and bicycling across the intersection with no dedicated crossings, and left-turning traffic from adjacent CVB Drive and State Police Road contributing to safety concerns. Additionally, future development is planned in the area and will contribute to traffic growth. Public survey also indicated specific safety concerns at this intersection, including merging behavior and utilizing State Police Road to bypass congestion at the signal. | | X | | | C1 | Low cost and high benefit to motor vehicle circulation, congestion, and delay. Future improvements to this intersection should consider pedestrian signals and enhanced pedestrian crossings or a grade-separated pedestrian crossing. |
| Quadrant intersection | | | \$ 175,000 | \$ 75,000 | \$ 400,000 | \$ 1,750,000 | 1.8 | • Left-turning traffic removed from KY 80 and US 25 intersection • Improved operations • Reduced crashes | • Nearby historic property, limited space for widening of State Police Road, impacts to Park and Ride space, take over maintenance of SPR | B | B | | | | | X | C2 | | |
| Continuous flow intersection | | MP 13.6 | \$ 450,000 | - | \$ 300,000 | \$ 4,500,000 | 0.3 | • Through traffic on KY 80 moves simultaneously with left-turn traffic onto US 25 • Improved operations • Reduced crashes | • Large footprint intersection • Potential right-of-way and utility impacts • Not effective for accommodating bicyclists and pedestrians • Channelized right-turn from southbound US 25 to KY 80 may create a high-speed conflict with turning vehicles at State Police Road • Channelized right-turn from southbound US 25 to KY 80 prevents access to State Police Road from KY 80 | B | B | | | | X | | C3 | Included as alternates to signal timing update recommendation. Relatively high cost improvement that may not be warranted based on future traffic projects. Recommend the retiming and/or coordination of the KY 80 corridor signals and future reevaluation of capital improvements at this intersection after identified future developments have been established. | |

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| US 25 at Bullock Road Intersection | No-build | - | - | - | - | - | - | - | • Does not address impaired sight distance due to grade, skew, or the presence of vegetation | - | - | | X | | | | N/A | The no-build alternate does not meet the safety and mobility goals outlined in the Purpose and Need statement. It also does not meet the needs of the community as expressed through stakeholder and public involvement. |
| | Lane extensions across Bullock Road "Y" | MP 14.46 to 14.56 | - | - | - | \$ 500 | 1682.9 | • Increasing visibility of US 25 through lane and intersection of Bullock Road | • Does not improve sight distance | - | - | Public survey responses indicated that turning onto US 25 from Bullock Road is difficult and dangerous, with limited visibility to oncoming traffic. | | X | | | D | Relatively low cost installation that clarifies the edge of US 25 through lane for motor vehicle drivers on US 25 and Bullock Road "Y". |
| | Vegetation control or removal | | - | - | - | \$ 5,000 | - | • Improved sight distance | • Does not address impaired sight distance due to roadway grade or skew | - | - | | | X | | Recommend removal of the trees in the sight triangles for both Bullock Road "Y" approaches. Vegetation control in the sight triangle can be included in regular roadside maintenance. | | |
| | Relocation of intersection | MP 14.5 | \$ 100,000 | \$ 500,000 | \$ 500,000 | \$ 1,000,000 | - | • Improved sight distance • Single intersection reduces conflict points | • Significant ROW and utility costs anticipated, new crossing structure may be required | - | - | | | | X | | E1 | Improvements to the impaired sight distance due to grade and skew requires the relocation of the intersection. Additional improvements, such as a roundabout, should also be considered with the relocation. |
| Single-lane roundabout | \$ 200,000 | | \$ 500,000 | \$ 500,000 | \$ 2,000,000 | 0.8 | • Traffic calming, improved sight distance | • Significant ROW and utility costs anticipated, lower speed limit for reduced approach design, new crossing structure may be required | - | - | | | | | X | E2 | The implementation of a single-lane roundabout will require the relocation of the intersection. | |

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| US 25 at KY 3434 Intersection | No-build | - | - | - | - | - | - | - | • Does not address crash history or sight distance constraints at the nearby CSX railroad crossing | - | - | | X | | | | N/A | The no-build alternate does not meet the safety and mobility goals outlined in the Purpose and Need statement. It also does not meet the needs of the community as expressed through stakeholder and public involvement. |
