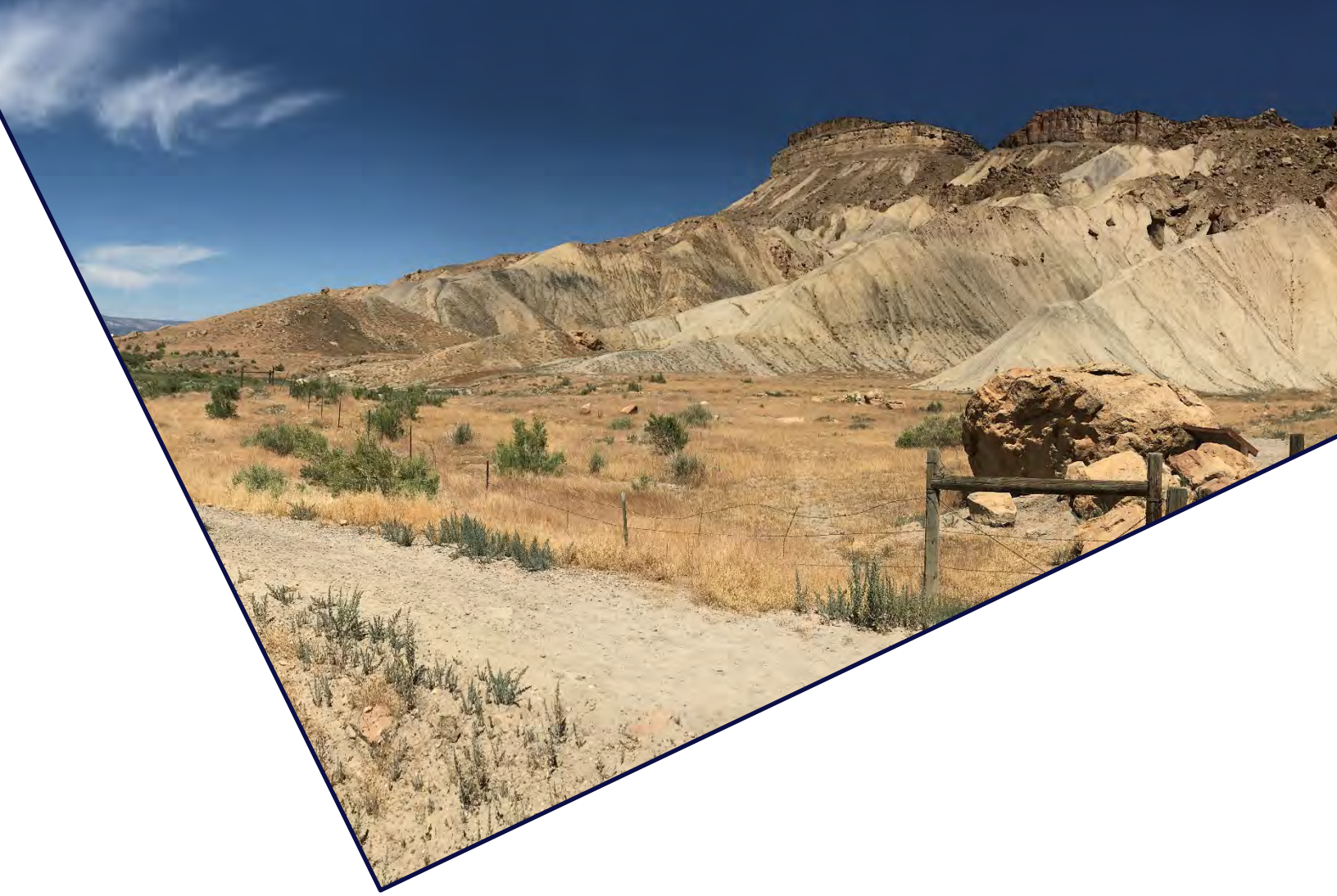

MT. GARFIELD CULVERT STUDY

Colorado Department of Transportation

February 2021

Prepared For
CDOT REGION 3
WEST PROGRAM ENGINEERING
S 9th St, Grand Junction, CO 81501

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Executive Summary

The Colorado Department of Transportation (CDOT) recognized the need to address the condition of the existing box culvert located where 35 8/10 Road intersects with I-70 in Mesa County near Palisade.

The existing box culvert was constructed in 1962 to access the Gearhart coal mine located north of I-70. Recently, it has been used by property owners north of I-70 and Mt. Garfield Trailhead users. However, the box culvert has been identified as a critical culvert in poor condition and has been recommended for replacement. Due to several factors, if left unmitigated, the existing box culvert could fail structurally, leading to severe damage to I-70 and compromising the safety of the traveling public.

This study developed potential alternatives to address the condition of the box culvert while maintaining access, evaluated these alternatives, and identified a preferred alternative. Public outreach and discussions with project stakeholders were a large portion of the evaluation process, and feedback from the community assisted the project team in determining which alternative should be implemented. Ultimately, the preferred alternative that met the purpose and need of the project and had the most support from project stakeholders was to replace the existing box culvert with a new single lane box culvert.

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Introduction

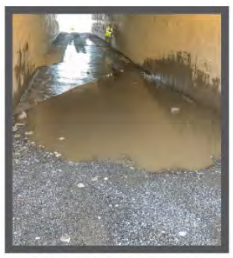
An essential repair finding report identified that the culvert on I-70 at MP 39.96 (Structure No. 070A039961BL) near Palisade, Colorado has a failing structural rating and is in need of structural repair or complete replacement. Region 3 of the Colorado Department of Transportation (CDOT) identified the need to evaluate a range of alternatives that could address the structural issues of the box culvert, while still providing the same functions that the box provides related to access and drainage. The study investigates whether the existing structure could be eliminated from the State's system altogether and still meet the various transportation needs in the area.

CDOT and the community recognize that the Mt Garfield trailhead is a valuable public amenity in the area; one that many local residents use on a daily basis. In addition, every private property has a right of reasonable access to the public street system. This study took a holistic approach to finding the most appropriate solution to address the structural deficiencies of the box culvert under I-70, while preserving access to private property and this valuable community asset. Stakeholders, such as the Bureau of Land Management (BLM), Mesa County, Town of Palisade, Federal Highway Administration (FHWA), utility owners, and ditch companies, as well as the community at large were active participants in determining which, among many alternative solutions, should be implemented when funding becomes available.

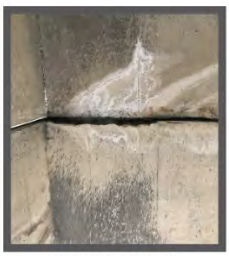
What's there now?

The existing box culvert was constructed in 1962 under I-70 at milepost 39.96 in Mesa County. It was originally installed to provide vehicular access to the Gearhart coal mine. Over time, the access has also been used by adjacent property owners located north of I-70 and Mt. Garfield Trailhead users.

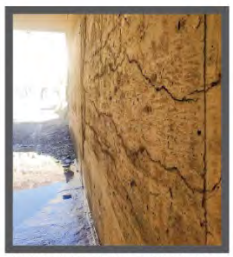
The existing box culvert has been identified as a critical culvert in poor condition and has been recommended for replacement. The structure has a sufficiency rating of 22.4 out of 100, as documented in the 2018 Structure Inspection and Inventory Report. Documented deficiencies include bulging and cracking walls and significant differential settlement at the joints which results in ponding or standing water within the box culvert. Left unmitigated, the existing box culvert could fail structurally, leading to severe damage to I-70 and compromising the safety of the traveling public as well as altering access to the trailhead and adjacent properties. More detail regarding the existing structural characteristics of the culvert can be found in Appendix D.



STANDING WATER IN LOW POINT CAUSED BY DIFFERENTIAL SETTLEMENT



SEPARATION IN CULVERT CEILING



BULGING AND CRACKING IN CULVERT WALLS

Although the drainage basin feeding into this culvert is relatively small, the adverse slope within the box culvert caused by differential settlement often causes stormwater to be trapped, which results in ponding. This reduces the box culvert's function and limits access by low clearance vehicles. More detail regarding the drainage characteristics of the culvert can be found in Appendix C.

A water rights investigation was conducted to identify any downstream water rights and water users that are currently affected by the existing culvert, as well as any potential impacts of proposed drainage management alternatives. It was determined that no downstream water rights were identified that could rely on runoff flows controlled by the existing features and structures in the trailhead area.

The Mt Garfield Trail is managed by Bureau of Land Management (BLM) and received approximately 28,800 visitors in 2018. The BLM has designated the Mt Garfield area as an Area of Critical Environmental Concern with protecting the visual resource or view shed as the primary priority and recreation as a secondary priority. The BLM has no plans to improve or expand the Mt Garfield Trailhead. The parking lot for the trailhead is located on CDOT right-of-way (ROW). There is an existing two-track frontage road that extends from the trailhead parking lot to the west and eventually connects to 33 Road.

How can we fix it?

Develop Evaluation Goals and Criteria

Identify Alternatives

Evaluate Alternatives

DEVELOP EVALUATION GOALS AND CRITERIA

A project goal was determined at the beginning of the project and was referred to often throughout the process. The project goal is to: **"Maintain the integrity of I-70 at the existing box culvert (Structure 070A039961BL) and maintain access to adjacent property owners and Mt. Garfield Trailhead."**

From here, the project team developed two filters of criteria to evaluate project alternatives. The first filter determines whether the alternative meets the project goal. The second filter helps to distinguish important differences of the pros and cons of each alternative passing Filter 1. Both filters are meant to accurately represent the values of the CDOT and the adjacent community.

- **Filter 1 – Project Goal Screening**
  Confirm that the alternative meets the project's goal. A "Yes" response is needed to ALL of the following questions to pass on to Filter 2.
  - Does the alternative maintain or improve safety along I-70?
  - Does the alternative address the structural deficiencies of the existing box culvert?
  - Does the alternative maintain legal access to adjacent properties?
  - Does the alternative provide reasonable access to the Mt. Garfield Trailhead?
  - Does the alternative reduce or maintain stormwater runoff volumes directed toward downgradient properties?

- **Filter 2 – Objectives and Criteria Evaluation**
  - **Objective: Provide efficient and effective access to adjacent property owners.**
    Criteria:
    - Out-of-direction travel
    - Condition of access route
  - **Objective: Provide compatibility with existing programs, practices, and resources.**
    Criteria:
    - Project funding opportunities
    - Constructability
    - Expected life of solution
    - Construction costs
    - Long-term maintenance
  - **Objective: Manage impacts to the adjacent community and traveling public.**
    Criteria:
    - Construction impact to users
    - Private property impacts (ROW)
    - Utility impacts
    - Emergency services
    - Community support

IDENTIFY ALTERNATIVES

This study came up with several alternative configurations and access options. The alternatives fell into three categories, **culvert elimination with frontage road access improvements, culvert elimination with alternative access,** and **culvert replacement or repair**. A "no action" alternative was also considered for comparison purposes.

Category 0	
No Action	*Alternative 0* ➢ None. Everything remains as is
Category 1	
Culvert Elimination, Frontage Road Access 	*Alternative 1A* ➢ Eliminate the culvert and associated access via 35 8/10 Rd ➢ Access the trailhead via the adjacent frontage road with no improvements *Alternative 1B* ➢ Everything from 1A ➢ Improve the water crossings on the frontage road *Alternative 1C* ➢ Everything from 1B ➢ Upgrade the frontage road to a graded all-weather surface *Alternative 1D* ➢ Everything from 1C ➢ Upgrade the intersection of 33 Rd and G Rd *Alternative 1E* ➢ Everything from 1D ➢ Relocated the trailhead parking lot to nearby BLM land
Category 2	
Culvert Elimination, Alternative Access 	*Alternative 2* ➢ Eliminate the culvert ➢ Construct a new interchange off of I-70 *Alternative 3* ➢ Eliminate the culvert ➢ Construct a new rest area off of I-70 *Alternative 4* ➢ Eliminate the culvert ➢ Construct a scenic pull off with parking
Category 3	
Replacement or Repair 	*Alternative 5* ➢ Repair the existing culvert *Alternative 6* ➢ Slip line the existing culvert with structure suitable for pedestrians only *Alternative 7* ➢ Replace the existing culvert with a new single lane box culvert *Alternative 8* ➢ Replace the existing culvert with a new two-lane bridge

EVALUATE ALTERNATIVES

For the project goal screening (Filter 1), the alternatives were placed in an evaluation matrix and considered based on each evaluation question. The results of the Filter 1 evaluation are shown below. Alternatives 1B-1E, and 6-8 passed Filter 1 and moved on to Filter 2.

EVALUATION QUESTIONS

- DOES THE OPTION **MAINTAIN OR IMPROVE SAFETY** ALONG I-70?
- DOES THE OPTION PROVIDE REASONABLE ACCESS TO **THE MT. GARFIELD TRAILHEAD**?
- DOES THE OPTION REDUCE OR MAINTAIN **STORMWATER RUNOFF VOLUMES**?
- DOES THE OPTION **ADDRESS STRUCTURAL DEFICIENCIES** TO THE EXISTING BOX CULVERT?
- DOES THE OPTION **MAINTAIN ACCESS** TO ADJACENT PROPERTIES?

MT. GARFIELD CULVERT ALTERNATIVES EVALUATION

ALTERNATIVE		PASS FILTER 1					
0	NO ACTION	✗	✗	✗	✗	✗	✗
1A	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (NO IMPROVEMENTS)	✗	✓	✓	✗	✗	✓
1B	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (IMPROVE WATER CROSSINGS)	✓	✓	✓	✓	✓	✓
1C	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (IMPROVED SECTION/GRADED ROADWAY)	✓	✓	✓	✓	✓	✓
1D	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (UPGRADE INTERSECTION)	✓	✓	✓	✓	✓	✓
1E	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (BLM PARKING LOT)	✓	✓	✓	✓	✓	✓
2	ELIMINATE CULVERT: INTERCHANGE	✗	✗	✓	✗	✗	✓
3	ELIMINATE CULVERT: REST AREA	✗	✗	✓	✗	✓	✓
4	ELIMINATE CULVERT: SCENIC PULL-OFF WITH PARKING	✗	✗	✓	✗	✓	✓
5	REPAIR CULVERT	✗	✗	✗	✓	✓	✓
6	REPLACE CULVERT: PEDESTRIAN CROSSING	✓	✓	✓	✓	✓	✓
7	REPLACE CULVERT: NEW BOX CULVERT (SINGLE LANE)	✓	✓	✓	✓	✓	✓
8	REPLACE CULVERT: BRIDGE (TWO-LANE)	✓	✓	✓	✓	✓	✓

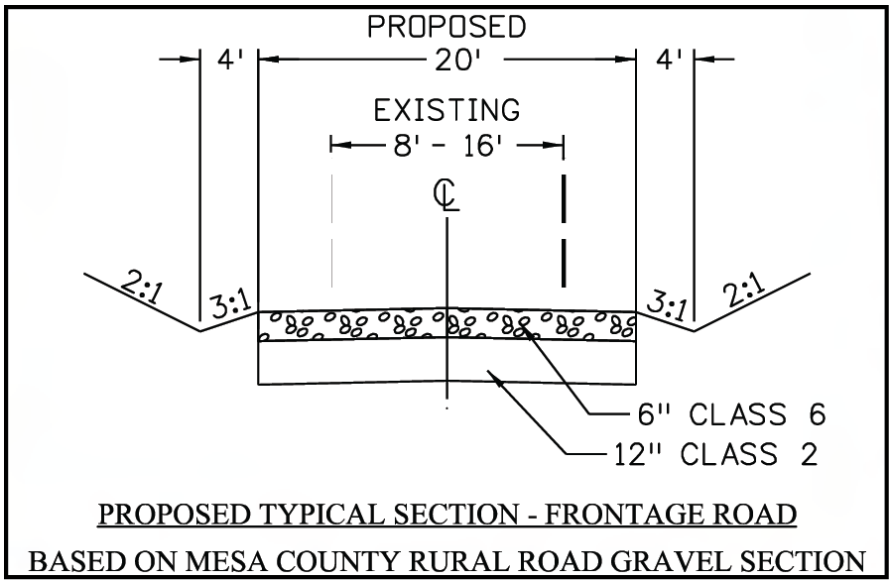
For Filter 2, each of the alternatives were evaluated by assessing whether there was a positive, neutral, or negative impact to the various criteria associated with each objective. For example, a positive impact to the *Out-of-Direction Travel* criteria would mean that the project allows the out-of-direction travel for the private property owner to stay the same or decrease, a neutral impact would mean that the out-of-direction travel for the property owner would increase up to one mile, and an unfavorable impact would mean that the out-of-direction travel would increase by more than one mile. This type of evaluation was carried forward for all criteria. A detailed summary of how the alternatives were evaluated can be found in Appendix B.

What would those alternatives do?

Category 1 – Culvert Elimination with Frontage Road Access Improvements

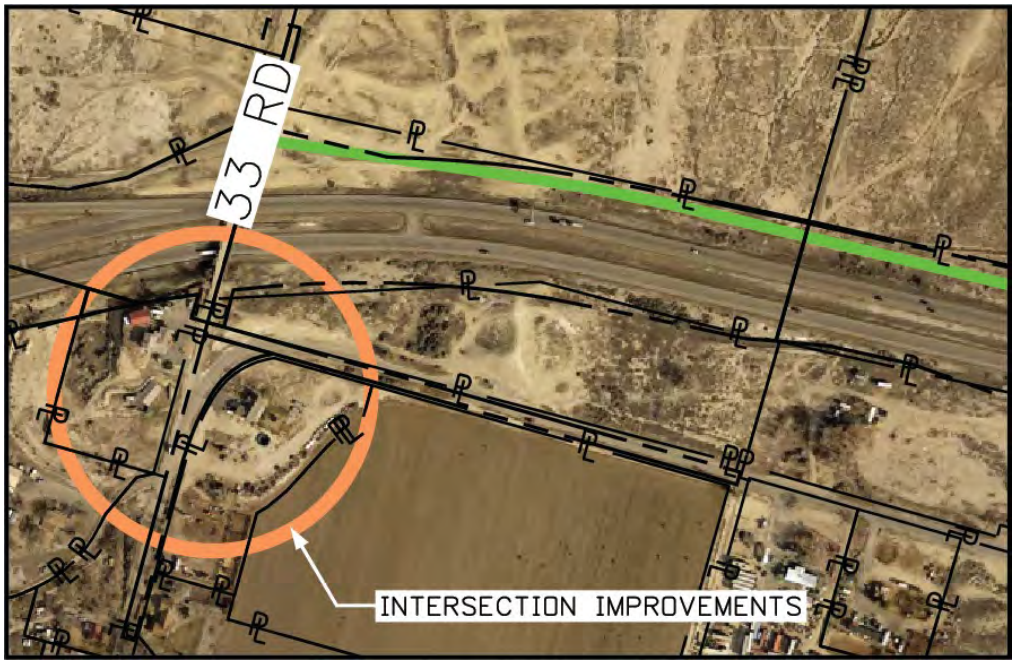
These alternatives would eliminate the box culvert altogether and utilize the frontage road for trailhead and private property access. It was assumed that the box culvert would be filled with lean concrete and abandoned in place. Refer to Appendix D for further structural details. The alternatives build upon each other so that each addition improves and upgrades aspects and qualities of the frontage road or access to the frontage road as a whole. The first alternative (Alternative 1B) involves eliminating the existing box culvert and utilizing the existing frontage road on the north side of I-70 with minor improvements to major water crossings along the frontage road. The second alternative (Alternative 1C) includes Alternative 1B and upgrades the existing frontage road to an all-weather graded surface. The third alternative (Alternative 1D) includes Alternative 1B and 1C and improves the intersection of 33 Rd and G Road. The fourth alternative (Alternative 1E) involves all the previous alternatives and would construct a parking lot on BLM property with a walking path to the Mt. Garfield Trailhead. Larger formats of the concepts shown below can be found in Appendix A.

Alternative 1B: Eliminate Culvert – Frontage Road Access (Improve Water Crossings)



Typical Section of Proposed Improved Section

Alternative 1C: Eliminate Culvert – Frontage Road Access (Improved Section/Graded Roadway)



Alternative 1D: Eliminate Culvert – Frontage Road Access (Upgrade Intersection)

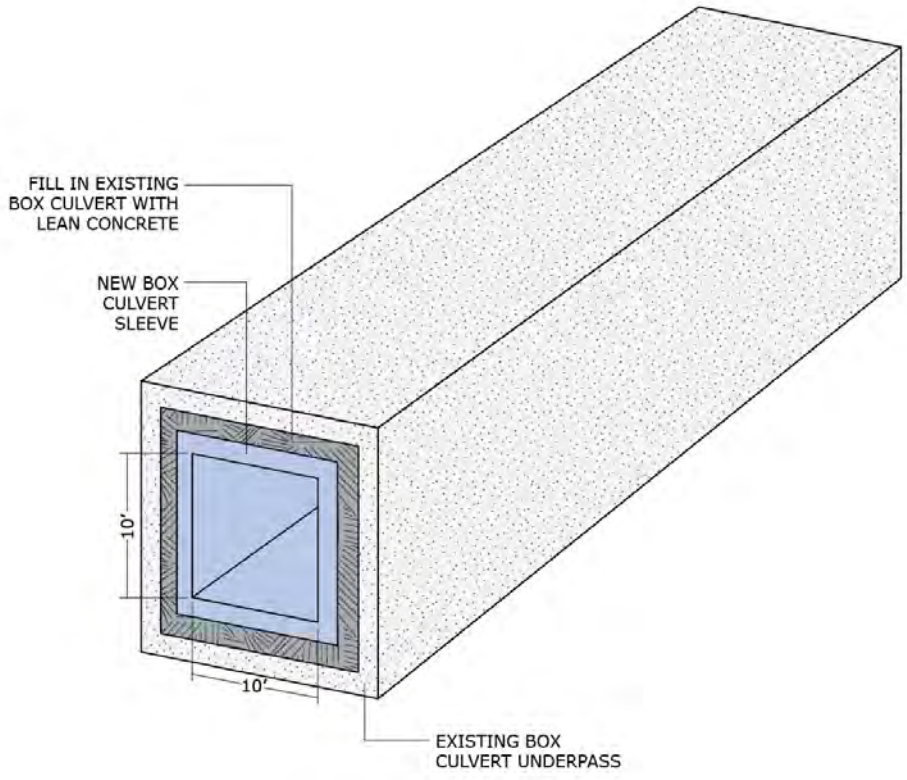
Alternative 1E: Eliminate Culvert – Frontage Road Access (BLM Parking Lot)

Category 2 - Culvert Elimination with Alternative Access

These alternatives involved eliminating the box culvert and constructing various other accesses to the trailhead and property. All of the alternatives in this category did not pass Filter 1 Project Goal Screening so no further analysis was completed.

Category 3 – *Culvert Replacement or Repair*

These alternatives would consider replacing the existing box culvert with various types of structures. The first alternative in this category (Alternative 6) would "sleeve" the existing culvert to provide a pedestrian only crossing. This alternative would also move the existing parking lot for the trailhead to the south side of I-70. The second alternative (Alternative 7) replaces the existing culvert with a new single lane box culvert and slightly lowers the grade of 35 8/10 Rd. This alternative would allow for a single lane of traffic to pass through along 35 8/10 Rd similar to conditions today. The third alternative in this category (Alternative 8) would replace the existing culvert with a new bridge on I-70 allowing for two-way traffic on 35 8/10 Rd to pass under I-70. Larger formats of the concepts shown below can be found in Appendix A and further structural analysis of these options can be found in Appendix D.



Alternative 6: Repair Culvert – Pedestrian-Only Crossing

Alternative 7: Replace Culvert – Single-Lane

Alternative 8: Replace Culvert – Two-Lane Bridge

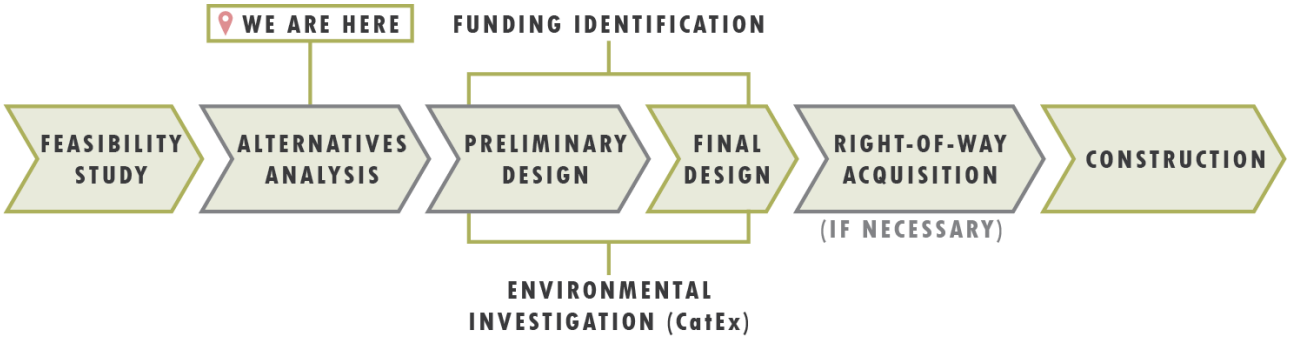
What is the bottom line?

After all factors were considered, the preferred alternative selected is Alternative 7 - replace the existing box culvert with a new single lane box culvert. With this alternative, existing access for property owners north of I-70 will remain as is and access to the trailhead would not be altered. Furthermore, a typical box culvert can last for several decades with only minor maintenance spread over the course of its life. This means that long-term maintenance costs are low and no additional maintenance will be added to CDOT's system. A new box culvert will also be designed to mitigate flooding issues and address the structural deficiencies that occur with the existing box culvert. More information about the evaluation process can be found in Appendix B.

JUST A LITTLE MORE DETAIL

Many factors were taken into account as the alternatives went through the evaluation filters. It should be noted that public input was an important factor in considering each alternative. A video presentation was shown to describe the project and the various alternatives through a virtual public engagement presentation on the CDOT website. Postcards about the presentation as well as the dates for public engagement were sent out. The same information was advertised via press release and social media from CDOT, the Town of Palisade, and Mesa County. After the video presentation went live, the viewers from the community could engage in answering questions and giving comments about the project. Twenty-six (26) individuals provided comments during this time and four one-on-one meetings with property owners took place. The responses from the community were mixed, but the most favorable alternative from the public feedback was to replace the existing box culvert with a new single lane box culvert, the preferred alternative. A summary of the public input received during this study can be found in Appendix G.

It is important to remember, however, that the plan to change the existing box culvert is still in its early stages. Many more factors will be considered as the planning moves forward.



The exact dimensions of the preferred single lane box culvert will be determined in the subsequent steps above. The Structure Report in Appendix D provides some guidance, stating a 16-foot by 16-foot culvert would be preferrable to provide greater driver comfort compared to a 14-foot high by 16-foot wide culvert. However, the report also recognizes that grading challenges may arise from the additional two feet in culvert height. While limited vertical information was available for this study, adjusting the grade of 35 8/10 Rd is expected to create impacts on the adjacent properties between I-70 and the Stub Ditch Rd including access, utility services, drainage, and grading. ROW acquisition and minor walls may be needed.

Another thing to note is both the trail and the trailhead are 4f properties. A 4f property can be a publicly owned park, recreation area, wildlife refuge, or historic site which is protected from impacts resulting from transportation projects. Regarding the trail and trailhead, detours and reasonable accommodations for the continued use of the trailhead for the community will need to be developed for the project to proceed.

COST

When evaluating alternatives, the cost of implementation was considered at a very high conceptual level. For planning purposes, conceptual opinions of probable costs were drafted for the alternatives that passed Filter 1. It is important to remember that these costs are for **planning purposes only**. More detailed cost estimates will be drafted during a preliminary design phase. Additional details can be found in Appendix F.

ALTERNATIVE		CONSTRUCTION COSTS
1B	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (IMPROVE WATER CROSSINGS)	$1,800,000
1C	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (IMPROVED SECTION/GRADING ROADWAY)	$4,300,000
1D	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (UPGRADE INTERSECTION)	$6,000,000
1E	ELIMINATE CULVERT: FRONTAGE ROAD ACCESS (BLM PARKING LOT)	$4,600,000
6	REPLACE CULVERT: PEDESTRIAN CROSSING	$1,600,000
7	REPLACE CULVERT: NEW BOX CULVERT (SINGLE LANE)	$4,000,000
8	REPLACE CULVERT: BRIDGE (TWO-LANE)	$5,400,000

Final Thoughts

This study set out to plan for a safe alternative that would address the structural deficiencies of the existing box culvert located where 35 8/10 Road intersects with I-70. The culvert has been identified as a critical culvert in poor condition and potential alternatives were identified and evaluated. The evaluation assessed if each alternative met the project goal, which was to maintain the integrity of I-70 at the existing box culvert and to provide access to adjacent property owners and to the Mt. Garfield Trailhead. Those that met the project goal were further assessed to determine how well they could achieve various CDOT and community-supported objectives and criteria.

Ultimately, the community, as well as the evaluation conducted in the study, expressed the most support for replacing the existing box culvert with a new single lane box culvert. This new box culvert would maintain the existing access for property owners north of I-70 and the trailhead, as well as provide a safe and low-maintenance box culvert that would last for decades.

The next steps going forward for the project involve the following items:

- **Funding**
  A portion of the funding to replace the culvert has been programmed in fiscal year 2023 using construction culvert program funds (CCP). Based on conceptual opinions of probable cost, additional funding may be needed to complete construction.

- **Detailed Design**
  The drawings shown in this study accounted for some conceptual level details. The preferred design will go through several more standard criteria investigations before construction, which will work out detailed design elements of varying aspects. These investigations should consider the following items which this study did not specifically address:
  - Verifying the drainage capabilities of the proposed alternative and maintenance needs of area drainage infrastructure
  - Confirming vertical alignments and clearances
  - Right-of-way (ROW) impacts related to lowering 35 8/10 Rd
  - Maintaining the access and utility services to adjacent properties
  - Determining impacts and estimating costs using County standards for 35 8/10 Rd
  - Geotechnical investigations
  - Developing phasing and methods of handling traffic
  - Confirming maintenance responsibilities
  - Utilize SUE methods to identify utility conflicts
  - Identify environmental mitigation strategies required for project clearance

- **Drainage and structural reports**
  This report identified various drainage and structural concerns. More detailed reports can be found in Appendix C and Appendix D.

