

US 6 – CO 9 CORRIDOR OPERATIONS STUDY EXECUTIVE SUMMARY

Summit County, Town of Silverthorne, Town of Dillion

Prepared for CDOT Region 3

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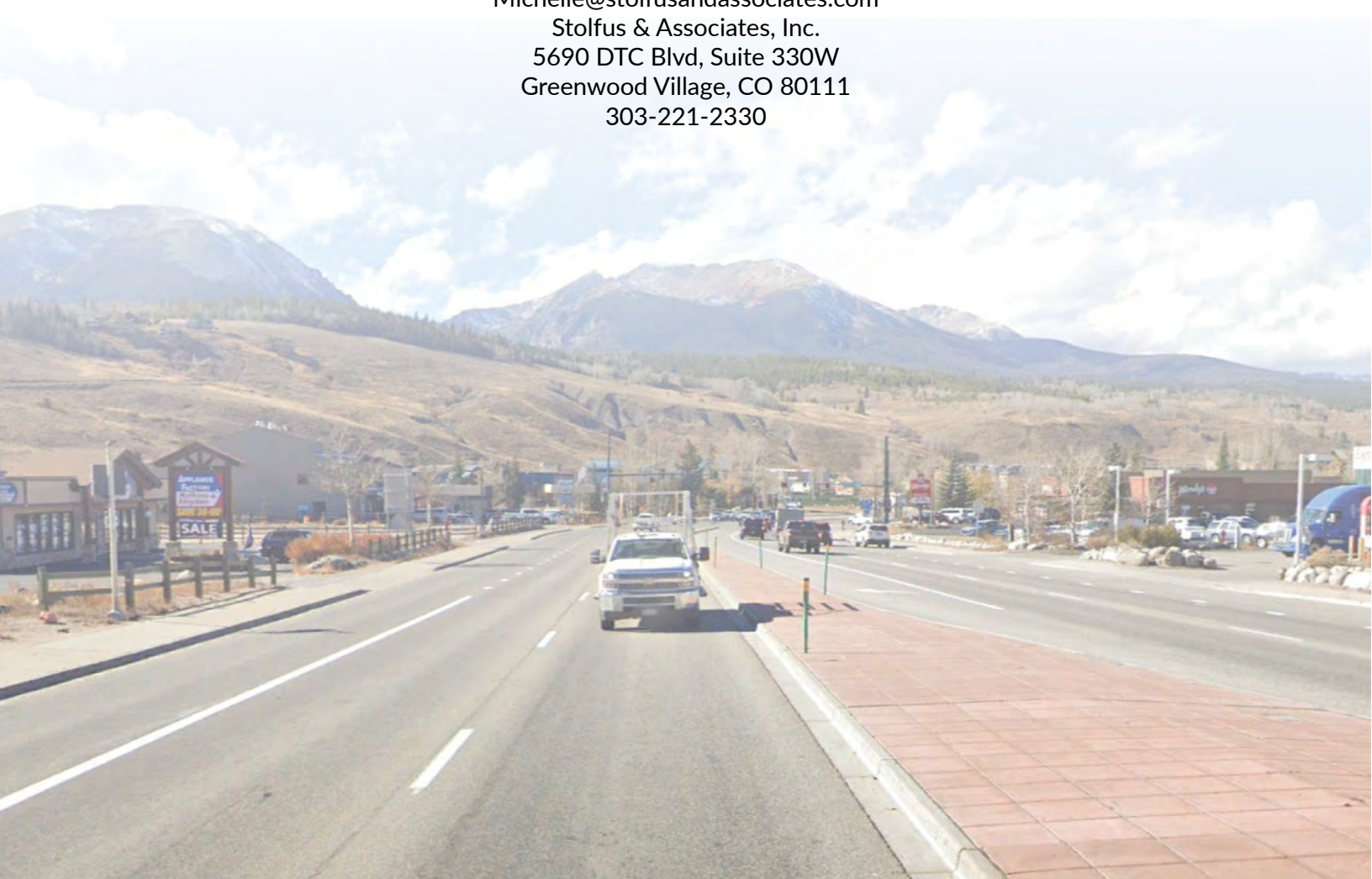
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COLORADO
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Executive Summary

CDOT identified a need to take a data-driven approach to corridor operations and safety to identify efficiency improvements for US 6 and CO 9 in Summit County within the context of existing and proposed land uses and infrastructure. The study limits extend from the I-70 Exit 205 interchange to the north on CO 9 to Hamilton Creek Rd and to the east on US 6 to Lake Dillon Drive. Effects of the Wildernd Rd/Stephen's Way loop were considered in the analysis.

Process

Prior to evaluating corridor operations and alternatives, the project team identified core values and critical issues in partnership with PLT members, including Town of Silverthorne, Town of Dillon, and Summit County. Core Values included the following:

- Corridor Operations
- Safety
- Mobility and Accessibility for All Users
- Communities – Collaboration between Local Agencies and CDOT
- Sustainability

An evaluation matrix was developed with criteria to measure whether alternatives met these Core Values. Results of the matrix were used identify recommendations for the corridor.

To establish a comprehensive understanding of existing conditions and anticipated future growth and development, the project team used the following approach:

1. Developed technical methodologies for traffic projections, traffic analysis, and application of access management principles.
2. Identified a desired "design condition". Friday afternoon and Sunday morning in July were identified as the annual 30th highest hour "design" condition. This is unique because traffic operations are typically evaluated for recurring weekday demand.
3. Gathered data from multiple sources including traffic counts, origin-destination data, statewide traffic model outputs, and previous local studies.
4. Conducted field observation for real-world understanding of traffic patterns and conditions.
5. Reconciled the statewide traffic model growth with the local agencies' understanding of potential development. Traffic is expected to increase by 45% in 2045 on US 6 and CO 9.
6. Calibrated traffic models via direct observation to match existing conditions.

The project team identified and evaluated a range of potential solutions. Using the evaluation matrix, recommendations for potential improvements were identified.

Alternatives

The project team identified a range of potential solutions to consider for overall corridor operations including:

- Traffic control management solutions
- Interchange improvements.
- Access management solutions.
- Multi-modal improvements.
- Alternative routes.

Given the build-out throughout the corridor, capacity improvements were specifically excluded from the study since the physical impacts on the local communities would be too great (i.e. loss of developed properties, expansion of existing barriers for pedestrians and bicyclists). A high level evaluation to understand the potential effects that 6 lanes of traffic would provide was conducted. The result revealed that 6 lanes would not fully accommodate the projected traffic volumes and confirmed the expected scale of impacts.

Recommendations

Alternatives were evaluated based on twenty criteria with a simple positive, neutral, or negative rating system. Three alternatives provided overall favorable results and are recommended for implementation:

- **Traffic Signal Timing Improvements** - Initial traffic signal timing improvements were implemented in 2022 with 9-22% improvement in travel time.
 - Recommend routine review of traffic signal timing plans to match realized growth
 - Recommend investigation of demand responsive signal system to maximize application of timing plans
- **Implementation of Proposed Access Management Plan**
 - Recommend installing medians to restrict movements between traffic signals
 - Recommend extending and/or adding auxiliary lanes for signalized intersections and proposed $\frac{3}{4}$ movements
 - Recommend widening key local streets to accept dual left-turn lanes from US 6 and CO9 including Ruby Ranch Road, Wildercrest Road, Stephen's Way, Little Beaver Trail, and Dillon Ridge Road
- **Invest in Mode Shift**
 - Recommend implementing pedestrian and bicycle improvements to provide connectivity including closing sidewalk gaps, making connections to trail system, grade-separated crossings of US 6, and support off-highway multimodal routes
 - Recommend implementing the Summit Stage Short Range Transit Plan and investigating opportunities for inter-regional transit and a Long Range Transit Plan.
 - Recommend aligning local land-use requirements and parking regulations to support mode shift.
 - Recommend investigating opportunities to support micromobility options such as e-bikes and scooters which could include development of a micromobility hub in the area

Interchange Findings

Based on the evaluation matrix, the interchange alternatives with various subarea options provided mixed results. Regardless of the interchange configuration, the US 6-CO 9 corridor is expected to be over capacity in 2045 and several intersections within the study area will not operate at an acceptable LOS.

The results of the diamond interchange vs DDI microsimulations show an increase in network capacity and off-ramp travel time performance when implementing the DDI, however travel time performance along the US 6 CO 9 corridor worsened. While the DDI can move more vehicles through the interchange, the adjacent intersections experience more congestion. The closely spaced intersections and existing roadway do not have the capacity to move the traffic demand through the corridor.

In reviewing local and statewide resiliency for I-70, US 6 and CO 9 currently provide critical redundancy to I-70 via the strength of connection they provide to US 40. Given recent natural incidents and the risk of continuing incidents along the I-70 corridor, the risk of closures on I-70 is heightened and is expected to remain high within the study period. Construction of a DDI at the junction will limit redundancy and capacity to accommodate I-70 closures for multiple seasons both locally and statewide. The diamond interchange also offers the ability to run I-70 traffic along the ramps across US 6/CO 9 if the I-70 bridge becomes unavailable.

In conclusion, as shown by the evaluation matrix results, the operational benefits that the DDI offers are not compelling enough for CDOT to support the implementation of a DDI at this time due to the risk of limiting I-70 redundancy. Access management improvements and other local road improvements, including the realignment of Little Beaver/Stephen's Way and widening Wildercrest and Stephen's Way to four lanes, contribute positively to improved operations and redundancy on US 6 and CO 9.

Project Funding Opportunities

There are currently many funding opportunities available for transportation infrastructure at the federal, state and local level, especially for local agencies that are trying to advance safety, multimodal transportation, transportation equity, sustainability, economic development, freight, and resiliency. A series of infrastructure improvements have been recommended by the study to create an overall vision for US 6 and CO 9 to address safety and operations. The improvements identified by this operations study show benefit in most, if not all, of these areas. In addition, the majority of these opportunities are enhanced when multiple agencies join together to solve transportation issues at the local and regional level. With this study and the local planning completed and in progress, the communities in Summit County are poised to work together to advance operations and safety throughout the US 6 CO 9 corridor.



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Introduction

In 2023, the Colorado Department of Transportation (CDOT) identified a need to take a data-driven approach to corridor operations and safety to identify efficiency improvements for US 6 and CO 9 in Summit County within the context of existing and proposed land uses and infrastructure. The following four key components were considered in the study:

- Interchange improvement opportunities at I-70 Exit 205
- Access management opportunities
- Spot improvements along the corridor
- Accommodation of multimodal users including transit, bicycle, and pedestrian improvements

The study area located in Summit County begins north of I-70 in the Town of Silverthorne and runs south to the Town of Dillon as illustrated in Figure 1. The limits of the project are along CO 9 between the I-70 interchange (MP 101.56) and Hamilton Creek Road (MP 103.980) and along US 6 between the I-70 Interchange (MP 208.66) and the Evergreen Drive / Lake Dillon Drive (MP 209.84) intersection, totaling approximately 3.63 miles of highway. Effects of the Wildernest Rd/Stephen's Way loop were considered in the analysis.

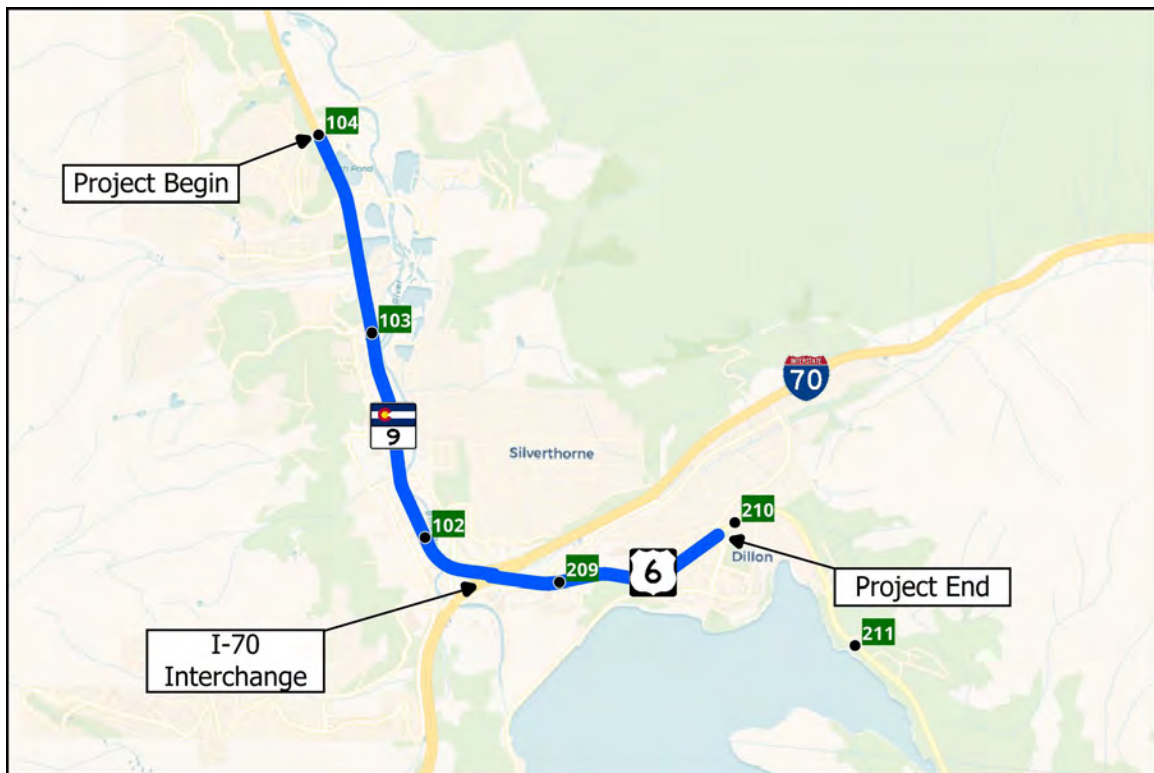


Figure 1: Study Area

The US 6 CO 9 corridor experiences a wide range of traffic demand conditions. Seasonal recreational opportunities make the area most popular during winter and summer months with peak travel time typically occurring on the weekends. US 6 and CO 9 also provide connectivity to other popular destinations in Colorado and serve as alternative routes when I-70 is closed.

Process

Prior to evaluating corridor operations and alternatives, core values and critical issues were identified in partnership with Project Leadership Team (PLT) members, including Town of Silverthorne, Town of Dillon, Summit County, and CDOT. Core Values include the following:

- Corridor Operations
- Safety
- Mobility and Accessibility for All Users
- Communities – Collaboration between Local Agencies and CDOT
- Sustainability

An evaluation matrix was developed with criteria to measure whether alternatives met the PLT's Core Values. Results of the matrix evaluation were used to formulate corridor recommendations.