| | Full-depth widening for right-turn lane on US 25 | MP 15.15 | \$ 7,500 | - | - | \$ 75,000 | 26.3 | • Queue outside of US 25 travel lane when railroad crossing is active • Reduce rear-end crashes | • Deep swale draining to Wood Creek, limited space between US 25 and railroad | - | - | | | X | | | F1 | High safety benefit to reduce crashes at the intersection, particularly when vehicles queue while the railroad crossing is active. |
| | Dynamic envelope pavement markings and "Do Not Stop on Tracks" crossing signage and crossing warning signage for at-grade crossing (R8-8, W10-2, and W10-11a); radar-detected WATCH FOR STOPPED TRAFFIC sign (W26-1) with yellow warning beacon and WHEN FLASHING sign (W16-13P) | MP 0.02 (KY 3434) | \$ 5,000 | - | - | \$ 10,000 | - | • Alerts drivers to stopped traffic on west side of railroad tracks • Additional warning to drivers not to stop on railroad tracks | • Requires power from nearby pole | - | - | Stopping traffic on the railroad was identified through the stakeholder and local officials meetings. | | X | | | | F2 |

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| US 25 at Glenview Road Intersection | No-build | - | - | - | - | - | - | - | • Does not address queue impacts on Glenview Road or intersection crash history | C | E | | X | | | | N/A | The no-build alternate does not meet the safety and mobility goals outlined in the Purpose and Need statement. It also does not meet the needs of the community as expressed through stakeholder and public involvement. | | |
| | Intersection warning signage | MP 15.82 | - | - | - | \$ 500 | - | • Warn drivers of upcoming traffic | • Requires power from nearby pole • Ongoing electric cost • Low potential impacts | - | - | Stakeholders, local officials, and public survey indicated the intersection of US 25 and Glenview Road is frequently congested. This is due to vehicles turning from the through-lane on US 25, and a single lane on Glenview Road for left- and right-turning vehicles. Numerous reports of safety issues were identified at this location, including congestion and people walking or bicycling on the side of the road. Traffic control, including signals, were frequently requested at this intersection. In addition, public survey comments indicated drivers use the gas station parking lot to avoid the intersection, contributing to safety concerns. | X | | | | N/A | Although relatively low-cost, the crash history and driver frustration experienced at this location are better addressed with turn lanes. This recommendation may be considered in the future if crash history or observed driver behavior warrants additional warning signage. | | |
| | Quick Kurb (paint and post) gas station entry delineation | | - | - | - | \$ 2,000 | 44.3 | • Reduce conflicts with gas station access at intersection | • Requires full-depth widening • Potential right-of-way and utility impacts | - | - | | X | | | | G | Low cost and high benefit with predicted reduction in future crashes. | | |
| | Intersection lighting | | - | - | - | \$ 10,000 | 32.5 | • Improve nighttime visibility • Power source and poles readily available | • Requires power from nearby poles • Ongoing electric cost | - | - | | | X | | | | | Although an ongoing cost, intersection lighting at this location is a high safety benefit. Intersection lighting should also be included in long-term capital improvements at the intersection of US 25 and Glenview Road. | |
| | Full-depth widening for left-turn lane from US 25 | | \$ 12,500 | - | - | \$ 125,000 | 15.8 | • Reduce rear-end crashes | • Requires full-depth widening • Potential right-of-way and utility impacts | - | - | | X | | | | | | N/A | |
| | Full-depth widening for right-turn and left-turn lanes from Glenview Road | | \$ 12,500 | - | - | \$ 125,000 | 0.1 | • Dedicated turn lanes • Potential rear-end crash reduction • Reduce driver frustration | • Potential right-of-way and utility impacts | - | - | | X | | | | | | N/A | Combine all turn lane recommendations at this intersection to a single recommendation, mobilizing a single time to implement turn lanes. |
| | Full-depth widening for right-turn lane and left-turn lane from US 25 | | \$ 50,000 | - | - | \$ 500,000 | 6.9 | • Dedicated turn lanes • Potential rear-end crash reduction | • Potential right-of-way and utility impacts | C | D | | X | | | | | | N/A | |
| | Full-depth widening for right-turn and left-turn lanes on all approaches | | \$ 60,000 | \$ 75,000 | \$ 500,000 | \$ 600,000 | 5.8 | • Dedicated turn lanes • Potential rear-end crash reduction | • Potential right-of-way and utility impacts | - | - | | | | X | | | | H1 | Mobilization of full-depth widening is recommended for turn lanes on all approaches. |