List of Appendices

Appendix A

Concept Designs

ALTERNATIVE 1B: ELIMINATE CULVERT FRONTAGE ROAD ACCESS (IMPROVE WATER CROSSING)

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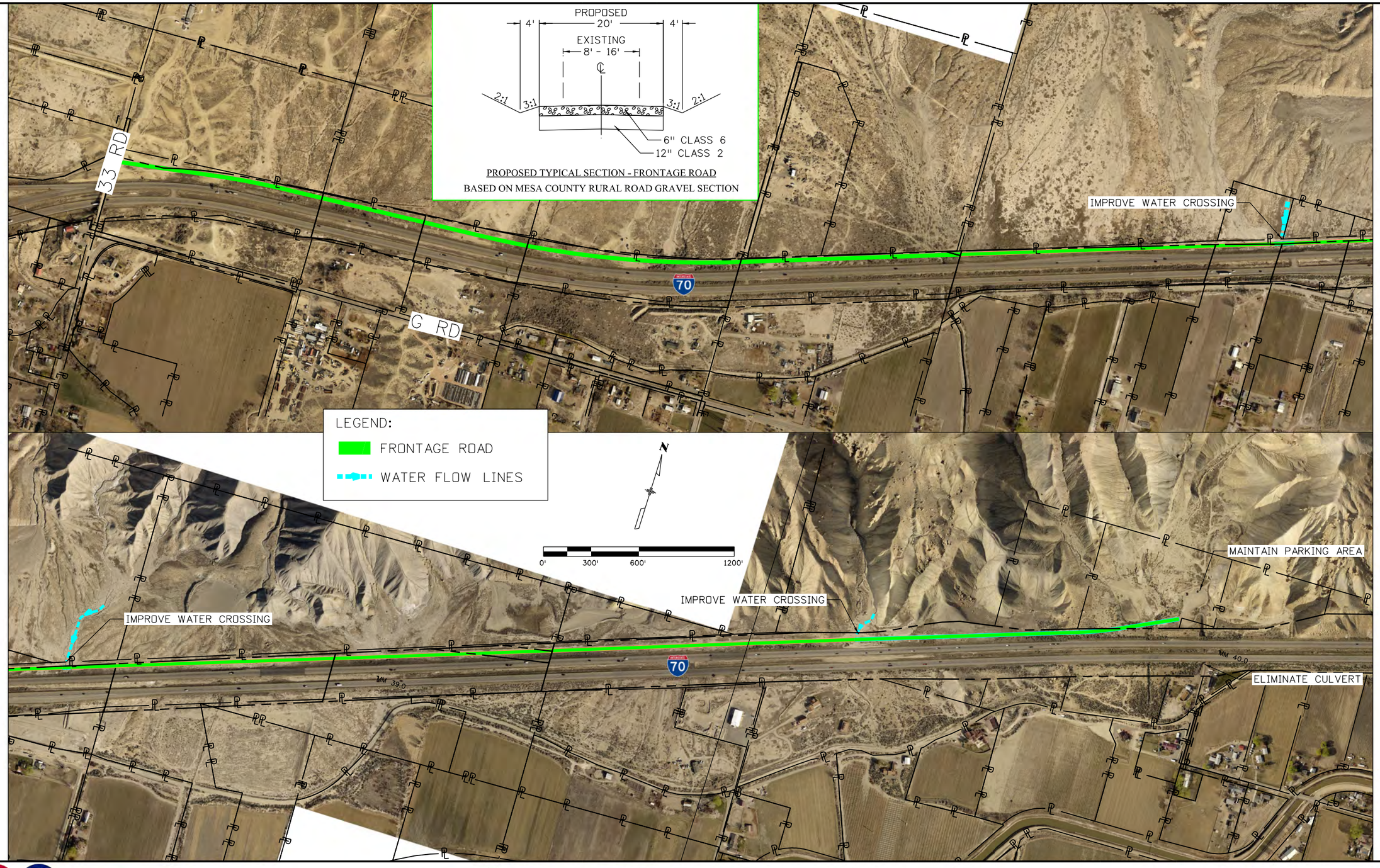
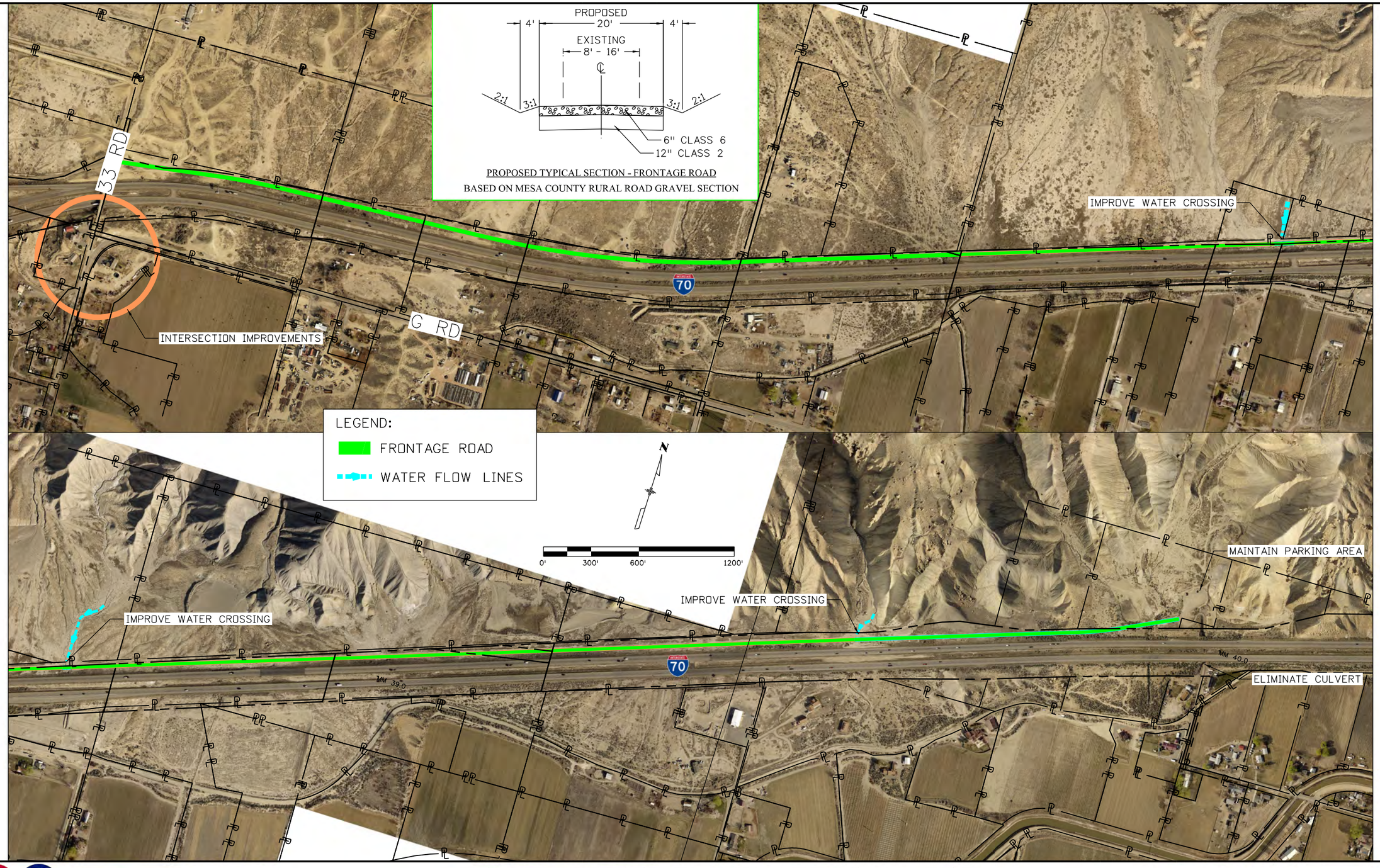


ALTERNATIVE 1C: ELIMINATE CULVERT FRONTAGE ROAD ACCESS (IMPROVED SECTION)

Stolfus



ALTERNATIVE 1D: ELIMINATE CULVERT FRONTAGE ROAD ACCESS (UPGRADE INTERSECTION)

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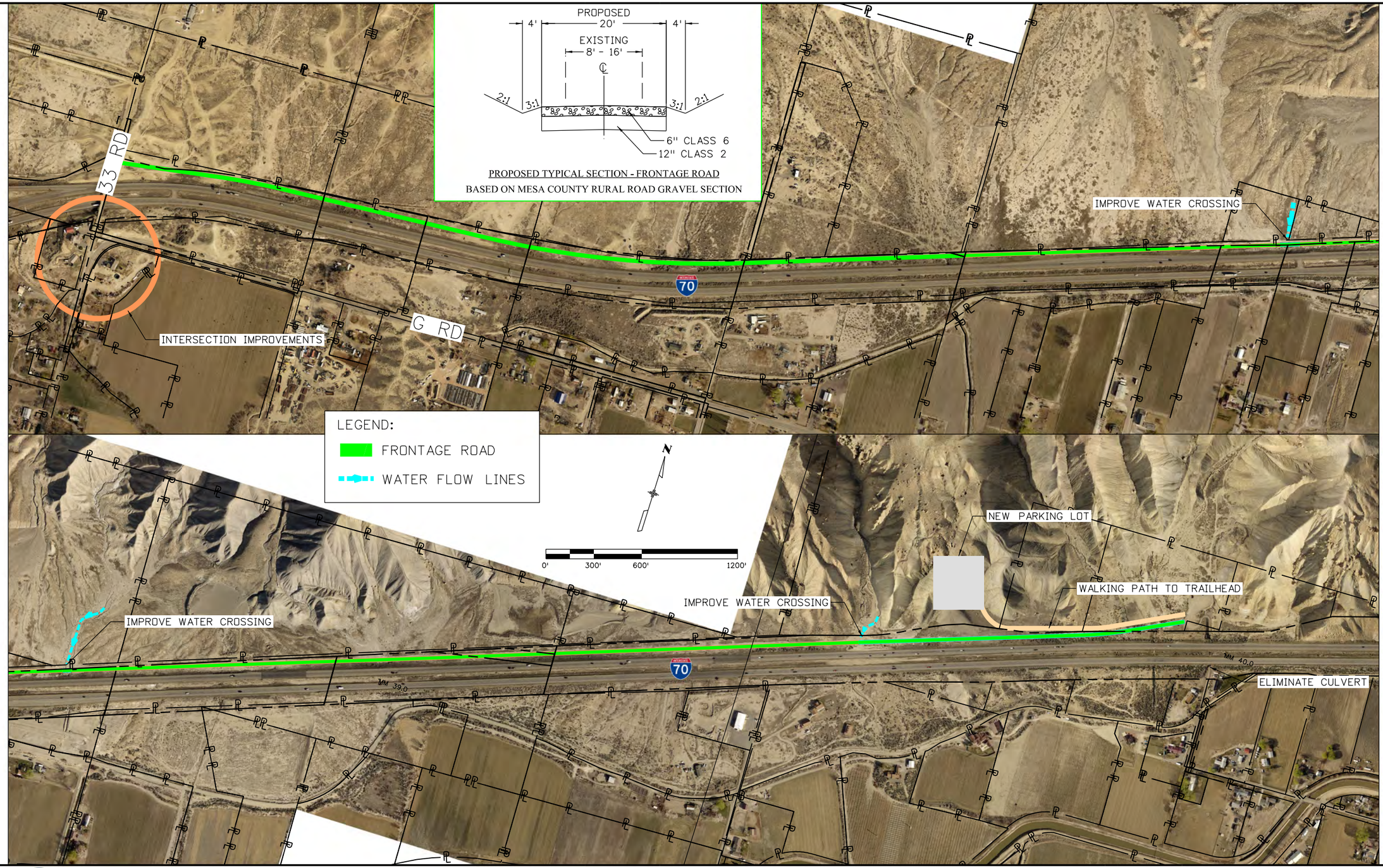
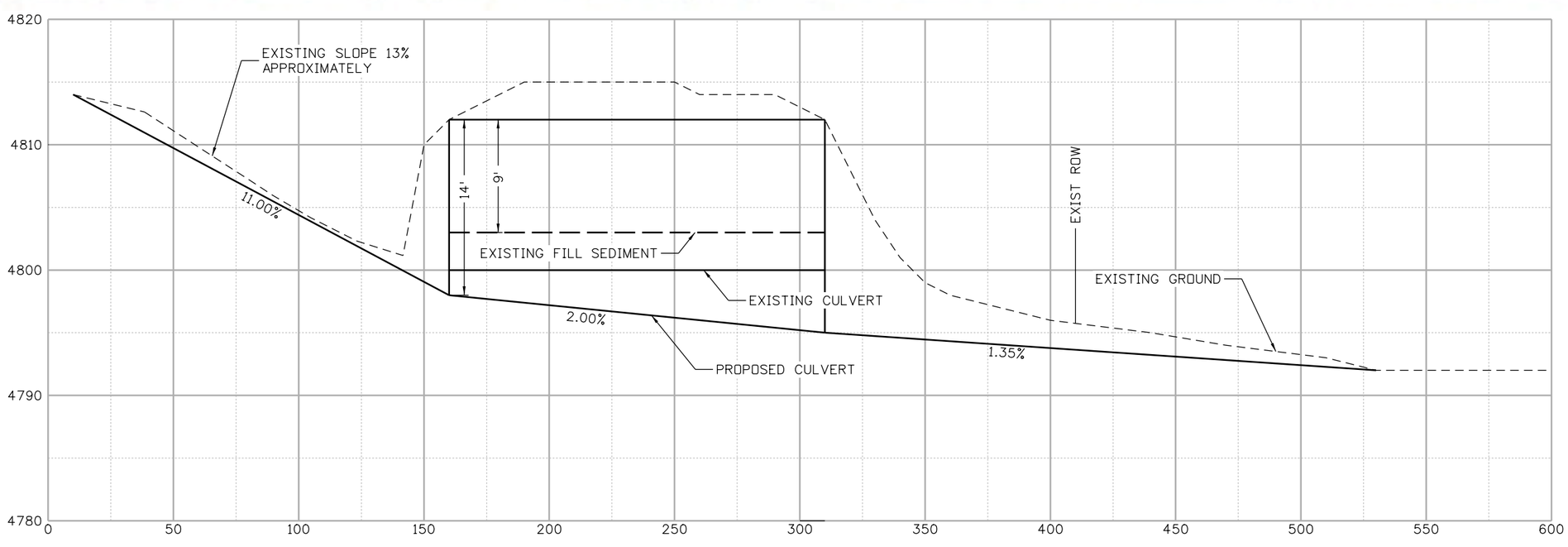


ALTERNATIVE 1E: ELIMINATE CULVERT FRONTAGE ROAD ACCESS (BLM PARKING LOT)

Stolfus

CDOT



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ALTERNATIVE 7: REPLACE CULVERT NEW BOX CULVERT (SINGLE LANE)

ALTERNATIVE 8: REPLACE CULVERT BRIDGE (TWO-LANE)

Appendix B

Alternative Evaluation Matrices

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Transportation

Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 1A: Eliminate Culvert - Frontage Road Access (No Improvements)

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Existing box culvert to be eliminated.
Does the alternative maintain or improve safety along I-70?	Yes	Structural integrity of I-70 to be improved by eliminating existing culvert.
Does the alternative maintain legal access to adjacent properties?	Yes	Access via frontage road
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Access via frontage road
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing box culvert will be eliminated. Drainage to be rerouted to existing culvert to the west.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative moves forward to filter two**

COLORADO
Department of
Transportation

Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 1B: Eliminate Culvert - Frontage Road Access (20ft Typical Section)

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Existing box culvert to be eliminated.
Does the alternative maintain or improve safety along I-70?	Yes	Structural integrity of I-70 to be improved by eliminating existing culvert.
Does the alternative maintain legal access to adjacent properties?	Yes	Access via frontage road
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Access via frontage road
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing box culvert will be eliminated. Drainage to be rerouted to existing culvert to the west.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative moves forward to filter two**

COLORADO
Department of Transportation

Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 1C: Eliminate Culvert - Frontage Road Access (Upgrade Intersection)

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Existing box culvert to be eliminated.
Does the alternative maintain or improve safety along I-70?	Yes	Structural integrity of I-70 to be improved by eliminating existing culvert.
Does the alternative maintain legal access to adjacent properties?	Yes	Access via frontage road
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Access via frontage road
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing box culvert will be eliminated. Drainage to be rerouted to existing culvert to the west.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative moves forward to filter two**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 2: Eliminate Culvert - Interchange

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Existing box culvert will be eliminated.
Does the alternative maintain or improve safety along I-70?	No	Alternative introduces merge/diverge conflicts and potential speed differential at new ramps on I-70.
Does the alternative maintain legal access to adjacent properties?	No	Direct access via I-70 interchange. Locked gate access - FHWA approval required and unlikely.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	No	Direct access via I-70 interchange. Locked gate access - FHWA approval required and unlikely.
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing box culvert will be eliminated. Drainage to be rerouted to existing culvert to the west.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative does not move forward**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 3: Eliminate Culvert - Rest Area

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Existing box culvert will be eliminated.
Does the alternative maintain or improve safety along I-70?	No	Alternative does not meet CDOT standards for rest area spacing. Option introduces merge/diverge conflicts and potential speed differential at new ramps on I-70.
Does the alternative maintain legal access to adjacent properties?	No	Locked gate access - FHWA approval required and unlikely.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Access provided via rest area.
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing box culvert will be eliminated. Drainage to be rerouted to existing culvert to the west.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative does not move forward**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 4: Eliminate Culvert - Scenic Pull-off with Parking

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Existing box culvert will be eliminated.
Does the alternative maintain or improve safety along I-70?	No	Alternative introduces merge/diverge conflicts and potential speed differential at new ramps on I-70.
Does the alternative maintain legal access to adjacent properties?	Yes	Frontage road will allow access to adjacent properties.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Direct access from I-70
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing box culvert will be eliminated. Drainage to be rerouted to existing culvert to the west.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative does not move forward**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 5: Repair Culvert

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	No	Repair option maynot fully address the displacement caused by soils.
Does the alternative maintain or improve safety along I-70?	No	Structural integrity of I-70 may continue to be compromised.
Does the alternative maintain legal access to adjacent properties?	Yes	Maintains access to adjacent properties.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Maintains the existing access.
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing drainage will be maintained.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative does not move forward**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 6: Replace Culvert - Pedestrian Crossing

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Replace existing box culvert.
Does the alternative maintain or improve safety along I-70?	Yes	Does not have long term impact to I-70 operations.
Does the alternative maintain legal access to adjacent properties?	No	No vehicular access to private properties.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	No	No vehicular access to trailhead. Property acquisition for parking area required.
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing drainage will be maintained.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative does not move forward**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 7: Replace Culvert - New Box Culvert (single lane)

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Replace existing box culvert.
Does the alternative maintain or improve safety along I-70?	Yes	Does not have long term impact to I-70 operations.
Does the alternative maintain legal access to adjacent properties?	Yes	Maintains access to adjacent properties.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Maintains the existing access.
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing drainage will be maintained.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative moves forward to filter two**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 8: Replace Culvert-Bridge (two-lane)

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	Yes	Replace existing box culvert with bridge.
Does the alternative maintain or improve safety along I-70?	Yes	Does not have long term impact to I-70 operations.
Does the alternative maintain legal access to adjacent properties?	Yes	Maintains access to adjacent properties.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	Yes	Maintains the existing access.
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	Yes	Existing drainage will be maintained.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative moves forward to filter two**

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Mount Garfield Culvert Alternatives Evaluation

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 0: No Action

Filter One-Core Concepts

Evaluation Criteria	*Yes or No**	Comments
Does the alternative address the structural deficiencies of the existing box culvert?	No	Existing box culvert remains and will continue to deteriorate.
Does the alternative maintain or improve safety along I-70?	No	Structural integrity of I-70 will be compromised.
Does the alternative maintain legal access to adjacent properties?	No	Structural integrity of box culvert compromised and may impact access.
Does the alternative provide reasonable access to the Mt. Garfield Trailhead?	No	Structural integrity of box culvert compromised and may impact access.
Does the alternative reduce or maintain stormwater runoff volumes directed toward down-gradient properties?	No	Existing box culvert remains and will continue to deteriorate and ponding may increase.
*Alternative must pass Filter One in the affirmative to move forward to Filter Two.		**Alternative does not move forward**

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Mount Garfield Culvert Alternatives Evaluation

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative		Description	Pass Filter One/ Move Forward for consideration
1A	Eliminate Culvert-Frontage Road Access (No Improvements)	Eliminate the existing box culvert and utilize the existing frontage road on the north side of I-70 as-is.	YES
1B	Eliminate Culvert-Frontage Road Access (20 ft Typical Section)	Eliminate the existing box culvert and utilize the existing frontage road on the north side of I-70. Upgrade the existing frontage road to a 20 ft wide all weather graded surface.	YES
1C	Eliminate Culvert-Frontage Road Access (Upgrade Intersection)	Eliminate the existing box culvert and utilize the existing frontage road on the north side of I-70. Upgrade the existing frontage road to a 20 ft wide all weather graded surface. Improve the intersection of 33 Road and G Road.	YES
2	Eliminate Culvert-Interchange	Eliminate the existing box culvert and construct interchange to frontage road and trailhead with parallel ramps.	NO
3	Eliminate Culvert-Rest Area	Eliminate the existing box culvert and construct a CDOT rest area.	NO
4	Eliminate Culvert-Scenic Pull-off with Parking	Eliminate the existing box culvert and construct a scenic pull-off with parallel ramps. The existing parking area will be eliminated and parking will be constructed as part of the scenic pull-off.	NO
5	Repair Culvert	Repair the existing culvert in place.	NO
6	Replace Culvert-Pedestrian Crossing	Replace the existing culvert or sleeve the existing culvert to provide a pedestrian crossing. Provide parking for trailhead south of I-70.	NO
7	Replace Culvert-New Box Culvert (single lane)	Replace the existing culvert with a new 14' x16' box culvert.	YES
8	Replace Culvert-Bridge (two-lane)	Replace the existing culvert with a new bridge allowing for two-way traffic.	YES
0	No Action	No change. The existing box culvert will remain as-is.	NO

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

*Filter Two-Project Enhancements**

Objectives	*Evaluation Criteria*	Status with Respect to Criteria		
		Favorable (+)	*Neutral (0)*	*Unfavorable (-)*
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.
	Interstate Access Control Line (A-Line)	No changes to the A-line are required.	An additional A-line opening is required and is easily justifiable.	Multiple A-line openings are required and/or A-line openings required are not easily justifiable.
	Cross-Access Easements	No cross-access easements are required to maintain access to adjacent properties - access provided via local street system or across public land.	Cross-access easements that already exist are required to maintain access to adjacent properties.	New cross-access easements are required to maintain access to adjacent properties.
	Condition of access route	All weather surface and graded	All weather surface	Not maintained
Provide compatibility with existing programs, practices, and resources.	Level of Environmental Impacts	Project has minimal environmental impacts. Minimal design changes or mitigation may be required.	Project has some environmental impacts which will likely require some design changes, mitigation or permits.	Project has many environmental impacts which require considerable effort to mitigate. Follow-up analysis, mitigation permits, consultations or actions will be required.
	Current Design Standards	Meets or exceeds current design standards.	Requires a justifiable design variance.	Does not meet current design standards and variance is not justified.
	Project funding opportunities	Project has opportunity for multiple funding sources with potential for partnering with other agencies.	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.
	Constructability	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.
	Expected life of solution	Alternative increases life of CDOT's assets in the project area.	Alternative increase life of CDOT's assets in the project area by 10-50 years.	Alternative increase life of CDOT's assets by 0-10 years.
	Construction Costs	Alternative has a lower cost due to minimal impacts.	Alternative has moderate costs due to impacts.	Alternative has a higher cost due to an increased number of impacts.
	Long-Term Maintenance	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.
	Permanent Impact to I-70 Traffic	Alternative operates without impacting I-70 Traffic.	Alternative causes slight congestion during off peak periods for I-70 Traffic.	Alternative causes consistent congestion or frequent impact to I-70 Traffic.
	Private Property Impacts (ROW)	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.
	Utility Impacts	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.
	Emergency Services	Alternative maintains current response times and improves reliability of route.	Alternative has little to no effect on response times or route availability.	Alternative increases response times or decreases route reliability.
	Community Support	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.

*Filter Two criteria are meant to elevate options that enhance the project above the core concepts.

Notes:

1. Alternatives must pass Filter 1 in the affirmative to move forward to Filter 2.
2. Filter 2 criteria are meant to elevate options that enhance the project above the core concepts.
3. The interstate access control line (A-line) evaluation criteria were removed from the Filter 2 Evaluation because none of the alternatives require a change to the A-line making the criteria undistinguishable.
4. The cross-access easements criteria were removed from Filter 2 Evaluation because all options require cross-access easements making the criteria undistinguishable.
5. The current design standards criteria were removed from Filter 2 Evaluation because all alternatives meet or exceeds the current design standards making the criteria undistinguishable.
6. The level of environmental impacts criteria was removed from Filter 2 Evaluation because all alternatives were favorable meaning each of the alternatives has “minimal environmental impacts, minimal design changes or mitigation may be required” making the criteria undistinguishable.
7. The criteria for permanent impact to I-70 traffic was removed from Filter 2 Evaluation because all alternatives were favorable meaning each of the alternatives would “operate without impacting I-70 traffic” making the criteria undistinguishable.

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 1B: Eliminate Culvert - Frontage Road Access (Improve water crossings)

Filter Two-Project Enhancements

Objectives	*Evaluation Criteria*	*Rating*	Status with Respect to Criteria			*Justification*
			Favorable (+)	*Neutral (0)*	*Unfavorable (-)*	
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Unfavorable	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.	Eliminating the culvert would mean property owners would access via 33 Rd, approximately 3 miles away from current access point.
	Condition of access route	Unfavorable	All weather surface and graded	All weather surface	Not maintained	Primary access would be via frontage road. This alternative provides minimal improvements to frontage road and does not address surface conditions.
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Favorable	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.	Project would require funding from an additional agency	This alternative could be funded through multiple CDOT funding sources.
	Constructability	Favorable	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.	Minor improvements to frontage road readily constructed with multiple construction methodologies
	Expected life of solution	Unfavorable	Alternative increases life of CDOT's assets in the project area greater than 20 years.	Alternative increase life of CDOT's assets in the project area by 10-20 years.	Alternative increase life of CDOT's assets by 0-10 years.	The elimination of the culvert would have a long term (>20 yrs) life expectancy. However, the increased traffic on the frontage road with only minor improvements would very quickly reduce the life expectancy of the frontage road given the current maintenance capabilities
	Construction Costs	Favorable	Alternative costs are less than 3,000,000.	Alternative has moderate costs between 3,000,000 to 4,000,000	Alternative has a higher cost greater than 4,000,000 due to an increased number of impacts.	Approximated construction cost is $1,800,000
	Long-Term Maintenance	Neutral	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.	The elimination of the culvert would eliminate any structure maintenance needs. However, minor improvements to the frontage road would mean continued maintenance would be needed to maintain acceptable roadway conditions.
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Favorable	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.	Flowable fill could be utilized to fill existing culvert with minimal construction impact to users. Improvements to water crossing on frontage road may temporarily impact access to trailhead, but not for a significant period of time or can be phased to be completed before box culvert is closed.
	Private Property Impacts (ROW)	Favorable	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.	All improvements can be made within existing ROW or utilize temporary easements
	Utility Impacts	Neutral	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.	Improvements on frontage road may require minor relocation of the northside transmission main line
	Emergency Services	Unfavorable	Alternative maintains current response times and improves reliability of route	Alternative has no little to no affect on response times or route availability	Alternative increases response times or decreases route reliability	Eliminating the culvert would directly impact response times to the trailhead. Providing only minor improvements on frontage road would mean response route reliability would decrease compared to the current route.
	Community Support	Unfavorable	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.	Repsonses from stakeholders and the community primarily indicated a lack of support for this alternative.

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 1C: Eliminate Culvert - Frontage Road Access (Improved Section/Graded Roadway)

Filter Two-Project Enhancements

Objectives	*Evaluation Criteria*	*Rating*	Status with Respect to Criteria			*Justification*
			Favorable (+)	*Neutral (0)*	*Unfavorable (-)*	
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Unfavorable	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.	Eliminating the culvert would mean property owners would access via 33 Rd, approximately 3 miles away from current access point.
	Condition of access route	Favorable	All weather surface and graded	All weather surface	Not maintained	Primary access from frontage road would be a graded all weather surface with this option
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Favorable	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.	Project would require funding from an additional agency	This alternative could be funded through multiple CDOT funding sources.
	Constructability	Favorable	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.	Drainage improvements and implementing a graded all weather surface are readily constructed with multiple construction methodologies
	Expected life of solution	Neutral	Alternative increases life of CDOT's assets in the project area greater than 20 years.	Alternative increase life of CDOT's assets in the project area by 10-20 years.	Alternative increase life of CDOT's assets by 0-10 years.	The elimination of the culvert would have a long term (>20 yrs) life expectancy. The graded all weather surface on the frontage road would have a life expectancy of between 10 and 20 years before major reconstruction would be needed.
	Construction Costs	Unfavorable	Alternative costs are less than 3,000,000.	Alternative has moderate costs between 3,000,000 to 4,000,000	Alternative has a higher cost greater than 4,000,000 due to an increased number of impacts.	Approximated construction cost is $4,300,000
	Long-Term Maintenance	Neutral	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.	The elimination of the culvert would eliminate any structure maintenance needs. However, periodic maintenance of the graded all weather surface on the frontage road would still be needed.
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Favorable	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.	Flowable fill could be utilized to fill existing culvert with minimal construction impact to users. The culvert could be filled only after all weather surface on frontage road is constructed, thereby maintaining access to trailhead
	Private Property Impacts (ROW)	Neutral	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.	Constructing a graded all weather surface on the frontage road may require the use of some permanent or temporary easements
	Utility Impacts	Neutral	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.	Improvements on frontage road may require provisions to minimize impact to the northside transmission main line
	Emergency Services	Unfavorable	Alternative maintains current response times and improves reliability of route	Alternative has no little to no affect on response times or route availability	Alternative increases response times or decreases route reliability	The benefit of improving the surface and reliability of the frontage road would be overshadowed by the increase in response times to the trailhead by eliminating the culvert
	Community Support	Unfavorable	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.	The stakeholder and community response to this alternative was mixed, but leaned slightly towards unfavorable.