To establish a comprehensive understanding of existing conditions and anticipated future growth and development, the project team used the following approach:

- Developed technical methodologies for traffic projections, traffic analysis, and application of access management principles.
- Identified a desired "design condition". Friday afternoon and Sunday morning in July were identified as the annual 30th highest hour "design" conditions. This is unique because traffic operations are typically evaluated for recurring weekday demand.
- Gathered data from multiple sources including traffic counts, origin-destination data, statewide traffic model outputs, and previous local studies.
- Conducted field observations for real-world understanding of traffic patterns and conditions.
- Reconciled the statewide traffic model growth with the local agencies' understanding of potential development. Traffic is expected to increase by 45% by 2045 on US 6 and CO 9.
- Calibrated traffic models to closely match existing conditions.

Alternatives

The project team identified a range of potential solutions to preserve overall corridor operations and safety over time, including:

- **Traffic control management** such as traffic signal timing, installation and/or removal of traffic signals, and installation of intersection treatments such as roundabouts.
- **Access management.** Evaluated operations and safety for public road intersections and made recommendations for allowable movements, auxiliary lane improvements and intersection traffic control.
- **Interchange improvements.** Initial high-level evaluations of various interchange types were conducted. These analyses validated that a diamond and diverging diamond interchange (DDI) configurations were appropriate options for consideration consistent with the 2012 Planning and Environmental Linkages (PEL study). Using micro-simulation, a detailed evaluation of corridor operations between 4th Street and Dillon Ridge Road was conducted for a diamond interchange and DDI interchange five different access and geometric alternatives for US 6 east of the interchange identified as subarea options.
- **Multi-modal improvements.** Identified alternatives to improve safety and connectivity for multi-modal users including pedestrians, bicycles, and transit.
- **Alternative routes.** Considered the feasibility and operational impact of removing traffic from the Exit 205 interchange area through implementation of alternative connections across I-70.

Given the apparent right-of-way constraints, the PLT agreed to specifically exclude capacity improvements from the study since the physical impacts on the local communities would be too great (i.e. loss of developed properties, expansion of existing barriers for pedestrians and bicyclists). A high-level evaluation to understand the potential effects that six lanes of traffic would provide was conducted. The result revealed that six lanes would not fully accommodate the projected traffic volumes and confirmed the expected scale of impacts.

Traffic Control Management Solutions

With the many planned developments and altering traffic patterns along the US 6 CO 9 corridor, it is important that the signal timing plans are consistently monitored and updated. The Federal Highway Administration (FHWA) recommends retiming traffic signals every two to three years. This recommendation should be applied to the US 6 CO 9 corridor to ensure that the signals are adapting to the current traffic flow. These updates will help to minimize delays and keep the corridor running smoothly as conditions evolve. In some cases, immediate retiming should be applied where traffic patterns change significantly, such as a new development or a change in the roadway's access. CDOT retimed the traffic signals in the US 6 CO 9 corridor between Annie Road and Lake Dillon Drive in 2022 for three separate seasons: summer, winter and "mud" season. Average travel time improved between 9 percent and 22 percent increasing reliability along the corridor.

In addition to consistently re-timing signal plans based on traffic pattern shifts, monitoring the effectiveness of the technology for and implementing a demand-responsive signal system should be investigated to maximize the current signal plans on the corridor. A demand-responsive signal system is a type of traffic signal control that adjusts signal timings based on real-time traffic

conditions rather than fixed schedules. The system uses sensors to monitor traffic flow and vehicle counts. It then dynamically changes the signal phases based on current demand. The US 6 CO 9 signal system currently implements multiple signal timing plans such as seasonal, AM/PM peaks, and day of week timings. The demand-responsive signal system would allow the corridor to dynamically select from the many timing plans and choose the best fit for the current conditions. This approach would help to optimize traffic flow, reduce congestion, and improve travel times by responding to actual traffic needs rather than relying on preset timings that may not reflect current conditions.

Alternate intersection types were considered at many locations. Roundabouts were considered at the Stephens Way / Wildercrest Road intersection and the Dillon Ridge Rd / US 6 intersection (for more details on this, refer to the *US 6 - CO 9 Corridor Operations Study - Access Management Summary*). Roundabouts were also considered at other locations along US 6, however, the profile grade of US 6 is too high to easily implement them and would create many impacts to adjacent properties

Access Management Plan

Corridor specific issues such as intersection spacing, traffic movements, circulation, safety concerns, land use, topography, alternative access opportunities, and other local planning documents were considered while developing the recommendations for major intersections along the corridor. For more information on the existing conditions, operational performance, and local planned developments of the corridor, see *US 6 - CO 9 Corridor Operations Study - Access Management Summary*.

By observing each intersection on a case-by-case basis, opportunities were discovered to minimize conflict points and improve operations along the corridor. Circulation, spacing, and out of direction travel were factors in developing the plan and the individual intersection improvements. Adjustments to existing unsignalized intersections included proposing a median on US 6 and CO 9 to create either $\frac{3}{4}$ movement intersections or right-in right-out accesses to improve safety and create space for additional auxiliary lane storage.

Once alternatives were developed at each of the corridor's major intersections, the operational performance was evaluated under existing and project future traffic conditions. The Access Management Plan shows improvements for the corridor in the twenty-year (2045) projection, as seen in Table 1.

Table 1: 2045 Intersection Performance

| Corridor Scenario | # of Acceptable Intersections | # of Intersections Nearing Failure | # of Failing Intersections |
|------------------------|-------------------------------|------------------------------------|----------------------------|
| No-Build | 5 | 4 | 11 |
| Access Management Plan | 10 | 6 | 4 |

For full analysis results, please see the *US 6 - CO 9 Corridor Operations Study - Access Management Summary*.

It was determined by the project team and PLT that multiple options needed to be considered in the area between Wildercrest Road/Rainbow Drive east to Dillon Ridge Road which includes Stephens Way and the I-70 Interchange ramps. These options were identified as subarea options in the study. Due to the high number of signals within a short distance of roadway and the high volumes of traffic, specifically those vehicles making left turns, several options were developed with five options further analyzed with both a DDI and improved diamond interchange.

Options 4, which relocated Stephen’s Way and Little Beaver Trail to create a single four-legged intersection with a t-intersection at the commercial access on the south, and Option 5, which applied a signalized ¾ movement at Stephen’s Way, both improved the level of service and capacity at Stephens Way and Little Beaver Trail. Option 4 demonstrated the most improved operations with both a DDI and diamond interchange, reduces conflict points for all users, and is consistent with the Town of Silverthorne’s Transportation Master Plan. Option 4 realigns Stephens Way to the east and Little Beaver to the west to create a single signalized intersection. The intersection includes dual eastbound and westbound left turns. The existing Little Beaver Trail north access is closed making the existing signalized intersection a signalized t-intersection for the commercial access on the south. Refer to Appendix C of the *US 6 - CO 9 Corridor Operations Study - Access Management Summary* for layouts of each option considered.

A complete list of the recommendations included in the Access Management Plan follows. Exhibits of the proposed Access Management Plan and conceptual layouts of the intersection improvements can be found in Appendix B.

Table 2: Access Plan Recommendations

| Intersection | Existing Conditions | Proposed Conditions | Proposed Improvement |
|-----------------------------------|----------------------------|----------------------------|--|
| Hamilton Creek | Signalized Full Movement | Signalized Full Movement | No Changes |
| Bald Eagle Rd/ Golden Eagle Rd | Unsignalized Full Movement | Unsignalized Full Movement | Add EB Left Turn Accel Lane |
| Willowbrook Rd | Unsignalized Full Movement | 3/4 Movement | Restrict EB Left Turn Extend NB Left Turn Lane Add SB Right Turn Decel Lane Add EB Right Turn Accel Lane |
| Smith Ranch Rd | Unsignalized Full Movement | 3/4 Movement | Restrict EB, SB and WB Left Turns Extend NB Left Turn Lane |
| Ruby Ranch Rd | Unsignalized` | Signalized Full Movement | Signalize When Warranted Add Dual NB Left Turn Lanes Widen Ruby Ranch Road to accept dual left turns Add SB Right Turn Decel Lane |
| W 13th St. | Unsignalized Full Movement | Right-In/Right-Out | Restrict Left Turns |
| W 12th St. | Unsignalized Full Movement | Right-In/Right-Out | Restrict Left Turns |
| W 11th St. | Right-In/Right-Out | 3/4 Movement | Restrict EB Left Turn Extend NB Left Turn Lane |
| W 10th St. | Unsignalized Full Movement | Right-In/Right-Out | Restrict Left Turns |
| W 9th St. | Right-In/Right-Out | Right-In/Right-Out | Restrict Left Turns |
| Annie Rd | Signalized Full Movement | Signalized Full Movement | Extend NB Left Turn Lane |
| W 7 th St. | Unsignalized Full Movement | Right-In/Right-Out | Restrict Left Turns |

| | | | |
|--|-----------------------------------|-----------------------------------|--|
| W 6th St. | Signalized Full Movement | Signalized Full Movement | Extend SB Left Turn Lane Add SB Right Turn Lane |
| W 5th St. | Unsignalized Full Movement | Right-In/Right-Out | Restrict Left Turns |
| W 4th St. | Signalized Full Movement | Signalized Full Movement | *No Changes |
| W 3rd St. | Unsignalized Full Movement | 3/4 Movement | Restrict EB Left Turn Extend NB Left Turn Lane Remove median landscaping to improve sight distance north of 3 rd Street |
| Private Access | ¾ Movements | Right-In/Right-Out | Restrict Left Turns |
| Wilderness Rd. | Signalized Full Movement | Signalized Full Movement | NB Dual Left Turn Lanes Widen Wilderness Road to accept dual left turns Add SB Right Turn Lane Add Free NB Right Lane Extend SB Left Turn Lane |
| Private Properties Between Wilderness Rd and I-70 | Right-In/Right-Out | Close Access | Close access with redevelopment and provide access via local roadways |
| I-70 WB Ramps | Signalized Full Movement | Signalized Full Movement | Extend WB Left Turn Lane |
| I-70 EB Ramps | Signalized Full Movement | Signalized Full Movement | No Changes |
| Stephens Way/Little Beaver Trail | Signalized 3-Legged Full Movement | Signalized 4-Legged Full Movement | Shift Stephen's Way east approximately 100' Realign Little Beaver Trail to align with Stephens Way Add Dual EB & WB Left Turn Lanes Widen Stephen's Way and Little Beaver Trail to accept dual left turns Add WB Right Turn Lane |

| | | | |
|---|--------------------------|-----------------------------------|---|
| Existing Little Beaver Trail | Signalized Full Movement | Signalized 3-Legged Full Movement | Close North Access |
| W Anemone | ¾ Movement | Right-In/Right-Out | Restrict WB Left Turn |
| E Anemone Trail/Dillon Ridge Rd. | Signalized Full Movement | Signalized Full Movement | Add Dual SB Left Turn Lanes Widen Dillon Ridge Road to accept dual left turns Separate NB & SB Left Turns from thru movements and eliminate split phasing |
| Dillon Dam Rd. | Signalized Full Movement | Signalized Full Movement | Extend WB Left Turn Lane Extend EB Right Turn Lane |
| Lake Dillon Dr. | Signalized Full Movement | *Signalized Full Movement | Extend EB Left Turn |

Interchange & Subarea Analysis

The analyses performed for the project concluded that both the existing diamond interchange and a diverging diamond interchange (DDI) are the most feasible options for the US 6 CO 9 and I-70 interchange. Microsimulation was used to further analyze which interchange type in combination with adjacent intersection improvements would be the most effective for traffic operations and safety along the corridor. The microsimulation modeled the interchange and the US 6 CO 9 corridor extending from just north of 4th Street to just east of the Dillon Ridge Road/E Anemone Trail intersection. The Wildernd Road and Stephens Way loop was also included.

The microsimulation model was first calibrated to existing conditions to ensure the model is representative of real traffic conditions. Data collection was taken on Friday March 24, 2023, from 4-5 PM and a field visit was conducted at this time to verify traffic conditions. Vehicle and driver parameters in the microsimulation model were adjusted to match these conditions as closely as possible. These parameters were applied to all models for the project.

Microsimulation models were prepared of the No-Build diamond interchange along with adjacent intersections. Existing (2022), Interim (2035), and Future (2045) volumes developed for the project were used along with origin-destination data to capture the specific weaving movements and origin-destinations along the corridor. Microsimulations were run for existing, interim, and future traffic to develop an understanding of how the network is operating today and how traffic growth will impact the existing corridor.

The DDI was also modelled and tied into the corridor's existing geometry. This model was meant to analyze the effects of modifying the interchange to a DDI while keeping the remainder of the corridor as is. The existing, interim, and future traffic demand with origin-destinations applied were evaluated with the DDI configuration.

The results of the diamond interchange vs DDI microsimulations show an increase in network capacity and off-ramp travel time performance when implementing the DDI, however travel time performance along the US 6 CO 9 corridor worsened. While the DDI can move more vehicles through the interchange, the adjacent intersections experience more congestion. The closely spaced intersections and existing roadway do not have the capacity to move the traffic demand through the corridor.

Four subarea options were analyzed in the microsimulations to aid the flow of traffic along US 6 and CO 9. The subarea options considered multiple configurations and access restrictions to the intersections east of the interchange to improve capacity. The subarea options were applied to the diamond interchange and DDI models to analyze which combination of interchange and subarea improvements were most beneficial to traffic operations. Option 4, the realignment of Stephens Way and Little Beaver Trail, had the best results for both the diamond interchange and DDI.

When looking only at the I-70 interchange at US 6 CO 9, the implementation of a diverging diamond interchange shows the most operational benefit, however it leads to more congestion along the US 6 CO 9 network. Additional access modifications implemented in the sub-area options provide additional benefit when paired with the DDI. Overall, the sub-area option 4 shows the best results with both the diamond interchange and the DDI. Refer to the *US 6 - CO 9 Corridor Operations Study - Microsimulation Analysis Memo* for further details.

Multimodal Improvements

With the anticipated traffic growth and limitations for increasing capacity along US 6 CO 9, multimodal improvements are an option to reduce traffic and congestion during peak periods.

Currently, there are gaps in the sidewalk and shared-use path networks along the corridor. Pedestrian crossings are limited and challenging due to the wide roadways and heavy traffic, with only one grade-separated crossing existing near Rainbow Drive/Wilderness Road.

Current public transit includes Summit Stage, which provides public transit along US 6 CO 9 with routes connecting Silverthorne, Dillon, and Keystone. Silverthorne Station, located at Adams Avenue and 4th Street, serves as a transit hub for the area, with routes to Silverthorne, Dillon, Wilderness, Frisco, and Keystone.

