

MEMORANDUM

Date: March 19, 2020

Project #:
22944.001

To: Drew Alexander, Boise State University
Kathy Parker, Community Planning Association of Southwest Idaho

From: Zachri Jensen, EIT and Yuri Mereszczak, PE

Project: Boise State Greenbelt, Theatre-Broadway

Subject: Preliminary Cost Estimate

This memorandum documents the methods and assumptions included as part of the cost estimation exercise for the Boise State University Greenbelt, Theatre-Broadway project. This project is part of the Project Development Program (PDP) that is administered by the Community Planning Association of Southwest Idaho (COMPASS).

Project Overview

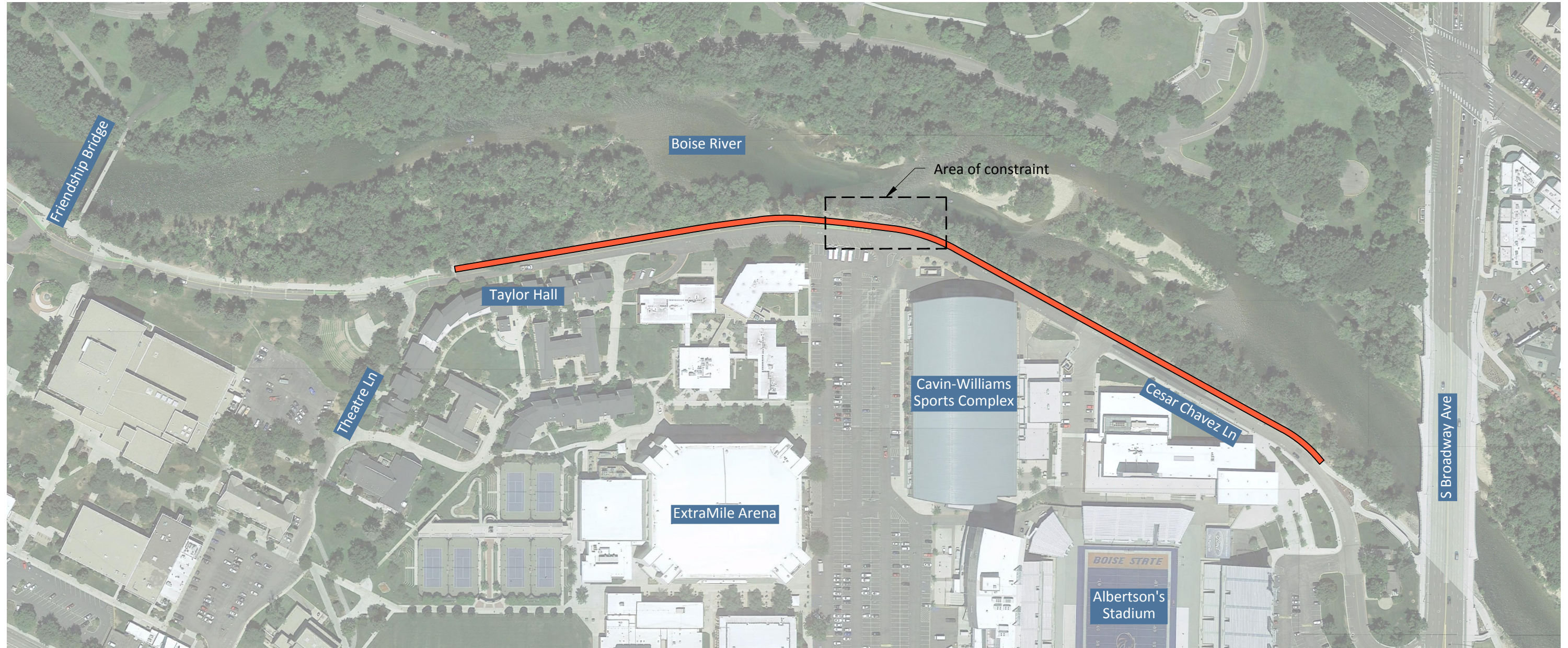
The Boise River Greenbelt (Greenbelt) is a primary transportation route for both pedestrians and cyclists that follows the Boise River. A segment of the Greenbelt runs through the Boise State University (Boise State) campus, from Capitol Boulevard on the west to Broadway Avenue on the east (approx. 0.85 miles). This segment of the Greenbelt has seen various enhancements over the years, such as an increase in the width of the pathway, the addition of landscape buffers between pedestrian and vehicle traffic, and the replacement of the original asphalt surface with concrete. To date, improvements like these have only been made along the segment from Capitol Boulevard to Theatre Lane. However, the segment between Theatre Lane and Broadway Avenue (approx. 1/3 mile) has remained unimproved, leaving the pathway in a substandard condition and posing safety concerns for users. Figures 1 and 2 show the improved and unimproved conditions. Figure 3 shows an overview of the project area.