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 1D: Eliminate Culvert - Frontage Road Access (Upgrade Intersection)

Filter Two-Project Enhancements

Objectives	*Evaluation Criteria*	*Rating*	Status with Respect to Criteria			*Justification*
			Favorable (+)	*Neutral (0)*	*Unfavorable (-)*	
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Unfavorable	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.	Eliminating the culvert would mean property owners would access via 33 Rd, approximately 3 miles away from current access point.
	Condition of access route	Favorable	All weather surface and graded	All weather surface	Not maintained	Primary access from frontage road would be a graded all weather surface with this alternative.
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Unfavorable	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.	Project would require funding from an additional agency	Improvements to the intersection of 33 Rd and G Rd would require additional funding from Mesa County
	Constructability	Neutral	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.	Drainage improvements and implementing a graded all weather surface are readily constructed with multiple construction methodologies. Intersection improvements at 33 Rd and G Rd may run into complexities due to the proximity of I-70
	Expected life of solution	Neutral	Alternative increases life of CDOT's assets in the project area greater than 20 years.	Alternative increase life of CDOT's assets in the project area by 10-20 years.	Alternative increase life of CDOT's assets by 0-10 years.	The elimination of the culvert and the intersection improvements would have long term (>20 yrs) life expectancies. The graded all weather surface on the frontage road would have a life expectancy of between 10 and 20 years before major reconstruction would be needed.
	Construction Costs	Unfavorable	Alternative costs are less than 3,000,000.	Alternative has moderate costs between 3,000,000 to 4,000,000	Alternative has a higher cost greater than 4,000,000 due to an increased number of impacts.	Approximated construction cost is $6,000,000
	Long-Term Maintenance	Neutral	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.	The elimination of the culvert would eliminate any structure maintenance needs. However, periodic maintenance of the graded all weather surface on the frontage road would still be needed.
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Favorable	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.	Flowable fill could be utilized to fill existing culvert with minimal construction impact to users. The culvert could be filled only after graded all weather surface on frontage road and intersection improvements are completed, thereby maintaining access to trailhead
	Private Property Impacts (ROW)	Neutral	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.	Constructing a graded all weather surface on the frontage road may require the use of some permanent or temporary easements. Some ROW acquisition may also be required to reconstruct the 33 Rd and G Rd intersection.
	Utility Impacts	Neutral	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.	Improvements on the frontage road may require provisions to minimize impact to the northside transmission main line.
	Emergency Services	Unfavorable	Alternative maintains current response times and improves reliability of route	Alternative has no little to no affect on response times or route availability	Alternative increases response times or decreases route reliability	The benefit of improving the surface and reliability of the frontage road as well as intersection improvements at 33 Rd and G Rd would be overshadowed by the increase in response times to the trailhead by eliminating the culvert
	Community Support	Neutral	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.	The stakeholder and community response to this alternative was mixed with approximately the same amount of support for and against.

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 1E: Eliminate Culvert - Frontage Road Access (BLM parking lot)

Filter Two-Project Enhancements

Objectives	*Evaluation Criteria*	*Rating*	Status with Respect to Criteria			*Justification*
			Favorable (+)	*Neutral (0)*	*Unfavorable (-)*	
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Unfavorable	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.	Eliminating the culvert would mean property owners would access via 33 Rd, approximately 3 miles away from current access point.
	Condition of access route	Neutral	All weather surface and graded	All weather surface	Not maintained	Primary access from the frontage road to the trailhead would be a graded all weather surface with this option. The roadway surface for access to properties north of I-70 and east of the trailhead is assumed to remain as not an all-weather surface
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Unfavorable	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.	Project would require funding from an additional agency	The construction of the BLM parking lot would require additional agreements and potential funding.
	Constructability	Neutral	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.	Improving the intersection of 33 Rd and G Rd may be slightly complex due to the proximity of I-70. Moving the parking lot to land owned by the BLM may require a significant amount of earthwork due to the terrain in the area.
	Expected life of solution	Neutral	Alternative increases life of CDOT's assets in the project area greater than 20 years.	Alternative increase life of CDOT's assets in the project area by 10-20 years.	Alternative increase life of CDOT's assets by 0-10 years.	The elimination of the culvert and parking lot assets and the intersection improvements would have long term (>20 yrs) life expectancies. A graded all weather surface on the frontage road would have a life expectancy of between 10 and 20 years before major reconstruction would be needed.
	Construction Costs	Unfavorable	Alternative costs are less than 3,000,000.	Alternative has moderate costs between 3,000,000 to 4,000,000	Alternative has a higher cost greater than 4,000,000 due to an increased number of impacts.	Approximated construction cost is $4,600,000
	Long-Term Maintenance	Neutral	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.	The elimination of the culvert as a CDOT asset would eliminate any corresponding maintenance needs. The graded all weather frontage road surface and new parking lot south of I-70 would require long-term maintenance, but these costs are mostly overshadowed by the elimination of the culvert
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Favorable	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.	Relocating the parking lot to BLM land should not impact traffic on I-70. Access to the existing trailhead could be maintained until such time as the parking at the new parking lot and foot path are completed.
	Private Property Impacts (ROW)	Neutral	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.	Permanent easements may be required within the BLM owned property to access the new parking lot
	Utility Impacts	Neutral	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.	Improvements on the frontage road may require provisions to minimize impact to the northside transmission main line.
	Emergency Services	Unfavorable	Alternative maintains current response times and improves reliability of route	Alternative has no little to no affect on response times or route availability	Alternative increases response times or decreases route reliability	Relocating the parking lot, eliminating the existing culvert, and changing response route would increase emergency response times
	Community Support	Neutral	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.	The stakeholder and community response to this alternative was mixed with approximately the same amount of support for and against.

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 6: Replace Culvert-Pedestrian Crossing

Filter Two-Project Enhancements

Objectives	*Evaluation Criteria*	*Rating*	Status with Respect to Criteria			*Justification*
			Favorable (+)	*Neutral (0)*	*Unfavorable (-)*	
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Unfavorable	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.	Private property owners to the north may still access properties but can only travel by vehicle up to the culvert.
	Condition of access route	Neutral	All weather surface and graded	All weather surface	Not maintained	Access to the trailhead is provided via 35 8/10 Rd and the improved culvert pedestrian crossing. Surface condition for access to properties north of I-70 via the frontage road remain in current condition.
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Favorable	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.	Project would require funding from an additional agency	This option might be funded by CDOT using multimodal or structure allocations
	Constructability	Neutral	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.	Replacing the culvert with one suitable for pedestrians or sleeving the existing culvert both might require specialized construction methods
	Expected life of solution	Favorable	Alternative increases life of CDOT's assets in the project area greater than 20 years.	Alternative increase life of CDOT's assets in the project area by 10-20 years.	Alternative increase life of CDOT's assets by 0-10 years.	A new culvert or the culvert sleeve both are anticipated to have a service life of greater than 20 years. Typical service life ranges from 25-100 years, depending on culvert material
	Construction Costs	Favorable	Alternative costs are less than 3,000,000.	Alternative has moderate costs between 3,000,000 to 4,000,000	Alternative has a higher cost greater than 4,000,000 due to an increased number of impacts.	Approximated construction cost is $1,500,000
	Long-Term Maintenance	Favorable	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.	Minor maintenance items spread over the life of the pedestrian culvert equate to a low long-term maintenance cost
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Neutral	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.	An option to sleeve the existing culvert might allow for temporary lane closures on I-70. Temporary access closures or use of existing frontage road to the trailhead may be needed while culvert improvements are being implemented.
	Private Property Impacts (ROW)	Unfavorable	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.	Construction of a parking lot south of I-70 might require significant ROW acquisition
	Utility Impacts	Favorable	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.	Known utilities in the area would be left undisturbed
	Emergency Services	Neutral	Alternative maintains current response times and improves reliability of route	Alternative has no little to no affect on response times or route availability	Alternative increases response times or decreases route reliability	A new or repaired pedestrian culvert is not intended to experience the same flooding issues that exist currently, thereby improving reliability of the response route to the trailhead. Response times would increase for emergency services to properties north of I-70 (access via existing frontage road)
	Community Support	Unfavorable	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.	The stakeholder and community response to this alternative was mixed, but leaned slightly towards unfavorable.

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 7: Replace Culvert-New Box Culvert (single lane)

Filter Two-Project Enhancements

Objectives	*Evaluation Criteria*	*Rating*	Status with Respect to Criteria			*Justification*
			Favorable (+)	*Neutral (0)*	*Unfavorable (-)*	
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Favorable	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.	A single lane culvert would allow existing access for property owners to stay as is
	Condition of access route	Favorable	All weather surface and graded	All weather surface	Not maintained	Access to the trailhead is provided via 35 8/10 Rd and the improved single lane culvert
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Neutral	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.	Project would require funding from an additional agency	This alternative might be funded by CDOT using structure allocations
	Constructability	Neutral	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.	Replacing the culvert with a single lane box culvert may require specialized construction methods. Phasing options are limited.
	Expected life of solution	Favorable	Alternative increases life of CDOT's assets in the project area greater than 20 years.	Alternative increase life of CDOT's assets in the project area by 10-20 years.	Alternative increase life of CDOT's assets by 0-10 years.	Typical service life for a new box culvert ranges from 50-100 years
	Construction Costs	Neutral	Alternative costs are less than 3,000,000.	Alternative has moderate costs between 3,000,000 to 4,000,000	Alternative has a higher cost greater than 4,000,000 due to an increased number of impacts.	Approximated construction cost is $4,000,000
	Long-Term Maintenance	Favorable	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.	Minor maintenance items spread over the life of the box culvert equate to a low long-term maintenance cost
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Unfavorable	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.	A new box culvert might be constructed in stages, requiring traffic on I-70 to shift or detour while one stage is completed
	Private Property Impacts (ROW)	Neutral	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.	Some right of way acquisition from properties directly south of I-70 likely required to construct a new box culvert.
	Utility Impacts	Neutral	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.	Minor utility relocations may be required south of I-70 to construct the new single lane box culvert.
	Emergency Services	Favorable	Alternative maintains current response times and improves reliability of route	Alternative has no little to no affect on response times or route availability	Alternative increases response times or decreases route reliability	A new box culvert is not intended to experience the same flooding issues that exist currently, thereby improving reliability of the response route to the trailhead.
	Community Support	Favorable	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.	The stakeholder and community response to this alternative was mixed, but leaned slightly towards favorable.

Mount Garfield Culvert Alternatives Evaluation Matrix

The proposed design solutions will be evaluated using the following criteria to determine if the proposed options address the problem statement for the project based on the established project goal.

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative 8: Eliminate Culvert - Replace Culvert-Bridge (two-lane)

Filter Two-Project Enhancements

Objectives	*Evaluation Criteria*	*Rating*	Status with Respect to Criteria			*Justification*
			Favorable (+)	*Neutral (0)*	*Unfavorable (-)*	
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Favorable	Out-of-direction travel for the private property owner stays the same or decreases.	Out-of-direction travel for the private property owner increases up to 1 mile.	Out-of-direction travel for the private property owner increases more than 1 mile.	A new two-lane bridge would allow existing access for property owners to stay as is
	Condition of access route	Favorable	All weather surface and graded	All weather surface	Not maintained	Access to the trailhead is provided via 35 8/10 Rd and the two lane bridge
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Neutral	Project has opportunity for multiple funding sources within CDOT's purview.	Project has one funding source or less.	Project would require funding from an additional agency	This alternative might be funded by CDOT using structure allocations
	Constructability	Neutral	Alternative can be constructed utilizing a number of construction methodologies.	Alternative requires specialized construction and/or limited construction methodologies.	Alternative is difficult to construct, or has little history of previous methods.	Replacing the culvert with a new two-lane bridge may require specialized construction methods. Phasing options are limited.
	Expected life of solution	Favorable	Alternative increases life of CDOT's assets in the project area greater than 20 years.	Alternative increase life of CDOT's assets in the project area by 10-20 years.	Alternative increase life of CDOT's assets by 0-10 years.	Typical service life for a new bridge ranges from 50-100 years, depending on bridge type
	Construction Costs	Unfavorable	Alternative costs are less than 3,000,000.	Alternative has moderate costs between 3,000,000 to 4,000,000	Alternative has a higher cost greater than 4,000,000 due to an increased number of impacts.	Approximated construction cost is $5,000,000
	Long-Term Maintenance	Neutral	Has a low long-term maintenance costs.	Has a medium long-term maintenance costs.	Has a high long-term maintenance costs.	Bridge maintenance may be slightly more labor intensive, increasing overall long-term maintenance costs
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Unfavorable	Alternative can be constructed with minimal impact to traffic on I-70 and maintains access to trailhead.	Alternative will require lane closures on I-70 and temporary access closures to the trailhead during construction.	Alternative requires shifting or detouring traffic on I-70 during construction.	A new bridge might be constructed in stages, requiring traffic on I-70 to shift or detour while one stage is completed
	Private Property Impacts (ROW)	Neutral	Alternative is within existing right-of-way and may require a temporary easement.	Alternative requires some right-of-way, with a permanent easement but no total property acquisitions.	Alternative requires significant right-of-way, including total property acquisitions.	Some right of way acquisition from properties directly south of I-70 likely required to construct a new box culvert.
	Utility Impacts	Favorable	Alternative does not impact existing utilities.	Alternative requires minor relocations of utilities.	Alternative requires major utility relocations.	Known utilities in the area would be left undisturbed
	Emergency Services	Favorable	Alternative maintains current response times and improves reliability of route	Alternative has no little to no affect on response times or route availability	Alternative increases response times or decreases route reliability	A new bridge is not intended to experience the same flooding issues that exist currently, thereby improving reliability of the response route to the trailhead.
	Community Support	Unfavorable	Stakeholders and community support the proposed plan.	Stakeholders and community have a neutral opinion or minor opposition to the proposed plan.	Stakeholders and community do not support the proposed plan.	The stakeholder and community response to this alternative was mixed, but leaned slightly towards unfavorable.

COLORADO
Department of Transportation

Mount Garfield Culvert Alternatives Evaluation Matrix

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Summary of Filter 2 Results

Objectives	***Evaluation Criteria***	*1B* *Eliminate culvert, improve frontage road water crossings*	*1C* *1B + frontage road graded all weather surface*	*1D* *1C + improve 33 Rd / G Rd intersection*	*1E* *1D + move parking lot to BLM land, add new foot path*	*6* *Replace with ped only culvert, move parking lot south of I-70*	*7* *Replace with one lane box culvert*	*8* *Replace with two lane bridge*
Provide efficient and effective access to adjacent property owners.	Out-of-Direction Travel for Private Property Owners	Unfavorable	Unfavorable	Unfavorable	Unfavorable	Unfavorable	Favorable	Favorable
	Condition of access route	Unfavorable	Favorable	Favorable	Neutral	Neutral	Favorable	Favorable
Provide compatibility with existing programs, practices, and resources.	Project funding opportunities	Favorable	Favorable	Unfavorable	Unfavorable	Favorable	Neutral	Neutral
	Constructability	Favorable	Favorable	Neutral	Neutral	Neutral	Neutral	Neutral
	Expected life of solution	Unfavorable	Neutral	Neutral	Neutral	Favorable	Favorable	Favorable
	Construction Costs	Favorable	Unfavorable	Unfavorable	Unfavorable	Favorable	Neutral	Unfavorable
	Long-Term Maintenance	Neutral	Neutral	Neutral	Neutral	Favorable	Favorable	Neutral
Manage impacts to adjacent community and traveling public.	Construction Impact to Users	Favorable	Favorable	Favorable	Favorable	Neutral	Unfavorable	Unfavorable
	Private Property Impacts (ROW)	Favorable	Neutral	Neutral	Neutral	Unfavorable	Neutral	Neutral
	Utility Impacts	Neutral	Neutral	Neutral	Neutral	Favorable	Neutral	Favorable
	Emergency Services	Unfavorable	Unfavorable	Unfavorable	Unfavorable	Neutral	Favorable	Favorable
	Community Support	Unfavorable	Unfavorable	Neutral	Neutral	Unfavorable	Favorable	Unfavorable

Appendix C

Drainage Report

Hydraulics and Hydrology Memorandum

Date:	Monday, February 15th, 2021
Project:	CDOT Region 3 Mount Garfield Culvert Study, Palisade, CO
To:	CDOT Region 3, Nathan Jean, PE
From:	Sam Acosta, PE
Subject:	**Hydrologic Analysis and Hydraulic Assessment**

1 Introduction

1.1 Purpose

This technical memorandum presents a hydrologic and hydraulic assessment for the failing 14'X14' box culvert at Mt. Garfield Trailhead under I-70 in Palisade, Colorado and hydraulically assesses different alternatives for replacing or repairing the existing box culvert. The project aims to ensure the integrity of I-70 and to maintain access to adjacent properties and the Mt. Garfield Trailhead. The project considers three types of alternatives for achieving the desired project goals. The alternatives include eliminating the culvert and providing frontage road access, eliminating the culvert and providing access from I-70 and repairing the culvert or replacing the culvert.

Figure 1: Vicinity Map

1.2 Location

The project is located along Interstate 70 near Palisade, Colorado at MP 39.96. According to CDOT's OTIS the culvert Structure Number is: 070A039961BL and it was constructed in 1962. The project area includes the outfalls of several drainage basins on the north side of I-70 and the frontage road that starts at 33 Road and parallels I-70 on the north side. The stormwater runoff flows both across the frontage road and through the box culvert to the south side of I-70. The surrounding area consists of sandy washes at the bottom of Mt. Garfield as well as several 1+ acre residential lots and agricultural land.

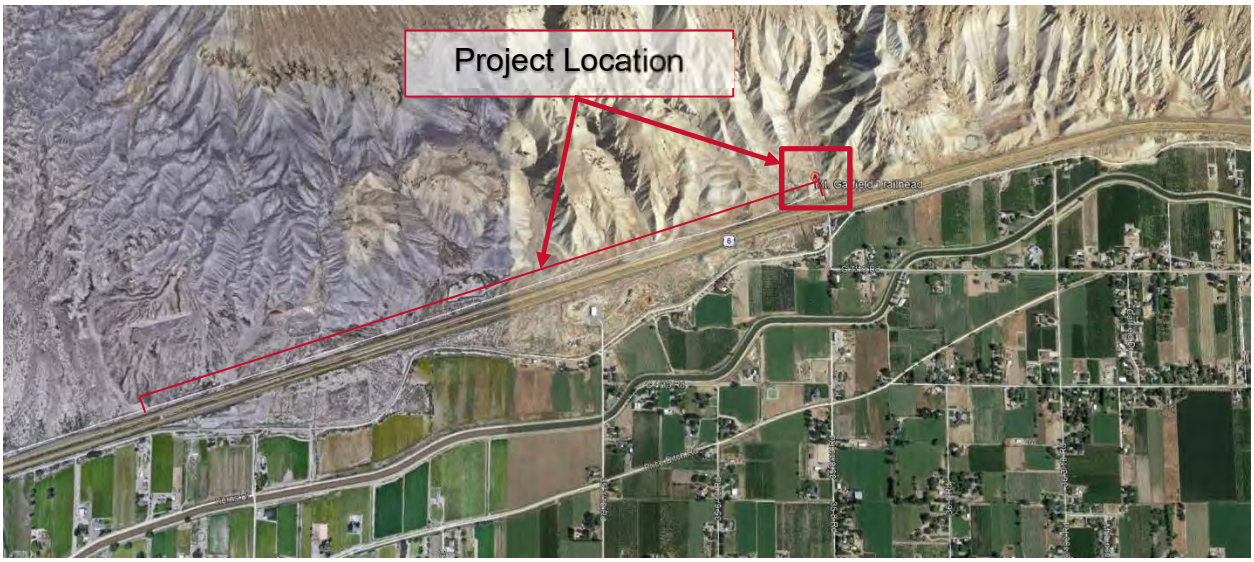


Figure 2: Project Map

1.3 Site Description

The project site is located in a rural area in Palisade, Colorado.

Mt. Garfield is part of an extensive flat-top mountain range with steep, sandy sides that convey large amounts of runoff during storm events. The primary goal of this project is to maintain the integrity of I-70 at the existing box culvert and provide access to adjacent property owners and the Mt. Garfield trailhead. The existing culvert at MP 39.96 was designed to provide access to the properties and Gearhart mine north of I-70 and to convey minor storm flows tributary to the culvert opening. However, there is significant differential settlement, resulting in dangerous access and standing water near the upstream end.

In general, stormwater runoff flows down through natural channels in the mountainside and under I-70 to the Highline Canal as seen in the drainage map in Appendix A.

The NRCS Web Soil Survey data shows the majority of soil on site as Badland-Deaver-Chipeta complex with 25-65% slopes. The less-steep areas are composed of Massadona silty clay loam and Turley clay loam. The Badland soil is hydrologic soil group D and the clay loams are type C. Type C and D soils have moderate to high runoff potential. A soil map is included in Appendix B.

2 Hydrology

A hydrologic analysis using the rational method was performed to determine the 25-year and 100-year peak flow rates for sizing a stormwater conveyance system for the Mt. Garfield Culvert Study.

2.1 Precipitation

Precipitation data is developed in accordance with CDOT's criteria and uses NOAA Atlas 14 guidance. An Intensity Duration Frequency (IDF) curve was developed for the project site to define the rainfall intensity.

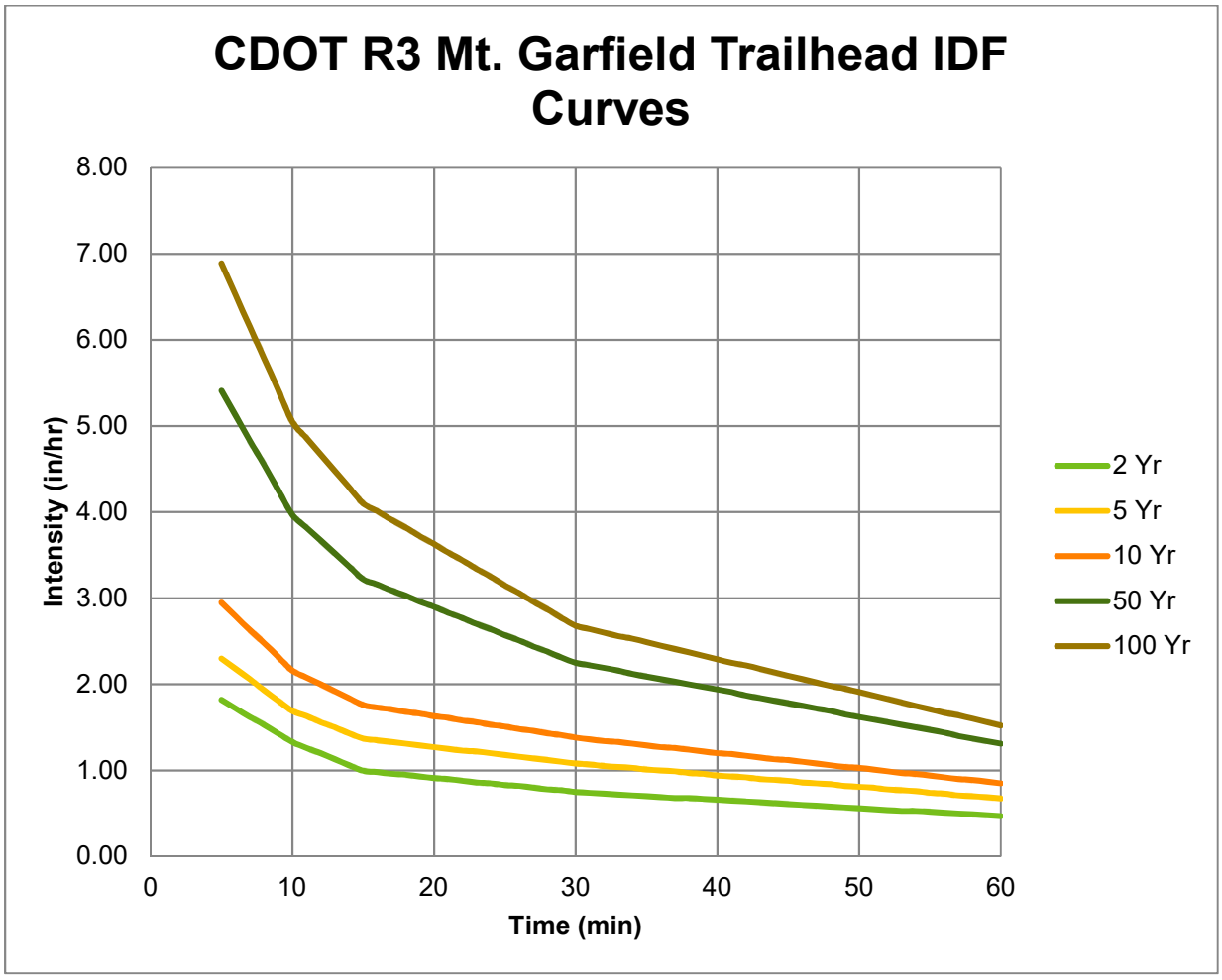


Figure 3: IDF curve

2.2 Basins

Hydrology was developed for local basins using HMS. Basins consist of rocky soil and steep slopes, consistent with the surrounding Mesa County area mountains. The project area

comprises land uses of unimproved areas made of Loessial soil, 1+ Acre residential and gravel roadway.

Rational Method Calculations are provided in Appendix B.

2.3 Floodplains

The project area is in Zone X, area of minimal flood hazard due to levee, as shown in Flood Insurance Rate Map (FIRM) Map Number 08077CO835F. There are no high-risk floodplain areas in the upstream vicinity. The Colorado River lies to the south and has Regulatory Floodplain areas. No impacts to the Highline Canal or Colorado River are anticipated as part of this project.

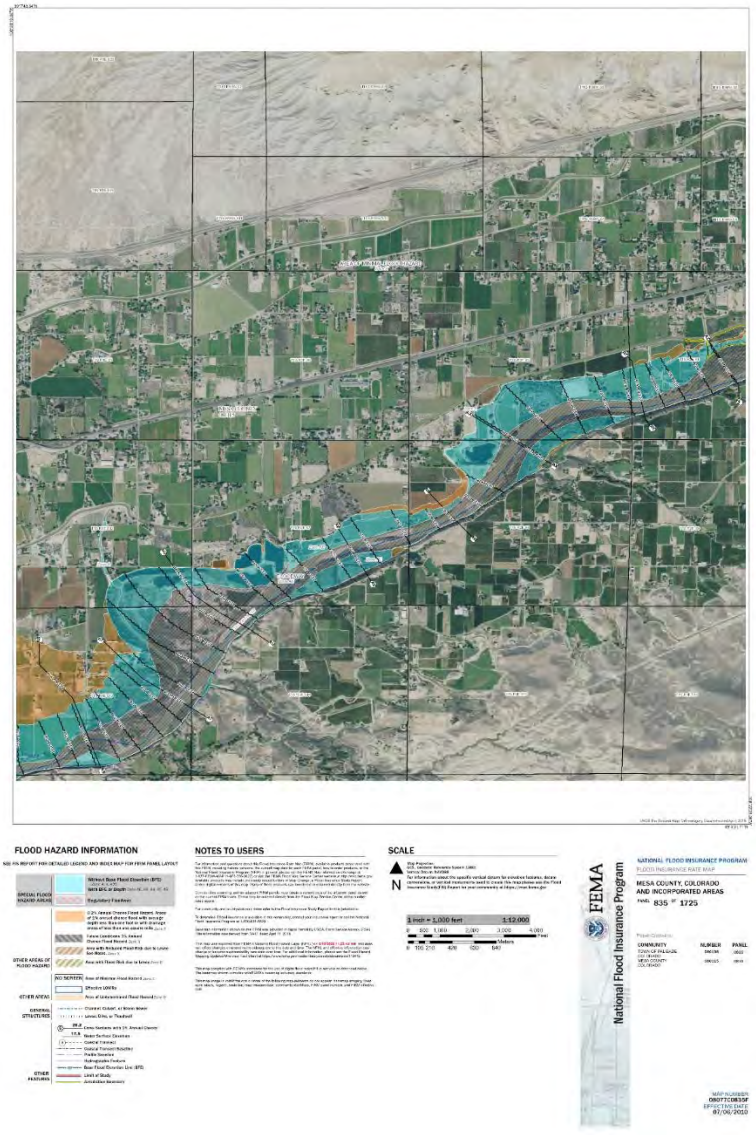


Figure 4: FIRM 08077CO835F, July 6, 2010

3 Hydraulics

A 14'x14' box culvert runs under I-70 from the parking lot to 35 8/10 Road. In large storm events, this culvert may convey water from the north side of I-70 to the south but due to its condition, often holds standing water. Additionally, a site visit determined two crossing culverts east and west of the box culvert.

The eastern culvert collects runoff from the north-east and from a drainage channel and earthen berm constructed to redirect runoff from north-northeast upgradient areas of the trailhead away from the box culvert and parking area. The western culvert collects runoff from north-northwest upgradient areas to the trailhead flow into a detention and sedimentation basin that ultimately discharges to a 6x6 culvert running under I-70. According to our site-visit, the basin is nearly filled with sediment limiting the capacity to detain storm flows. It is recommended that this basin is cleared of sediment to restore its functionality as designed.

3.1 Existing Conditions

The 14'x14' box culvert is in poor condition and is beyond repair. The culvert has been recommended for replacement. If left unmitigated, the concrete box culvert could fail structurally, potentially leading to severe damage to I-70 and limiting access to the trailhead and adjacent properties. The structure has a sufficiency rating of 22.4 out of 100, due to bulging walls, horizontal and map cracking, and significant differential settlement at the joints, as documented in the 2018 Structure Inspection and Inventory Report.

The two culverts located in the site visit are in fair condition and are appropriately sized to handle storm events.

The access road that parallels I-70 and provides secondary access to the trailhead and surrounding properties is a gravel, unmanaged road.

Western Water and Land reports that no downstream water rights exist that might rely on runoff flows controlled by features at the trailhead area. Additionally, a water storage right will not be required for a detention basin designed and constructed to control stormwater runoff.

Runoff from all washes on the north side of I-70 ultimately flow into Stub Ditch, an irrigation canal on the south side of I-70 that flows into the Government Highline Canal.

3.2 Proposed Conditions

The proposed changes to the hydraulics include replacement of the box culvert or drainage improvements along the frontage road. Frontage road improvements would include the addition of low water crossings along the existing frontage road or installation of culverts below each wash to convey runoff under I-70.