To encourage a mode shift, several improvements were identified to help reduce traffic congestion, improve accessibility, and improve quality of life for locals and visitors as listed below:

- Extending sidewalks on CO 9 to fill existing gaps, particularly from Ruby Ranch Road to 3rd Street, will better connect new developments and local businesses.
- Adding a shared-use path along the north side of US 6 from the EB I-70 on-ramp to Lake Dillon Drive improves access to Downtown Dillon and local businesses.
- Addition/extension of bike lanes on local roadways to connect neighborhoods and existing trails.
- Grade-separated crossings, such as an underpass at Straight Creek and a pedestrian bridge at Lake Dillon Drive, to enhance pedestrian connectivity.
- Implementation of the Summit Stage Short Range Transit Plan and development of Long Range Transit Plan including investigation of inter-regional transit opportunities

- Non-infrastructure improvements such as adjusting parking regulations, encouraging micromobility options such as e-bikes, and considering a micromobility hub

Refer to the *US 6 - CO 9 Corridor Operations Study – Multimodal Improvements Memo* for further details.

Alternative Routes

Due to projected traffic growth and anticipated future developments, the US 6 and CO 9 corridor is expected to exceed capacity by 2045. To alleviate traffic congestion along the highway, alternative routes were evaluated. These routes would provide bypass options around the interchange, reducing traffic volume. One proposed route would establish a direct connection from I-70 to the east end of the corridor past Dillon Ridge Road / E. Anemone Trail. The second option would connect the residential area Wilderdest to Dillon Dam Road. These improvements are projected to reduce traffic through the interchange. Figure 2 outlines the percentage of vehicles that would be removed from the interchange. Despite these potential reductions, US 6 and CO 9 would remain over capacity, and the costs, right-of-way needs, and environmental impacts associated with developing these alternatives significantly outweigh the expected benefits. These options were considered not feasible and do not justify the cost/impact to the corridor and surrounding properties.

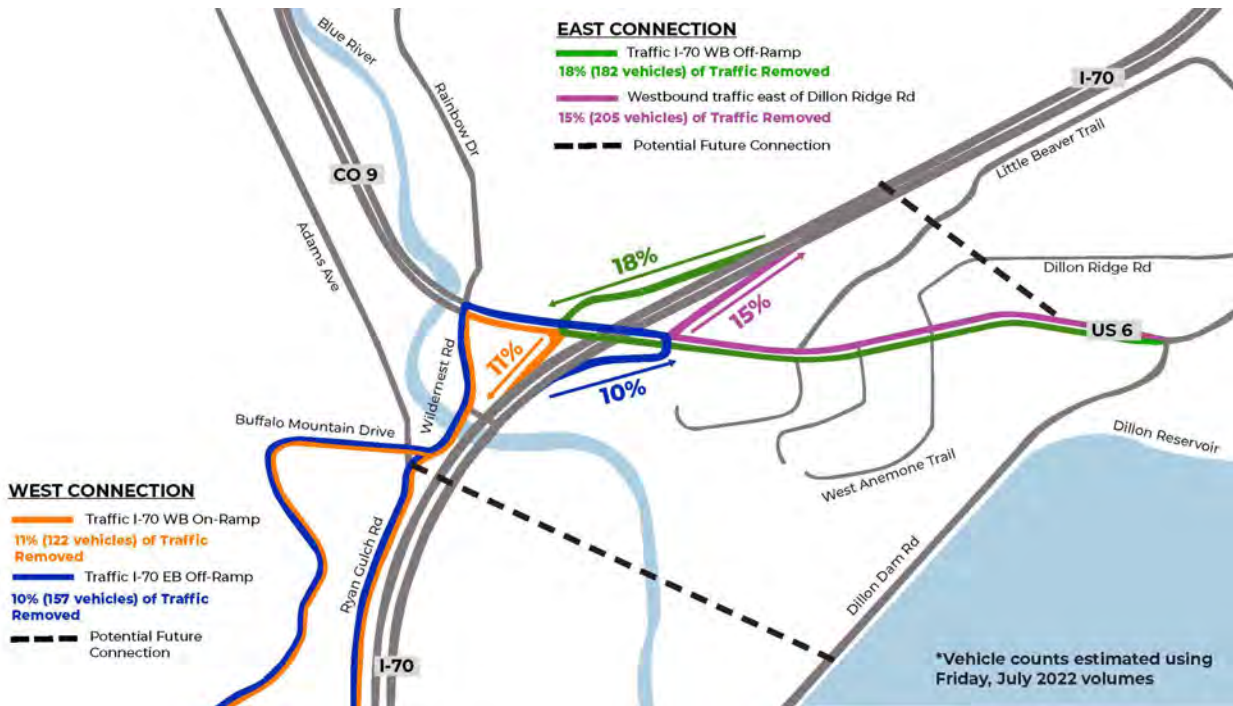


Figure 2: Alternative Routes

Local Road Improvements

As part of the study, the Wilderdest Road/Stephen’s Way loop was evaluated. It was confirmed that the loop provides a critical alternative route to the US 6 and CO 9 corridor under I-70 by

reducing demand on the highway and providing resiliency during incidents that impact the highway under I-70. The Town of Silverthorne’s plan to provide four lanes of traffic on both Wilderndest Road and Stephen’s Way improves operations on the highway. Controlling access on both of these roadways, as proposed in the Town’s Master Plan, will benefit the system from both a safety and operational perspective.

Based on the recommendations for double lefts from the access management analysis, widening the local roadway to accept double lefts will be required at the following locations: Wilderndest Road, Stephen’s Way, Little Beaver Trail, Dillon Ridge Road, and Ruby Ranch Road. In addition, the results of the analysis supports the implementation of the following local Master Plan Improvements in Silverthorne, Dillon and Summit County:

- Multimodal connections on US 6
- Option 4 – Realignment of Little Beaver Trail with Stephen’s Way
- 4 lanes on Wilderndest Road and Stephen’s Way
- Roundabout at Wilderndest Road/Stephen’s Way intersection
- Access control on Wilderndest Road and Stephen’s Way
- Adams Avenue Extension

Evaluation

The project team identified and evaluated a range of potential solutions. Using the evaluation matrix, recommendations for potential improvements were identified.

The analyses done for the project including traffic control management solutions, access improvements, interchange and subarea options, multimodal improvements, and alternative routes across I-70 were assessed using the evaluation matrix developed at the beginning of the project. Alternatives were evaluated based on twenty criteria with a simple positive, neutral, or negative rating system. Alternatives with results greater than +7 were identified as positive. Alternatives with results less than a -7 were identified as negative and those in between were neutral. The results of the evaluation matrix are shown in Table 3 below. Refer to the attached evaluation matrix for detailed results.

Table 3: Evaluation Matrix Results

| Alternative | Rating |
|---|---------------|
| <i>Traffic Signal Timing</i> | 15 |
| <i>Mode Shift</i> | 12 |
| <i>Access Improvements</i> | 9 |
| <i>Diamond Interchange</i> | 7 |
| DDI Interchange | 4 |
| DDI Option 4 - Realigned Little Beaver and Signalized Full Movement at Plaza Dr | 4 |

| | |
|---|----|
| Diamond Option 4 - Realigned Little Beaver and Signalized Full Movement at Plaza Dr | 4 |
| Alternative Routes across I-70 | 2 |
| Diamond Option 5 - ¾ Stephen's and Signalized Full Movement at Little Beaver | 2 |
| DDI Option 5 - ¾ Stephen's and Signalized Full Movement at Little Beaver | -1 |
| DDI Option 2 - Realigned Little Beaver and ¾ Plaza Dr | -2 |
| DDI Option 1 - ¾ Stephen's and ¾ Little Beaver | -6 |

Recommendations

Three alternatives provided overall favorable results and are recommended for implementation:

- **Traffic Signal Timing Improvements** - Initial traffic signal timing improvements were implemented in 2022 with 9-22% improvement in travel time.
 - Recommend routine review of traffic signal timing plans to match realized growth
 - Recommend investigation of demand responsive signal system to maximize application of timing plans
- **Implementation of Proposed Access Management Plan**
 - Recommend installing medians to restrict movements between traffic signals
 - Recommend extending and/or adding auxiliary lanes for signalized intersections and proposed ¾ movements
 - Recommend widening key local streets to accept dual left-turn lanes from US 6 and CO9 including Ruby Ranch Road, Wildercrest Road, Stephen's Way, Little Beaver Trail, and Dillon Ridge Road
- **Invest in Mode Shift**
 - Recommend implementing pedestrian and bicycle improvements to provide connectivity including closing sidewalk gaps, making connections to trail system, grade-separated crossings of US 6, and support off-highway multimodal routes
 - Recommend implementing the Summit Stage Short Range Transit Plan and investigating opportunities for inter-regional transit and a Long Range Transit Plan.
 - Recommend aligning local land-use requirements and parking regulations to support mode shift.
 - Recommend investigating opportunities to support micromobility options such as e-bikes and scooters which could include development of a micromobility hub in the area

While local road improvements were not evaluated with the matrix, the study confirmed that the following planned local road improvements benefit safety and operations on US 6 and CO 9 and provide added resilience to the system:

- Multimodal connections on US 6
- Option 4 - Realignment of Little Beaver Trail with Stephen's Way

- 4 lanes on Wildernest Road and Stephen's Way
- Roundabout at Wildernest Road/Stephen's Way intersection
- Access control on Wildernest Road and Stephen's Way
- Adams Avenue Extension

Interchange Analysis Conclusions

Based on the evaluation matrix, the interchange alternatives with various subarea options provided mixed results. Regardless of the interchange configuration, the US 6-CO 9 corridor is expected to be over capacity in 2045 and several intersections within the study area will not operate at an acceptable LOS.

While the microsimulation shows the most localized operational benefit for the DDI with Option 4 (Realigned Little Beaver/Stephen's Way), the closely spaced intersections near the interchange, including Wildernest Road/Rainbow Drive, Stephen's Way, Little Beaver Trail, and Dillon Ridge Road, create bottlenecks that prevent traffic from reaching the interchange to receive the full operational benefit offered by reconfiguration. Corridor capacity is generally maintained with a diamond interchange with Option 4.

The DDI option provides safety benefits by reducing left-turning conflict points, however the corridor does not currently experience a level of crashes that results in a compelling safety Benefit/Cost ratio. The diamond interchange option offers high driver expectancy with traditional intersection configurations.

In reviewing local and statewide resiliency for I-70, US 6 and CO 9 currently provide critical redundancy to I-70 via the strength of connection they provide to US 40. Given recent natural incidents and the risk of continuing incidents along the I-70 corridor, the risk of closures on I-70 is heightened and is expected to remain high within the study period. Construction of a DDI at the junction will limit redundancy and capacity to accommodate I-70 closures for multiple seasons both locally and statewide. The diamond interchange also offers the ability to run I-70 traffic along the ramps across US 6/CO 9 if the I-70 bridge becomes unavailable.

In conclusion, as shown by the evaluation matrix results, the operational benefits that the DDI offers are not compelling enough for CDOT to support the implementation of a DDI at this time due to the risk of limiting I-70 redundancy. Access management improvements and other local road improvements, including the realignment of Little Beaver/Stephen's Way and widening Wildernest and Stephen's Way to four lanes, contribute positively to improved operations and redundancy on US 6 and CO 9.

Project Funding Opportunities

A series of infrastructure improvements have been recommended by the study to create an overall vision for US 6 and CO 9 to address safety and operations. Implementation of these improvements will likely not occur all at once and can be phased and prioritized in a variety of different ways based on types of funding sources. Depending on the type of improvement, there may be opportunities for private, local, state, and federal funding sources.

Private Funding Sources

For recommended access management improvements, any site that develops either directly on the highway or along a local roadway that intersects with the highway that will increase the traffic at the highway by 20% or more (per the State Highway Access Code) must be required to go through the CDOT Access Permit process to determine highway improvements the development is responsible for constructing. If the development is on a local roadway that feeds the highway intersections, the local agency will be the permittee in coordination with the development. In addition, it is recommended that local agencies require developments to provide multimodal improvements in front of their site with their project, as appropriate.

Public Funding Sources

For projects that will be publicly funded, the project type, cost, benefit, and potential partnerships will guide local agencies and CDOT in determining potential funding sources for various projects. For the purpose of understanding potential costs and phased projects of the vision presented in this study, a series of projects with logical limits and improvements have been defined and conceptual level costs have been developed. Costs are conceptual in nature and are meant for planning purposes only. Conceptual Opinions of Probable Cost (OPC) using 2024 dollars were prepared for each segment using unit cost data from the CDOT historical data for recent project bids from similar projects and similar locations. Due to the conceptual nature of the project, several items were quantified as percentage items of the construction bid items. In addition, a range of contingencies were included to plan for miscellaneous items either not specifically quantified or unknown at this time. Costs do not include right-of-way, environmental mitigation, or landscaping. Detailed OPC's can be found in the Appendix.

Table 4 provides a list of construction segments and a range of conceptual level costs with possible project funding sources for consideration. It is worth noting that the funding sources may not fund the construction of the entire segment and that additional investigation into grant requirements is needed to confirm the applicability of the grant to particular projects. There are currently many state and federal grant programs available for transportation infrastructure implementation. Several grants that could be considered for projects include, but are not limited to:

- Highway Safety Improvement program (HSIP)
- CDOT FASTER Safety
- SS4A Implementation (in conjunction with Town of Silverthorne and Summit County's SS4A Action Plans currently in development)
- Revitalizing Main Streets (RMS)
- Transportation Alternative Program (TAP)
- Multimodal Transportation and Mitigation Options Fund (MMOF)

- Rebuilding American Infrastructure with Sustainability and Equity (RAISE)
- Multimodal Project Discretionary Grants(MPDG) – MEGA, INFRA and Rural Programs

There are also many transit related grants including Office of Innovative Mobility (OIM) Grants, the Volkswagen Settlement Trust – Transit Bus Replacement Program and other grants through the Federal Transit Administration that could also be pursued for various Summit Stage transit projects that are not identified in Table 4. In addition, the Strengthening Mobility and Revolutionizing Transportation (SMART) Grants Program may provide opportunities for funding pilot projects for demand responsive signal systems or other technology that can help manage traffic in the corridor.