| | Single-lane roundabout | | \$ 200,000 | \$ 500,000 | \$ 600,000 | \$ 2,000,000 | 1.4 | • Traffic calming • Proven safety countermeasure • Improved traffic flow | • Potential right-of-way and utility impacts • Implementation of the roundabout may significantly impact access to the corner parcels | A | A | | X | | | | | | H2 | Higher-cost recommendation and lower benefit-cost ratio than full-depth widening for turn lanes on all approaches. The roundabout alternate also has significant impacts to utilities and right-of-way, particularly at the entrance to the existing gas station. |
| | Signalized intersection | | \$ 25,000 | - | - | \$ 250,000 | - | • Dedicated phase for Glenview Road will provide opportunity to turn onto US 25 with fewer potential conflicts | • Does not meet warrants for a signal | - | - | | X | | | | | | N/A | A traffic signal does not meet MUTCD signal warrants and is not recommended for this location at this time. Crash and driver frustration outlined in the stakeholder involvement may be addressed through recommended build options. |

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| US 25 at KY 490 Intersection | No-build | - | - | - | - | - | - | - | • Increased delay for major freight movement KY 490 to US 25 southbound over build options | B | C | | X | | | | N/A | The no-build alternate does not meet the safety and mobility goals outlined in the Purpose and Need statement. |
| | Fire station signal | MP 16.27 | \$ 2,000 | - | - | \$ 20,000 | - | • Improved fire station access and safety | • Nearby signal in close proximity • Ongoing electric cost | - | - | | | | X | N/A | Recommend installation with long-term build alternates after additional coordination with stakeholders. | |
| | Retroreflective signal backplates | MP 16.4 | \$ 1,000 | - | - | \$ 10,000 | 47.0 | • Improved visibility of signal • Low cost | • Maintenance of traffic during installation | - | - | | | X | | I | Relatively low cost, easy installation, and high benefit for reducing predicted crashes. | |
| | Update northbound channelized right-turn pavement markings to eastbound KY 490 | | \$ 500 | - | - | \$ 3,000 | - | • Meets current best practices in MUTCD • Low cost | • May be paired with resurfacing | - | - | | | | X | | Recommend installation to be paired with resurfacing to leverage existing contracts and planned mobilization. | |
| | Green extension loops from westbound KY 490 to southbound US 25 and update signal timing | | \$ 500 | - | - | \$ 5,000 | - | • Improved operations for major movement | • May require signal upgrade | B | B | Stakeholders and local officials identified the major through movement for freight from US 25 to the south and KY 490, and the current configuration prioritizes the through movement on US 25. Recommendations varied from realigning the road to accommodate the major movement to implementing a roundabout. Public survey comments varied from no-build recommendations to support for a potential roundabout. | | | | X | N/A | Recommend installation with future signal rebuild, resurfacing, or with Realigned T build alternate to accommodate major freight movement through the intersection. |
| | Realign slip lane on northeast quadrant and remove acceleration lane | | \$ 10,000 | - | - | \$ 100,000 | - | • Reduced acceleration lane conflict with parking entrance | • Large trucks on down grade, higher cost, low crash rate | - | - | | | | | X | N/A | Relatively high cost for comparatively low safety benefit. The reconfiguration of the Baxters North America entrances is recommended to be included with any future capital improvements at the intersection of US 25 and KY 490. |
| | Realigned T intersection | | \$ 80,000 | - | \$ 600,000 | \$ 800,000 | 1.2 | • Improved convenience for major movement • Reduced crashes | • Requires signal rebuild | B | B | | | | | X | J1 | The reconfiguration of the Baxters North America entrances is recommended to be included with any future capital improvements at the intersection of US 25 and KY 490. |
| | Single-lane roundabout | | \$ 150,000 | \$ 75,000 | \$ 600,000 | \$ 1,500,000 | 2.4 | • Traffic calming • Gateway transition from 55 MPH to 45 MPH target speed • Proven safety countermeasure | • Larger construction footprint than other build alternates • More complex maintenance of traffic | A | A | | | | | X | J2 | The reconfiguration of the Baxters North America entrances is recommended to be included with any future capital improvements at the intersection of US 25 and KY 490. |