4 Alternatives

4.1 Eliminate culvert and provide Frontage Road access

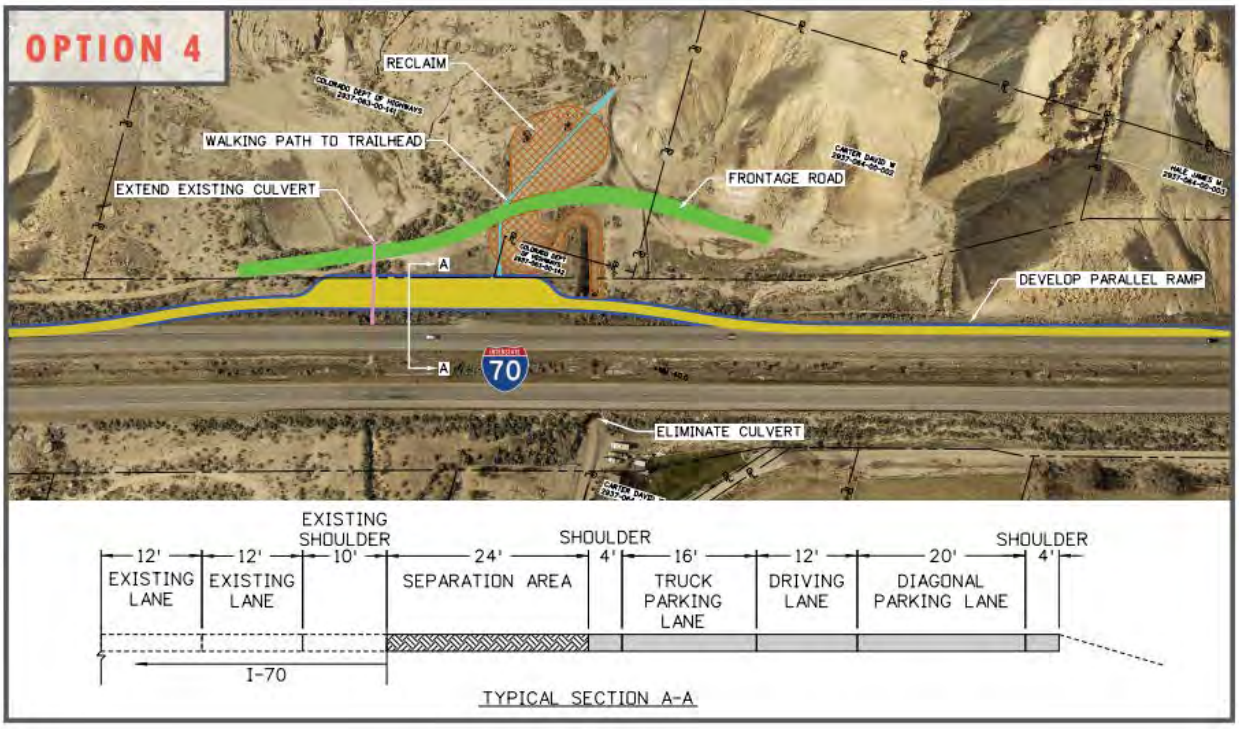
Our hydraulic assessment of the area tributary to the existing 14x14 culvert showed that very little area drains to the culvert. During the 100-year event less than 3 cfs flows through the culvert (see appendix for drainage calculations). Our analysis supports our previous finding that the culvert was installed not to convey flow but as access to the mine and properties north of I-70. Eliminating the culvert and regrading the area to drain east and/or west should not have any impact to adjacent culverts or to the downstream property owners. Similarly, eliminating the culvert and replacing the culvert with a smaller 18-inch diameter culvert would have no impact to the current drainage patterns.

This option also includes Frontage Road access and differing levels of improvements. The existing Frontage Road is several miles long and crosses several minor and major drainage ways. The beginning of the Frontage Road on the west is improved and maintained by the county. The existing infrastructure in this area is assumed to be in fair condition and appropriately sized to convey flows. The rest of the Frontage Road lacks culverts and utilizes natural low water crossings at each of the drainageways. Proposed improvements for this area include new culverts. See appendix for the cost estimate and hydraulic analysis for this alternative.

4.2 Eliminate culvert and provide interstate access

Our hydraulic assessment of the area tributary to the existing 14x14 culvert showed that very little area drains to the culvert. During the 100-year event less than 3 cfs flows through the culvert (see appendix for drainage calculations). Our analysis supports our previous finding that the culvert was installed not to convey flow but as access to the properties across I-70. Eliminating the culvert for this alternative and regrading the area to drain east and/or west should not have any impact to adjacent culverts or to the downstream property owners.

This option will require extending the existing 6x6 concrete box culvert on the west.

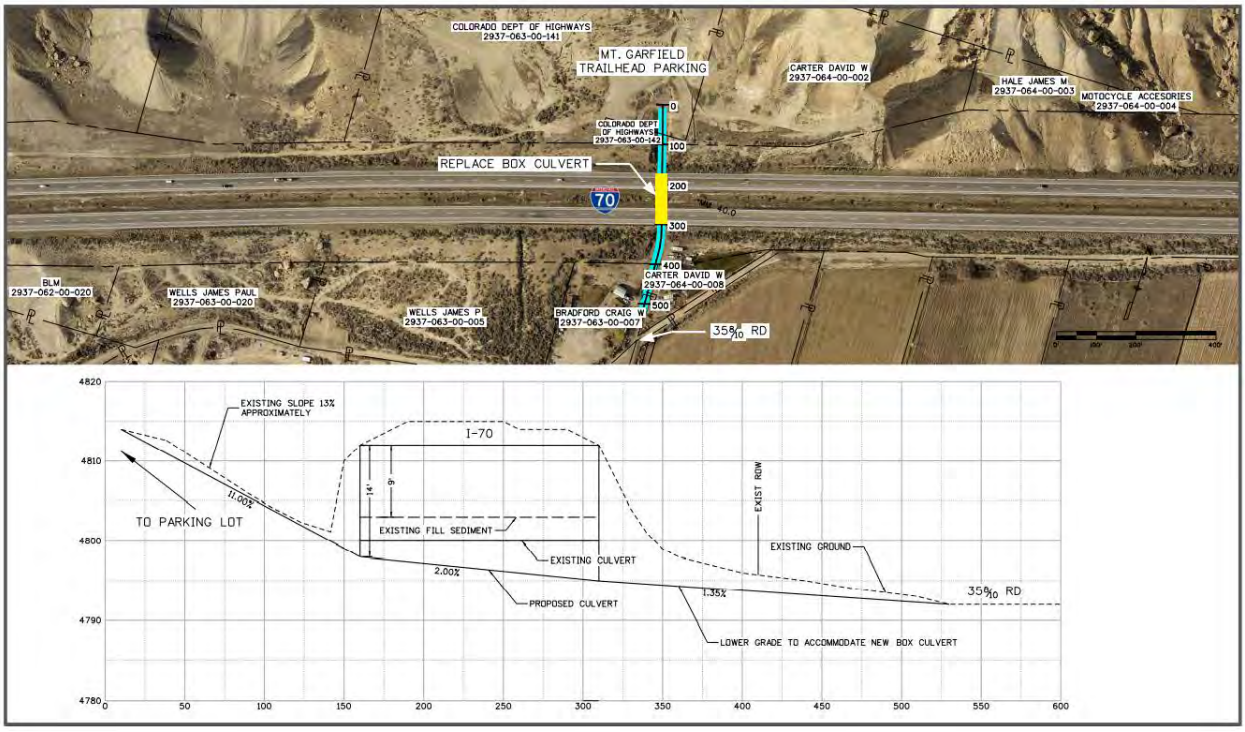


4.3 Repair Culvert

Our hydraulic assessment of the area tributary to the existing 14x14 culvert showed that very little area drains to the culvert. During the 100-year event less than 3 cfs flows through the culvert (see appendix for drainage calculations). Our analysis supports our previous finding that the culvert was installed not to convey flow but as access to the mine and properties north of I-70. Repairing the culvert in-place is sufficient for conveying the minor and major flows.

4.4 Replace Culvert

Our hydraulic assessment of the area tributary to the existing 14x14 culvert showed that very little area drains to the culvert. During the 100-year event less than 3 cfs flows through the culvert (see appendix for drainage calculations). Our analysis supports our previous finding that the culvert was installed not to convey flow but as access to the properties across I-70. Repairing the culvert in-place is sufficient for conveying the minor and major flows.



5 Conclusion

The existing 14x14 concrete box culvert was originally installed to provide access to the mine and properties north of I-70. The culvert is not hydraulically required at this location. Alternatives shown in this memo are all feasible and meet the hydraulic needs for the project.

6 References

A. Colorado Department of Transportation, Drainage Design Manual (2019).
B. US Department of Agriculture, NRCS (2020). Web Soil Survey.
C. US Department of Commerce, NOAA (2020). NOAA Atlas 14: Precipitation-Frequency Atlas of the United States, Volume 8, Version 2.

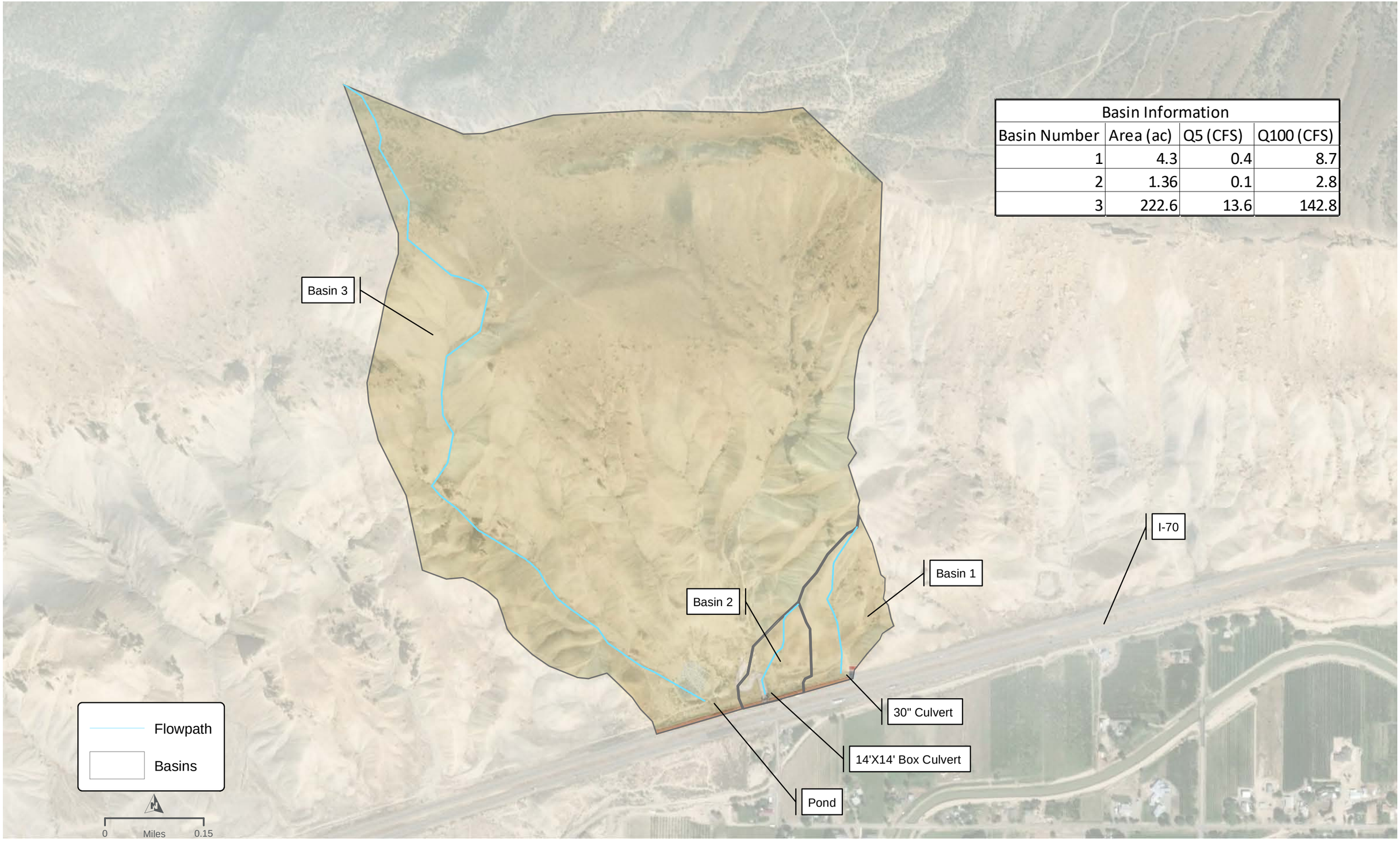
7 Appendix

A. Drainage Basin Maps and Cost Estimates
B. HMS inputs

Appendix A

Drainage Basin Maps and Cost Esimtates

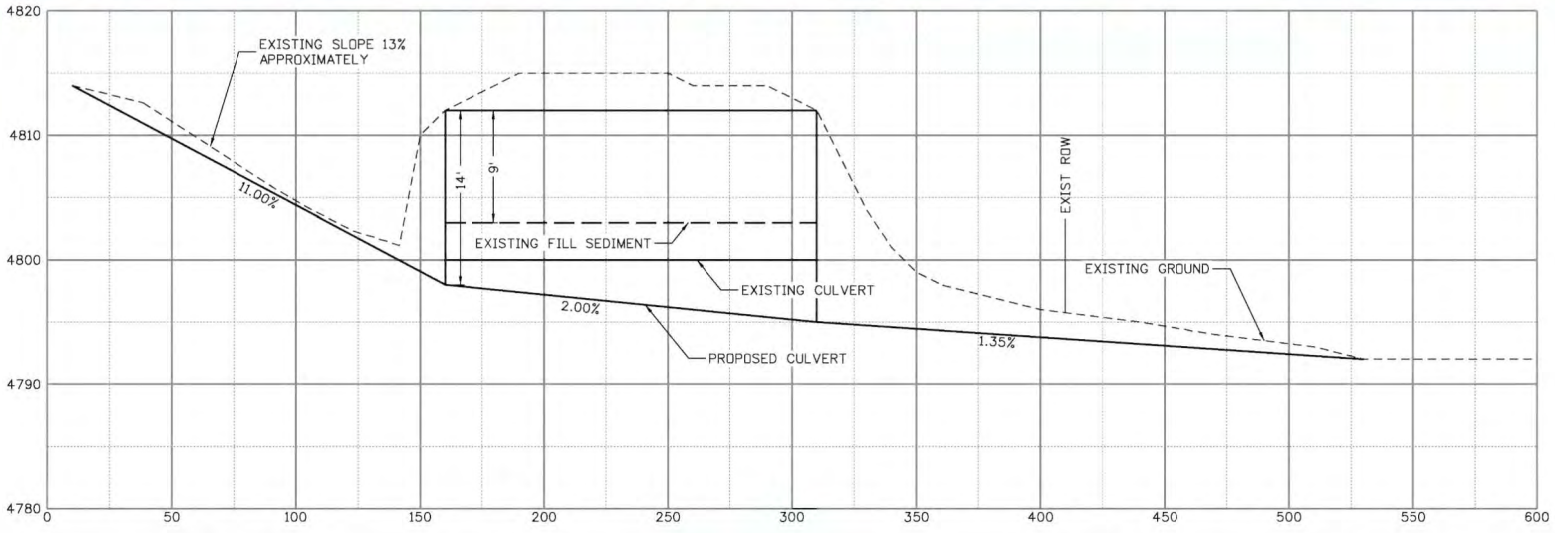
Basin Information			
Basin Number	Area (ac)	Q5 (CFS)	Q100 (CFS)
1	4.3	0.4	8.7
2	1.36	0.1	2.8
3	222.6	13.6	142.8



MT. GARFIELD TRAILHEAD

ALTERNATIVES ANALYSIS

BASIN MAP



Print Date: 1/17/2020	Sheet Revisions			Colorado Department of Transportation	As Constructed
File Name: Mt_Garfield_Trailhead_Sheets.dgn	Date:	Comments	Init.	2424 North Townsend Avenue	No Revisions:
Horiz. Scale: 1:200				Montrose, CO 81401	Revised:
Stolfus — 5690 DTC Boulevard, Suite 560E, Greenwood Village, CO 80111, Phone: 303-221-2330, Fax: 303-221-2331, www.stolfusandassociates.com				Phone: 970-683-6420, FAX: 970-249-6018	Void:
				Region 3 RMS	Sheet Subset:

BOX CULVERT REPLACEMENT

Designer:	TL	Structure Numbers	
Detailer:	TL		
Subset Sheets:			

Project No./Code
C XXXX-XXX
XXXXX
Sheet Number

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Alternative Box Culvert Replacement

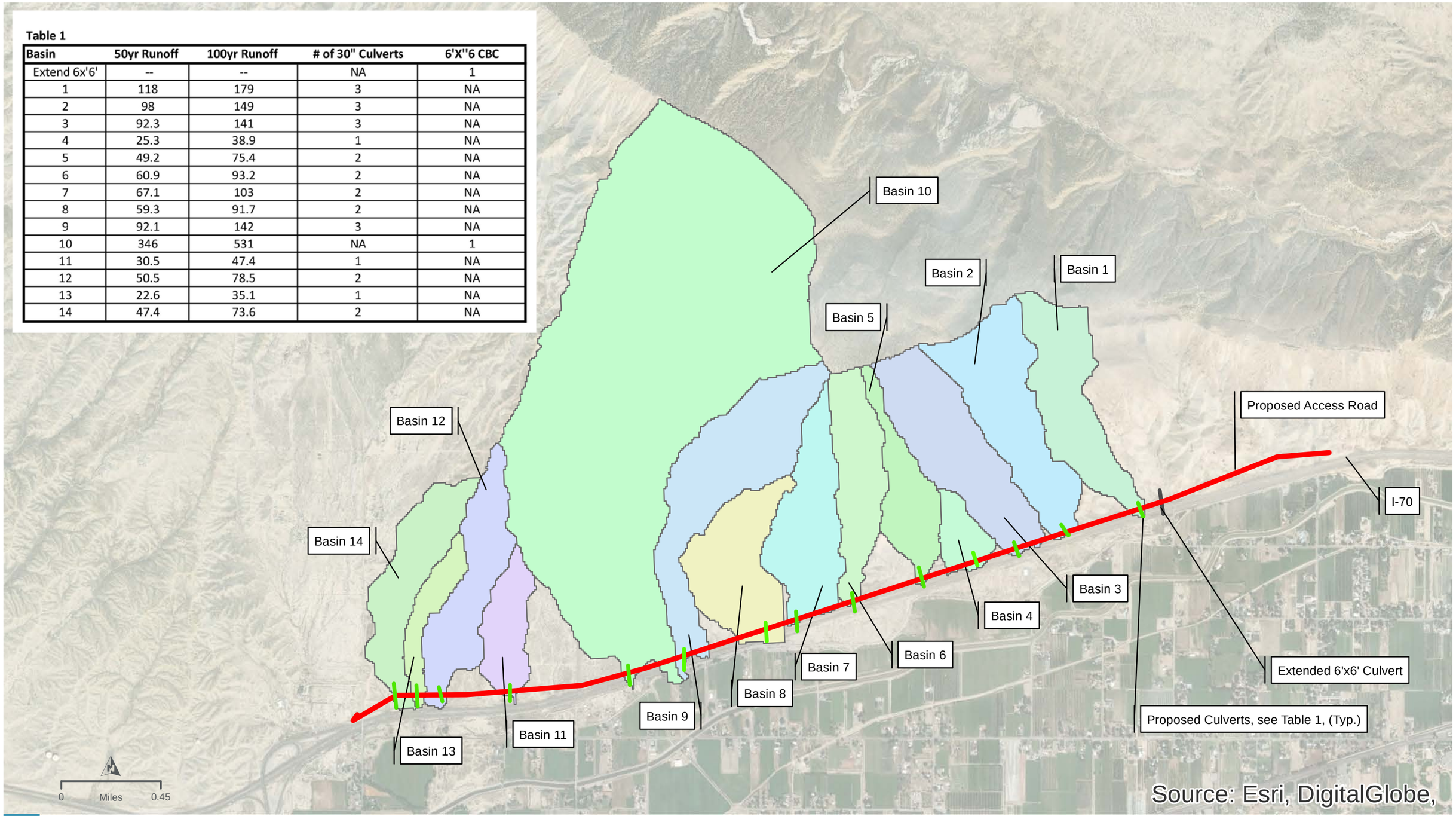
Extend existing 16'x16' CBC

	LF of 16'x16'	*Removal Existing CBC*	*Unit Cost 16'x16' CBC (Precast) LF- 603-XXXXX*	*Unit Cost Removal REM CBC (EA)- 202-00020*	COST
Crossing 1	300		$4,000.00	$12,000.00	$1,200,000.00
Removal of EX CBC		1	$4,000.00	$12,000.00	$12,000.00
			Total Cost:		$1,212,000.00

Frontage Road with Proposed Culverts Alternative and Existing Culvert Replacement

Table 1

Basin	50yr Runoff	100yr Runoff	# of 30" Culverts	6'X''6 CBC
Extend 6x'6'	--	--	NA	1
1	118	179	3	NA
2	98	149	3	NA
3	92.3	141	3	NA
4	25.3	38.9	1	NA
5	49.2	75.4	2	NA
6	60.9	93.2	2	NA
7	67.1	103	2	NA
8	59.3	91.7	2	NA
9	92.1	142	3	NA
10	346	531	NA	1
11	30.5	47.4	1	NA
12	50.5	78.5	2	NA
13	22.6	35.1	1	NA
14	47.4	73.6	2	NA



Alternative Access Road with Proposed Culverts

Proposed access road from TH to 33 Road - proposed culverts at flow path crossing and extend existing 6'x6' CBC

	Barrell #	*LF of 30" RCP*	*LF of 6'x6' CBC*	*Removal of Ex CBC (EA)*	*Unit Cost (30 In RCP (CIP)) - 603-01305*	*Unit Cost 6x6 Ft CBC (Precast) - 603-70606*	*Unit Cost Removal REM CBC (EA)- 202-00020*	COST
Extension of Existing	1		150		$37.00	$2,400.00	$12,000.00	$360,000.00
Removal of Existing				1	$37.00	$2,400.00	$12,000.00	$12,000.00
Crossing 1	3	174			$37.00	$2,400.00	$12,000.00	$6,438.00
Crossing 2	3	174			$37.00	$2,400.00	$12,000.00	$6,438.00
Crossing 3	3	174			$37.00	$2,400.00	$12,000.00	$6,438.00
Crossing 4	1	58			$37.00	$2,400.00	$12,000.00	$2,146.00
Crossing 5	2	116			$37.00	$2,400.00	$12,000.00	$4,292.00
Crossing 6	2	116			$37.00	$2,400.00	$12,000.00	$4,292.00
Crossing 7	2	116			$37.00	$2,400.00	$12,000.00	$4,292.00
Crossing 8	2	116			$37.00	$2,400.00	$12,000.00	$4,292.00
Crossing 9	3	174			$37.00	$2,400.00	$12,000.00	$6,438.00
Crossing 10	1		58		$37.00	$2,400.00	$12,000.00	$139,200.00
Crossing 11	1	58			$37.00	$2,400.00	$12,000.00	$2,146.00
Crossing 12	2	116			$37.00	$2,400.00	$12,000.00	$4,292.00
Crossing 13	1	58			$37.00	$2,400.00	$12,000.00	$2,146.00
Crossing 14	2	116			$37.00	$2,400.00	$12,000.00	$4,292.00
					Total Cost :			$569,142.00

Mount Garfield Alternatives

Table 1

Basin	50yr Runoff	100yr Runoff	# of 30" Culverts	6'X''6 CBC
Extend 6x'6'	--	--	NA	1
1	118	179	3	NA
2	98	149	3	NA
3	92.3	141	3	NA
4	25.3	38.9	1	NA
5	49.2	75.4	2	NA
6	60.9	93.2	2	NA
7	67.1	103	2	NA
8	59.3	91.7	2	NA
9	92.1	142	3	NA
10	346	531	NA	1
11	30.5	47.4	1	NA
12	50.5	78.5	2	NA
13	22.6	35.1	1	NA
14	47.4	73.6	2	NA

Assumptions:

- 1% slope
- 2-12' lanes, 1' shoulders, roadway is 4' above FL, 4:1 sideslopes
- 58' length for each

Appendix B

Calculations

HMS Inputs

HMS Inputs					
Basin ID	Area (mi2)	Curve Number	Tc	Lag Time	Initial Abstraction
1	0.14	88	12	7.2	0.273
2	0.18	88	11.4	6.84	0.273
3	0.16	88	10.8	6.48	0.273
4	0.0353	88	7.8	4.68	0.273
5	0.0599	88	8.4	5.04	0.273
6	0.11	88	11.4	6.84	0.273
7	0.14	88	16.2	9.72	0.273
8	0.15	88	27.6	16.56	0.273
9	0.22	88	22.8	13.68	0.273
10	1.23	88	41.4	24.84	0.273
11	0.067	88	51.6	30.96	0.273
12	0.13	88	57.6	34.56	0.273
13	0.0449	88	41.4	24.84	0.273
14	0.12	88	64.8	38.88	0.273

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phical method.

Table 4-1 I_a values for runoff curve numbers

Curve number	I_a (in)	Curve number	I_a (in)
40	3.000	70	0.857
41	2.878	71	0.817
42	2.762	72	0.778
43	2.651	73	0.740
44	2.545	74	0.703
45	2.444	75	0.667
46	2.348	76	0.632
47	2.255	77	0.597
48	2.167	78	0.564
49	2.082	79	0.532
50	2.000	80	0.500
51	1.922	81	0.469
52	1.846	82	0.439
53	1.774	83	0.410
54	1.704	84	0.381
55	1.636	85	0.353
56	1.571	86	0.326
57	1.509	87	0.299
58	1.448	88	0.273
59	1.390	89	0.247
60	1.333	90	0.222
61	1.279	91	0.198
62	1.226	92	0.174
63	1.175	93	0.151
64	1.125	94	0.128
65	1.077	95	0.105
66	1.030	96	0.083
67	0.985	97	0.062
68	0.941	98	0.041
69	0.899		

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area [2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

Appendix D

Structure Selection Report

STRUCTURE EVALUATION REPORT

CR 35 8/10 Road under Interstate 70
Culvert Replacement
Existing Structure No.
070A039961BL

Prepared for:

Colorado Department of Transportation

COLORADO
Department of
Transportation

By:

HDR Engineering, Inc.
1670 Broadway, Suite 3400
Denver, CO 80202

Original Submittal Date: February 2021

Revised: Month Day, year

Table of Contents

PROJECT OVERVIEW AND PURPOSE

CR 35 8/10 Road passes under I-70 at Mile Posting 39.961 in Mesa County with the use of a concrete box culvert. The culvert primarily provides single lane access to the Mount Garfield Trailhead which is just north of I-70. The culvert was built as two separate structures in 1962 and was later connected under the median of I-70 in 1973. The culvert has been showing signs of deterioration since as early as 1967 and has continued to be noted in the Structure Inspection Reports.

Figure 1 - Existing Culvert: Coal Mine Road Under I-70

The primary purpose of this project is to maintain the integrity of I-70 at the existing box culvert and maintain the access to adjacent property owners and the Mount Garfield trailhead. With the warping of the existing culvert walls and significant differential settlement the solution must take into account the existing conditions. The project requirements also include providing drainage for the proposed solutions.

The main project report provides an overall assessment of the alternatives and how they operate with the I-70 corridor and CR 35 8/10 Road along with the function of the Mount Garfield Trailhead. The intent of the Structure Evaluation Report is to evaluate the structural aspects for the alternatives discussed in the main report. The report format is based on a typical Structure Selection Report format with the purpose to provide evaluation of the structural alternatives to support the main report.

STRUCTURE LOCATION MAP

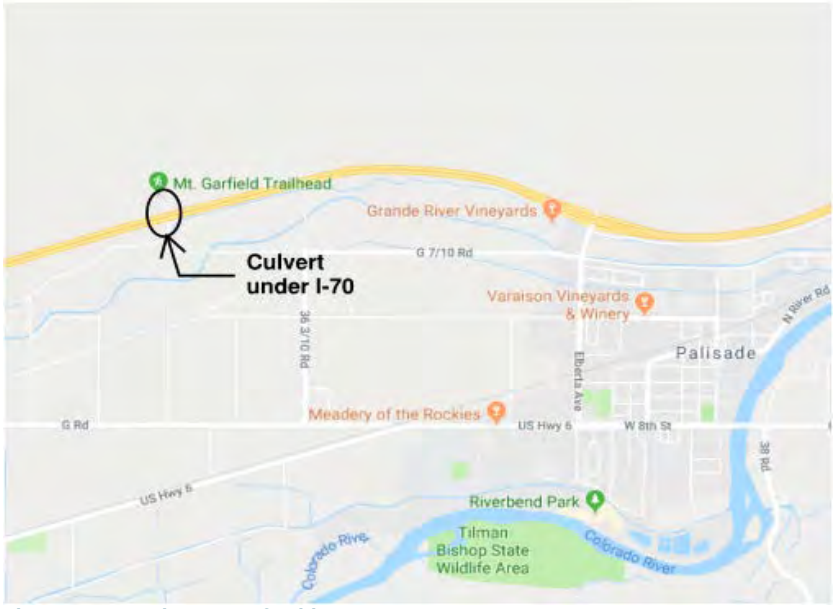


Figure 2 - Location Map of Bridges

SITE DESCRIPTION AND DESIGN FEATURES

Existing Structure

The existing concrete box culvert, built in 1962, carries CR 35 8/10 Road under I-70. The culvert sufficiency ratings and load ratings, as per the latest CDOT Inspection Report and Rating Summary, dated October 5, 2017, are as follows:

	Sufficiency Rating	Inventory Rating	Operating Rating
070A039961BL	**22.4**	**27.0 Tons**	**36.0 Tons**

The inventory load ratings for this structure (27 tons) is well below the 36 tons required for new culverts. The primary reasons for the low sufficiency rating are the bulging walls, horizontal cracking, and the differential settlement.

Right of Way Impacts

There are right of way considerations that will need to be considered. The culvert was originally built to provide access to the Gearhart coal mine north of I-70. While the coal mine is no longer active, access to properties located north of I-70 will have to be maintained. Also, the culvert passes under I-70 and will have to remain within the I-70 right of way as well. The structures for crossing I-70 are anticipated to be within the right of way, but the approach roadway may require evaluation to determine impacts. The right of way does not provide restrictions to the structure alternatives.

Geotechnical Summary

A geotechnical investigation has not been performed but can be completed at a future date if the project moves forward with preliminary design. The existing box culvert has experienced differential movement and other structural deficiencies. This area of I-70 is known for some unique subsurface conditions such as dealing with settlement of collapsible soils. A geotechnical investigation will provide the design data and any mitigation techniques to deal with the existing conditions. The box culvert alternatives will all have the same recommendations, so there will be no distinguishing factor that would favor one of the culvert alternatives. For the bridge alternative deep foundations were assumed. Although a geotechnical investigation is required for the design, the team determined that it would be reasonable to move forward with the structure evaluation and once the geotechnical evaluation is completed the structural alternatives assumptions could be further evaluated and verified.

Environmental Impacts

There are no significant environmental restrictions for this project that would prohibit any of the structural alternatives considered or favor one structure type over any of the others. For this reason, environmental issues will have little influence on the structure type selection.

Culvert Drainage
The existing culvert does experience drainage and the drainage will be evaluated as part of a separate report. The structure alternatives evaluated will incorporate the drainage as needed.

Construction Phasing (Maintenance of Traffic)
The wide median between eastbound and westbound I-70 at the project location provides significant opportunity for construction phasing. The traffic lanes from one direction of I-70 can be diverted to the median allowing for the structure to be constructed for that direction and then apply the same strategy for the other direction.

Utilities and Utility Conflicts
There are no known utility utilities at the project location that affect the crossing location.

PROPOSED STRUCTURE DESIGN CRITERIA

Design Live Load	HL-93 and CDOT Permit Vehicle
Design Dead Load	Includes 3” HMA wearing surface (no allowance for FWS)
Design Methodology	Load and Resistance Factor Design (LRFD)
Specifications	AASHTO LRFD, 9th Edition Current CDOT LRFD Bridge Design and Detailing Manual
Vehicle Collision Load	Not Applicable
Seismic Design	Not Applicable - Zone 1
Design Software	Conspan and Conbox
Design Check Software	PG-Super

STRUCTURE LAYOUT ALTERNATIVES

Culvert Alternative Layouts
The replacement box culvert underpass alternative and sleeve alternative are similar to the existing box culvert crossing following the same alignment crossing I-70. The existing 14’x14’ box culvert has approximately 3 feet of cover over the culvert.