Table 4: Project Costs and Potential Funding Sources

| Project Segment | Estimated | Project | Cost | Potential Funding Sources |
|---|------------|---------|------------|-----------------------------------|
| Golden Eagle Rd/Bald Eagle Rd | 2,700,000 | to | 3,100,000 | FASTER, SS4A, RAISE*, MPDG* |
| Willowbrook Rd. to Smith Ranch Rd. | 1,700,000 | to | 2,000,000 | FASTER, SS4A, RAISE*, MPDG* |
| Ruby Ranch Rd to 13 th St | 3,300,000 | to | 3,800,000 | HSIP, FASTER, SS4A, RAISE*, MPDG* |
| 12 th St to 9 th St | 2,000,000 | to | 2,400,000 | FASTER, SS4A, RAISE*, MPDG* |
| Annie Rd. to 6 th St. | 1,300,000 | to | 1,500,000 | HSIP, FASTER, SS4A, RAISE*, MPDG* |
| 5th St. | 1,100,000 | to | 1,200,000 | SS4A, RAISE*, MPDG* |
| 4 th & 5 th St | 2,700,000 | to | 3,100,000 | RMS, TAP, MMOF, RAISE*, MPDG* |
| 3rd to Wilderndest Rd. | 3,200,000 | to | 3,700,000 | HSIP, FASTER, SS4A, RAISE*, MPDG* |
| Wilderndest Rd. to Stephens Way (Roundabout) | 4,200,000 | to | 4,900,000 | SS4A, RAISE*, MPDG* |
| Stephens Way 4 Lane to Little Beaver Trail Connection | 6,900,000 | to | 7,900,000 | SS4A, RAISE*, MPDG* |
| Improved Diamond | 100,000 | to | 300,000 | SS4A, RAISE*, MPDG* |
| Option 4 | 13,300,000 | to | 15,400,000 | HSIP, FASTER, SS4A, RAISE*, MPDG* |
| East Anemone Trail to Dillon Ridge Rd. | 1,500,000 | to | 1,800,000 | HSIP, FASTER, SS4A, RAISE*, MPDG* |
| Dillon Dam Rd. | 600,000 | to | 700,000 | FASTER, SS4A, RAISE*, MPDG* |

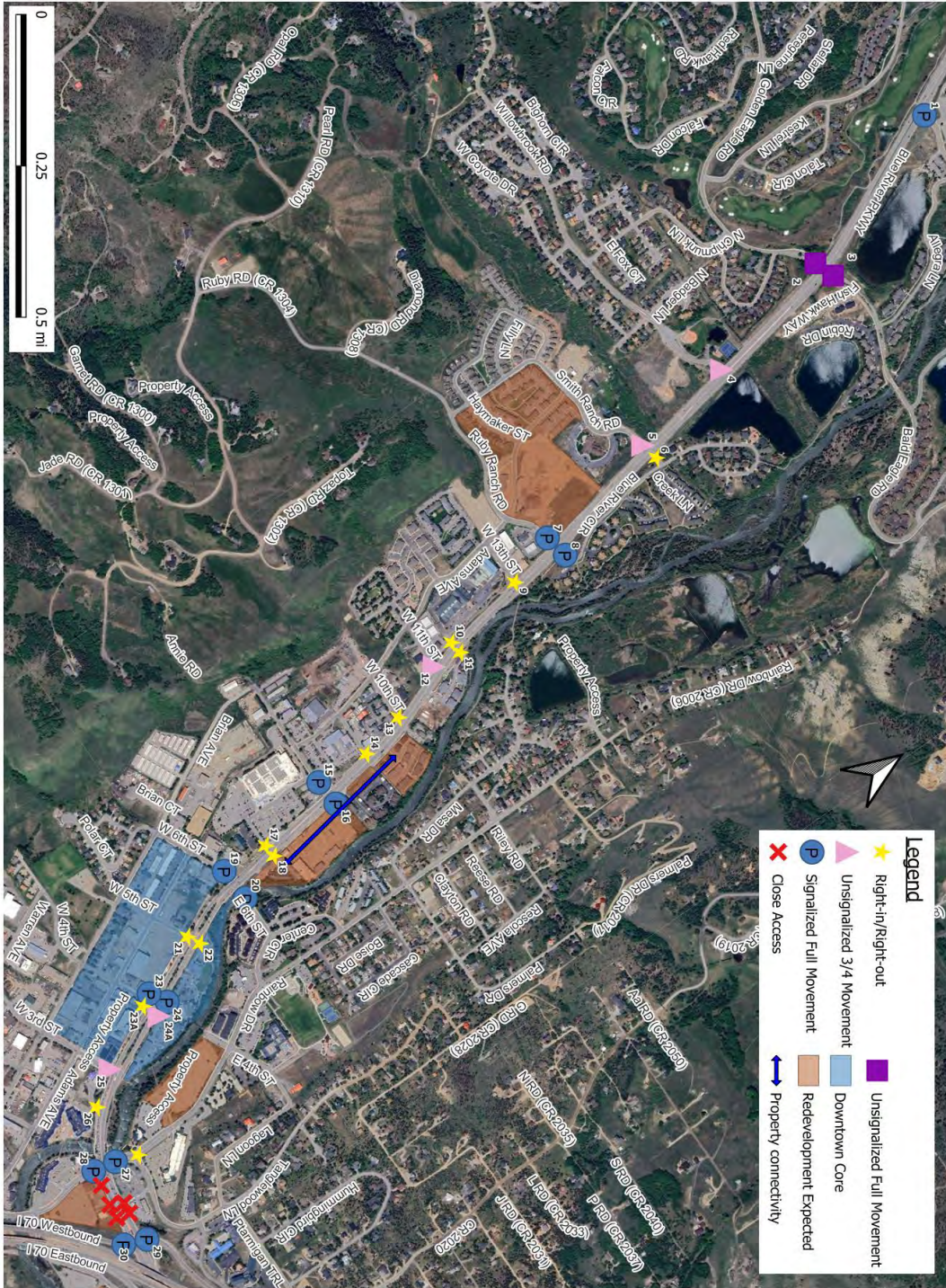
*In considering project limits for RAISE and MPDG grants, it is likely beneficial to combine a series of the projects identified above to show the highest benefit and to identify opportunities for partnership and collaboration between agencies.

To assist with understanding the potential for safety specific grants, each of the proposed intersection improvements was evaluated to determine the potential safety benefits they may provide. When applicable to a specific treatment, a crash modification factor (CMF) was used as the primary metric to quantify the expected safety benefit. A CMF is a multiplicative factor used to compute the number of crashes expected to occur after implementing a countermeasure. The factor is derived from studies comparing the number of crashes before implementation of a countermeasure to the number of crashes after implementation. Based upon the CMF factors, project funding sources may be available at certain intersections. A table identifying CMF's is included in the Appendix for reference. For proposed treatments for which a CMF is not available, a brief narrative is provided discussing the expected safety benefits.

In summary, there are currently many funding opportunities available for transportation infrastructure at the federal, state and local level, especially for local agencies that are trying to advance safety, multimodal transportation, transportation equity, sustainability, economic development, freight, and resiliency. The improvements identified by this operations study show benefit in most, if not all, of these areas. In addition, most of these opportunities are enhanced when multiple agencies join together to solve transportation issues at the local and regional level. With this study and the local planning completed and in progress, the communities in Summit County are poised to work together to advance operations and safety throughout the US 6 CO 9 corridor.

Appendix A

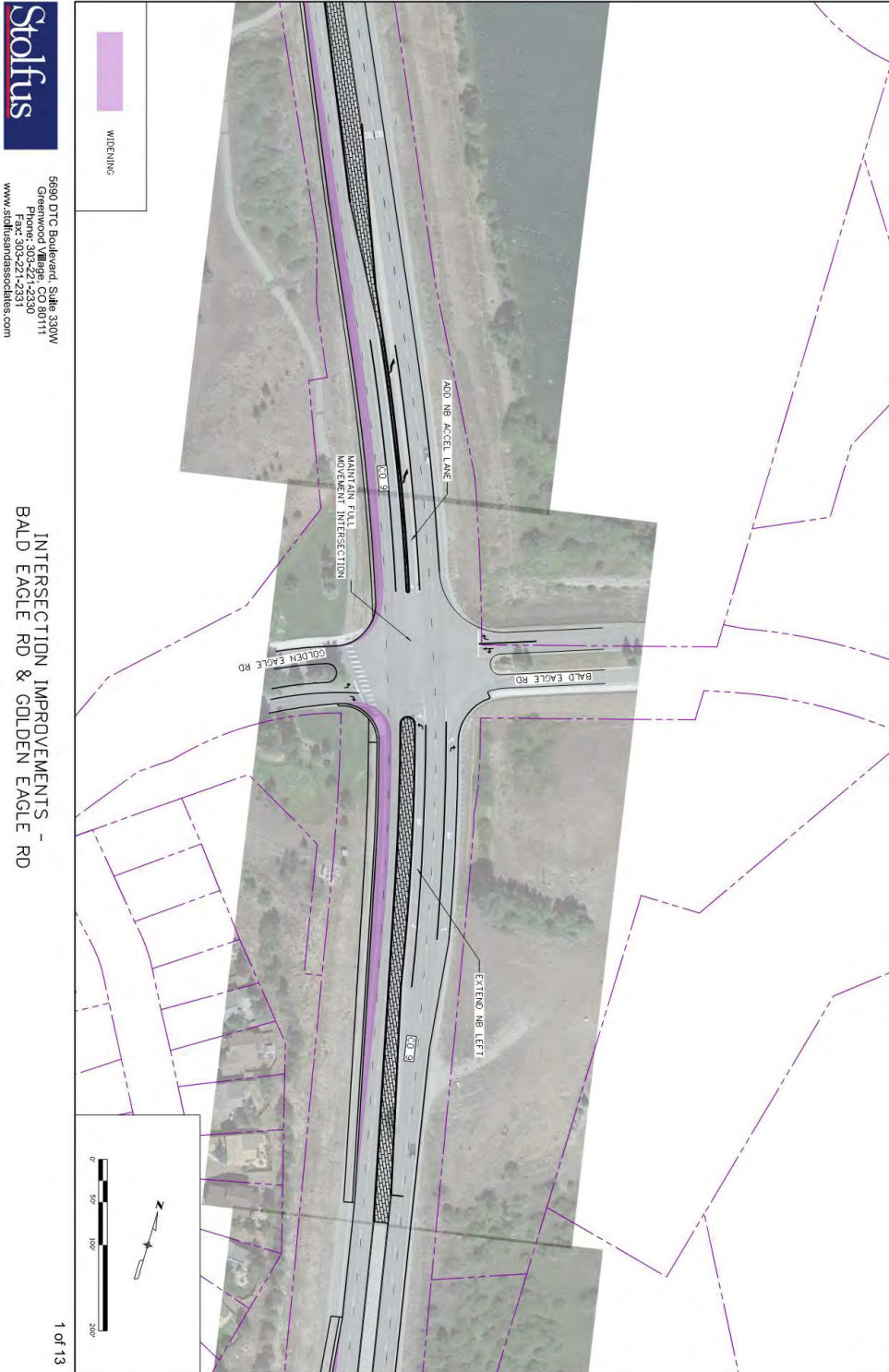
APPENDIX A



APPENDIX A



Appendix B



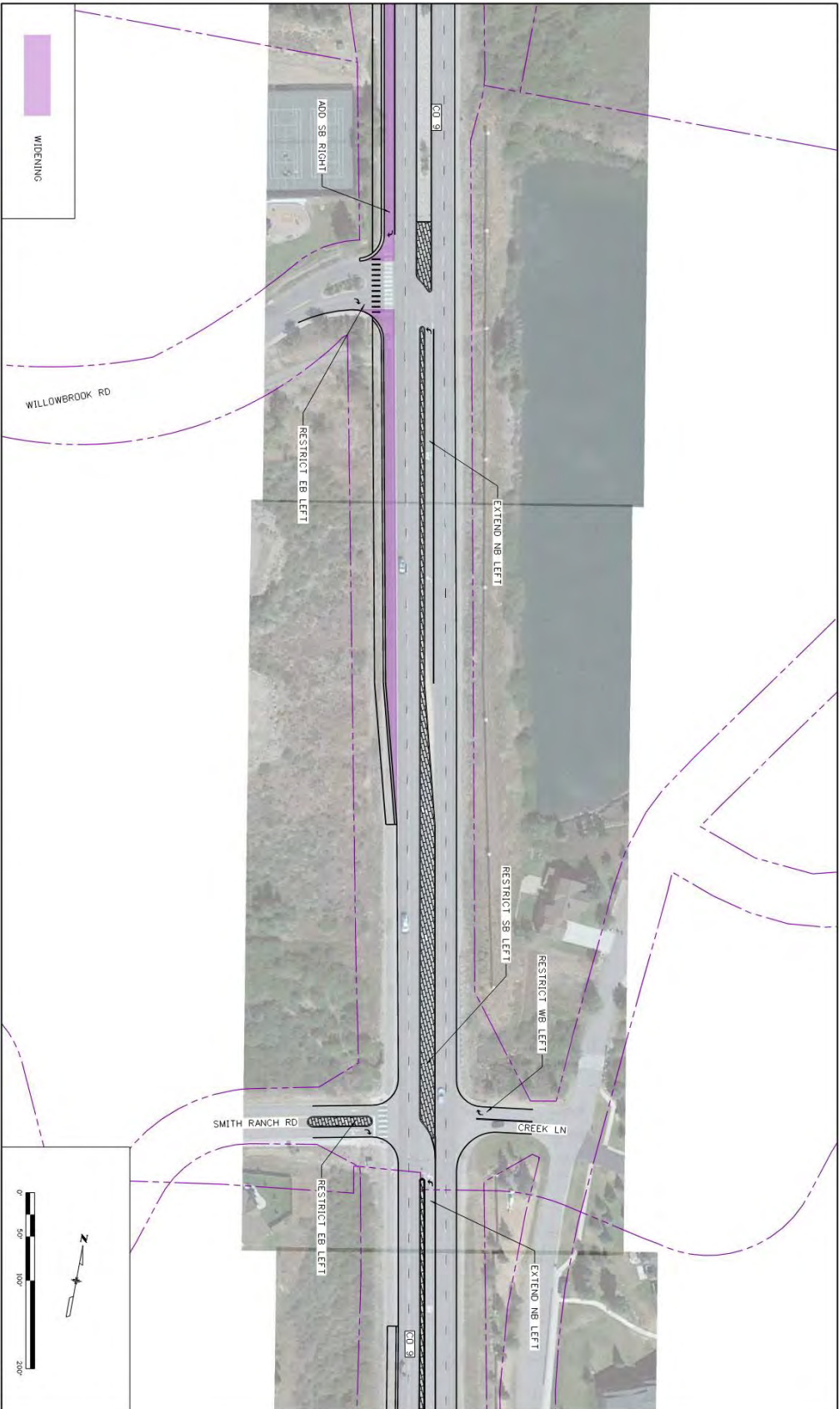
APPENDIX B

Stolfus
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 Greenwood Village, CO 80111
 Phone: 303.227.2330
 Fax: 303.227.2330
 www.stolfusengineering.com

