

Park County

2019 TSEP Preliminary Engineering

Alternative Analysis Options & Cost Estimates

August 16, 2019



Bridge Selections for Grant Application



- Bannock Trail over Woody Creek
 - 4-ton load posting
 - No detour route
- Bannock Trail over Wyoming Creek
 - 5-ton load posting
 - No detour route
- Monument Avenue of Soda Butte Creek
 - 6-ton load posting
 - No detour route



TSEP Requirements



- Consider **all** available alternatives
 - No action
 - Rehabilitation
 - Replacement
- Explain how each alternative does or does not solve the existing safety problems
- Consider cost effectiveness of solutions

SAFETY

Alternative Analysis Options



- No action
- Rehabilitation
- Replacement Options
 - ✦ Concrete Tri-Deck
 - ✦ Modular Steel Bridge
 - ✦ Flat Slab Bridge



No Action Alternative



- Will not solve deterioration issues
 - Weight limitation
 - Deterioration of abutments
 - Deterioration of superstructure
 - One lane structures
- Estimated Cost: \$0

NO-ACTION

This does not solve the existing problems

Bridge Rehabilitation Alternative



- General recommended work:
 - Widen and/or replace superstructure
 - Repair foundation deficiencies
 - Widen foundation to accommodate two lane traffic
- Will **improve but not solve** the following issues
 - Bridge load posting could potentially be increased, but not to legal load limits

Not a strong option
for TSEP funding as it
improves but does not
solve safety issues

Superstructure Option 1

Prestressed Concrete Tri-Deck



- Advantages:
 - No cast in place deck required, shorter construction time
- Disadvantages
 - Heavier materials means bigger crane required
 - Material cost is greater than steel for this span length



Superstructure Option 1

Prestressed Concrete Tri-Deck



Superstructure Option 2

Prefabricated Modular Steel



- Advantages:
 - Deck pan allows for optional deck surfaces
 - Lighter materials, less expensive to set
 - Material cost is less expensive
- Disadvantages
 - None

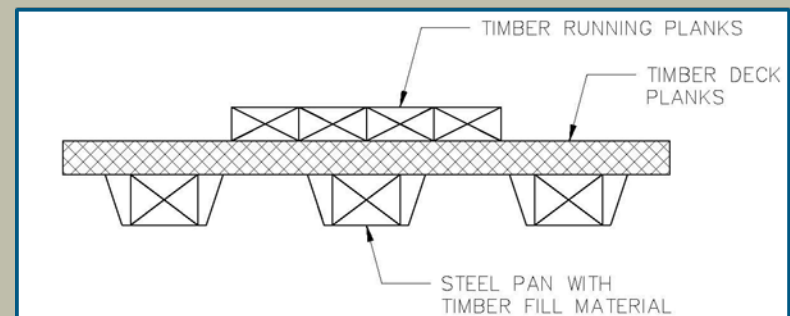
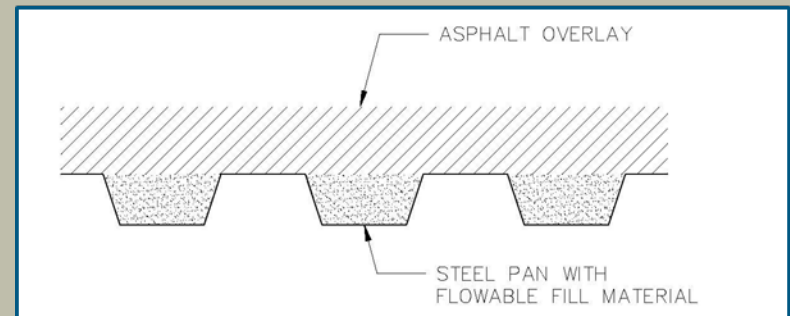
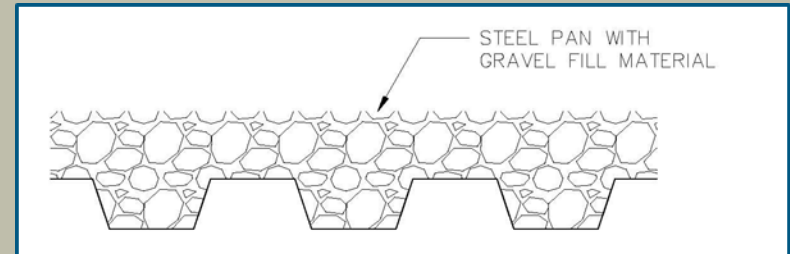


Superstructure Option 2

Prefabricated Modular Steel

Deck surfacing options for steel bridge

1. **Gravel on steel pan**
 - ✦ Recommended when approach roads are gravel
 - ✦ Least cost alternative
 - ✦ **Recommended option**
2. **Asphalt on steel pan**
 - ✦ Least maintenance
3. **Timber on steel pan**
 - ✦ Most cost
 - ✦ Increased maintenance



Superstructure Option 2

Prefabricated Modular Steel



Superstructure Option 3

Concrete Flat Slab Bridge



- Advantages:
 - Precast elements allow for rapid installation
 - No cast in place deck required
- Disadvantages
 - Heavier materials means bigger crane required
 - 30-ft max span



Superstructure Option 3

Concrete Flat Slab Bridge



Bannock Trail over Woody Creek



Construction Costs

	Steel Pile Foundation	Spread Footing Foundation
Concrete Tri-Deck Beam	\$300,485	\$304,750
Prefabricated Steel Bridge	\$237,235	\$278,500
Flat Slab Bridge	N/A	\$256,780

Bannock Trail over Wyoming Creek



Construction Costs

	Steel Pile Foundation	Spread Footing Foundation
Concrete Tri-Deck Beam	\$333,560	\$338,175
Prefabricated Steel Bridge	\$252,735	\$294,175
Flat Slab Bridge	N/A	N/A

Monument Avenue over Soda Butte Creek



Construction Costs

	Steel Pile Foundation	Spread Footing Foundation
Concrete Tri-Deck Beam	\$330,960	\$335,400
Prefabricated Steel Bridge	\$249,960	\$291,400
Flat Slab Bridge	N/A	N/A

Total Project Costs



	Construction Costs	Total Project Costs
Bannock Trail over Woody Creek	\$237,235	\$315,523
Bannock Trail over Wyoming Creek	\$252,735	\$336,138
Monument Avenue over Soda Butte Creek	\$249,960	\$332,447
Total Project Cost	\$739,930	\$1,014,108

- Total Project Cost includes:
 - Engineering design and construction inspection
 - Grant administration
 - Contingency

What Steps Do We Take to Complete the Plan?



Finalize PER

- Environmental Checklist
- Letters to Environmental Agencies
- Public Support

Write Grant & Submit to TSEP

- Grant Application Due June 2020
- TSEP Ranking Fall 2020
- Submit to Legislature January 2021
- Funding Anticipated Available July 2021

Final Engineering Design

- Survey
- Final Bridge Design (Fall 2021)
- Construction Bid Process (Anticipated 2022)

Construction

- Construction Administration (Anticipated 2022)
- Construction Inspection

Questions or Comments?



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