Bridge Alternative Layout
The bridge alternative will be I-70 over CR 35 8/10 Road with separate single span bridges for eastbound and westbound I-70. The bridges will provide a 30’ clear span opening for two lanes of CR 35 8/10 Road with a vertical clearance of 16’.

CRITERIA FOR EVALUATING STRUCTURE TYPES

The proposed alternatives will be evaluated against the following list of criteria.

Initial Cost and Maintenance

Cost estimates were prepared for the major items of each structure alternative to allow for direct comparison. The cost comparisons are provided in the main report. The intention is to provide the most economical and efficient structure type meeting the project needs while maintaining CDOT and AASHTO requirements. The alternatives provided in this report are all considered low maintenance structures, so maintenance issues are not deemed a significant factor in the type selection process.

Durability and Function

The existing box culvert has experience issues from very early on with continued worsening over the structure's life. It is important that the structures are designed and detailed to work with the existing conditions. All the alternatives evaluated for this project can be detailed to provide a durable structure that meets the required design life.

Constructability

Constructability issues play a vital role in the type selection process. All the proposed alternatives considered in this report can be constructed in a manner that minimizes impacts to the traveling public. A general understanding of the construction processes and duration for each structure type will be considered as a criterion for type selection.

STRUCTURE TYPE ALTERNATIVES

The alternative naming convention shown below matches the main project report for consistency.

Alternatives 1B-1E: Eliminate the existing culvert (Fill in existing culvert)

These alternatives eliminate the existing culvert crossing and provide trailhead and property access from a frontage road north of I-70. The main report discusses the various alternatives for the frontage road access. The existing box culvert would be left in place and filled in with lean concrete or flow fill.

Alternative 6: Sleeve the Existing Culvert with a New Culvert for Pedestrians

This alternative is to put a new culvert inside the existing culvert to provide pedestrian usage for the crossing. The space between the existing culvert and new culvert will be filled with lean concrete. This alternative will use the existing wing walls.

Alternative 7: Replace the Existing Culvert with a New Single Lane Culvert

This alternative is to replace the existing culvert with a new culvert that will allow for a single traffic lane. This replacement alternative provides the same access as the existing conditions.

Alternative 8: Replace the Existing Culvert with I-70 Bridges over CR 35 8/10 Road

This alternative is to replace the existing culvert with westbound and eastbound I-70 bridges over CR 35 8/10 Road. The bridges would provide a clear span that allows for 2 traffic lanes on CR 35 8/10 Road.

STRUCTURE EVALUATION

Existing Structure Evaluation

The existing concrete box culvert has shown signs of deterioration such as cracking for much of the service life. With issues beginning to compound into bowing of the vertical walls, horizontal and vertical displacement being clearly present, and cracking throughout all walls. Due to the severity of the structural deficiencies culvert repair is not considered a long-term solution. Durability, fixing the ponding of water, and producing an alternative that satisfies the project needs are the key objectives that are not feasible with a repair option.

Alternatives 1B-1E Structure Evaluation

These alternatives eliminate the existing culvert crossing. The existing structure has deficiencies that greatly affect the structural integrity and rating of the structure. There are two basic options, the first is to remove the existing culvert and replace with backfill. This option would have construction phasing requirements like constructing a new structure. The I-70 median would be utilized for maintaining traffic during construction. The other option is to fill the existing culvert with lean concrete and abandon the structure in place. Abandoning existing drainage structures in place is common, but the existing 14’x14’ is a larger structure for this approach. This option would allow for minimized impacts to I-70 during construction. Filling in the culvert with lean concrete would address the structural issues, but differential settlement and other subsurface related issues for the existing culvert may not be fully addressed by filling in the existing culvert. The constructability of filling the existing structure with lean concrete would need to be considered during the design along with the end treatments and embankment slopes at the end of the box culvert. For purposes of the overall evaluation, it was assumed that the box culvert would be filled in with lean concrete.

Alternative 6 Structure Evaluation

This alternative is to use a new box culvert as a sleeve inside the existing box culvert to provide pedestrian access. A box culvert with an opening of 10’x10’ would have exterior dimensions of approximately 12’x12’ for a sleeve inside the existing 14’x14’ opening. The

10'x10' interior dimensions would provide an acceptable opening for pedestrian use although for the 160' long structure a wider opening is preferred. The space between the existing and new sleeve culvert will be filled with lean concrete. Cast-in-place concrete is an option for the sleeve, but a precast concrete option may provide some constructability advantages. Precast concrete sections could be slid into the existing culvert using rollers or other methods. It may be feasible to reuse the existing wing walls. The main disadvantage of the sleeve alternative is the differential settlement and other subsurface issues with the existing structure could be difficult to mitigate and could potentially impact the new box culvert sleeve. The design of the sleeve structure would need to consider the existing structure conditions and incorporate them into the design and detailing of the new sleeve culvert. The main advantage of this alternative is the construction would have minimal impacts to I-70 traffic for construction phasing. The overall concept of this alternative including the roadway and switching the access to pedestrian only is covered in the main report.

Alternative 7 Structure Evaluation

This alternative is a replacement culvert that provides the same access and function for CR 35 8/10 Road as the existing 14'x14' box culvert crossing. The replacement box culvert under I-70 is for a single traffic lane with a 16' opening and a 16' height. The additional opening width will provide greater driver comfort and the additional height would meet the minimum vertical clearance requirement for structures. The existing grades of CR 35 8/10, drainage patterns, and the proximity to private property structures creates some challenges with increasing the existing 14' vertical clearance, so the cover over the box and roadway will need to be evaluated to determine if the preferred 16' vertical clearance is feasible. The existing I-70 median width allows for I-70 traffic to be phased for construction of the box culvert. Precast concrete box culvert sections could be used to reduce the construction time frame. The box culvert is a durable low maintenance structure. This alternative is a more economical solution than the bridge alternative 8 that also provides for vehicle access.

Alternative 8 Structure Evaluation

This alternative replaces the existing box culvert underpass with I-70 eastbound and westbound single span bridges over CR 35 8/10 Road. The single span bridges accommodate two traffic lanes for CR 35 8/10 Road. The purpose of including a bridge in the alternatives was to determine if it is a cost competitive solution. The assumptions noted below are some basic assumptions for the bridge. If a bridge alternative is determined to be the preferred solution a more in-depth evaluation of superstructure, abutment and wall options should be evaluated. The alternative assumes prestressed slab girders supported by integral abutments with deep foundations. As shown in the attached section view, there will be full height walls in front of the integral abutments and the walls will also be used in the median area between the bridges. The construction phasing for the bridges will be similar to the alternative 7 box culvert replacement using the I-70 median to maintain traffic. The bridge alternative would have a longer construction schedule than the other alternatives. The bridge alternative provides the advantage of two traffic lanes for CR 35 8/10 Road. Providing two

lanes is standard, but it is not a significant benefit for this location due to the low volume of traffic accessing the trailhead. The bridge can be designed and detailed to minimize maintenance, however the maintenance associated with a bridge is more involved over the life span in comparison to a box culvert. The bridge alternative is a durable solution, but it does have a higher cost.

Summary of Structure Evaluation		
Alternative		**Estimated Cost**
1B-1E	Eliminate the Existing Box Culvert Crossing	$1,800,000 to $6,000,000
6	Sleeve the Existing Culvert with new culvert	$1,600,000
7	New Box Culvert (Single Traffic Lane)	$4,000,000
8	I-70 Bridges over Coal Mine Road	$5,400,000

USE OF ACCELERATED BRIDGE CONSTRUCTION (ABC)

Over the past decade or so, construction methods that accelerate bridge construction have been given special attention by FHWA and state DOTs. The impacts to the traveling public by construction activities and construction duration are now given much more consideration in the planning and design phases of a bridge construction or reconstruction project than in the past. Traffic delay and inconvenience at highway project sites should be considered as important side effects of the bridge construction and the FHWA encourages ways of reducing impacts.

CDOT has developed an interactive approach for the decision-making process for accelerated bridge construction (ABC) that includes a pre-scoping ABC rating form, workflow matrix and other general information. The CDOT process is geared towards identifying the key constraints, such as construction schedule and then incorporates the ABC technologies that make sense for a project. Often the ABC construction methods may be more expensive than their traditional counter parts with the true savings being realized in the overall project construction time and phasing.

I-70 at this location has a wide median that allows for the highway to maintain the existing traffic lanes during construction. Although this location may not classify as a high priority for ABC, the phasing of the traffic lanes even in ideal locations still impacts the traveling public, so any ABC techniques or technology that reduces construction time frame is worth consideration. The replacement box culvert and bridge alternatives evaluated are straight forward alternatives that could benefit from using ABC technologies. Precast box culvert sections are a cost-effective approach that reduces the construction time frame in comparison to the cast-in-place option. Precast adjacent slab girders could be used on the

bridge to reduce time required for deck forming. Precast wall systems are another system that may reduce the construction time frame.

Given the impacts and construction for this project, the design team recommends the use of traditional construction techniques with precast elements incorporated where there is a cost benefit. The main factors of delay/detour time, user costs and safety would not be significantly affected by the use of ABC techniques in this instance.

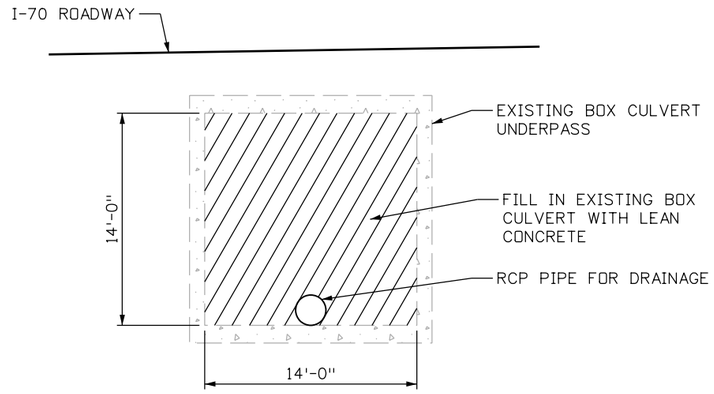
Traditional Construction

The traditional construction for this location would follow standard CDOT construction methods and procedures. Precast concrete girders and box culverts could be used. The use of such precast elements is in itself an accelerated bridge construction method, but a portion of work for the abutments or box culvert options would be done with onsite labor, using standard equipment, formwork, placed-on-site reinforcing steel, and cast-in-place concrete.

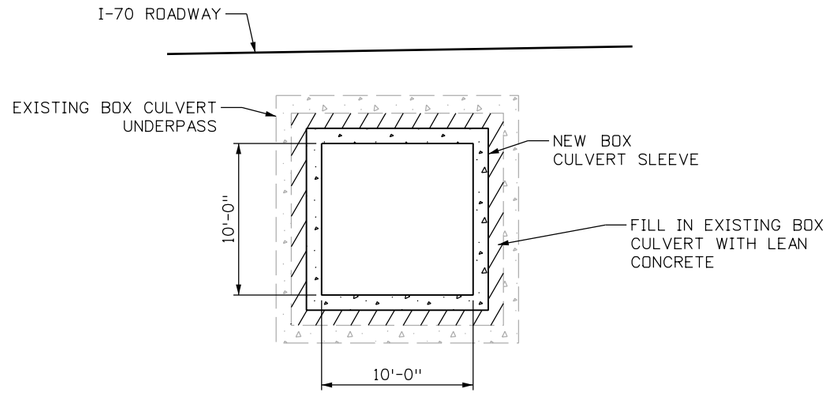
Geosynthetic Reinforced Soil

Another development in bridge construction is the use of geosynthetic reinforced soil (GRS) abutments. This construction technique involves the use of standard concrete masonry blocks, controlled backfill material and geosynthetic layers which reinforce the fill. The result is a very high load capacity and flexible bridge abutment that can be constructed quickly and inexpensively. The GRS system would need a completed geotechnical investigation to determine if it is suitable.

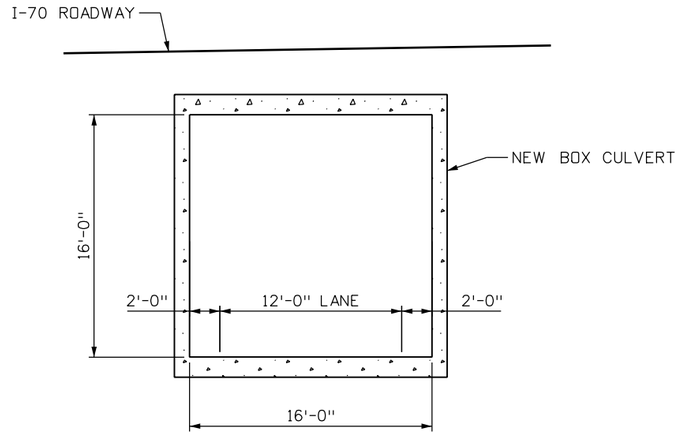
ATTACHMENTS



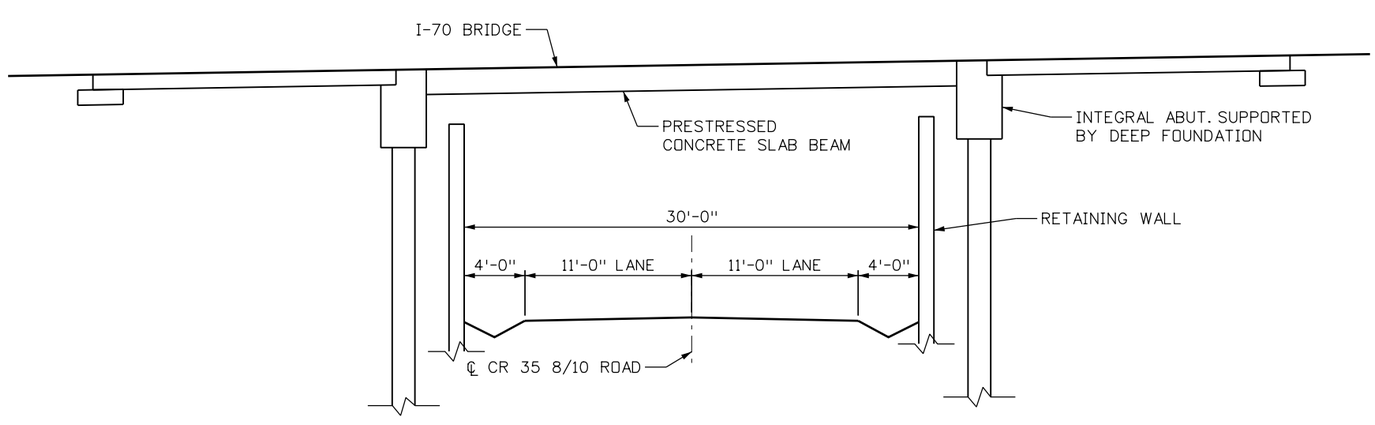
ALTERNATIVES 1B-1E
(FILL IN EXISTING BOX CULVERT)



ALTERNATIVE 6
(PEDESTRIAN BOX CULVERT UNDERPASS)



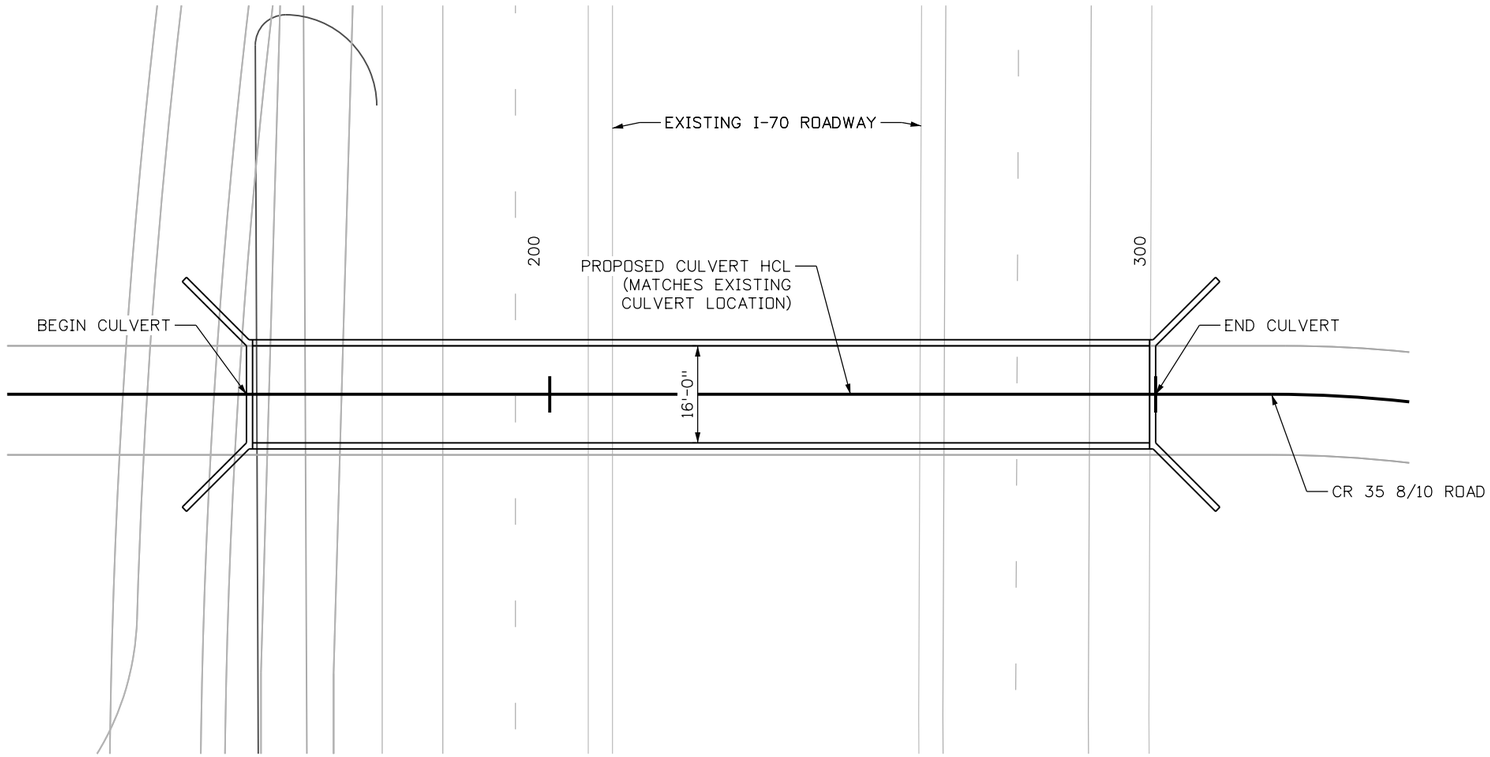
ALTERNATIVE 7
(SINGLE LANE BOX CULVERT UNDERPASS)



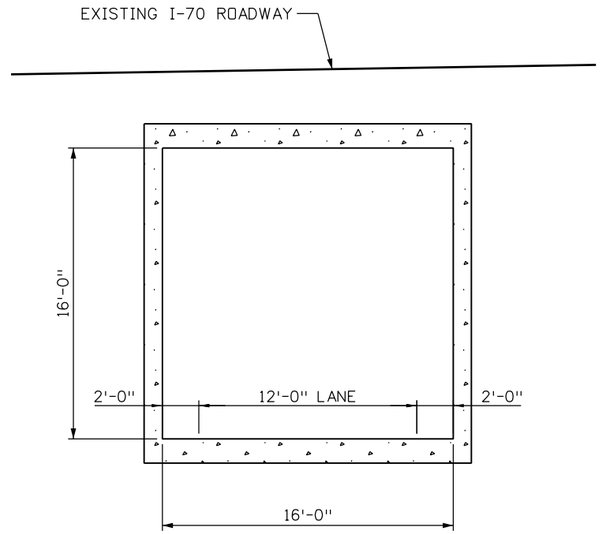
ALTERNATIVE 8
(I-70 BRIDGE OVER CR 35 8/10 ROAD)

Print Date: Monday, February 22, 2021 08:59:07 AM	Sheet Revisions	Colorado Department of Transportation	As Constructed
File Name: CLVT_Sketches	Date: / Comments / Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3205 FAX: 719-227-3298	No Revisions:
Horiz. Scale: 1:10		Region 2 SES	Revised:
Unit Information Unit Leader Initials			Void:
5555 TECH CENTER DR, SUITE 310 COLORADO SPRINGS, COLORADO 80919 Phone: 719-272-8800			

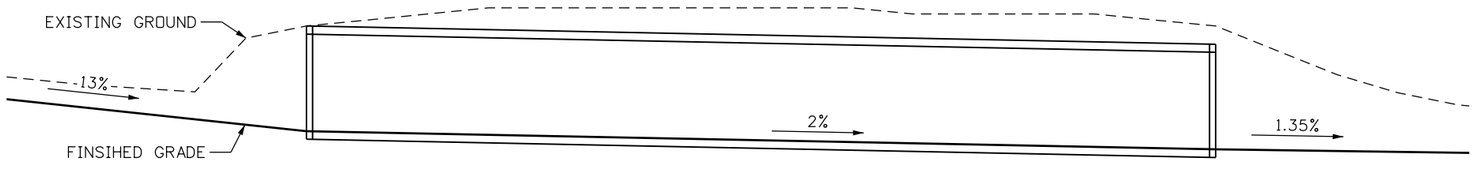
CR 35 8/10 ROAD REPLACEMENT ALTERNATIVES				Project No./Code
Designer: TP	Structure Numbers			STM 094A-036
Detailer: BMT				22479
Sheet Subset: CULVERT	Subset Sheets:	1 of 1		Sheet Number



PLAN



TYPICAL SECTION



ELEVATION

Know what's below. Call before you dig.

Print Date: Monday, February 22, 2021 08:49:07 AM		Sheet Revisions			Colorado Department of Transportation	As Constructed	CR 35 8/10 ROAD GENERAL LAYOUT FOR CULVERT REPLACEMENT ALTERNATIVE			Project No./Code
File Name: CLVT_Option 3_GL		Date:	Comments	Init.	1480 Quail Lake Loop, Suite A Colorado Springs, CO 80906 Phone: 719-227-3205 FAX: 719-227-3298	No Revisions:				STM 094A-036
Horiz. Scale: 1:25						Revised:	Designer:	Structure Numbers		22479
Unit Information Unit Leader Initials							Detailer:			
5555 TECH CENTER DR, SUITE 310 COLORADO SPRINGS, COLORADO 80919 Phone: 719-272-8800					Region 2 SES	Void:	Sheet Subset:	Subset Sheets:		Sheet Number

BTERRELL 8:49:07 AM pw:\\pwhdruscen01:HDR_US_Central_01\Documents\5703\10001735\10175138\6.0_CAD_BIM\6.2_WIP\23076\Bridge\Drawings\CLVT_Option 3_GL

Appendix E

Water Rights Memorandum

Western Water & Land, Inc.

February 4, 2020

Mr. Sam Acosta, PE
HDR Engineering, Inc.
5555 Tech Center Drive, Suite 310
Colorado Springs, CO 80919

Project Summary Report: Mt. Garfield Trailhead Alternatives Feasibility Study

Dear Mr. Acosta:

Western Water & Land, Inc. (WWL) has prepared this letter report to document work performed in support of the Mt. Garfield Trailhead Alternatives Feasibility Study.

WWL's scope of work consisted of the following elements:

- Existing Conditions Review
- Water Rights Investigation & Assessment
- Public Involvement Support
- Meetings
- Documentation

The work performed and results obtained for each task are described below.

Existing Conditions Review

WWL accompanied HDR and CDOT during a field visit as part of the Existing Conditions Review task. WWL's focus during the field visit was to identify existing structures used to manage and route drainage originating from the trailhead area and to determine how such structures may relate to downstream water users.

The existing features/structures identified during the field visit are shown in Figure 1. The trailhead access tunnel provides vehicular access to the trailhead. The floor elevation in the tunnel is lower at the north end of the tunnel and higher on the south end. As a result, stormwater entering the tunnel from the north pools within the northern portion of tunnel and does not discharge until the pooled water elevation increases to above the floor elevation at the south end of the tunnel. Any runoff discharging from the tunnel flows south along the access road, potentially impacting private property adjacent to the road. There was no evidence of diversion or control structures designed to capture or divert runoff flows discharging from the access tunnel for beneficial use.

743 Horizon Court Suite 330, Grand Junction, CO 81506
Phone: (970) 242-0170 Fax: (970) 242-0270

A drainage channel and earthen berm have been constructed north of the tunnel to direct runoff originating north-northeast of the trailhead away from the parking area and access tunnel (Figure 1). Photographs of the channel and berm are provided in Attachment A. The drainage channel, which is approximately two feet wide and one foot deep, was presumably constructed to reduce the potential for runoff to flow onto the parking area and ultimately toward the trailhead access tunnel. The channel extends from near the northeast corner of the parking area, continues along the west side of a fence delineating the eastern CDOT property boundary, and terminates at the southern CDOT property boundary; it is suspected that CDOT's eastern property boundary coincides with the fence line and the boundary shown on the Mesa County parcel map and depicted in Figure 1 is not accurate. The channel directs runoff flows toward a low-lying area near the north end of a culvert extending beneath the interstate highway. The south end of the culvert appeared to be plugged; therefore, limited flow is currently expected through the culvert. There was no evidence of diversion or control structures designed to capture or divert runoff flows discharging from the culvert for beneficial use. The earthen berm was constructed east of the access road, extending from the parking area to the parcel boundary. The berm, which is approximately three feet wide and two feet high, directs flood flows in the constructed channel away from the access road and tunnel.

Runoff originating from upgradient areas north-northwest of the trailhead flows toward a large detention basin that discharges to a large culvert that conveys flows to a drainage channel south of the interstate highway (Figure 1). The detention basin was dry at the time of the field visit. The basin appears to be nearly filled with sediment, resulting in limited capacity to detain storm flows. The basin had historically detained runoff, as is evident in in the Mesa County 2016 aerial photograph, where ponded water covers approximately 50 percent of the basin. Evidence of former high-energy flows was evident along the drainage channel south of the interstate highway. No features or structures were observed along the channel to indicate that the period flows were captured or otherwise controlled for any beneficial use. Grading and placement of manmade barriers suggested that actions had been taken to prevent flooding of the adjacent lands.

Water Rights Investigation & Assessment

WWL conducted a water rights investigation and assessment as part of the Drainage Review and Alternatives task. WWL's work on this element consisted of two components: 1) investigation/assessment of water rights based on existing conditions and 2) identification of the water right requirements and potential impacts of proposed drainage management alternatives.

The existing conditions assessment was accomplished by reviewing Colorado Division of Water Resources (DWR) records and online mapping tools to identify any downstream water rights and/or water users that are currently affected by the drainage structures identified during the existing conditions review field visit. No downstream water rights were identified that could potentially rely on runoff flows controlled by the existing features/structures associated with the trailhead area.

The second component of the water rights investigation and assessment task focuses on the water rights requirements and any potential impacts to downstream water rights and/or water users associated with each proposed drainage alternative. WWL confirmed with Mr. Steve Pope (Augmentation Plan Coordinator for Water Division Five of the Colorado Division of Water Resources) that a water storage right would not be required for a detention basin designed and constructed to control stormwater runoff.

Public Involvement Support

WWL's scope of work included providing technical support as needed for:

- Two working sessions with stakeholder groups (alternatives meeting and preferred alternative meeting)
- One public open house
- One-on-one meetings with any impacted water users

WWL's support was to include assistance with preparation of documents and information regarding potential water user impacts attributed to existing drainage conditions or proposed drainage management alternatives.

WWL support for public involvement has not been required to date.

Meetings

WWL attended one field meeting and one progress meeting.

Documentation

This letter report was prepared as documentation of WWL's work performed and findings in support of the Mt. Garfield Trailhead Alternatives Feasibility Study.

If you have any questions or would like additional information, please contact me at (970) 242-0170 or bmerrill@westernwaterandland.com.

Sincerely,

Western Water & Land, Inc.

William G. Merrill
Principal Hydrogeologist

Attachments

Legend

- Trailhead Access Tunnel
- Culvert
- Earthen Berm
- Constructed Channel
- Detention Basin
- Parcel Boundary

N

0 115 230 460 Feet

Figure 1: Existing Stormwater Control Features
Mt. Garfield Trailhead Alternatives Feasibility Study

Mesa County, Colorado

Western Water & Land, Inc.

Attachment A

Photo 1: Upstream end of constructed channel.

Photo 2: Constructed channel

Photo 3: Constructed earthen berm

Appendix F

Conceptual Opinion of Probable Cost

COLORADO
Department of
Transportation

Mount Garfield Culvert Alternatives Evaluation

Project Goal: Maintain the integrity of I-70 at the existing box culvert (Structure Number 070A039961BL) and provide access to adjacent property owners and Mt. Garfield Trailhead.

Alternative		Description	Construction Costs	Pass Filter One/ Move Forward for consideration
IB	Eliminate Culvert-Frontage Road Access (Improve water crossings)	Eliminate the existing box culvert and utilize the existing frontage road on the north side of I-70 as-is. Improve 4-5 drainage crossings.	$1,800,000	**YES**
IC	Eliminate Culvert-Frontage Road Access (Improved Section/Graded Roadway)	Eliminate the existing box culvert and utilize the existing frontage road on the north side of I-70. Upgrade the existing frontage road to a 20 ft wide all weather graded surface.	$4,300,000	**YES**
ID	Eliminate Culvert-Frontage Road Access (Upgrade Intersection)	Eliminate the existing box culvert and utilize the existing frontage road on the north side of I-70. Upgrade the existing frontage road to a 20 ft wide all weather graded surface. Improve the intersection of 33 Road and G Road.	$6,000,000	**YES**
IE	Eliminate Culvert-Frontage Road Access (BLM parking lot)	Eliminate the existing box culvert and utilize the existing frontage road on the north side of I-70. Upgrade the existing frontage road to a 20 ft wide all weather graded surface. Construct a parking area on BLM property with a walking path to the Mt. Garfield Trailhead.	$4,600,000	**YES**
6	Replace Culvert-Pedestrian Crossing	Sleeve the existing culvert to provide a pedestrian crossing. Develop a new parking area south of I-70.	$1,600,000	**YES**
7	Replace Culvert-New Box Culvert (single lane)	Replace the existing culvert with a new 16' x16' box culvert.	$4,000,000	**YES**
8	Replace Culvert-Bridge (two-lane)	Replace the existing culvert with a new bridge allowing for two-way traffic.	$5,400,000	**YES**

COLORADO DEPARTMENT OF TRANSPORTATION R3

ENGINEER'S OPINION OF PROBABLE COST

Option 1B: Eliminate Culvert , Frontage Road Access (no road improvements, improve key drainage crossings)

COLORADO Department of Transportation

Stolfus

Project Name	Mt. Garfield Culvert Study	Date: 02/11/21	P.E. Project code (SA#)	
County of	Mesa		Length In Feet	Length In Miles
Type		Roadway Pavement	Leave as existing	
Prepared by	Stolfus & Associates, Inc.	Thickness in inches	Pavement:	Base:

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.