INTERSECTION IMPROVEMENTS -
 BALD EAGLE RD & GOLDEN EAGLE RD

1 of 13

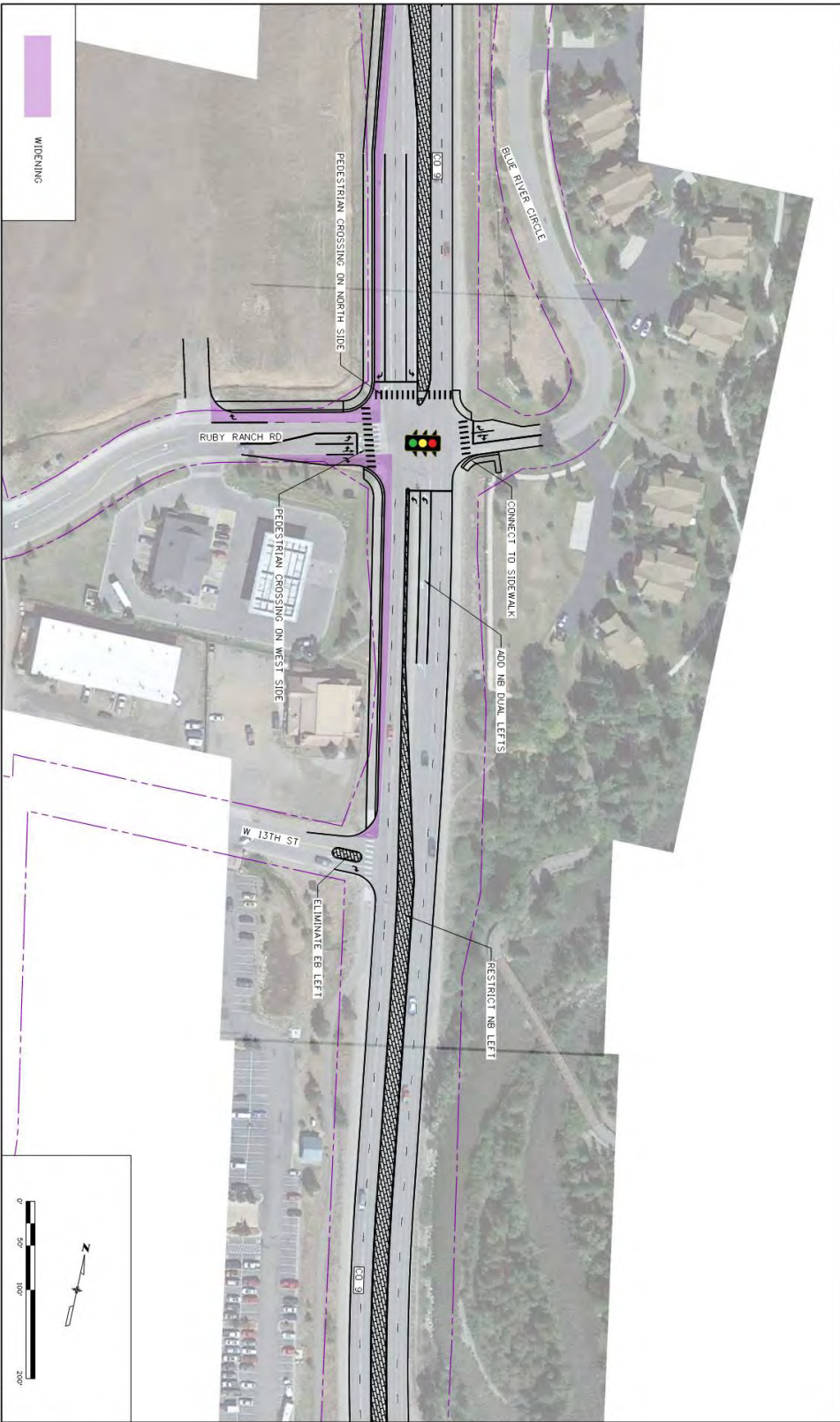
APPENDIX B



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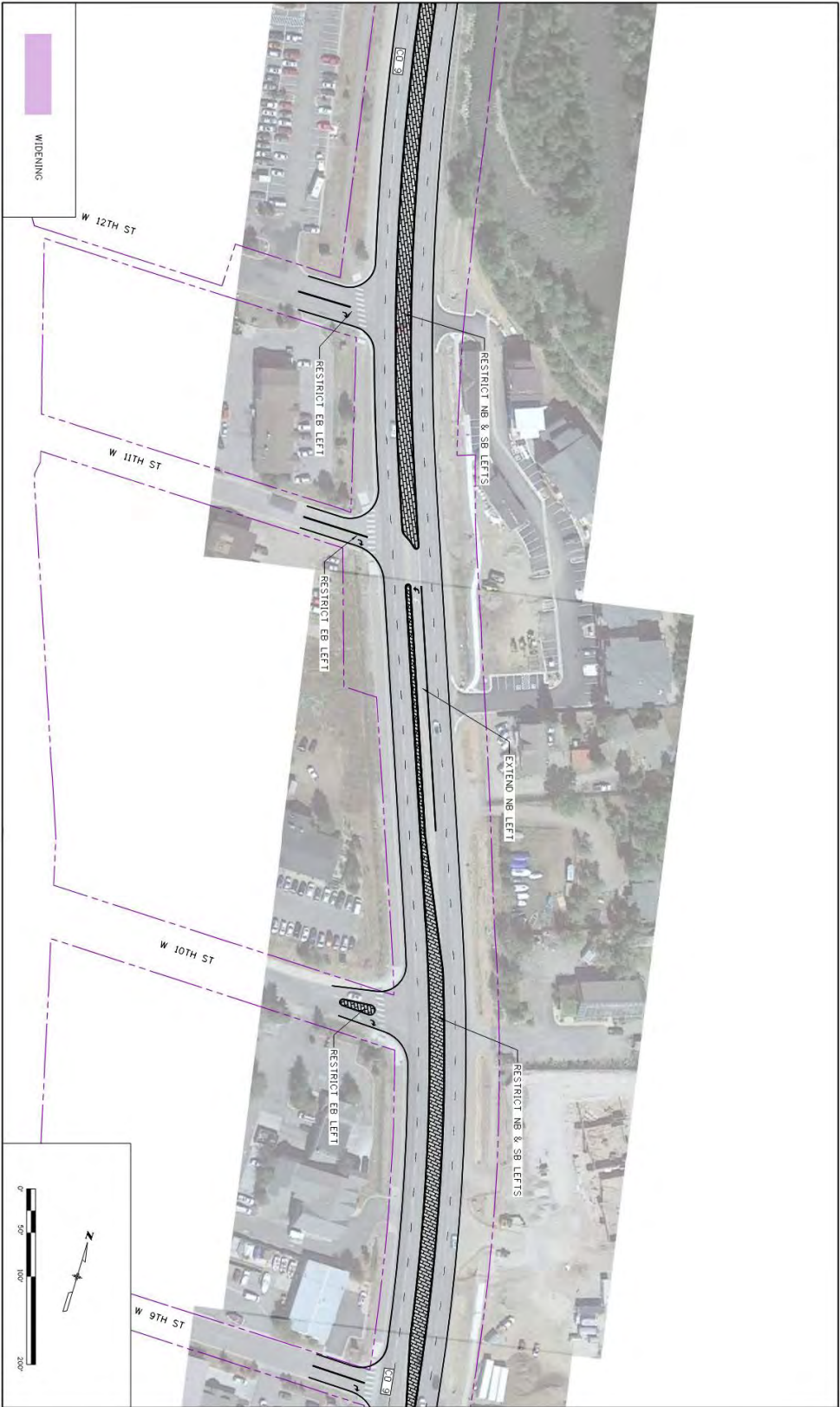
INTERSECTION IMPROVEMENTS -
 WILLOWBROOK RD & SMITH RANCH RD

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 5690 DTC Boulevard, Suite 330W
 Greenwood Village, CO 80711
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INTERSECTION IMPROVEMENTS -
 RUBY RANCH RD & 13TH ST



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 Fax: 303-221-2231
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INTERSECTION IMPROVEMENTS -
 9TH ST TD 12TH ST



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INTERSECTION IMPROVEMENTS -
 ANNIE RD



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INTERSECTION IMPROVEMENTS -
 3RD ST TO 5TH ST

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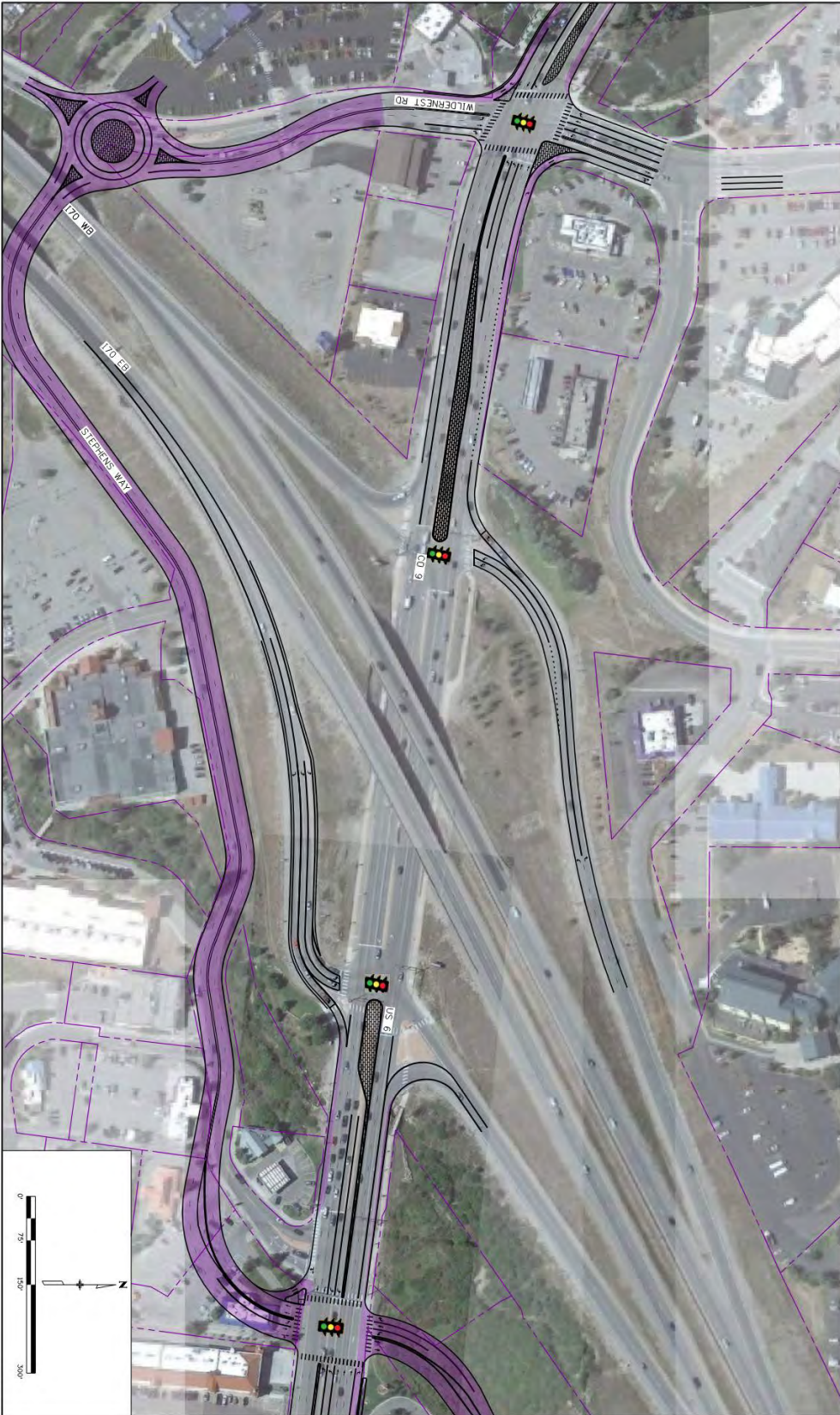
INTERSECTION IMPROVEMENTS -
 3RD ST TO WILDERNEST RD

APPENDIX B



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INTERSECTION IMPROVEMENTS -
 WILDERNEST RD / STEPHENS WAY LOOP



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Greenwood Village, CO 80111
Phone: 303-421-2330
Fax: 303-421-2331
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US 6 / CD 9 & I-70 INTERCHANGE
IMPROVED DIAMOND

APPENDIX B

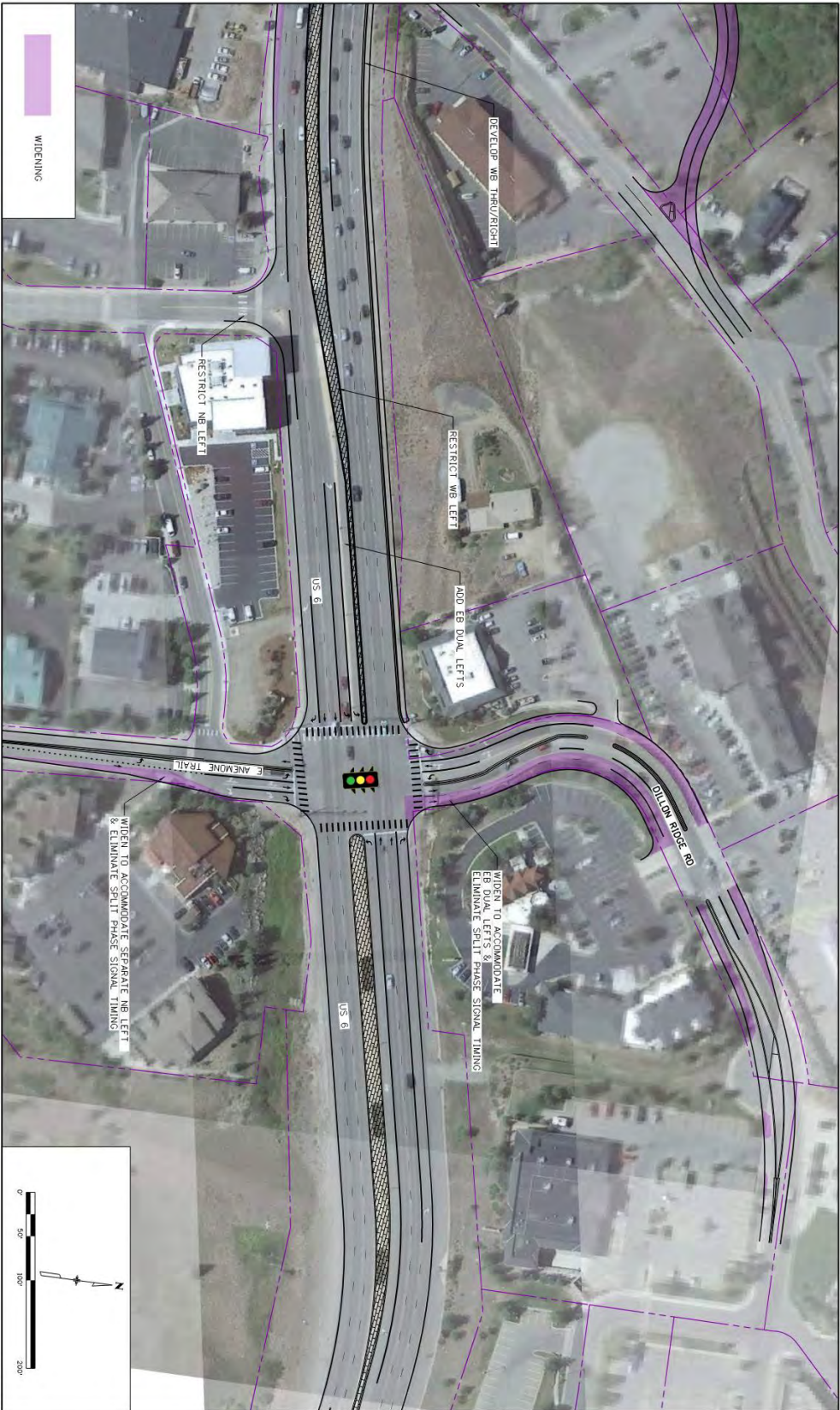


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SUB AREA
 IMPROVED DIAMOND - OPTION 4