Figure 1: Example of improved segment



Figure 2: Example of unimproved segment



 = Project area

H:\22\22944 - COMPASS Project Dev. On-Call (2018-21)\001 - Boise State Greenbelt, Theatre-Broadway\Design\Exhibits\Figures.dwg Mar 19, 2020 - 5:57pm - jgensen Layout Tab: 1 Project Overview

In addition, this segment of the Greenbelt consistently experiences high volumes of pedestrian and cyclist users and ranks as one of the most-frequented segments in the entire Greenbelt system. These improvements would provide pathway continuity from Capitol Boulevard to Broadway Avenue and create a lower-stress environment that is more conducive to safe use.

A cost estimate for these improvements has been completed in the past, but there are concerns that the estimate does not adequately reflect the current construction environment. The purpose of this project is to create a refined cost estimate that can be used in future funding efforts.

Existing Conditions

Within the project area outlined in Figure 3, the Greenbelt is currently 9.5' wide with an asphalt surface. The City of Boise's (City) current standard for the Greenbelt calls for a 12' wide concrete path, which means that the Greenbelt in the project area is 2.5' less than the standard. In addition, separation between Greenbelt users and vehicle traffic on the adjacent Cesar Chavez Lane is only achieved with 10" x 10" wooden posts, which is inconsistent with the landscape buffer treatments that exist along the rest of the corridor from Capitol Boulevard to Theatre Lane. The posts also reduce the usable width of the pathway to approximately 8'. Figure 4 shows the existing cross section.

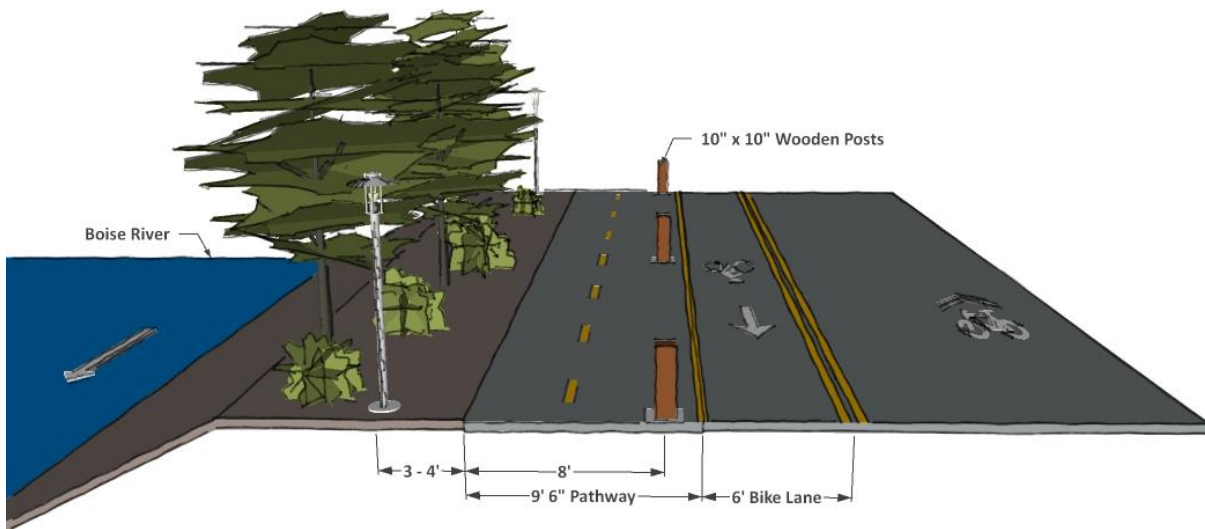


Figure 4: Existing Greenbelt cross section

Assumed Future Conditions

At the direction of the project team, the following future conditions have been assumed in the cost estimation exercise:

- Maintain existing roadway width for Cesar Chavez Lane
- Remove existing wooden posts
- Construct a 3'-wide landscape buffer between Cesar Chavez Lane and the Greenbelt
- Construct a 12'-wide concrete pathway width per City standards
- Relocate all existing light poles (25 total) and emergency telephone pedestals (2 total) from the north side of the pathway to the landscape buffer

The City's current Greenbelt standards are included in Appendix B for reference. Figure 5 shows a cross section that includes the above assumptions.