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201-00000	CLEARING AND GRUBBING	L S	1	$10,000.00	**$10,000.00**
202-00015	REMOVAL OF HEADWALL	EACH	1	$1,000.00	**$1,000.00**
203-00060	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CY	1,200	$35.00	**$42,000.00**
206-00060	STRUCTURE BACKFILL (SPECIAL) (FLOW-FILL)	CY	1,100	$175.00	**$192,500.00**
601-01000	CONCRETE CLASS B	CY	10	$1,125.00	**$11,250.00**
602-00020	EPOXY COATED REINFORCING STEEL	LB	720	$1.50	**$1,080.00**
603-01305	30 INCH REINFORCED CONCRETE PIPE	LF	700	$175.00	**$122,500.00**
603-70606	6x6 FOOT CONCRETE BOX CULVERT (PRECAST)	LF	150	$2,400.00	**$360,000.00**
	Total Major Items				**$750,000**

Item	Percent Range	Percent Selected	Costs $	
Major Items			**$750,000**	**(A)**
Erosion Control / Landscaping / SWMP	1 to 5% of (A)	5%	$38,000	**(B)**
Construction Surveying	1 to 5% of (A)	5%	$38,000	**(C)**
Construction Phasing & Traffic Control	10 to 25% of (A+B+C)	10%	$83,000	**(D)**
Drainage & Utilites	1 to 10% of (A)	5%	$38,000	**(E)**
Signing & Striping	1 to 5% of (A)	1%	$8,000	**(F)**
Mobilization	10% of (A+B+C+D+E+F)	10%	$96,000	**(G)**
TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI	**(A+B+C+D+E+F+G+H)**		**$1,051,000**	**(H)**
Force Account - Miscellaneous	1 to 10% of (H)	5%	$53,000	**(I)**
TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI	**(H+I)**		**$1,104,000**	**(J)**
Construction Engineering, CE & Indirects	26% of (J)	26.00%	$288,000	**(K)**
TOTAL OPINION OF PROBABLE CONSTRUCTION & ENGINEERING ITEMS, CEI	**(J+K)**		**$1,392,000**	**(L)**
Contingency	30% of (L)	30%	$418,000	**(M)**
TOTAL PROJECT OPINION OF PROBABLE COST	**(L+M)**		**$1,810,000**	**(N)**

COLORADO DEPARTMENT OF TRANSPORATION R3

ENGINEER'S OPINION OF PROBABLE COST

1C - Eliminate Culvert , Frontage Road Access (20ft typical section gravel road, improve key drainage crossings)

COLORADO Department of Transportation

Stolfus

	Mt. Garfield Culvert Study	Date: 02/11/21	P.E. Project code (SA#)	
County of	Mesa		Length In Feet	Length In Miles
Type		Roadway Pavement	Gravel	
Prepared by	Stolfus & Associates, Inc.	Thickness in inches	Top Layer: 6"	Base: 12"

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.

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201-00000	CLEARING AND GRUBBING	L S	1	$10,000.00	**$10,000.00**
202-00015	REMOVAL OF HEADWALL	EACH	1	$1,000.00	**$1,000.00**
203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	5,700	$30.00	**$171,000.00**
206-00060	STRUCTURE BACKFILL (SPECIAL) (FLOW-FILL)	CY	1,100	$175.00	**$192,500.00**
304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	20,500	$25.00	**$512,500.00**
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	10,300	$35.00	**$360,500.00**
601-01000	CONCRETE CLASS B	CY	10	$1,125.00	**$11,250.00**
602-00020	EPOXY COATED REINFORCING STEEL	LB	720	$1.50	**$1,080.00**
603-01305	30 INCH REINFORCED CONCRETE PIPE	LF	700	$175.00	**$122,500.00**
603-70606	6x6 FOOT CONCRETE BOX CULVERT (PRECAST)	LF	150	$2,400.00	**$360,000.00**
	Total Major Items				**$1,750,000**

Item	Percent Range	Percent Selected	Costs $	
Major Items			**$1,750,000**	**(A)**
Erosion Control / Landscaping / SWMP	1 to 5% of (A)	5%	$88,000	**(B)**
Construction Surveying	1 to 5% of (A)	5%	$88,000	**(C)**
Construction Phasing & Traffic Control	10 to 25% of (A+B+C)	10%	$193,000	**(D)**
Drainage & Utilites	1 to 10% of (A)	8%	$140,000	**(E)**
Signing & Striping	1 to 5% of (A)	1%	$18,000	**(F)**
Mobilization	10% of (A+B+C+D+E+F)	10%	$228,000	**(G)**
TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI	**(A+B+C+D+E+F+G+H)**		**$2,505,000**	**(H)**
Force Account - Miscellaneous	1 to 10% of (H)	5%	$126,000	**(I)**
TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI	**(H+I)**		**$2,631,000**	**(J)**
Construction Engineering, CE & Indirects	26% of (J)	26%	$685,000	**(K)**
TOTAL OPINION OF PROBABLE CONSTRUCTION & ENGINEERING ITEMS, CEI	**(J+K)**		**$3,316,000**	**(L)**
Contingency	30% of (L)	30%	$995,000	**(M)**
TOTAL PROJECT OPINION OF PROBABLE COST	**(L+M)**		**$4,310,000**	**(N)**

COLORADO DEPARTMENT OF TRANSPORATION R3

ENGINEER'S OPINION OF PROBABLE COST

1D - Eliminate Culvert , Frontage Road Access, Intersection Improvements (20ft typical section gravel road, improve key drainage crossings)

COLORADO Department of Transportation

Stolfus

Project Name	Mt. Garfield Culvert Study	Date: 02/11/21	P.E. Project code (SA#)	
County of	Mesa		Length In Feet	Length In Miles
Type		Roadway Pavement	Asphalt/Gravel	
Prepared by	Stolfus & Associates, Inc.	Thickness in inches	Top Layer 3"/6"	Base: 18"/12"

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.

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201-00000	CLEARING AND GRUBBING	L S	1	$10,000.00	**$10,000.00**
202-00015	REMOVAL OF HEADWALL	EACH	1	$1,000.00	**$1,000.00**
202-00220	REMOVAL OF ASPHALT MAT	SY	3,800	$15.00	**$57,000.00**
203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	9,400	$30.00	**$282,000.00**
206-00060	STRUCTURE BACKFILL (SPECIAL) (FLOW-FILL)	CY	1,100	$175.00	**$192,500.00**
304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	23,900	$25.00	**$597,500.00**
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	12,000	$35.00	**$420,000.00**
403-34871	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28)	TON	1,560	$150.00	**$234,000.00**
601-01000	CONCRETE CLASS B	CY	10	$1,125.00	**$11,250.00**
602-00020	EPOXY COATED REINFORCING STEEL	LB	720	$1.50	**$1,080.00**
603-01305	30 INCH REINFORCED CONCRETE PIPE	LF	700	$175.00	**$122,500.00**
603-70606	6x6 FOOT CONCRETE BOX CULVERT (PRECAST)	LF	150	$2,400.00	**$360,000.00**
	Total Major Items				**$2,290,000**

Item	Percent Range	Percent Selected	Costs $	
Major Items			**$2,290,000**	**(A)**
Erosion Control / Landscaping / SWMP	1 to 5% of (A)	5%	$115,000	**(B)**
Construction Surveying	1 to 5% of (A)	5%	$115,000	**(C)**
Construction Phasing & Traffic Control	10 to 25% of (A+B+C)	15%	$378,000	**(D)**
Drainage & Utilites	1 to 10% of (A)	8%	$184,000	**(E)**
Signing & Striping	1 to 5% of (A)	3%	$69,000	**(F)**
Mobilization	10% of (A+B+C+D+E+F)	10%	$316,000	**(G)**
TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI	**(A+B+C+D+E+F+G)**		**$3,467,000**	**(H)**
Force Account - Miscellaneous	1 to 10% of (H)	5%	$174,000	**(I)**
TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI	**(H+I)**		**$3,641,000**	**(J)**
Construction Engineering, CE & Indirects	26% of (J)	26%	$947,000	**(K)**
CONTINGENCY	**(J+K)**		**$4,588,000**	**(L)**
Contingency	30% of (L)	30%	$1,377,000	**(M)**
TOTAL PROJECT OPINION OF PROBABLE COST	**(L+M)**		**$5,970,000**	**(N)**

COLORADO DEPARTMENT OF TRANSPORATION R3

ENGINEER'S OPINION OF PROBABLE COST

1E - Eliminate Culvert , Frontage Road Access, Move Parking Lot (20ft typical section gravel road, gravel parking lot, improve key drainage crossings)

COLORADO Department of Transportation

Stolfus

	Mt. Garfield Culvert Study	Date: 02/11/21	P.E. Project code (SA#)	
County of	Mesa		Length In Feet	Length In Miles
Type		Roadway Pavement	Gravel	
Prepared by	Stolfus & Associates, Inc.	Thickness in inches	Top Layer: 6"	Base: 12"

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.

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201-00000	CLEARING AND GRUBBING	L S	1	$10,000.00	**$10,000.00**
202-00015	REMOVAL OF HEADWALL	EACH	1	$1,000.00	**$1,000.00**
203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	6,100	$30.00	**$183,000.00**
206-00060	STRUCTURE BACKFILL (SPECIAL) (FLOW-FILL)	CY	1,100	$175.00	**$192,500.00**
304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	21,800	$25.00	**$545,000.00**
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	10,900	$35.00	**$381,500.00**
601-01000	CONCRETE CLASS B	CY	10	$1,125.00	**$11,250.00**
602-00020	EPOXY COATED REINFORCING STEEL	LB	720	$1.50	**$1,080.00**
603-01305	30 INCH REINFORCED CONCRETE PIPE	LF	700	$175.00	**$122,500.00**
603-70606	6x6 FOOT CONCRETE BOX CULVERT (PRECAST)	LF	150	$2,400.00	**$360,000.00**
	Total Major Items				**$1,810,000**

Item	Percent Range	Percent Selected	Costs $	
Major Items			**$1,810,000**	**(A)**
Erosion Control / Landscaping / SWMP	1 to 5% of (A)	5%	$91,000	**(B)**
Construction Surveying	1 to 5% of (A)	5%	$91,000	**(C)**
Construction Phasing & Traffic Control	10 to 25% of (A+B+C)	12%	$240,000	**(D)**
Drainage & Utilites	1 to 10% of (A)	8%	$145,000	**(E)**
Signing & Striping	1 to 5% of (A)	1%	$19,000	**(F)**
Mobilization	10% of (A+B+C+D+E+F)	10%	$240,000	**(G)**
TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI	**(A+B+C+D+E+F+G+H)**		**$2,636,000**	**(H)**
Force Account - Miscellaneous	1 to 10% of (H)	5%	$132,000	**(I)**
TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI	**(H+I)**		**$2,768,000**	**(J)**
Construction Engineering, CE & Indirects	26% of (J)	26%	$720,000	**(K)**
CONTINGENCY	**(J+K)**		**$3,488,000**	**(L)**
Contingency	30% of (L)	30%	$1,047,000	**(M)**
TOTAL PROJECT OPINION OF PROBABLE COST	**(L+M)**		**$4,540,000**	**(N)**

COLORADO DEPARTMENT OF TRANSPORATION R3

ENGINEER'S OPINION OF PROBABLE COST

6 - Sleeve Existing Culvert with Pedestrian Culvert, New Parking Lot south of I-70

COLORADO Department of Transportation

Stolfus

Project Name	Mt. Garfield Culvert Study	Date: 02/11/21	P.E. Project code (SA#)	
County of	Mesa		Length In Feet	Length In Miles
Type		Roadway Pavement	Gravel	
Prepared by	Stolfus & Associates, Inc.	Thickness in inches	Pavement: 6"	Base: 12"

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ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201-00000	CLEARING AND GRUBBING	L S	1	$10,000.00	**$10,000.00**
203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	1,400	$30.00	**$42,000.00**
206-00060	STRUCTURE BACKFILL (SPECIAL) (FLOW-FILL)	CY	320	$175.00	**$56,000.00**
304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	2,000	$50.00	**$100,000.00**
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	980	$45.00	**$44,100.00**
601-03030	CONCRETE CLASS D (BOX CULVERT)	CY	280	$800.00	**$224,000.00**
602-00020	EPOXY COATED REINFORCING STEEL	LB	83,000	$1.50	**$124,500.00**
	Total Major Items				**$610,000**

Item	Percent Range	Percent Selected	Costs $	
Major Items			**$610,000**	**(A)**
Erosion Control / Landscaping / SWMP	1 to 5% of (A)	5%	$31,000	**(B)**
Construction Surveying	1 to 5% of (A)	5%	$31,000	**(C)**
Construction Phasing & Traffic Control	10 to 25% of (A+B+C)	15%	$101,000	**(D)**
Drainage & Utilites	1 to 10% of (A)	8%	$49,000	**(E)**
Signing & Striping	1 to 5% of (A)	2%	$13,000	**(F)**
Mobilization	10% of (A+B+C+D+E+F+G)	10%	$84,000	**(G)**
TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI	**(A+B+C+D+E+F+G)**		**$919,000**	**(H)**
Force Account - Miscellaneous	1 to 10% of (H)	5%	$46,000	**(I)**
TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI	**(H+I)**		**$965,000**	**(J)**
Construction Engineering, CE & Indirects	26% of (J)	26%	$251,000	**(K)**
CONTINGENCY	**(J+K)**		**$1,216,000**	**(L)**
Contingency	30% of (L)	30%	$365,000	**(M)**
TOTAL PROJECT OPINION OF PROBABLE COST	**(L+M)**		**$1,580,000**	**(N)**

COLORADO DEPARTMENT OF TRANSPORATION R3

ENGINEER'S OPINION OF PROBABLE COST

7 - Replace Culvert with New 16' x 16' Single Lane Culvert

COLORADO Department of Transportation

Stolfus

Project Name	Mt. Garfield Culvert Study	Date: 02/11/21	P.E. Project code (SA#)	
County of	Mesa		Length In Feet	Length In Miles
Type		Roadway Pavement	Asphalt (I-70)/Gravel (35 8/10 Road)	
Prepared by	Stolfus & Associates, Inc.	Thickness in inches	Pavement: 12"/6"	Base: 18"/12"

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ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201-00000	CLEARING AND GRUBBING	L S	1	$10,000.00	**$10,000.00**
202-00020	REMOVAL OF CONCRETE BOX CULVERT	EACH	1	$80,000.00	**$80,000.00**
202-00220	REMOVAL OF ASPHALT MAT	SY	1,800	$15.00	**$27,000.00**
203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	1,700	$30.00	**$51,000.00**
206-00000	STRUCTURE EXCAVATION	CY	1,560	$30.00	**$46,800.00**
206-00100	STRUCTURE BACKFILL (CLASS 1)	CY	860	$75.00	**$64,500.00**
304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	1,700	$50.00	**$85,000.00**
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	850	$45.00	**$38,250.00**
403-34871	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28)	TON	1,180	$150.00	**$177,000.00**
601-03030	CONCRETE CLASS D (BOX CULVERT)	CY	565	$800.00	**$452,000.00**
602-00020	EPOXY COATED REINFORCING STEEL	LB	160,000	$1.20	**$192,000.00**
	RETAINING WALL	SF	1,200	$100.00	**$120,000.00**
	Total Major Items				**$1,350,000**

Item	Percent Range	Percent Selected	Costs $	
Major Items			**$1,350,000**	**(A)**
Erosion Control / Landscaping / SWMP	1 to 5% of (A)	5%	$68,000	**(B)**
Construction Surveying	1 to 5% of (A)	5%	$68,000	**(C)**
Construction Phasing & Traffic Control	10 to 25% of (A+B+C)	25%	$372,000	**(D)**
Drainage & Utilites	1 to 10% of (A)	8%	$108,000	**(E)**
Signing & Striping	1 to 5% of (A)	5%	$68,000	**(F)**
Mobilization	10% of (A+B+C+D+E+F+G)	10%	$204,000	**(G)**
TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI	**(A+B+C+D+E+F+G)**		**$2,238,000**	**(H)**
Force Account - Miscellaneous	1 to 10% of (H)	10%	$224,000	**(I)**
TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI	**(H+I)**		**$2,462,000**	**(J)**
Construction Engineering, CE & Indirects	26% of (J)	26%	$641,000	**(K)**
CONTINGENCY	**(J+K)**		**$3,103,000**	**(L)**
Contingency	30% of (L)	30%	$931,000	**(M)**
TOTAL PROJECT OPINION OF PROBABLE COST	**(L+M)**		**$4,030,000**	**(N)**

COLORADO DEPARTMENT OF TRANSPORATION R3

ENGINEER'S OPINION OF PROBABLE COST

8 - Replace Culvert with New Bridge for 2-lane access to trailhead

COLORADO Department of Transportation

Stolfus

Project Name	Mt. Garfield Culvert Study	Date: 02/11/21	P.E. Project code (SA#)	
County of	Mesa		Length In Feet	Length In Miles
Type		Roadway Pavement	Asphalt (I-70)/Gravel (35 8/10 Road)	
Prepared by	Stolfus & Associates, Inc.	Thickness in inches	Pavement: 12"/6"	Base: 18"/12"

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.

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201-00000	CLEARING AND GRUBBING	L S	1	$10,000.00	**$10,000.00**
202-00020	REMOVAL OF CONCRETE BOX CULVERT	EACH	1	$80,000.00	**$80,000.00**
202-00220	REMOVAL OF ASPHALT MAT	SY	1,800	$15.00	**$27,000.00**
203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	1,700	$30.00	**$51,000.00**
304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	1,700	$50.00	**$85,000.00**
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	850	$45.00	**$38,250.00**
403-34871	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28)	TON	1,180	$150.00	**$177,000.00**
	BRIDGE - PRESTRESS SLAB	SF	4,100	$325.00	**$1,332,500.00**
	Total Major Items				**$1,810,000**

Item	Percent Range	Percent Selected	Costs $	
Major Items			**$1,810,000**	**(A)**
Erosion Control / Landscaping / SWMP	1 to 5% of (A)	5%	$91,000	**(B)**
Construction Surveying	1 to 5% of (A)	5%	$91,000	**(C)**
Construction Phasing & Traffic Control	10 to 25% of (A+B+C)	25%	$498,000	**(D)**
Drainage & Utilites	1 to 10% of (A)	8%	$145,000	**(E)**
Signing & Striping	1 to 5% of (A)	5%	$91,000	**(F)**
Mobilization	10% of (A+B+C+D+E+F+G)	10%	$273,000	**(G)**
TOTAL OPINION OF PROBABLE CONSTRUCTION BID ITEMS COST, CBI	**(A+B+C+D+E+F+G)**		**$2,999,000**	**(H)**
Force Account - Miscellaneous	1 to 10% of (H)	10%	$300,000	**(I)**
TOTAL OPINION OF PROBABLE CONSTRUCTION ITEMS COST, CI	**(H+I)**		**$3,299,000**	**(J)**
Construction Engineering, CE & Indirects	26% of (J)	26%	$858,000	**(K)**
CONTINGENCY	**(J+K)**		**$4,157,000**	**(L)**
Contingency	30% of (L)	30%	$1,248,000	**(M)**
TOTAL PROJECT OPINION OF PROBABLE COST	**(L+M)**		**$5,410,000**	**(N)**

Appendix G

Public Feedback

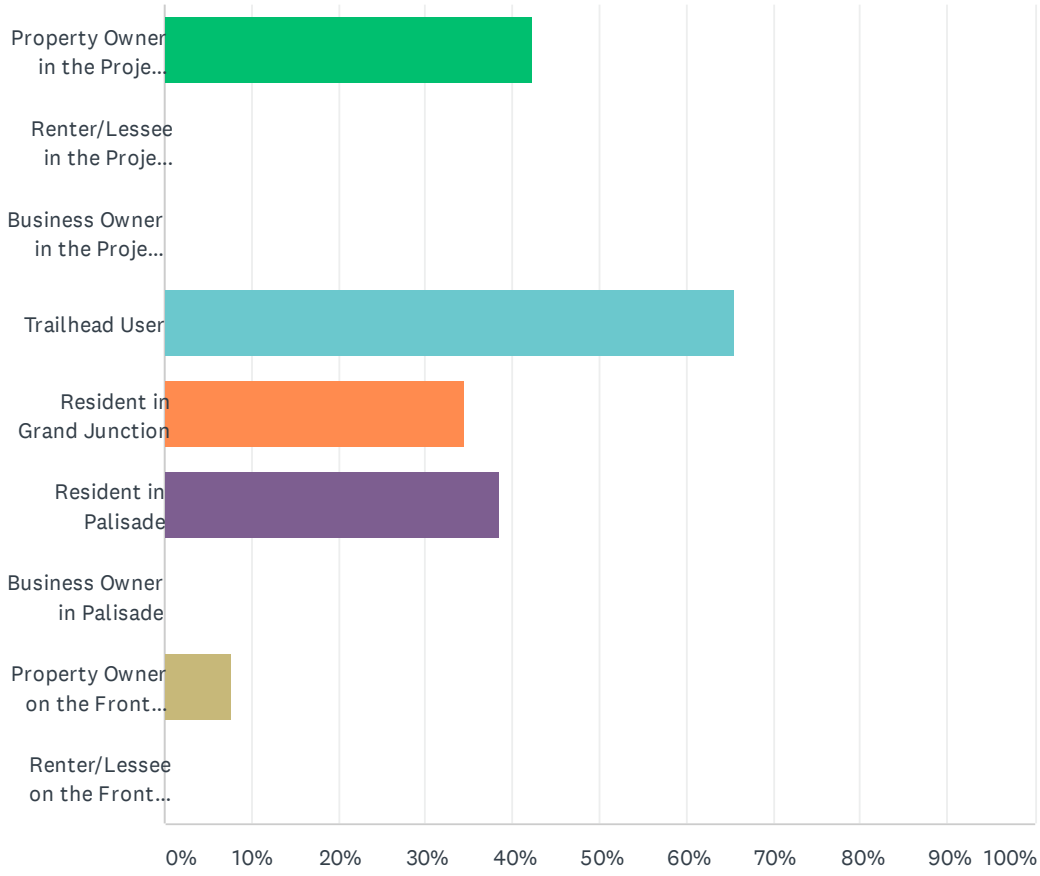
Q1 Please provide your contact information.

Answered: 26 Skipped: 0

ANSWER CHOICES	RESPONSES	
Name	100.00%	26
Address	100.00%	26
Phone Number	96.15%	25
Email	100.00%	26

Q2 Are you a (check all that apply):

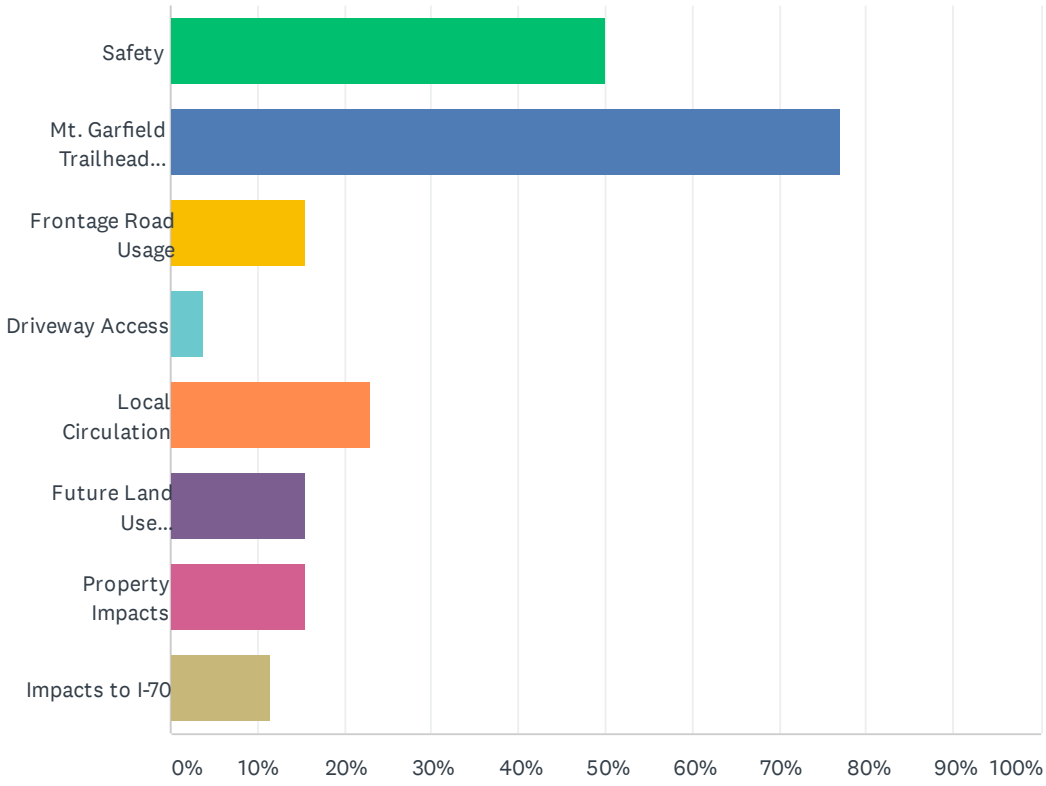
Answered: 26 Skipped: 0



ANSWER CHOICES	RESPONSES	
Property Owner in the Project Area	42.31%	11
Renter/Lessee in the Project Area	0.00%	0
Business Owner in the Project Area	0.00%	0
Trailhead User	65.38%	17
Resident in Grand Junction	34.62%	9
Resident in Palisade	38.46%	10
Business Owner in Palisade	0.00%	0
Property Owner on the Frontage Road	7.69%	2
Renter/Lessee on the Frontage Road	0.00%	0
Total Respondents: 26		

Q3 Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

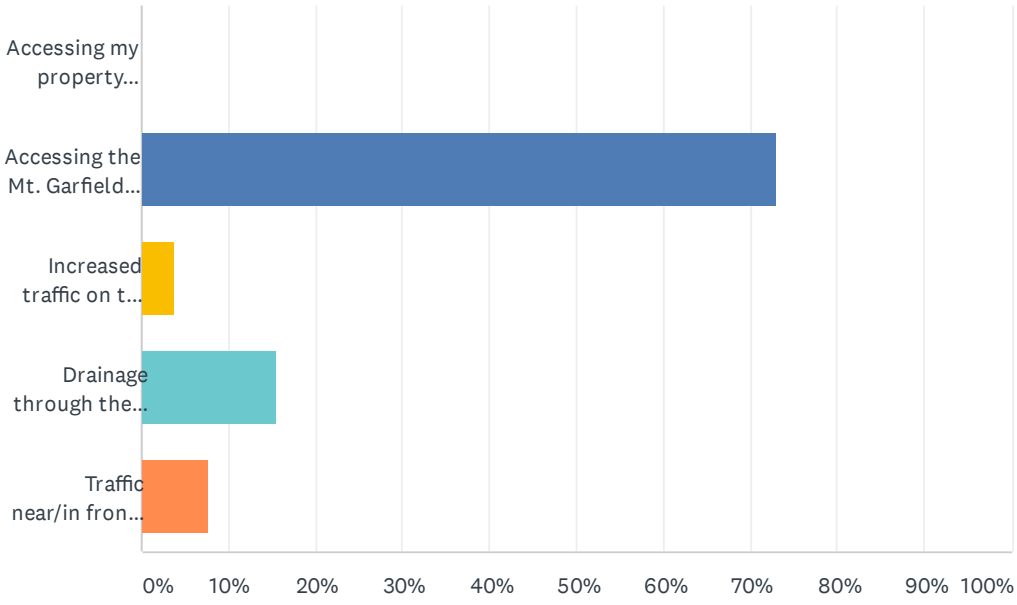
Answered: 26 Skipped: 0



ANSWER CHOICES	RESPONSES	
Safety	50.00%	13
Mt. Garfield Trailhead Access	76.92%	20
Frontage Road Usage	15.38%	4
Driveway Access	3.85%	1
Local Circulation	23.08%	6
Future Land Use Opportunities	15.38%	4
Property Impacts	15.38%	4
Impacts to I-70	11.54%	3
Total Respondents: 26		

Q4 What are some of your concerns regarding the existing box culvert access? (check all that apply)

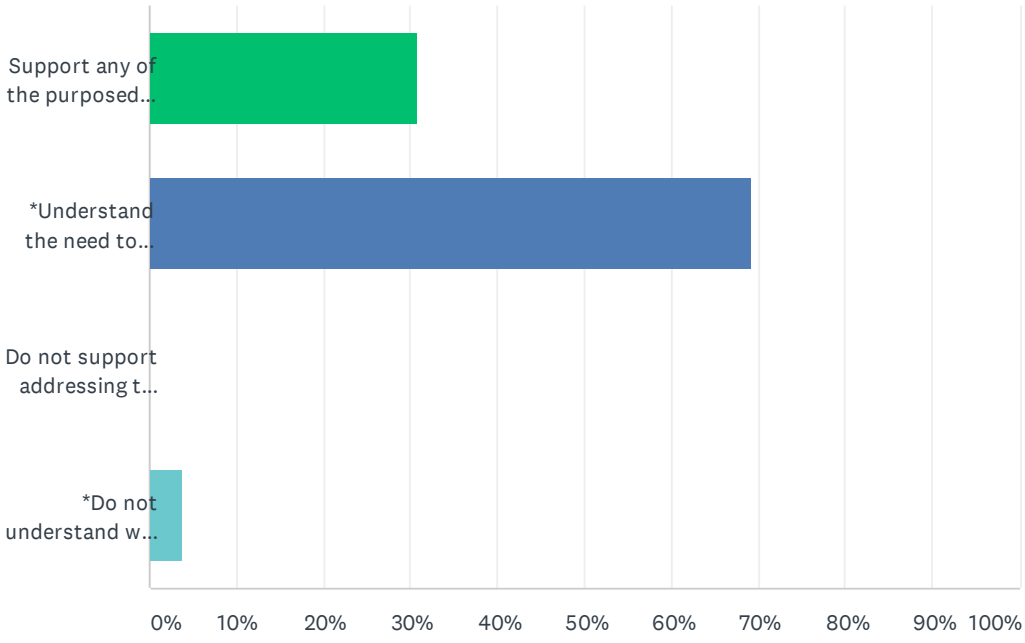
Answered: 26 Skipped: 0



ANSWER CHOICES	RESPONSES	
Accessing my property /business	0.00%	0
Accessing the Mt. Garfield Trailhead	73.08%	19
Increased traffic on the frontage Road	3.85%	1
Drainage through the existing box culvert/ in the area	15.38%	4
Traffic near/in front of my property/residence/business	7.69%	2
TOTAL		26

Q5 Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Answered: 26 Skipped: 0



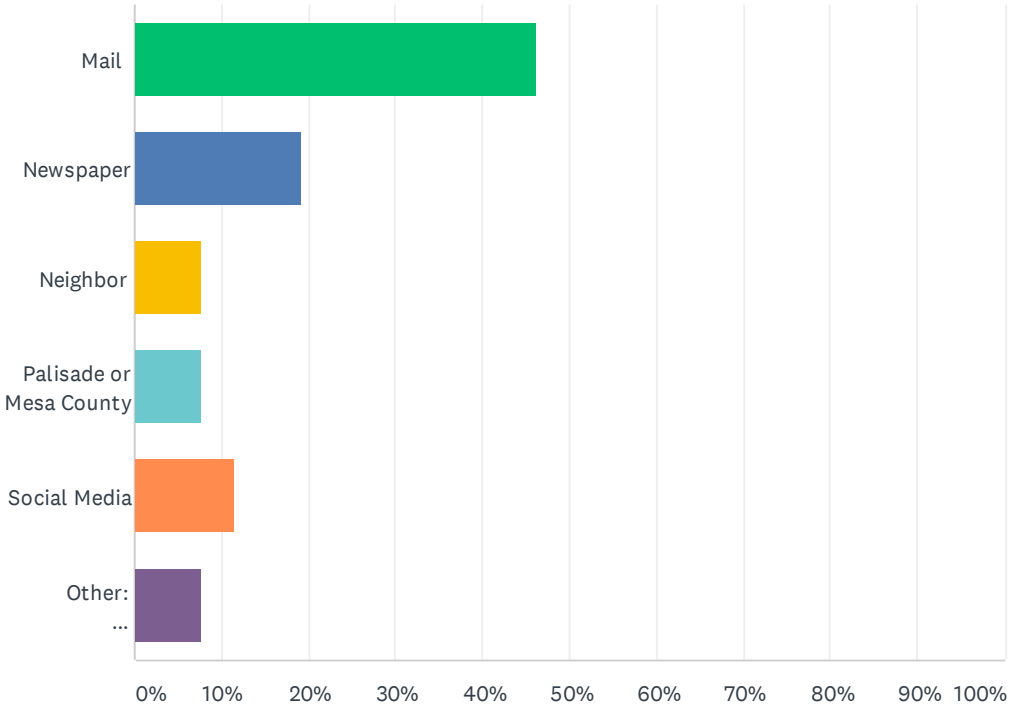
ANSWER CHOICES	RESPONSES	
Support any of the purposed options	30.77%	8
*Understand the need to address the structurally deficient box culvert, but have concerns about certain options.	69.23%	18
Do not support addressing the structurally deficient box culvert with the proposed options.	0.00%	0
*Do not understand why certain option did not pass Filter 1. *note specific option(s) and why you support them.	3.85%	1
Total Respondents: 26		

Q6 How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Answered: 26 Skipped: 0

Q7 How did you hear about the project?