10 of 13

APPENDIX B



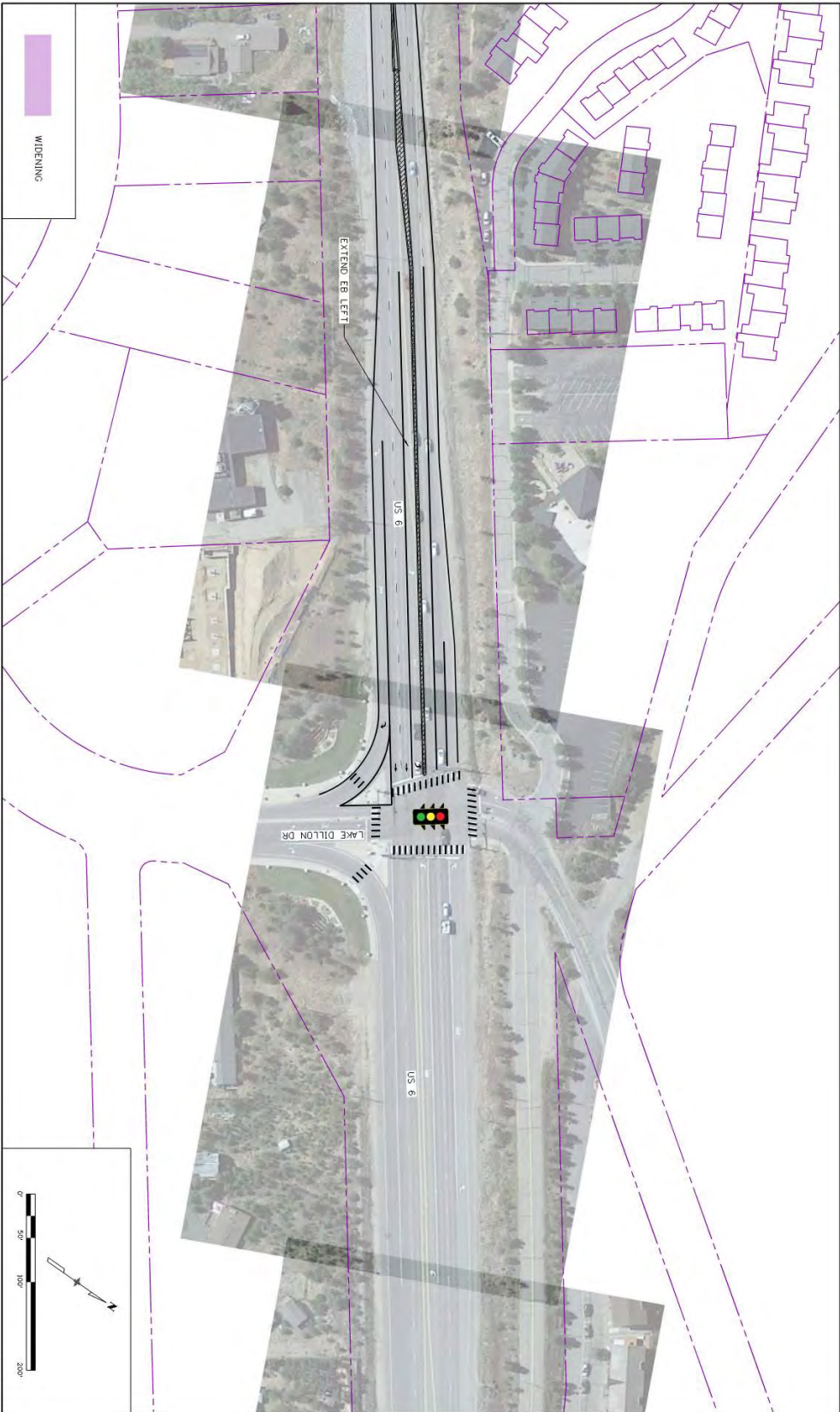
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 Greenwood Village, CO 80111
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INTERSECTION IMPROVEMENTS -
 E ANEMONE & DILLON RIDGE RD



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 Greenwood Village, CO 80111
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 Fax: 303-221-2333
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INTERSECTION IMPROVEMENTS -
 DILLON DAM RD



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 Greenwood Village, CO 80111
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INTERSECTION IMPROVEMENTS -
 LAKE DILLON DR