Answered: 26 Skipped: 0



ANSWER CHOICES	RESPONSES	
Mail	46.15%	12
Newspaper	19.23%	5
Neighbor	7.69%	2
Palisade or Mesa County	7.69%	2
Social Media	11.54%	3
Other:	7.69%	2
TOTAL		26

Q8 Do you have any other comments, questions, or concerns?

Answered: 26 Skipped: 0

Q9 For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Answered: 0 Skipped: 26

ANSWER CHOICES	RESPONSES	
Name	0.00%	0
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	0.00%	0
Phone Number	0.00%	0

#1

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Wednesday, October 28, 2020 7:10:05 PM
Last Modified:	Wednesday, October 28, 2020 7:19:10 PM
Time Spent:	00:09:05
IP Address:	107.77.199.100

Page 1

Q1

Please provide your contact information.

Name	**Kerry Hicks**
Address	**614 Moss Way Palisade**
Phone Number	**9702603655**
Email	**Kerryh91114@gmail.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Local Circulation

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

I couldn't tell if access still went through Palisade on option 1 or if it was dirt frontage road through Clifton. 4 wheel drive access would not be a favorable option for me. I usually run to the trailhead and would like a Palisade access option to remain.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Weekly-twice a week. When the water is deep I do not drive my car I run through but this isn't pleasant.

Q7 **Social Media**

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

I would like to see access stay in Palisade both for the residents who have climbed it for years, and to support local businesses. I am concerned about people driving off-road more if some of the fences or areas are removed.

Q9 **Respondent skipped this question**

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#2

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Wednesday, October 28, 2020 7:29:10 PM
Last Modified:	Wednesday, October 28, 2020 7:36:52 PM
Time Spent:	00:07:42
IP Address:	184.167.122.10

Page 1

Q1

Please provide your contact information.

Name	**Eric prinster**
Address	**356 w 4th st, Palisade, CO 81526**
Phone Number	**970-778-7540**
Email	**Frrider13@yahoo.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access,

Driveway Access,

Future Land Use Opportunities,

Property Impacts

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Drainage through the existing box culvert/ in the area

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Once a month. No issues personally but see how some vehicles would have trouble with access

Q7

Social Media

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

I am most interested in improving the existing access and also improving the parking so residents are not impacted by visitors

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#3

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Wednesday, October 28, 2020 7:57:34 PM
Last Modified:	Wednesday, October 28, 2020 8:28:10 PM
Time Spent:	00:30:36
IP Address:	184.166.17.82

Page 1

Q1

Please provide your contact information.

Name	**Michael Kennedy**
Address	**841 Logan Street**
Phone Number	**9703143553**
Email	**mwkennedy841@gmail.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options,

Note Specific Options::

THIS IS A FANTASTIC AND VERY HISTORIC AREA. IT NEEDS TO BE MAINTAINED AND TAKEN CARE OF. I HAVE, SINCE RETIRED FROM XCEL ENERGY BEEN CLIMBING UP MNT GARFIELD QUITE REGULARLY AND HAVE PUT TOGETHER SOME VIDEOS ON YOUTUBE, ONE TITLED THE " THE HIDDEN BEAUTY OF MOUNT GARFIELD" BY MIKE KENNEDY, I REALLY BELIEVE THIS IS A GREAT TRAIL AND ONE THAT SHOULD BE SHARED BY ALL THAT VISIT PALISADE. I WOULD LIKE TO SEE FACILITIES PUT IN FOR TRASH AND BATHROOMS AN EXPENSE THAT IS WELL WORTH IT. THANK YOU FOR YOUR TIME , MIKE KENNEDY

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I FREQUENT THE TRAIL ABOUT TWICE A WEEK FOR THE LAST 5 YEARS. I USUALLY JUST GO TO THE FIRST FLAT SPOT TO LOOK AT THE BEAUTY OF THE VALLEY AND AN OCCASIONAL MUSTANG. USUALLY GO TO THE FLAG ON MY BIRTHDAYS AND WHEN I WANT TO EXTEND MY WORKOUT.

Q7

How did you hear about the project?

Neighbor

Q8

Do you have any other comments, questions, or concerns?

HOW CAN I BE OF ASSISTANCE? I AM RETIRED AND WOULD LIKE TO HELP OUT IF POSSIBLE. I WOULD LIKE TO SEE THE CULVERT REPLACED OR A BRIDGE PUT IN. IT WOULD BE A FANTASTIC ASSET TO THE PALISADE AREA. MANY PEOPLE I HAVE MET OVER THE YEARS HAVE COMMENTED ON THE BEAUTY AND THE GREAT HIKE IT OFFERS TO THE AREA. THE SIGN AT THE BOTTOM WAS REMOVED SADLY (2MILES AND 2000 FEET)

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#4

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Tuesday, November 03, 2020 10:57:08 AM
Last Modified:	Tuesday, November 03, 2020 11:13:59 AM
Time Spent:	00:16:50
IP Address:	47.37.42.117

Page 1

Q1

Please provide your contact information.

Name	**michael bennett**
Address	**632 imperial lane**
Phone Number	**9702702753**
Email	**mcbhiker@yahoo.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Grand Junction

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I have used the access up to 10 to 12 times a year and the only difficulty I have had is when the weather causes too much water in the culvert and can very deep

Q7

Other:

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

Would love to see access improved as well drainage

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#5

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, November 03, 2020 11:13:42 AM
Last Modified: Tuesday, November 03, 2020 11:29:45 AM
Time Spent: 00:16:02
IP Address: 184.166.32.154

Page 1

Q1

Please provide your contact information.

Name	**Steven Bevan**
Address	**3585 G 7 10 Road**
Phone Number	**9706234639**
Email	**reddog74usa@yahoo.com**

Q2

Are you a (check all that apply):

Property Owner in the Project Area

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Impacts to I-70

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Drainage through the existing box culvert/ in the area

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

I would think the most cost effective option would be to remove it and use the access road on the north side of I-70 which would solve the long term maintenance issues along with the drainage issue that have been a problem for years, which the county has failed to address causing flooding on properties adjacent to the culvert.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I use it maybe twice a year however I have seen many vehicles needed towed out of the tunnel due to flooding from poor drainage.

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

I believe it would be in both the public's and the county's interest for this culvert to be removed as it is a costly burden for taxpayers and also is the cause of flooding in the area which is a serious issue for the property owners in the area which the county has failed to address. Removing the culvert would effectively kill two birds with one stone eliminating the cause of flooding, the cost of maintaining it and in the process providing a safer alternative for the traveling public on I-70 and is no doubt the most cost effective means of dealing with these issues long term.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#6

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Tuesday, November 03, 2020 2:05:11 PM
Last Modified:	Tuesday, November 03, 2020 2:17:34 PM
Time Spent:	00:12:22
IP Address:	205.201.220.149

Page 1

Q1

Please provide your contact information.

Name	**JACQUELINE WELLS**
Address	**752 35 3/10 RD**
Phone Number	**970-986-1224**
Email	**jacqueline1@prodigy.net**

Q2

Are you a (check all that apply):

Property Owner in the Project Area

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Local Circulation

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

We prefer option 7. The culvert needs replaced and drainage needs to be addressed. Very important to have access to the trail at 35 8/10 rd for the tourists. If a frontage road from 33 road is created or upgraded it will create dust for the homes on south side of the interstate as well for I-70 travelers. Drainage for the frontage road will need continued maintenance over the years.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

We access the trail weekly. We have a 4wd truck and have had no issue accessing the trail.

Q7

How did you hear about the project?

Mail

Q8

Do you have any other comments, questions, or concerns?

Can you please update me with the final decision?

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#7

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, November 03, 2020 8:18:22 PM
Last Modified: Tuesday, November 03, 2020 8:26:43 PM
Time Spent: 00:08:20
IP Address: 69.85.78.15

Page 1

Q1

Please provide your contact information.

Name	**Steve Solko**
Address	**2987 Bret Dr.**
Phone Number	**970-210-4684**
Email	**motorcyclesandmusic@hotmail.com**

Q2

Are you a (check all that apply):

Property Owner in the Project Area,

Trailhead User,

Resident in Grand Junction

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Frontage Road Usage

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

I prefer the 1E option

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Once per year. It's VERY difficult to find with virtually no signage and is often too flooded to use. Very sketchy driving through that culvert. Trailhead parking is crowded

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

Thanks for the chance to offer input. Go with option 1E.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#8

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 04, 2020 4:34:56 PM
Last Modified: Wednesday, November 04, 2020 4:36:02 PM
Time Spent: 00:01:05
IP Address: 63.225.17.34

Page 1

Q1

Please provide your contact information.

Name	**Brian Boydstun**
Address	**3585 E 1/2 Rd**
Phone Number	**9707789055**
Email	**brianboydstun@msn.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Future Land Use Opportunities

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Do not understand why certain option did not pass Filter 1. *note specific option(s) and why you support them.**

,

Note Specific Options::

Option 3 & 4 failure do not seem accurate as CDOT has done a similar option in Edwards at Wilmore Lake.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Multiple times a year. Current access is only troublesome after rain or snow melt.

Q7

How did you hear about the project?

Other: ,

Other (please specify):
Work for CDOT.

Q8

Do you have any other comments, questions, or concerns?

None

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#9

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Friday, November 06, 2020 6:08:52 PM
Last Modified:	Friday, November 06, 2020 6:20:40 PM
Time Spent:	00:11:48
IP Address:	184.166.23.33

Page 1

Q1

Please provide your contact information.

Name	**Anthony Rowe**
Address	**3628 G 7/10 Road**
Phone Number	**9706407107**
Email	**anthonyrowe@bresnan.net**

Q2

Are you a (check all that apply):

Property Owner in the Project Area

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Frontage Road Usage,

Property Impacts

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

Utilizing the frontage road on the North side of I-70 makes the most sense. The road would need to be paved as any use to the existing road results in a large amount of dust blowing around I-70. Access and egress would need to be upgrades at the entrance to the frontage road and possibly add a bike path or lane to increase visitation by bike riders and to address their safety. Palisade has not considered the safety of bicycle riders, does not utilize designated bike lanes along roads. I fear that if this issue is not addressed on the frontage road access then the near-miss vehicle vs. bicyclist will be as dangerous as it now exists in Palisade.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

2-3 times a week. Yes when it rains or has snow melt in the tunnel it is problematic. Without raising I-70 there would not be enough room to replace the culvert and eliminate the low drainage condition.

Q7

How did you hear about the project?

Mail

Q8

Do you have any other comments, questions, or concerns?

No

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#10

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Saturday, November 07, 2020 10:53:03 AM
Last Modified: Saturday, November 07, 2020 11:00:09 AM
Time Spent: 00:07:06
IP Address: 69.145.24.82

Page 1

Q1

Please provide your contact information.

Name	**Robert Silbernagel**
Address	**742 35 3/10 Road**
Phone Number	**970-208-4284**
Email	**bobsilbernagel@gmail.com**

Q2

Are you a (check all that apply):

Property Owner in the Project Area

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Property Impacts

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

1B-1EE

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I access the area on horseback frequently during the spring and fall. Would like to continue doing so without having to go over 33 Road Bridge. Use Mount Garfield trail on foot about once a year.

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

I wasn't able to mark multiple options for Question No. 4. If I could, I would mark even option but the first one.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#11

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Saturday, November 07, 2020 3:35:20 PM
Last Modified:	Saturday, November 07, 2020 3:44:04 PM
Time Spent:	00:08:43
IP Address:	184.166.9.206

Page 1

Q1

Please provide your contact information.

Name	**Dennis Kallemeyn**
Address	**755 Garfield Dr.**
Phone Number	**9706232322**
Email	**nonskid@earthlink.net**

Q2

Are you a (check all that apply):

Property Owner in the Project Area,

Trailhead User,

Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Local Circulation

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Drainage through the existing box culvert/ in the area

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

I believe the #7 option is the best. Cdot uses the access for maintenance and the frontage road is not usable in all weather conditions.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I have used the trail head access 3-4 times a week during good weather to walk my dogs.

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

no

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#12

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Sunday, November 08, 2020 8:54:15 AM
Last Modified:	Sunday, November 08, 2020 10:18:42 AM
Time Spent:	01:24:27
IP Address:	69.145.26.34

Page 1

Q1

Please provide your contact information.

Name	**Warren MacEvoy**
Address	**2390 Mariposa Dr**
Phone Number	**9702551212**
Email	**wmacevoy@gmail.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Grand Junction

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

Frontage road options will connect trailhead to Clifton instead of palisade, which may have an impact on usage and economics (people are less likely to visit palisade before / after hike), there are fewer nice spots for lunch in Clifton. Paved access via the frontage road seems like a significant improvement to access to this popular trailhead, and economical compared to bridge options.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Historically, about 15 times per year. Winter can be consistently challenging, so maybe 5 times per year.

Q7

How did you hear about the project?

Newspaper

Q8

Do you have any other comments, questions, or concerns?

No

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#13

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Sunday, November 08, 2020 12:54:54 PM
Last Modified: Sunday, November 08, 2020 12:59:20 PM
Time Spent: 00:04:26
IP Address: 47.5.57.69

Page 1

Q1

Please provide your contact information.

Name	**Melissa Shipp**
Address	**155 sunset circle**
Phone Number	**970-201-4534**
Email	**mjoy3811@yahoo.com**

Q2

Are you a (check all that apply):

Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Monthly

Q7

Palisade or Mesa County

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

Really like the rest area option with access to trail head. I feel it would provide more access to trail and or the pedestrian bridge, parking will be an issue.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#14

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Sunday, November 08, 2020 12:57:43 PM
Last Modified: Sunday, November 08, 2020 1:06:32 PM
Time Spent: 00:08:48
IP Address: 47.5.57.69

Page 1

Q1

Please provide your contact information.

Name	**Corbin Shipp**
Address	**155 Sunset Cir**
Phone Number	**9702615086**
Email	**corbinshipp@gmail.com**

Q2

Are you a (check all that apply):

Trailhead User,
Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,
Local Circulation

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

3-4 times per year. High water, and people driving too fast and wild on G 7/10 RD. We have friends that live near the south side of the culvert and have seen many irresponsible drivers. Also, people stuck in culvert creating traffic issues.

Q7

Palisade or Mesa County

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

Thank you for all the work to analyze the best options for our landowners, travelers, and the public access to Mt. Garfield. Your efforts are most appreciated and well thought out.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#15

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Sunday, November 08, 2020 3:38:40 PM
Last Modified:	Sunday, November 08, 2020 3:43:25 PM
Time Spent:	00:04:44
IP Address:	184.166.6.80

Page 1

Q1

Please provide your contact information.

Name	**Sandy Calkins**
Address	**3618 G 7/10 Road**
Phone Number	**19704642402**
Email	**smeade59@yahoo.com**

Q2

Are you a (check all that apply):

Property Owner in the Project Area

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Local Circulation

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Traffic near/in front of my property/residence/business

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

n/a

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

Having lived on G 7/10 road since 1964, the recent increase in the use of the Trailhead has caused concern about the condition of G 7/10 road and the speed of the traffic which passes my house.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#16

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Sunday, November 08, 2020 6:11:56 PM
Last Modified: Sunday, November 08, 2020 6:16:23 PM
Time Spent: 00:04:26
IP Address: 184.166.11.82

Page 1

Q1

Please provide your contact information.

Name	**Christi Reece**
Address	**216 E FALLEN ROCK RD**
Phone Number	**9702609108**
Email	**christi@christireece.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Grand Junction,

Other (please specify):

Parent of Palisade High School Student

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

I do not like the idea of changing the access to the north side of I70. That's a big change for users from Palisade who walk, run, or ride their bike to the trailhead.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

1 - 2 times per month. Yes have had difficulty with water crossing

Q7

How did you hear about the project?

Newspaper

Q8

Do you have any other comments, questions, or concerns?

I like the options of having a pedestrian bridge, if you can find a large enough parking area on the south side of I70, but I think the best solution is just to replace the culvert and leave the access the same.

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#17

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Sunday, November 08, 2020 6:37:21 PM
Last Modified:	Sunday, November 08, 2020 6:49:08 PM
Time Spent:	00:11:46
IP Address:	107.77.199.115

Page 1

Q1

Please provide your contact information.

Name	**Lawrence (Larry) S Jones, Ph. D**
Address	**P. O. Box 41094, Grand Junction, CO 81504**
Phone Number	**9704626934**
Email	**larjones@protonmail.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Grand Junction

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

I think any of the 1B-1E options are acceptable, but favor 1C or 1D. 1B, which leaves the frontage road unimproved, limits access, and 1E, which moves the parking area, will end up encouraging hikers to forge their own trails. This is already a problem - we don't need any more trails up Garfield. Thus, I favor 1C or 1D. These options also limits the impact on those poor people who live directly south of the box culvert, and should also be far less expensive than some of the other options. This trail is DIFFICULT, and NOT a novice or intermediate level trail, so making access TOO easy is going to result in a large number unprepared and unqualified people attempting the trail. Options 6,7, and 8 are simply overkill. Not that many people need access.....

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I typically hike Garfield once a week in the spring through the fall, then less often in the winter. On multiple occasions I have not been able to get through the culvert due to high water.

Q7

How did you hear about the project?

Newspaper

Q8

Do you have any other comments, questions, or concerns?

Thanks for asking for our input. I'm glad to see this problem is going to be addressed. I have often wondered how this culvert ever came to have the "reverse" drainage. Apparently, something wasn't compacted during backfilling.....

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#18

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Sunday, November 08, 2020 8:21:42 PM
Last Modified:	Sunday, November 08, 2020 8:36:08 PM
Time Spent:	00:14:25
IP Address:	174.245.195.250

Page 1

Q1

Please provide your contact information.

Name	**Alan Moore**
Address	**574 33 3/4 rd Clifton CO 81520**
Phone Number	**970-250-0538**
Email	**alamoinc@frontier.net**

Q2

Are you a (check all that apply):

Property Owner in the Project Area,

Trailhead User,

Resident in Palisade,

Other (please specify):

Family farm in the area, frequent user of the area since 1970, knowledgeable of mine history, trail history, wildlife history of the area.

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Future Land Use Opportunities

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Increased traffic on the frontage Road

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

Replace culvert, unsafe to use frontage road.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Multiple trails in the area, use area 70+ times a year average

Q7

How did you hear about the project?

Neighbor

Q8

Do you have any other comments, questions, or concerns?

quick access for ambulance and other rescue personal best maintained by replacing current culvert. Size and location should be maintained, drainage can be addressed with drain channel installed under culvert floor. I am CDOT stormwater certified.

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#19

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 09, 2020 10:21:24 AM
Last Modified: Monday, November 09, 2020 10:30:45 AM
Time Spent: 00:09:21
IP Address: 65.102.206.94

Page 1

Q1

Please provide your contact information.

Name	**Roger Blind**
Address	**2026 Jefferson Ct**
Phone Number	**9702082037**
Email	**rogerandjanetblind@gmail.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Grand Junction

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Impacts to I-70

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

Frontage road options would require significant improvements to that road, and it would need to be usable during bad/wet weather. Footbridge over I-70 would need to include parking area south of the Interstate.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

My wife and I use the trailhead parking lot around 40 to 60 times a year As senior citizens (75+), it is a major source of exercise and recreation for us. We have often (over the last 20+/- years) been unable to access the trailhead due to culvert flooding

Q7

How did you hear about the project?

Newspaper

Q8

Do you have any other comments, questions, or concerns?

Please maintain trailhead access during the project!

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#20

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Tuesday, November 10, 2020 2:40:42 PM
Last Modified:	Tuesday, November 10, 2020 3:03:15 PM
Time Spent:	00:22:32
IP Address:	47.37.42.186

Page 1

Q1

Please provide your contact information.

Name	**JAMES**
Address	**WELLS**
Phone Number	**9709861226**
Email	**jjwells@prodigy.net**

Q2

Are you a (check all that apply):

Property Owner in the Project Area,

Trailhead User,

Resident in Palisade,

Property Owner on the Frontage Road

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Future Land Use Opportunities

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Drainage through the existing box culvert/ in the area

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

PERIODICALLY. DRAINAGE ISSUES. MISDIRECTION FROM GOOGLE MAPS THROUGH MY PROPERTY TO TRAILHEAD BY TRAIL USERS.

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

I AM FOR THE REPLACEMENT OF THE CULVERT WHILE PROVIDING ACCESS TO THE TRAILHEAD WITH UPDATED DRAINAGE AND TRAFFIC MANAGEMENT SO AS USERS ARE NOT DIRECTED THROUGH MY PROPERTY VIA GOOGLE MAPS

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#21

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 11, 2020 4:16:00 PM
Last Modified: Wednesday, November 11, 2020 4:21:41 PM
Time Spent: 00:05:41
IP Address: 184.166.22.52

Page 1

Q1

Please provide your contact information.

Name	**Priscilla Walker**
Address	**P.O. Box 363**
Phone Number	**9704642177**
Email	**pbwalker630@acsol.net**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Palisade

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Impacts to I-70

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

Should continue to provide direct access under I-70 to parking area with improved drainage and easier access for bicycles.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

Several times a week, weather permitting. Flooded tunnel prevents bicycle and car access.

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

Two lane width is not needed. Just improve tunnel to make it safer, drier, and continue closer access to Palisade.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#22

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Sunday, November 15, 2020 2:49:22 PM
Last Modified:	Sunday, November 15, 2020 2:53:20 PM
Time Spent:	00:03:57
IP Address:	184.166.117.205

Page 1

Q1

Please provide your contact information.

Name	**sheryl douglas**
Address	**3138 D 3/4 Road**
Email	**sadrunner51@yahoo.com**

Q2

Are you a (check all that apply):

Resident in Grand Junction

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Frontage Road Usage

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I don't access the trailhead, just because I don't like heights, but know that it does get regular use.

Q7

How did you hear about the project?

Newspaper

Q8

Do you have any other comments, questions, or concerns?

I like the frontage road access.

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

#23

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, November 16, 2020 3:49:10 PM
Last Modified: Monday, November 16, 2020 3:55:40 PM
Time Spent: 00:06:29
IP Address: 98.127.204.113

Page 1

Q1

Please provide your contact information.

Name	**Terry Carter**
Address	**3918 S SEVILLE CIR**
Phone Number	**9704335233**
Email	**carterterrence@yahoo.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Grand Junction

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I access it at least 10 times a year. I have difficulty getting through the puddle at the north end, and sometimes up the hill (north of the culvert) to the parking lot.

Q7

Social Media

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

It seems that the frontage road option connecting 33 road with the TH seems the best options. It eliminates the culvert entirely, provides access to Mt. Garfield, and keeps trail users away from the private property on the south side of the interstate.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#24

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, November 18, 2020 4:30:57 PM
Last Modified: Wednesday, November 18, 2020 4:39:19 PM
Time Spent: 00:08:21
IP Address: 184.166.32.136

Page 1

Q1

Please provide your contact information.

Name	**Kristy McClary**
Address	**3591 G 7/10 Rd**
Phone Number	**970-250-3376**
Email	**kristy@mcclary.com**

Q2

Are you a (check all that apply):

Property Owner in the Project Area

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Local Circulation

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Traffic near/in front of my property/residence/business

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

At least 6 times a year. Yes the culvert has been flooded at certain times of year.

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

Would prefer alternative route to trail head. Traffic is a huge problem and adds to the destruction of culvert.

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#25

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, November 20, 2020 2:31:17 PM
Last Modified: Friday, November 20, 2020 2:37:04 PM
Time Spent: 00:05:46
IP Address: 184.166.32.154

Page 1

Q1

Please provide your contact information.

Name	**Susan E Bevan**
Address	**3585 G 7/10 Rd**
Phone Number	**970-623-4639**
Email	**eSEyBee@gmail.com**

Q2

Are you a (check all that apply):

Property Owner in the Project Area

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Safety,

Mt. Garfield Trailhead Access,

Property Impacts

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options,

Note Specific Options::

preserve access to trailhead, please

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

As often as it is passable.
There is a problem, with access, when it floods

Q7

Mail

How did you hear about the project?

Q8

Do you have any other comments, questions, or concerns?

PLEASE preserve access to trailhead to those who use it now, without forcing us drive into Clifton & then back, to do so
Many seniors and others, use this as regular excercize
Thank you

Q9

Respondent skipped this question

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

#26

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Monday, November 23, 2020 11:50:56 PM
Last Modified:	Tuesday, November 24, 2020 12:05:58 AM
Time Spent:	00:15:02
IP Address:	69.85.78.15

Page 1

Q1

Please provide your contact information.

Name	**Lisa Solko**
Address	**2987 Bret Dr**
Phone Number	**970-210-4684**
Email	**thesolkos@msn.com**

Q2

Are you a (check all that apply):

Trailhead User,

Resident in Grand Junction,

Property Owner on the Frontage Road

Q3

Of the following community issues, affected by future work on the trailhead area, please mark two most important to you.

Mt. Garfield Trailhead Access,

Frontage Road Usage

Q4

What are some of your concerns regarding the existing box culvert access? (check all that apply)

Accessing the Mt. Garfield Trailhead

Q5

Overall, how do you feel about the proposed options that have passed Filter 1 to address the structurally deficient box culvert?

Support any of the purposed options,

***Understand the need to address the structurally deficient box culvert, but have concerns about certain options.**

,

Note Specific Options::

I support option 1D and 1E. I have concerns about option 1B and 1C. It is difficult to see oncoming traffic at the corner of 33 & G road, especially going north on 33 rd. to cross the highway. With additional traffic crossing here, I highly recommend at least option 1D for safety reasons.

Q6

How often do you access the Mt. Garfield Trail and have you had difficulty accessing the trail in the past? Please describe:

I visit two to three times per year. I have had trouble finding the trailhead more than once in the past when I first started hiking Mt. Garfield. I also have driven through some standing water to get to the trailhead.

Q7

How did you hear about the project?

Mail

Q8

Do you have any other comments, questions, or concerns?

As a property owner along the frontage road, I support option 1D & 1E. It would be a positive to have the dirt road improved to a true frontage road.

Also, I think this public engagement presentation was put together in an outstanding method. It was easy to follow along, very explanatory about the options, and extremely professional without being too long. I am grateful to the people who helped put it together and are compiling these responses. Thank You.

Q9

For additional project information please contact: Michelle Hansen, Stolfus & Associates, Inc. 5690 DTC Boulevard, Suite 330W, Greenwood Village, CO 80111 720-771-3056 (Phone) michelle@stolfusandassociates.com or Elise Thatcher, CDOT Region 3 Communications Manager 222 South 6th St., Grand Junction, CO 80150 303-927-8299 (phone) elise.thatcher@state.co.us

Respondent skipped this question

Michelle Hansen

From: Roger Granat <rghunts@acsol.net>
Sent: Thursday, November 19, 2020 5:18 PM
To: Michelle Hansen
Subject: Re: Mt. Garfield culvert study

Yes if you wouldn't mind passing along those costs when they are available.
Thank you. Roger Granat

Sent from my iPhone

On Nov 19, 2020, at 3:27 PM, Michelle Hansen <Michelle@stolfusandassociates.com> wrote:

Mr. Granat,

Thank you for your comments. I don't have costs available to share with the public just yet, but that is a consideration we're taking into account when evaluating the remaining alternatives. I do appreciate your comments regarding access with different types of vehicles and will share with the project team. If you'd like I can follow-up with information regarding costs at a later date.

Thanks again,
Michelle

Michelle R. Hansen, PE | Senior Transportation Engineer | Stolfus & Associates, Inc.
P: 303 221 2330 | C: 720 771 3056 | michelle@stolfusandassociates.com
www.stolfusandassociates.com

From: Roger Granat <rghunts@acsol.net>
Sent: Monday, November 16, 2020 12:38 PM
To: Michelle Hansen <Michelle@Stolfusandassociates.com>
Subject: Mt. Garfield culvert study

Of the options identified before making any comment I would need to know the approximate costs for each. There are some problems related with the frontage road that should have removed it from consideration, such as flooding, and the need for an all-weather road for all types of vehicles. There are a lot of users of the trailhead that don't have transportation that could use just a graveled road from 33 road. This might lead to a safety issue in an increase in pedestrians trying to cross I-70.