Appendix C

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Golden Eagle Rd (Phase 1) | | Project # XXXXX | | | |
|--|--|------------------|-------------------------|-----------|------------------|
| Project Name: US 6 CO 9 - Golden Eagle Rd (Phase 1) | | Date: | D.E. Project code XXXXX | | |
| County of: Summit County | | Length In Feet: | Length In Miles: | | |
| Type: | Rightway Pavement: | Asphalt | | | |
| Prepared by: Stolfus & Associates, Inc. | Thicknesse in inches: | Revelment: | Base: | | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 900 | \$25 | \$22,500.00 |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 700 | \$40 | \$28,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 3,600 | \$25 | \$95,000.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 1,500 | \$15 | \$22,500.00 |
| 203-00060 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 800 | \$30 | \$24,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 800 | \$80 | \$64,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF)(100)(PG 58-34) | TON | 470 | \$120 | \$56,400.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 500 | \$120 | \$60,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 3,000 | \$40 | \$120,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 700 | \$50 | \$35,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 20,100 | \$20 | \$402,000.00 |
| Total Major Items | | | | | \$930,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$930,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$47,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$47,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$103,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$93,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$38,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$47,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$131,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$1,436,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$72,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$1,508,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$453,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$1,961,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$510,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$197,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$2,670,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Golden Eagle Rd (Phase 2) | | Project # XXXXX | | | |
|---|--|---------------------|-------------------------|-----------------|------------------|
| | | | | | |
| Project Name | US 6 CO 9- Golden Eagle Rd (Phase 2) | Date: | P.E. Project code XXXXX | | |
| County/Alt | Summit County | | Length in Feet | Length in Miles | |
| Type | | Roadway/Placement | Asphalt | | |
| Prepared by | Stolfus & Associates, Inc. | Thickness in inches | Pavement #: | Base #: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 1,000 | \$25 | \$25,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 2,700 | \$25 | \$67,500.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 700 | \$15 | \$10,500.00 |
| 203-00080 | EMSAKMENT MATERIAL (COMPLETE IN PLACE) | CY | 400 | \$30 | \$12,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 400 | \$80 | \$32,000.00 |
| 403-37631 | HOT MIX ASPHALT (GRADE SF(100)PG 58-34) | TON | 220 | \$120 | \$26,400.00 |
| 608-21010 | CURB AND GUTTER TYPE 2 (SECTION 1-B) | LF | 3,600 | \$40 | \$144,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 9,500 | \$20 | \$190,000.00 |
| Total Major Items | | | | | \$510,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$510,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$26,000 | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$26,000 | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$57,000 | | |
| Utilities | 1 to 10% of (A) | 10% | \$51,000 | | |
| Signing & Striping | 1 to 5% of (A) | 5% | \$26,000 | | |
| Lighting | 5 to 10% of (A) | 5% | \$26,000 | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$73,000 | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$795,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$40,000 | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$835,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$251,000 | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$1,086,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$283,000 | | |
| Design Engineering | 10% of (M) | 10% | \$109,000 | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$1,480,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Willowbrook Rd & Smith Ranch Rd | | Project # XXXXX | | | |
|---|--|------------------|-------------------------|-----------------|------------------|
| Project Name: US 6 CO 9 - Willowbrook Rd & Smith Ranch Rd | | Date: | P.E. Project code XXXXX | | |
| County: Summit County | | | Length in Feet | Length in Miles | |
| Type: | Roadway/Placement: | Asphalt | | | |
| Prepared by: Stolfus & Associates, Inc. | Thickness in inches: | Pavement #: | Base #: | | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 400 | \$25 | \$10,000.00 |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 50 | \$40 | \$2,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 2,200 | \$25 | \$55,000.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 1,900 | \$15 | \$28,500.00 |
| 203-00000 | UNCLASSIFIED EXCAVATION | CY | 900 | \$30 | \$27,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 700 | \$80 | \$56,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF)(100)(PG 5B-34) | TON | 650 | \$120 | \$78,000.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 50 | \$120 | \$6,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 1,500 | \$40 | \$60,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 1,050 | \$50 | \$52,500.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 10,600 | \$20 | \$212,000.00 |
| Total Major Items | | | | | \$590,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$590,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$30,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$30,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$65,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$59,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$24,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$30,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$83,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$911,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$46,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$957,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$288,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$1,245,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$324,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$125,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$1,690,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Ruby Ranch Rd & 13th St | | Project # XXXXX | | | |
|---|--|----------------------|-------------------------|-----------------|--------------------|
| Project Name: US 6 CO 9 - Ruby Ranch Rd & 13th St | | Date: | P.E. Project code XXXXX | | |
| County: Summit County | | | Length in Feet | Length in Miles | |
| Type: | | Roadway/Placement: | Asphalt | | |
| Prepared by: Stolfus & Associates, Inc. | | Thickness in inches: | Pavement #: | Base #: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 900 | \$25 | \$22,500.00 |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 300 | \$40 | \$12,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 5,200 | \$25 | \$130,000.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 1,800 | \$15 | \$27,000.00 |
| 203-00000 | UNCLASSIFIED EXCAVATION | CY | 1,100 | \$30 | \$33,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 1,100 | \$80 | \$88,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF)(100)(PG 5B-34) | TON | 780 | \$120 | \$93,600.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 300 | \$120 | \$36,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 3,900 | \$40 | \$156,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 1,700 | \$50 | \$85,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 22,000 | \$20 | \$440,000.00 |
| Total Major Items | | | | | \$1,130,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$1,130,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$57,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$57,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$128,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$113,000 (E) | | |
| Signage & Striping | 1 to 5% of (A) | 4% | \$46,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$57,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$159,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$1,744,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$88,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$1,832,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$550,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$2,382,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$620,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$239,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$3,240,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - 9th St through 12th St | | Project # XXXXX | | | |
|---|--|------------------|-------------------------|-----------|------------------|
| Project Name: US 6 CO 9 - 9th St through 12th St | | Date: | P.E. Project code XXXXX | | |
| County: Summit County | | Length in Feet: | Length in Miles: | | |
| Type: | Roadway/Placement: | Asphalt | | | |
| Prepared by: Stolfus & Associates, Inc. | Thickness in inches: | Pavement #: | Base #: | | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 500 | \$25 | \$12,500.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 2,700 | \$25 | \$67,500.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 1,000 | \$15 | \$28,500.00 |
| 203-00080 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 800 | \$30 | \$24,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 500 | \$80 | \$40,000.00 |
| 403-37631 | HOT MIX ASPHALT (GRADE SF(100)/PG 58-34) | TON | 80 | \$120 | \$9,600.00 |
| 608-21010 | CURB AND GUTTER TYPE 2 (SECTION 1-B) | LF | 3,200 | \$40 | \$128,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 18,400 | \$20 | \$368,000.00 |
| Total Major Items | | | | | \$700,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$700,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$35,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$35,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$77,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$70,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$28,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$35,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$98,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$1,078,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$54,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$1,132,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$340,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$1,472,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$383,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$148,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$2,000,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - 6th St & Annie Rd | | Project # XXXXX | | | |
|---|--|------------------|-------------------------|-----------------|------------------|
| Project Name: US 6 CO 9 - 6th St & Annie Rd | | Date: | P.E. Project code XXXXX | | |
| County: Summit County | | | Length in Feet | Length in Miles | |
| Type: | Roadway Pavement | Asphalt | | | |
| Prepared by: Stolfus & Associates, Inc. | Thickness in inches | Pavement #: | Base #: | | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 700 | \$25 | \$17,500.00 |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 100 | \$40 | \$4,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 1,900 | \$25 | \$47,500.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 700 | \$15 | \$10,500.00 |
| 203-00000 | UNCLASSIFIED EXCAVATION | CY | 500 | \$30 | \$15,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 400 | \$80 | \$32,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF)(100)(PG 58-34) | TON | 160 | \$120 | \$19,200.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 100 | \$120 | \$12,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 2,100 | \$40 | \$84,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 200 | \$50 | \$10,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 9,400 | \$20 | \$188,000.00 |
| Total Major Items | | | | | \$440,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$440,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$22,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$22,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$49,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$44,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$18,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$22,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$62,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$679,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$34,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$713,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$214,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$927,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$242,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$93,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$1,260,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 8 CO 9 - 5th St | | Project # XXXXX | | | |
|---|--|-----------------------|-------------------------|-----------------|------------------|
| | | | | | |
| Project Name | US 8 CO 9 - 5th St | Date: | P.E. Project code XXXXX | | |
| County (M) | Summit County | | Length in Feet | Length in Miles | |
| Type | | Roadway/Placement | Asphalt | | |
| Prepared by | Stolfus & Associates, Inc. | Thickness (in inches) | Pavement #: | Base #: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 200 | \$25 | \$5,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 650 | \$25 | \$16,250.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 800 | \$15 | \$12,000.00 |
| 203-00080 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 500 | \$30 | \$15,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 300 | \$80 | \$24,000.00 |
| 608-21010 | CURB AND GUTTER TYPE 2 (SECTION 1B) | LF | 800 | \$40 | \$32,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 12,700 | \$20 | \$254,000.00 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Total Major Items | | | | | \$360,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$360,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$18,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$18,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$40,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$36,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$15,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$18,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$51,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$556,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$28,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$584,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$176,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$760,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$198,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$76,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$1,030,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - 4th St and 5th St (Alternative 1) | | Project # XXXXX | | | |
|---|--|------------------|-------------------------|-----------------|------------------|
| Project Name: US 6 CO 9 - 4th St and 5th St | | Date: | P.E. Project code XXXXX | | |
| County: Summit County | | | Length in Feet | Length in Miles | |
| Type: | Roadway Pavement | Asphalt | | | |
| Prepared by: Stolfus & Associates, Inc. | Thickness in inches | Pavement #: | Base #: | | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 400 | \$25 | \$10,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 1,850 | \$25 | \$46,250.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 1,500 | \$15 | \$22,500.00 |
| 203-00000 | UNCLASSIFIED EXCAVATION | CY | 1,200 | \$30 | \$36,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 700 | \$80 | \$56,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF(100))PG 58-34 | TON | 40 | \$120 | \$4,800.00 |
| 608-60000 | CONCRETE SIDEWALK | SY | 100 | \$120 | \$12,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 2,600 | \$40 | \$104,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 31,900 | \$20 | \$638,000.00 |
| Total Major Items | | | | | \$930,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$930,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$47,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$47,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$103,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$93,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$38,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$47,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$131,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$1,436,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$72,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$1,508,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$453,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$1,961,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$510,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$197,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$2,670,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - 3rd St & Wildernest Road | | Project # XXXXX | | | |
|---|--|----------------------|-------------------------|-----------------|--------------------|
| Project Name: US 6 CO 9 - 3rd St & Wildernest Road | | Date: | P.E. Project code XXXXX | | |
| County: Summit County | | | Length in Feet | Length in Miles | |
| Type: | | Roadway/Placement: | Asphalt | | |
| Prepared by: Stolfus & Associates, Inc. | | Thickness in inches: | Pavement #: | Base #: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 201-00000 | CLEARING AND GRUBBING | LS | 1 | \$20,000 | \$20,000.00 |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 1,200 | \$25 | \$30,000.00 |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 500 | \$40 | \$20,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 4,700 | \$25 | \$117,500.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 1,300 | \$15 | \$19,500.00 |
| 203-00060 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 900 | \$30 | \$27,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 900 | \$80 | \$72,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF (100)) PG 58-34 | TON | 490 | \$120 | \$58,800.00 |
| 609-00000 | CONCRETE SIDEWALK | SY | 300 | \$120 | \$36,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 3,600 | \$40 | \$144,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 1,650 | \$50 | \$82,500.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 23,100 | \$20 | \$462,000.00 |
| Total Major Items | | | | | \$1,090,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$1,090,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$55,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$55,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$120,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$109,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$44,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$55,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$153,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$1,681,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$85,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$1,766,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$530,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$2,296,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$597,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$230,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$3,120,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Stephens Way 4 Lane | | Project # XXXXX | | | |
|---|---|----------------------|-------------------------|-----------------|--------------------|
| Project Name: US 6 CO 9 - Stephens Way 4 Lane | | Date: | P.E. Project code XXXXX | | |
| County: Summit County | | | Length in Feet | Length in Miles | |
| Type: | | Roadway/Placement: | Asphalt | | |
| Prepared by: Stolfus & Associates, Inc. | | Thickness in inches: | Pavement #: | Base #: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00160 | REMOVAL OF WALL | SF | 1,800 | \$25 | \$40,000.00 |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 400 | \$40 | \$16,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 400 | \$25 | \$10,000.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 5,200 | \$15 | \$78,000.00 |
| 203-00000 | UNCLASSIFIED EXCAVATION | CY | 5,300 | \$30 | \$159,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 1,500 | \$80 | \$120,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF)(100)PG 58-34 | TON | 2,610 | \$120 | \$313,200.00 |
| 504-00640 | SOIL NAIL WALL | SF | 3,000 | \$300 | \$900,000.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 1,100 | \$120 | \$132,000.00 |
| 608-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 2,950 | \$50 | \$147,500.00 |
| | BRIDGE RECONSTRUCTION | SF | 2,655 | \$175 | \$464,630.00 |
| Total Major Items | | | | | \$2,390,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$2,390,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$120,000 | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$120,000 | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$263,000 | | |
| Utilities | 1 to 10% of (A) | 10% | \$239,000 | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$96,000 | | |
| Lighting | 5 to 10% of (A) | 5% | \$120,000 | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$335,000 | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$3,683,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$185,000 | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$3,868,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$1,161,000 | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$5,029,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$1,308,000 | | |
| Design Engineering | 10% of (M) | 10% | \$503,000 | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$6,840,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 Option 4 | | Project # XXXXX | | | |
|---|--|--------------------|-------------------------|-----------------|--------------------|
| | | | | | |
| Project Name | US 6 CO 9 Option 4 | Date: | P.E. Project code XXXXX | | |
| County of | Summit County | | Length in Feet | Length in Miles | |
| Type: | | Roadway Pavement: | Asphalt | | |
| Prepared By: | Stolfus & Associates, Inc. | Thickness/Punches: | Pavement: | Base: | |
| | | | 6" | 6" | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00190 | REMOVAL OF CONCRETE MEDIAN COVER MATERIAL | SY | 1,000 | \$25 | \$25,000.00 |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 2,400 | \$40 | \$96,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 4,300 | \$25 | \$107,500.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 2,300 | \$15 | \$34,500.00 |
| 202-00240 | REMOVAL OF ASPHALT MAT (PLANING) | SY | 13,600 | \$12 | \$163,200.00 |
| 203-00060 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 6,300 | \$30 | \$189,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 3,100 | \$80 | \$248,000.00 |
| 403-37831 | HOT MIX ASPHALT (GRADE SF)(100)(PG 58-34) | TON | 5,870 | \$120 | \$704,400.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 4,700 | \$120 | \$564,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 3,800 | \$40 | \$152,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 5,800 | \$50 | \$290,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 12,500 | \$20 | \$250,000.00 |
| | EXTEND CULVERT | LF | 30 | \$3,500 | \$105,000.00 |
| | PRE-FABRICATED PEDESTRIAN BRIDGE | SF | 840 | \$450 | \$378,000.00 |
| | MODIFY TRAFFIC SIGNAL | EACH | 1 | \$250,000 | \$250,000.00 |
| | TRAFFIC SIGNAL | EACH | 1 | \$750,000 | \$750,000.00 |
| Total Major Items | | | | | \$4,310,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$4,310,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$216,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$216,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 20% | \$949,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$431,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$173,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$216,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$652,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CB1 | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$7,163,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$359,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$7,522,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$2,257,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$9,779,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$2,543,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$978,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$13,300,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R1 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Dillon Ridge Rd & Anemone Trail | | Project # XXXXX | | | |
|---|--|----------------------|--------------------------|--------------------|----------------------|
| Project Name: US 6 CO 9 - Dillon Ridge Rd & Anemone Trail | | Date: | P.E. Project code: XXXXX | | |
| County: M | Summit County | | Length in Feet | Length in Miles | |
| Type: | | Roadway/Placement: | Asphalt | | |
| Prepared by: | Stolfus & Associates, Inc. | Thickness in inches: | Pavement #: | Base #: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00200 | REMOVAL OF SIDEWALK | SY | 500 | \$40 | \$20,000.00 |
| 202-00203 | REMOVAL OF CURB AND GUTTER | LF | 1,500 | \$25 | \$37,500.00 |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 600 | \$15 | \$9,000.00 |
| 203-00000 | UNCLASSIFIED EXCAVATION | CY | 800 | \$30 | \$24,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 600 | \$80 | \$48,000.00 |
| 403-37631 | HOT MIX ASPHALT (GRADE SF)(100)(PG 58-34) | TON | 530 | \$120 | \$63,600.00 |
| 608-60000 | CONCRETE SIDEWALK | SY | 600 | \$120 | \$72,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 1,600 | \$40 | \$64,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 1,600 | \$50 | \$80,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 2,700 | \$20 | \$54,000.00 |
| Total Major Items | | | | | \$480,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | | | |
| | | | | | \$480,000 (A) |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | | \$24,000 | (B) |
| Construction Surveying | 1 to 5% of (A) | 5% | | \$24,000 | (C) |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 20% | | \$108,000 | (D) |
| Utilities | 1 to 10% of (A) | 10% | | \$48,000 | (E) |
| Signing & Striping | 1 to 5% of (A) | 5% | | \$24,000 | (F) |
| Lighting | 5 to 10% of (A) | 5% | | \$24,000 | (G) |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | | \$73,000 | (H) |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | | \$803,000 | (I) |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | | \$41,000 | (J) |
| CONTINGENCY & INFLATION | (I)+(J) | | | \$844,000 | (K) |
| Contingency | 30% of (K) | 30% | | \$254,000 | (L) |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | | \$1,098,000 | (M) |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | | \$286,000 | (N) |
| Design Engineering | 10% of (M) | 10% | | \$110,000 | (O) |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | | \$1,490,000 | (P) |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Dillon Dam Rd | | Project # XXXXX | | | |
|---|--|---------------------|-------------------------|-----------------|----------------------|
| | | | | | |
| Project Name | US 6 CO 9 - Dillon Dam Rd | Date: | P.E. Project code XXXXX | | |
| County (M) | Summit County | | Length in Feet | Length in Miles | |
| Type | | Roadway Pavement | Asphalt | | |
| Prepared by | Stolfus & Associates, Inc. | Thickness in inches | Pavement #1 | Base #1 | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 730 | \$15 | \$10,950.00 |
| 203-00060 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 200 | \$30 | \$6,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 200 | \$80 | \$16,000.00 |
| 608-21010 | CURB AND GUTTER TYPE 2 (SECTION 1-B) | LF | 1,700 | \$40 | \$68,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 4,900 | \$20 | \$98,000.00 |
| Total Major Items | | | | | \$200,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | | | \$200,000 (A) |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$10,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$10,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$22,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$20,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$8,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$10,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$28,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$308,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$16,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$324,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$98,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$422,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$110,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$43,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$580,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Lake Dillon | | Project # XXXXX | | | |
|---|--|---------------------|------------------------|-----------------|------------------|
| | | | | | |
| Project Name | US 6 CO 9 - Lake Dillon | Date: | P/E Project code XXXXX | | |
| County of | Summit County | | Length in Feet | Length in Miles | |
| Type | | Roadway Pavement | Asphalt | | |
| Prepared By | Stolfus & Associates, Inc. | Thickness in inches | Pavement: 6" | Base: 6" | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 202-00220 | REMOVAL OF ASPHALT MAT | SY | 730 | \$15 | \$10,950.00 |
| 203-00080 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 800 | \$30 | \$24,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 200 | \$80 | \$16,000.00 |
| 609-21010 | CURB AND GUTTER TYPE 2 (SECTION I-B) | LF | 1,700 | \$40 | \$68,000.00 |
| 609-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 800 | \$50 | \$30,000.00 |
| 610-00020 | MEDIAN COVER MATERIAL (PATTERNED CONCRETE) | SF | 4,900 | \$20 | \$98,000.00 |
| Total Major Items | | | | | \$250,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$250,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$13,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$13,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$28,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$25,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$10,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$13,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$36,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$388,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$20,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$408,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$123,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$531,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$139,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$54,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$720,000 (P) | | |



APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 FIR ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Multimodal Improvements (CO 9) | | Project # XXXXX | | | |
|--|---|----------------------|-------------------------|------------------|--------------------|
| Project Name: US 6 CO 9 - Multimodal Improvements (CO 9) | | Date: | P.E. Project code XXXXX | | |
| County of: | Summit County | | Length In Feet: | Length In Miles: | |
| Type: | | Roadway Pavement: | Asphalt | | |
| Prepared by: | Stolfus & Associates, Inc. | Thickness in inches: | Pavement: | Base: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 203-00060 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 1,000 | \$30 | \$30,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 600 | \$80 | \$48,000.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 2,000 | \$120 | \$348,000.00 |
| 609-21020 | CURBS AND GUTTER TYPE 2 (SECTION II-B) | LF | 1,300 | \$50 | \$65,000.00 |
| N/A | Wall #1 (12th St to 13th St, 500 LF at 6-ft tall) | SF | 3,000 | \$250 | \$750,000.00 |
| Total Major Items | | | | | \$1,250,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | | | \$1,250,000 |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$63,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$63,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$138,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$125,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$50,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$63,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$178,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$1,928,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$97,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$2,025,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$608,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$2,633,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$685,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$264,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$3,580,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Multimodal Improvements (Pedestrian Bridge) | | Project # XXXXX | | | |
|---|---|---------------------|------------------------|-----------------|----------------|
| | | | | | |
| Project Name | US 6 CO 9 - Multimodal Improvements (Pedestrian Bridge) | Date: | P/E Project code XXXXX | | |
| County (M) | Summit County | | Length in Feet | Length in Miles | |
| Type: | | Roadway Pavement | Asphalt | | |
| Prepared by | Stolfus & Associates, Inc. | Thickness in inches | Pavement #1 | Base #1 | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 203-00060 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 1,600 | \$30 | \$48,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 400 | \$80 | \$68,000.00 |
| 609-00000 | CONCRETE SIDEWALK | SY | 400 | \$120 | \$48,000.00 |
| N/A | Wall for Bridge Ramps (4-ft high, 320-ft long) | SF | 1,280 | \$250 | \$320,000.00 |
| N/A | Pedestrian Bridge (160-ft long, 10-ft wide) | SF | 1,600 | \$1,200 | \$1,920,000.00 |
| Total Major Items | | | | | \$2,350,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$2,350,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$118,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$118,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$259,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$235,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$94,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$118,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$330,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$3,622,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$182,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$3,804,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$1,142,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$4,946,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$1,286,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$495,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$6,730,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Multimodal Improvements (Underpass) | | Project # XXXXX | | | |
|--|---|---------------------|--|-----------------|--------------------|
|   | | | | | |
| Project Name | US 6 CO 9 - Multimodal Improvements (Underpass) | Date: | P.E. Project code XXXXX | | |
| County (M) | Summit County | | Length in Feet | Length in Miles | |
| Type | | Roadway Pavement | Asphalt | | |
| Prepared by | Stolfus & Associates, Inc. | Thickness in inches | Pavement # | Base # | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 203-00080 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 1,000 | \$30 | \$30,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 300 | \$80 | \$24,000.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 800 | \$120 | \$96,000.00 |
| 601-03030 | CONCRETE CLASS D (BOX CULVERT) | CY | 600 | \$3,000 | \$1,800,000.00 |
| | | | | | |
| Total Major Items | | | | | \$1,950,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$1,950,000 | | |
| Emission Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$98,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$98,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$215,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$195,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$78,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$98,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$274,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | | | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) \$3,006,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$151,000 (J) | | |
| CONTINGENCY & INFLATION | | | (I)+(J) \$3,157,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$948,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | | | (K)+(L) \$4,105,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$1,068,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$411,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | | | (M)+(N)+(O) \$5,580,000 (P) | | |

APPENDIX C

| COLORADO DEPARTMENT OF TRANSPORTATION R3 ENGINEER'S OPINION OF PROBABLE COST US 6 CO 9 - Multimodal Improvements (US 6) | | Project # XXXXX | | | |
|---|---|------------------|------------------------|------------------|--------------------|
| Project Name: US 6 CO 9 - Multimodal Improvements (US 6) | | Date: | P/E Project code XXXXX | | |
| County: Summit County | | | Length in Feet: | Length in Miles: | |
| Type: Roadway Pavement | | | Asphalt | | |
| Prepared by: Stolfus & Associates, Inc. | Thickness in inches: | | Pavement #: | Base #: | |
| <p>In providing opinions of probable construction cost, the Client understands that Stolfus & Associates Inc. has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of our qualifications and experience. These costs do not reflect escalation for future costs. Stolfus & Associates, Inc. makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.</p> | | | | | |
| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
| 203-00060 | EMBANKMENT MATERIAL (COMPLETE IN PLACE) | CY | 1,800 | \$30 | \$54,000.00 |
| 304-06007 | AGGREGATE BASE COURSE (CLASS 6) | CY | 1,000 | \$80 | \$80,000.00 |
| 608-00000 | CONCRETE SIDEWALK | SY | 1,100 | \$120 | \$132,000.00 |
| 608-21020 | CURB AND GUTTER TYPE 2 (SECTION II-B) | LF | 2,100 | \$50 | \$105,000.00 |
| N/A | Wall #2 (Dillon Ridge Rd to Dillon Dam Rd, 1400 LF @ 6-ft tall) | SF | 8,400 | \$250 | \$2,100,000.00 |
| N/A | Wall #3 (Dillon Dam Rd to Lake Dillon Dr, 1000 LF @ 3-ft tall) | SF | 3,000 | \$250 | \$750,000.00 |
| Total Major Items | | | | | \$3,230,000 |
| Item | Percent Range | Percent Selected | Costs \$ | | |
| Major Items | | | \$3,230,000 (A) | | |
| Erosion Control / Landscaping / SWMP | 1 to 5% of (A) | 5% | \$162,000 (B) | | |
| Construction Surveying | 1 to 5% of (A) | 5% | \$162,000 (C) | | |
| Construction Phasing & Traffic Control | 10 to 25% of (A)+(B)+(C) | 10% | \$356,000 (D) | | |
| Utilities | 1 to 10% of (A) | 10% | \$323,000 (E) | | |
| Signing & Striping | 1 to 5% of (A) | 4% | \$130,000 (F) | | |
| Lighting | 5 to 10% of (A) | 5% | \$162,000 (G) | | |
| Mobilization | 10% of (A)+(B)+(C)+(D)+(E)+(F)+(G) | 10% | \$453,000 (H) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI | (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H) | | \$4,978,000 (I) | | |
| Force Account - Miscellaneous | 1 to 10% of (I) | 5% | \$249,000 (J) | | |
| CONTINGENCY & INFLATION | (I)+(J) | | \$5,227,000 (K) | | |
| Contingency | 30% of (K) | 30% | \$1,569,000 (L) | | |
| TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI | (K)+(L) | | \$6,796,000 (M) | | |
| Construction Engineering, CE & Indirects | 26% of (M) | 26% | \$1,767,000 (N) | | |
| Design Engineering | 10% of (M) | 10% | \$680,000 (O) | | |
| TOTAL PROJECT OPINION OF PROBABLE COST | (M)+(N)+(O) | | \$9,243,000 (P) | | |

Appendix D

APPENDIX D

| Intersection | Improvement | Safety Benefits |
|-----------------------------------|--|--|
| Hamilton Creek | No Changes | N/A |
| Bald Eagle Rd/ Golden Eagle Rd | No Changes | N/A |
| Willowbrook Rd | Restricting EB left turn (full movement to 3/4 movement) | No CMF provided for converting a full movement intersection to a 3/4 movement intersection, however, the CMFs (#9821 & #9823) for converting a full movement intersection to RIRO report a reduction of 45% of total crashes and 80% of severe crashes. This treatment is similar to a RIRO treatment, but since the left turn onto the side street will still be permitted, it is unlikely to reduce crash rates to the extent that a RIRO treatment would. The proposed treatment at this intersection is expected to reduce the total and severe crashes, most predominantly for angled crash types. |
| | Install EB Right Turn Acceleration Lane (southbound along CO-9) | No CMF provided for the installation of an acceleration lane. The addition of an acceleration lane for the eastbound right turn movement onto CO-9 is expected to provide safety benefits and has the potential to reduce rear end crashes since drivers will have their own lane to accelerate in, keeping them separate from vehicles traveling at speed in the adjacent thru lane. It also has the potential to reduce angled crashes, as the eastbound right turn movement will no longer be conflicting with the southbound thru movement at the intersection. |
| | Install SB Right Turn Lane | CMF Description: Provide a right-turn lane on one major-road approach CMF ID 285: 14% reduction of total crashes This treatment is expected to predominantly reduce the number of rear end crashes as the right turn lane will provide refuge for right turning vehicles to decelerate and stop outside of the thru lane. |
| | Extend NB Left Turn Lane | No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane. |
| Smith Ranch Rd | Restrict EB, SB and WB Left Turn Movements (full movement to RIRO) | CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections CMF ID 9821: 45% reduction of all crashes CMF ID: 9823: 80% reduction of all severe crashes Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes. |

| Intersection | Improvement | Safety Benefits |
|---------------|--|--|
| | Extend NB Left Turn Lane | No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane. |
| Ruby Ranch Rd | Signalize Intersection | CMF Description: Install a Traffic Signal CMF ID 325: 44% reduction of total crashes Signalization of the intersection will provide safety benefits, especially for left turns from the side streets onto CO-9. |
| | Install Dual NB Left Turn | No CMF provided. This treatment will be most effective at reducing rear end crashes since dual left turn lanes will increase the available storage length, reducing the likelihood of queues exceeding their storage length and extending into the adjacent thru lane. |
| | Install SB Right Turn | CMF Description: Provide a right-turn lane on one major-road approach CMF ID 285: 14% reduction of total crashes This treatment is expected to predominantly reduce the number of rear end crashes as the right turn lane will provide refuge for right turning vehicles to decelerate and stop outside of the thru lane. |
| W 13th St. | Restrict Left Turns (RIRO) | CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections CMF ID 9821: 45% reduction of all crashes CMF ID: 9823: 80% reduction of all severe crashes Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes. |
| W 12th St. | Restrict Left Turns (RIRO) | CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections CMF ID 9821: 45% reduction of all crashes CMF ID: 9823: 80% reduction of all severe crashes Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes. |
| W 11th St. | Restrict EB Left Turn(full movement to 3/4 movement) | No CMF provided for converting a full movement intersection to a 3/4 movement intersection, however, the CMFs (#9821 & #9823) for converting a full movement intersection to RIRO report a reduction of 45% of total crashes and 80% of severe crashes. This treatment is similar to a RIRO treatment, but since the left turn onto the side street will still be permitted, it is unlikely to reduce crash rates to the extent that a RIRO treatment would. The proposed treatment at this intersection is expected to reduce the total and severe crashes, most predominantly for angled crash types. |

| Intersection | Improvement | Safety Benefits |
|-------------------|----------------------------|--|
| | Extend NB Left Turn | No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane. |
| W 10th St. | Restrict Left Turns (RIRO) | CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections CMF ID 9821: 45% reduction of all crashes CMF ID: 9823: 80% reduction of all severe crashes Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes. |
| W 9th St. | Restrict Left Turns (RIRO) | CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections CMF ID 9821: 45% reduction of all crashes CMF ID: 9823: 80% reduction of all severe crashes Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes. |
| Annie Rd | Extend NB and SB Left Turn | No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane. |
| W 7th St. | Restrict Left Turns (RIRO) | CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections CMF ID 9821: 45% reduction of all crashes CMF ID: 9823: 80% reduction of all severe crashes Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes. |
| W 6th St. | Extend SB Left Turn | No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane. |
| | Install SB Right Turn | CMF Description: Provide a right-turn lane on one major-road approach CMF ID 285: 14% reduction of total crashes This treatment is expected to predominantly reduce the number of rear end crashes as the right turn lane will provide refuge for right turning vehicles to decelerate and stop outside of the thru lane. |

| Intersection | Improvement | Safety Benefits |
|----------------|---|---|
| W 5th St. | Restrict Left Turns (RIRO) | <p>CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections</p> <p>CMF ID 9821: 45% reduction of all crashes</p> <p>CMF ID: 9823: 80% reduction of all severe crashes</p> <p>Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes.</p> |
| W 4th St. | No Changes | N/A |
| W 3rd St. | Restrict WB, SB, and EB Left Turns (RIRO) | <p>CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections</p> <p>CMF ID 9821: 45% reduction of all crashes</p> <p>CMF ID: 9823: 80% reduction of all severe crashes</p> <p>Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes.</p> |
| | Extend NB Left Turn | <p>No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane.</p> |
| | Install SB Right Turn | <p>CMF Description: Provide a right-turn lane on one major-road approach</p> <p>CMF ID 285: 14% reduction of total crashes</p> <p>This treatment is expected to predominantly reduce the number of rear end crashes as the right turn lane will provide refuge for right turning vehicles to decelerate and stop outside of the thru lane.</p> |
| Private Access | Restrict Left Turns (RIRO) | <p>CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections</p> <p>CMF ID 9821: 45% reduction of all crashes</p> <p>CMF ID: 9823: 80% reduction of all severe crashes</p> <p>Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes.</p> |
| Wildernest Rd. | Install NB Dual Lefts | <p>No CMF provided. This treatment will be most effective at reducing rear end crashes since dual left turn lanes will increase the available storage length, reducing the likelihood of queues exceeding their storage length and extending into the adjacent thru lane.</p> |
| | Install SB Right Turn | <p>CMF Description: Provide a right-turn lane on one major-road approach</p> <p>CMF ID 285: 14% reduction of total crashes</p> <p>This treatment is expected to predominantly reduce the number of rear end crashes as the right turn lane</p> |

| Intersection | Improvement | Safety Benefits |
|--|--|---|
| | | will provide refuge for right turning vehicles to decelerate and stop outside of the thru lane. |
| | Free NB Right (yield to free) | No CMF provided. Converting the right turn yield movement to a right turn free movement may reduce the number of rear end crashes since right turning vehicles will not need to come to a complete stop. Sideswipe crashes may also be reduced since the right turning vehicles will no longer be turning into the adjacent thru lane. |
| | Extend SB Right Turn | No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane. |
| Private Properties Between Wildernd Rd and I-70 | Close RIRO Access | No CMF provided. It can be assumed that since the access is being closed, thus removing all conflict points, the potential for crashes in the area will be significantly reduced. |
| I-70 WB Ramps | Extend WB Left Turn | No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane. |
| I-70 EB Ramps | No Changes | N/A |
| Stephens Way/Little Beaver Trail | Stephens Way Shifted East & Little Beaver Trail Shifted West to Make a 4-Legged Intersection | No CMF provided for the overall impact of this realignment. The 4-legged intersection at the existing location of Beaver Trail/CO-9 is being converted to a 3-legged intersection, and the existing 3-legged intersection at Stephens Way/CO-9 is being converted to a 4-legged intersection, so the total number of conflict points remain similar. This proposed configuration, however, will improve circulation through the area, and reduce the number of conflict points through the local streets north of CO-9, thus providing safety benefits in that area. |
| | Install Dual EB, WB Left Turns | No CMF provided. This treatment will be most effective at reducing rear end crashes since dual left turn lanes will increase the available storage length, reducing the likelihood of queues exceeding their storage length and extending into the adjacent thru lane. |

| Intersection | Improvement | Safety Benefits |
|----------------------------------|---|---|
| | Add WB Right Turn | <p>CMF Description: Provide a right-turn lane on one major-road approach</p> <p>CMF ID 285: 14% reduction of total crashes</p> <p>This treatment is expected to predominantly reduce the number of rear end crashes as the right turn lane will provide refuge for right turning vehicles to decelerate and stop outside of the thru lane.</p> |
| Existing Little Beaver Trail | Close Access to for North Leg | <p>CMF Description: Convert four-leg intersection into two three-leg intersections</p> <p>CMF ID 2734: 40% reduction in total crashes</p> <p>Closing access to the north leg of the intersection, thus converting the four-leg intersection to a three-leg intersection is anticipated to reduce the number of crashes due to the reduction of conflict points.</p> |
| W Anemone Trail | Restrict Left Turns (RIRO) | <p>CMF Description: Install right-in-right-out (RIRO) operations at stop-controlled intersections</p> <p>CMF ID 9821: 45% reduction of all crashes</p> <p>CMF ID: 9823: 80% reduction of all severe crashes</p> <p>Restricting left turns into and out of the side streets is particularly effective at reducing angled crashes. As angled crashes are often severe in nature, this treatment has the potential to significantly reduce the frequency of severe crashes.</p> |
| | Clear Landscaping from South Median to Improve Sight Distance | <p>No CMF provided. This treatment will improve safety for southbound left turning vehicles, as they will be able to see northbound approaching vehicles from a farther distance once the landscaping has been cleared. This improvement has the potential to reduce the risk of angled crashes at the intersection.</p> |
| E Anemone Trail/Dillon Ridge Rd. | Install Dual SB Left Turn | <p>No CMF provided. This treatment will be most effective at reducing rear end crashes since dual left turn lanes will increase the available storage length, reducing the likelihood of queues exceeding their storage length and extending into the adjacent thru lane.</p> |
| | Extend NB & SB Left Turn | <p>No CMF provided. The extension of the NB and SB left turn lanes has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane.</p> |
| Dillon Dam Rd. | Extend WB Left Turn | <p>No CMF provided. Extending the turn lanes has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane.</p> |
| | Extend EB Right Turn | |
| Lake Dillon Dr. | Extend EB Left Turn | <p>No CMF provided. Extending the turn lane has the potential to reduce rear end crashes by providing vehicles more distance to decelerate within the turn lane as well as reducing the likelihood of queues exceeding their provided storage length and extending into the adjacent thru lane.</p> |

| Intersection | Improvement | Safety Benefits |
|--|--|--|
| <p>Stephens Way/Wildernest Rd</p> | <p>Roundabout (Signal to Roundabout)</p> | <p>CMF Description: Conversion of signal-controlled intersection to roundabout CMF ID 4881: 98% increase in total crashes CMF ID 4880: 70% reduction in severe crashes While the number of property damage only crashes are expected to increase, the number of severe and fatal crashes is expected to be significantly reduced as the roundabout will meter approach speeds and will reduce the likelihood of angled crashes.</p> |