These are some of the concerns that I have before making any choice of the options.

Thank you Roger Granat

<ff653e70-8ade-41ab-9feb-6beb16451811.png>

Michelle Hansen

From: Michelle Hansen
Sent: Tuesday, March 2, 2021 5:22 PM
To: _Harmon_
Cc: Nathan Jean (nathan.jean@state.co.us); Kaitlyn Clark - CDOT
Subject: RE: Mt Garfield

Harmon,

Thank you for your email. I've included the website you can visit to find more information about CDOT's Mt Garfield Culvert Study: https://www.codot.gov/projects/mtgarfieldculvertstudy.

We are about ready to release the findings and I will add you to my email list to be notified. The website will provide you with background information on the alternatives considered. Based on your parcel number, your property appears to be further east from the project site and I do not anticipate any impacts. If you have any questions, feel free to contact me.

Thank you,
Michelle

Michelle R. Hansen, PE | Senior Transportation Engineer | Stolfus & Associates, Inc.
P: 303 221 2330 | C: 720 771 3056 | michelle@stolfusandassociates.com
www.stolfusandassociates.com

From: _Harmon_ <hlowecho@gmail.com>
Sent: Saturday, February 27, 2021 12:31 AM
To: Michelle Hansen <Michelle@Stolfusandassociates.com>
Subject: Mt Garfield

Hello Michelle,
I believe you sent me some information via snail mail a few months ago.

I own property just north of I 70 near Palisade.

If you did, and if you have any further updates, please let me know.

I have attached my tax statement from Mesa County if that helps.

Thanks,
Harmon

Michelle Hansen

From: Dave Priske <dpriske@utewater.org>
Sent: Wednesday, November 11, 2020 10:36 AM
To: Michelle Hansen
Cc: Nathan Jean; Clark - CDOT, Kaitlyn; Carter - CDOT, Joseph
Subject: RE: Mt Garfield Culvert Study
Attachments: NS 36-inch P&P STA279+54-368+51 SECTION 3.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Michelle – Please find record drawings of the District's facilities in the study area. While you'll see there aren't any water facilities in direct conflict with your culvert replacement alternative, the District's Northside Transmission main and appurtenances exist along the existing access road.

Let me know if there are any questions.
Thanks, Dave

David J Priske, PE | District Engineer
UTE WATER CONSERVANCY DISTRICT
2190 H 1/4 Rd, Grand Junction, CO 81505
T 970.242.7491
F 970.242.9189
M 970.260.1408
E dpriske@utewater.org

CELEBRATING 60 YEARS SERVING THE COMMUNITY!

From: Michelle Hansen [mailto:Michelle@Stolfusandassociates.com]
Sent: Tuesday, November 10, 2020 2:18 PM
To: Dave Priske <dpriske@utewater.org>
Cc: Nathan Jean (nathan.jean@state.co.us) <nathan.jean@state.co.us>; Clark - CDOT, Kaitlyn <kaitlyn.clark@state.co.us>; Carter - CDOT, Joseph <joseph.carter@state.co.us>
Subject: RE: Mt Garfield Culvert Study

Dave,

Thank you for your email. Joe Carter at CDOT Utilities has made us aware of Ute Water's transmission line as we've considered alternatives through this process. To clarify, the alternatives that provide access directly from I-70 have been eliminated from consideration. The alternatives remaining generally include replacing the box culvert or utilizing the frontage road between 33 Road and the trailhead. In terms of the screening for the remaining alternatives, do you have any specific concerns about the remaining alternatives that we should be aware of? Can you send us the as-built records you mentioned? I have the attached description that you provided us last year that gives a summary of the waterline location. Based on the description, I do not believe the replacement of the box culvert would have any impact on your line, however, the frontage road options would likely need to consider the location of your line on the north side of I-70. It wasn't clear to me what happened to the line once it crosses I-70.

Once a preferred alternative is selected and the project moves into the design phase, a subsurface utility engineering investigation will be conducted to confirm the location of your line and any other utilities in the area that may be impacted. Coordination with you will continue throughout the process.

Thanks for your assistance and input. Feel free to call my cell below if there's anything you'd like to discuss.

Michelle

Michelle R. Hansen, PE | Senior Transportation Engineer | Stolfus & Associates, Inc.
P: 303 221 2330 | C: 720 771 3056 | michelle@stolfusandassociates.com
www.stolfusandassociates.com

From: Dave Priske <dpriske@utewater.org>
Sent: Tuesday, November 3, 2020 8:04 AM
To: Tracy.trulove@state.co.us
Cc: Michelle Hansen <Michelle@Stolfusandassociates.com>
Subject: Mt Garfield Culvert Study

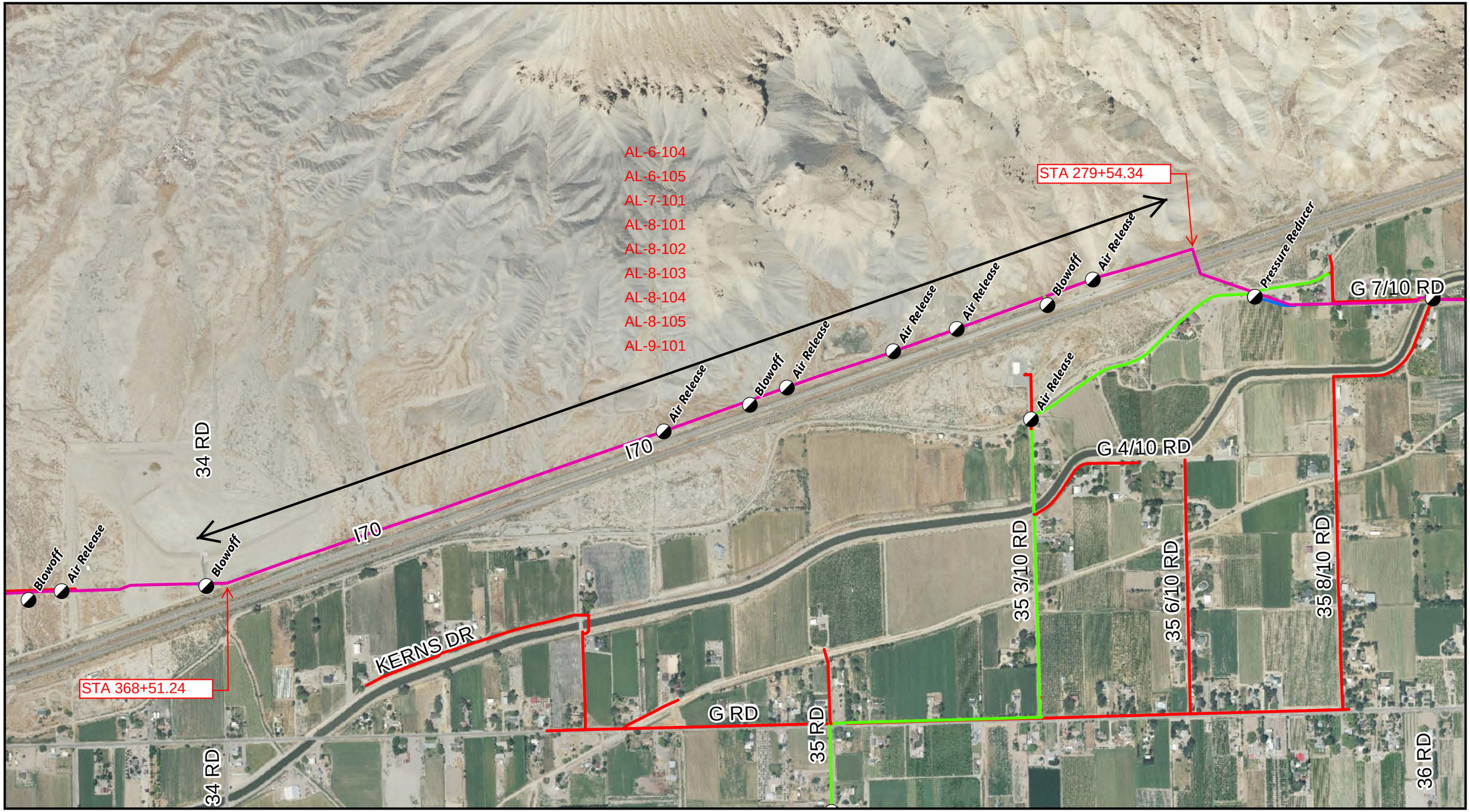
Good morning – while getting up to speed on your culvert study, noticed that it appears one (or more) alternatives involve improving existing access along I70. Ute Water has an existing large diameter domestic water transmission main within the ROW adjacent to the existing access road.

As you screen through your alternatives, please keep us in the loop. I can forward our as built records or meet to discuss anytime.
Thanks, Dave

David J Priske, PE | District Engineer
UTE WATER CONSERVANCY DISTRICT
2190 H 1/4 Rd, Grand Junction, CO 81505
T 970.242.7491
F 970.242.9189
M 970.260.1408
E dpriske@utewater.org

CELEBRATING 60 YEARS SERVING THE COMMUNITY!

This email has been scanned by the Symantec Email Security.cloud service.
For more information please visit http://www.symanteccloud.com



Ute Water Conservancy District does not take responsibility or make any claim as to the completeness or accuracy of information found on this map.
The map information is intended for general reference purpose only.

Feet
0 500 1,000 2,000

Northside Transmission Main

Control Valve

Mains

Diameter

- 1" thru 4"
- 6" thru 10"
- 12" thru 18"
- 20" thru 54"

Patricia Belcastro
841 N. 1st St.
Grd. Jct, CO 81501

Stolfus + Assoc.
5690 DTC Blvd.
Ste 330W
Greenwood Village
CO 80111

FWD

I Would like to Learn
about future Improvements
in the Study Area.

(Mt. Garfield Trailhead)

Please let me know
the study area.

Thank You,

Patricia Belcastro
841 N. 1st St.
Grand Junction, Co 81501

FY21CSCLGNP

January 4, 2021

Stolfus & Associates, Inc.
5690 DTC Boulevard, Suite 330W
Greenwood Village, CO 80111

Dear Ms. Belcastro,

I apologize for the delay in getting you the materials for the Mt Garfield Culvert Study. Per your request, I have attached information about the project for your review. The Colorado Department of Transportation (CDOT) is currently planning to address the box culvert under I-70 at 35 8/10 Road that provides access to the Mt Garfield Trailhead in Palisade, CO. The box culvert is currently in poor condition and has been recommended for replacement. CDOT is studying alternatives that can address the condition of the culvert and continue to provide adequate access to the trailhead and adjacent properties. They have hired Stolfus and Associates, Inc. to assist them with alternatives analysis process. Funds could be available as early as 2023 to construct a solution as determined by this study.

In addition, as part of this process, the project team Is holding one-on-one meetings with interested parties either via telephone or Zoom meeting to discuss the alternatives and receive feedback regarding the project. We will be holding meetings on the afternoon of Monday, January 11. If you are interested, you can schedule an appointment by calling or emailing Michelle Hansen at 720-771-3056 or michelle@stolfusandassociates.com. If you prefer, you can fill out the attached comment sheet and mail, fax or email back to me by January 18, 2021

If internet is available to you, you can find out more information about the project at: https://www.codot.gov/projects/mtgarfieldculvertstudy. However, I've included the majority of the material in this package for you. Thank you for your interest in the project.

Sincerely,

Michelle R. Hansen, PE
Stolfus & Associates, Inc.

Cc: Nathan Jean, PE – CDOT
Kaitlyn Clark, PE – CDOT

Stolfus

January 4, 2021

Stolfus & Associates, Inc.
5690 DTC Boulevard, Suite 330W
Greenwood Village, CO 80111

To Whom This May Concern,

We are writing to inform you that the Colorado Department of Transportation (CDOT) is currently planning to address the box culvert under I-70 at 35 8/10 Road that provides access to the Mt Garfield Trailhead in Palisade, CO. The box culvert is currently in poor condition and has been recommended for replacement. CDOT is studying alternatives that can address the condition of the culvert and continue to provide adequate access to the trailhead and adjacent properties. They have hired Stolfus and Associates, Inc. to assist them with alternatives analysis process. Funds could be available as early as 2023 to construct a solution as determined by this study.

As part of this process, the project team has identified that your specific property may be impacted by the project depending on which alternative is selected as the preferred alternative. **The project team would like to invite you to participate in a one-on-one meeting either via telephone or Zoom meeting to discuss the alternatives and receive feedback regarding the project. We will be holding meetings on the afternoon of Monday, January 11.** You can schedule an appointment by calling or emailing Michelle Hansen at 720-771-3056 or michelle@stolfusandassociates.com.

Your feedback is important to us and it is beneficial to all parties to obtain your feedback during these early stages of planning and design. For those of you who responded during our virtual public engagement presentation, it is up to as to whether you'd like to talk about the alternatives in more detail with the project team at a one-on-one meeting. Your comments submitted previously have been shared with the project team.

To find out more information about the project, please visit the project website at:
https://www.codot.gov/projects/mtgarfieldculvertstudy

Sincerely,

Michelle R. Hansen, PE
Stolfus & Associates, Inc.

Cc: Nathan Jean, PE – CDOT
Kaitlyn Clark, PE – CDOT

One-on-one Stakeholder Meetings

8/27/2019	Andy Windsor, BLM
8/27/2019	Palisade irrigation District, Grand Valley Water Users, Grand Valley Drainage District
9/11/2019	Scott Mai and Carrie Gudorf, Mesa County, and Allyson Shellhorn, Town of Palisade
9/14/2020	Richard Rupp, Palisade Fire
9/17/2020	Charles Balke, Clifton Fire District

One-on-one Property Owner Meetings
January 11, 2021

2:30 – Kathy and David Carter (telephone)
3:00 – Lisa and Steve Solko (Zoom)
3:30 – Craig Bradford (telephone)
4:00 – Jacki and James Wells (Zoom)

COLORADO
Department of Transportation

MEETING NOTES

Mt. Garfield Culvert Alternatives Feasibility Study-Stakeholder Meeting BLM
Tuesday, August 27, 2019

Meeting Held at: CDOT Region 3 Monument Conference Room, 606 S. 9th Street, Grand Junction, CO

In Attendance: Stuart Gardner-CDOT, Rob Beck-CDOT, Catherine Ventling-CDOT, Hans Egghart-CDOT, Nathan Jean-CDOT, Andy Windsor-BLM, Michelle Hansen-Stolfus, Janet Lundquist-Stolfus

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Introduction
Introductions were made around the room.

Problem Statement/Project Overview

- The current access through the culvert services several properties, including the Bureau of Land Management (BLM), CDOT, and other private properties. There is currently a trailhead for the Mt. Garfield Trail on CDOT right-of-way that includes a parking lot.
- There is a gated road that is on CDOT right-of-way. The gate is adjacent to the trailhead parking lot. There are several locks on the gate, including a lock for CDOT and utility companies. Old right-of-way plans show this as a "dozer trail" access from 33 Road. There was discussion that there might be a Ute Water line that runs along that road in CDOT right-of-way.
- It is unclear who maintains 35 8/10 Road leading to the culvert. It appears that the county right-of-way terminates at Stub Ditch Road, at the southern property lines. It was suggested that Mesa County has prescriptive rights to the right-of-way north through the box culvert.
- The problem statement for the project is:
  Structure Number 070A039961BL, a concrete box culvert constructed in 1962 under I-70 at milepost 39.96 in Mesa County, is in poor condition and has been recommended for replacement in the 2017 Essential Repair Letter. The structure was first identified as a critical culvert to Region 3 in 2013, and Essential Repair Letters were subsequently issued in 2015 and 2017. The CBC provides vehicular access to the Mount Garfield Trailhead and adjacent properties, and also serves as a drainage structure. The structure has a sufficiency rating of 22.4 out of 100 due to bulging walls, horizontal and map cracking, and significant differential settlement at the joints, as documented in the 2018 Structure Inspection and Inventory Report. The structure has had documented cracking, settling, and other problems as far back as 1967. Left unmitigated, the CBC could fail structurally, potentially leading to severe damage to I-70 and limiting access to the trailhead.

Goals

- Stolfus presented the list of project goals:
  - Address structural deficiencies of existing box culvert.
  - Maintain legal access to adjacent properties.
  - Address storm water currently draining to the existing box culvert.
  - Ensure compliance with Colorado Water Law.
  - Provide compatibility with existing programs, practices, and resources.
  - Manage impacts to adjacent community and traveling public.
  - Preserve the viability of recreational opportunities at the Mount Garfield Trailhead.

Opportunities/Constraints Discussion

- There is a trail counter at the cattle guard.
- Horses are allowed on the first bench of the trail.
- The trailhead also goes up to the Gearhart Mine.
- The trail is pedestrian only with no plans to allow bikes.
- BLM does not perform maintenance on the parking area.
- The BLM would be open to shifting the parking area, if the access is moved along the frontage road.
- Federal Land Access Program (FLAP) funds could be used if the access to the trailhead is removed.
- The trailhead is designated Area Critical Environmental Concern (ACEC) protecting the visual resource/view shed, BLM would not support a rest area development because it could impact the visual appearance of Mt. Garfield.
- The trailhead is open year-round.
- They hold the Garfield Grumble event and hikes for the Mesa Monument Striders Club.
- Access to the trailhead from the backside (Cameo) is gated and closed until June for seasonal horse breeding season.

Project Schedule

- Stakeholder Work Session-November 2019
- Open House #1-January/February 2020
- One-on-One Meetings-February 2020
- Preferred Alternative Workshop-March 2020
- Open House #2-April 2020

The above summary represents the understanding of Stolfus & Associates, Inc. as to items discussed, agreements reached and actions to be taken. Please call or email Janet Lundquist at (303) 221-2330, janet@stolfusandassociates.com with comments or additions.

Water Users Meeting – 08/27/2019

Stakeholders Present – Palisade Irrigation District, Grand Valley Water Users, Bureau of Reclamation (not in attendance) and Grand Valley Drainage District

MESA COUNTY IRRIGATION

Mesa county irrigation has lines that run parallel to I-70. Frontage road on the south becomes very rutted when the roadway is wet and people are looking for trails. They'd like to limit access along their own frontage road. Exit 42 is one of the "illegal" access roads.

Runoff water is an issue above the interstate. Every culvert under I-70 has drainage issues and high runoff. Existing retention ponds are "full" and pass on the drainage and sediment downstream.

GRAND VALLEY WATER USERS

Runoff eventually enters into the drainage canal and causes damage. May not be directly related to this culvert. The 6x6 CBC seems to be the problem culvert. Not the 14x14 CBC. This used to be the main drainage before they installed the pond.

Pond maintenance would be helpful. Existing infrastructure is sediment in.

GRAND VALLEY DRAINAGE DISTRICT

They can pull 300-500 dump trucks of sediment out of the Bossley wash sediment basin a year.

Bossley wash (sediment basin) is a huge helps and saves property.

BLM pays the County millions of dollars a year.

PALISADE IRRIGATION DISTRICT

Historically the canal would fill up every summer with sediment with the large storms. This was when the ditch was open. The ditch would be down for a week while they mucked it out.

Mount Garfield Trailhead became active in the Late 80's. Boy Scouts would raise a flag.

SUMMARY

No concerns about the CBC. No concerns about retaining water. They do not want the water. It would help them to control the volume of water. The unknown quantity of stormwater is the issue.

QUESTIONS

Who owns the detention pond next to the trailhead parking lot? I thought it was BLM. ROW map shows it being CDOT.

COLORADO
Department of Transportation

MEETING NOTES

Mt. Garfield Culvert Alternatives Feasibility Study-Stakeholder Meeting Mesa County & Palisade
Wednesday, September 11, 2019

Meeting Held at: CDOT Region 3 Monument Conference Room, 606 S. 9th Street, Grand Junction, CO

In Attendance: Stuart Gardner-CDOT, Rob Beck-CDOT, Catherine Ventling-CDOT, Hans Egghart-CDOT, Nathan Jean-CDOT, Carrie Gudorf-Mesa County, Scott Mai-Mesa County, Allyson Shellhorn-Palisade, Michelle Hansen-Stolfus, Janet Lundquist-Stolfus

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  - Manage impacts to adjacent community and traveling public.
  - Preserve the viability of recreational opportunities at the Mount Garfield Trailhead.

Opportunities/Constraints Discussion

- Mesa County thinks the ROW south of the CBC is prescriptive ROW.
- Mesa County performed some maintenance on the retention pond and the ditch to the culvert around 2015 or 2016.
- Rudy Beven with Mesa County Road and Bridge may have more history of this area.
- Both the County and Palisade would like more signage to the trail head and roadway maintenance.
- People get stuck in the existing CBC due to sediment build up.

Project Schedule

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- Open House #2-April 2020

The above summary represents the understanding of Stolfus & Associates, Inc. as to items discussed, agreements reached and actions to be taken. Please call or email Janet Lundquist at (303) 221-2330, janet@stolfusandassociates.com with comments or additions.

MEETING MINUTES

Mt Garfield Culvert Study, Mesa County, Colorado
One-on-One Meeting
January 11, 2021, 3:30 pm

Meeting Held via telephone

In Attendance:

Craig Bradford, Property Owner	Nathan Jean, CDOT
Kaitlyn Clark, CDOT	Michelle Hansen, Stolfus & Associates

Re: Mt Garfield Culvert Study

Property Owner Observations:

- Mr. Bradford owns the property in the southwest corner of the box culvert.
- Prefers the frontage road option.
- Concerned about the culvert condition and asked what would happen to the culvert if a frontage road option was selected.
    - Michelle noted that it would be filled and left in place.
    - Mr. Bradford concerned about redirecting the drainage that flows through the box culvert to other locations. Culvert to the west floods during large events.
- 35 8/10 Road concerns:
    - Noted poor condition of 35 8/10 Rd, specifically potholes.
    - Concerned about level of traffic and resulting dust along 35 8/10 Rd.
    - Noted there's a lot of activity at night related to the trailhead.
    - Concerned about snow-plowing on 35 8/10 Rd. County snow plows currently use his property to turn around, but don't plow to his driveway.
- If box culvert option is selected, concerned about drainage in front of his property. Thinks the road may act as a "canal" in front of his property.
- If the box culvert option is selected, CDOT will continue to coordinate directly with Mr. Bradford as the project progresses on future conditions, property impacts, right-of-way needs, etc. The group discussed the right-of-way process including Uniform Act requirements like appraisals, fair market value offers, and compensation.

The above summary represents the understanding of Stolfus & Associates, Inc. as to items discussed, agreements reached and actions to be taken. Please call Michelle Hansen at (303) 221-2330 with comments or additions.

MEETING MINUTES

Mt Garfield Culvert Study, Mesa County, Colorado
One-on-One Meeting
January 11, 2021, 2:30 pm

Meeting Held via telephone

In Attendance:

Cathy and David Carter, Property Owners	Nathan Jean, CDOT
Kaitlyn Clark, CDOT	Michelle Hansen, Stolfus & Associates

Re: Mt Garfield Culvert Study

Property Owner Observations:

- Carter's own the property in the southeast and northeast corners of the box culvert.
- Currently use the box culvert to access the property north of I-70.
- Experience a lot of traffic related to the Mt Garfield Trailhead on 35 8/10 Rd.
- Have observed vandalization at the box culvert and trailhead. Late night users, dirt bikes.
- Noted it's difficult to find the Mt Garfield Trailhead.
- Trailhead is typically busy in Feb-April. Typically, late night/early morning users due to avoid the heat of the day.
- Search and Rescue sets up on the south side of the box on 35 8/10 Rd to conduct rescue operations at the trailhead.
- Frontage Rd Options:
    - Prefer Frontage Rd Options
    - The Frontage Rd is not adequate as is – difficult to pass when wet.
    - Gravel on the Frontage Rd is an acceptable long-term condition as long as long-term maintenance is addressed.
- Box culvert Options:
    - Concerned about slope of driveways from 35 8/10 Rd with proposed conditions.
    - Concerned about utility services generally located along driveways.
    - Concerned about impacts to propane tank on property
    - Suggested that the Stub Ditch Rd be gated so trailhead users don't try to use it.
    - Drainage comes across property from 35 8/10 Rd.
    - Concerned about an increase in use and traffic in front of their property.
    - Asked about potential for traffic calming treatments.
- If the box culvert options is selected, CDOT will continue to coordinate directly with the Carter's as the project progresses on future conditions, property impacts, right-of-way needs, etc.

The above summary represents the understanding of Stolfus & Associates, Inc. as to items discussed, agreements reached and actions to be taken. Please call Michelle Hansen at (303) 221-2330 with comments or additions.

MEETING MINUTES

Mt Garfield Culvert Study, Mesa County, Colorado
One-on-One Meeting
September 17, 2020 2:00 pm

Meeting Held via Zoom

In Attendance:
Charles Balke, Clifton Fire District
Nathan Jean, CDOT
Michelle Hansen, Stolfus & Associates

Re: Mt Garfield Culvert Study

- Fire District Coverage:
  - If the frontage road option is considered, it would be faster for the Clifton Fire District to respond to calls at the trailhead.
  - An alteration to the ASA through the Mesa County Commissioners would be required to redefine the mutual aid agreement such that the Clifton Fire District would respond to calls at Mt Garfield Trailhead since it is currently in the Palisade Fire District boundary.
  - Currently changes are under consideration to have the Clifton Fire District contracted to manage the Palisade Fire District.
- Frontage road option considerations
  - Fire District has a legal obligation for services to constituents
  - Chief Balke is consider about not meeting response times and potential for apparatus to get stuck on the frontage road.
  - Does not currently have ATV capability. Wouldn't feel comfortable taking an ambulance down the frontage road currently. (Ambulances are 2WD.)
  - Hard packed gravel would be needed at a minimum.
  - Concerned about who would maintain a gravel road to avoid washboarding,etc.
  - Chief Balke was open to chipseal as an adequate surface for emergency response
  - Concerned that frontage road options extend response time to the trailhead.
- BLM land
  - Typically considered frontier, however, this are probably would not be considered frontier due to its proximity to I-70.
  - Helicopters often used to respond to BLM land.
- Box culvert option considerations
  - Prefers replacing the box culvert
  - New box culvert should accommodate current ambulance vehicles

The above summary represents the understanding of Stolfus & Associates, Inc. as to items discussed, agreements reached and actions to be taken. Please call Michelle Hansen at (303) 221-2330 with comments or additions.

MEETING MINUTES

Mt Garfield Culvert Study, Mesa County, Colorado
One-on-One Meeting
September 14, 2020 2:00 pm

Meeting Held via Zoom

In Attendance:
Richard Rupp, Palisade Fire District
Nathan Jean, CDOT
Michelle Hansen, Stolfus & Associates

Re: Mt Garfield Culvert Study

- Fire District Coverage:
  - If the frontage road option is considered, it would be faster for the Clifton Fire District to respond to calls at the trailhead.
  - An alteration to the ASA per resolution of the Mesa County Commissioners would be required to redefine the mutual aid agreement such that the Clifton Fire District would respond to calls at Mt Garfield Trailhead since it is currently in the Palisade Fire District boundary.
  - An authority consolidation/merger of the Clifton Fire District and Palisade Fire District is currently being discussed.
  - Chief Rupp is retiring and the new contact at Palisade is Jason Leigh.
- Current emergency services response to the trailhead:
  - Mesa County Search and Rescue partners on response.
  - Search and Rescue utilize a helicopter quite a bit. Consider a helipad in the area.
  - Palisade does not have 4WD vehicles.
  - Have used the existing box culvert without any trouble. Box is tall enough and wide enough for response vehicles.
- Frontage road option considerations
  - Frontage road would need to be all-weather at a minimum. Need to meet NFDA and IFC 2020 requirements.
  - If frontage road selected needs to be all weather and prefers option with improved lot on the BLM land.
  - Concerned about motorcycles riding on the frontage road.
- Box culvert option considerations
  - Prefers replacing the box culvert

The above summary represents the understanding of Stolfus & Associates, Inc. as to items discussed, agreements reached and actions to be taken. Please call Michelle Hansen at (303) 221-2330 with comments or additions.

MEETING MINUTES

Mt Garfield Culvert Study, Mesa County, Colorado
One-on-One Meeting
January 11, 2021, 3:00 pm

Meeting Held via Zoom

In Attendance:

Lisa and Steve Solko, Property Owners	Nathan Jean, CDOT
Kaitlyn Clark, CDOT	Michelle Hansen, Stolfus & Associates

Re: Mt Garfield Culvert Study

Property Owner Observations:

- Solko's own property north of the frontage road at 34 Rd.
- They have considered a future campground for their property, but no solid plans currently.
- The existing culvert is not marked and difficult to find. Recommend wayfinding if the box culvert option is selected.
- The existing culvert is too narrow and doesn't feel safe.
- Support the frontage road option with the frontage road improved.
    - Current condition of the frontage road is difficult to pass during wet conditions. There are 4 water crossings that wash out completely with a rain event. A four-wheel drive vehicle is required with current conditions.
    - Believe that 33 Rd is easier to find and navigate to the trailhead.
    - Believe that 33 Rd and G Rd may become problematic if more traffic is introduced.
    - Noted that more people are beginning to live on the north side of the highway

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MEETING MINUTES

Mt Garfield Culvert Study, Mesa County, Colorado
One-on-One Meeting
January 11, 2021, 4:00 pm

Meeting Held via Zoom

In Attendance:
Jacki Wells, Property Owner
Kaitlyn Clark, CDOT
Nathan Jean, CDOT
Michelle Hansen, Stolfus & Associates

Re: Mt Garfield Culvert Study

Property Owner Observations:

- Ms. Wells owns parcels 752, 813, 3587, property west of trailhead on north side of I-70. Parcel 817 is owned by her son and parcel 3591 is owned by her sister.
- Use the box culvert west of the Mt. Garfield culvert to access their property on the north side of I-70.
- Currently have no plans for any land use changes.
- Open to either option, but prefers the box culvert option.
- Concerned about retraining the public on how to access the trailhead and the possibility of people making their own trails with the frontage road options. Also, concerned about people parking on the frontage road if they get stuck.
- Noted there are a lot of hikers from Palisade that would have to travel out of direction to access the trailhead via the frontage road.
- Asked about fencing along her property if the frontage road option was selected. CDOT has not determined those details yet. She noted concerns about liability if the public were able to access her north property.
- Understands concerns in the area about traffic created by trailhead on 35 8/10 Rd.
- Noted that people try to park on the Stub Ditch Rd at times.
- Concerned about redirecting any drainage to the culvert west of the Mt Garfield culvert due to flooding concerns. Water through the west culvert crosses through her property. Drainage at 35 3/10 Rd is not maintained and flooding occurs. Unaware of any flooding issues to the east.
- Recommended re-grading the pond on the north side of I-70 to address drainage issues. The pond has filled in over the years.
- Noted there is a pipe at the end of 35 8/10 Rd that directs flows onto private property.
- There is a 35' easement along the Stub Ditch Rd.

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