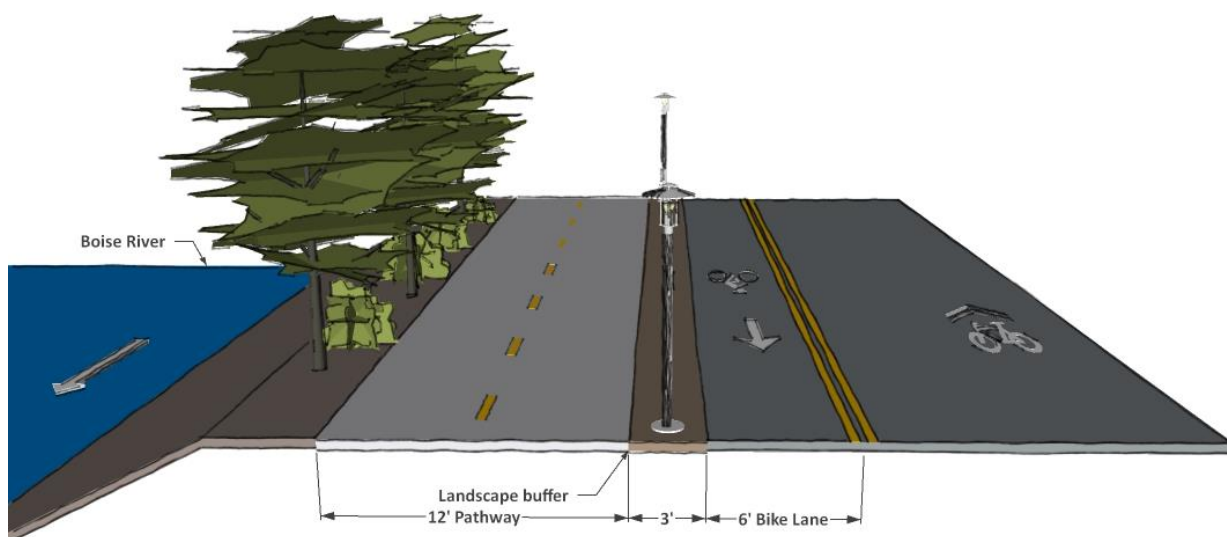


Figure 5: Assumed future Greenbelt cross section

In addition, it has been assumed that a retaining wall structure will be necessary on the north side of the Greenbelt in the area identified as “Area of constraint” in Figure 3. The increase in pathway width in this area will place the Greenbelt very close to the top of the bank of the Boise River, and some type of retaining structure will likely be required for bank stabilization.

Cost Estimate

A cost estimate has been prepared for the improvements assumed in the previous section, along with a separate estimate for comparison purposes that assumes an asphalt pathway instead of a concrete pathway. Unit costs were determined from recent ACHD project bid abstracts as well as Kittelson's experience from recent projects. These costs include design engineering, permitting, and construction management fees as well as a 10% contingency and escalation factor. Total costs are summarized in Table 1. A detailed breakdown of costs is included in Appendix A for reference.

Table 1: Summary of estimated project costs

Description	Estimated Total Cost
Greenbelt, Theatre-Broadway Improvement Project (concrete pathway)	\$751,850
Greenbelt, Theatre-Broadway Improvement Project (asphalt pathway)	\$628,630
<i>Difference</i>	<i>\$123,220</i>

Appendix 1 Cost Estimate Worksheets

Preliminary Cost Estimate (Concrete Pathway)



Consultant Name: Kittelson & Associates, Inc.
Project Name: Boise State Greenbelt, Theatre-Broadway
Project Number: 22944.001
Estimate Version: 3.0
Date: Thursday, March 19, 2020
Prepared By: MZJ
Checked By: YSM

CONSTRUCTION COSTS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
1	Mobilization	1	LS	\$ 69,000.00	\$ 69,000
2	Traffic control	1	LS	\$ 3,000.00	\$ 3,000
3	Clearing and grubbing	1	LS	\$ 5,000.00	\$ 5,000
4	Removal of posts and misc. items	1	LS	\$ 3,000.00	\$ 3,000
5	Remove & replace irrigation	1	LS	\$ 5,000.00	\$ 5,000
6	Signing relocation/additions	1	LS	\$ 1,500.00	\$ 1,500
7	Erosion control/SWPPP	1	LS	\$ 10,000.00	\$ 10,000
8	Relocate telephone pedestal	2	EACH	\$ 3,000.00	\$ 6,000
9	Relocate light pole	25	EACH	\$ 5,000.00	\$ 125,000
10	Excavation and soft spot repair	1,444	CY	\$ 10.00	\$ 14,436
11	Asphalt repair	412	SY	\$ 75.00	\$ 30,934
12	Concrete pathway (5" depth)	2,475	SY	\$ 50.00	\$ 123,734
13	3/4" minus crushed gravel base (6" depth)	321	CY	\$ 28.00	\$ 8,983
14	4-6" uncrushed aggregate subbase (8" depth)	642	CY	\$ 15.00	\$ 9,624
15	3' landscape buffer	5,568	SF	\$ 7.00	\$ 38,976
16	Retaining wall in area of constraint	750	SF	\$ 65.00	\$ 48,750
17	24" Bio-Barrier fabric (both sides of path)	3,712	LF	\$ 5.00	\$ 18,560
18	Growth retardant agents	2,475	SF	\$ 0.50	\$ 1,238
19	Landscaping north of pathway	1	LS	\$ 5,000.00	\$ 5,000
20	Pavement markings (paint)	1,856	LF	\$ 0.75	\$ 1,392
CONSTRUCTION SUBTOTAL =					\$ 529,127

CONSTRUCTION SUPPORT

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
1	Engineering and permits	1	LS	\$ 75,000.00	\$ 75,000
2	Planning and administrative costs	5%	LS	\$ 529,127.00	\$ 26,457
3	Construction management & survey	10%	LS	\$ 529,127.00	\$ 52,913
CONSTRUCTION SUPPORT SUBTOTAL =					\$ 154,370

PROJECT SUBTOTAL	=	\$ 683,497
CONTINGENCY & ESCALATION	=	10%
TOTAL ESTIMATED PROJECT COST	=	\$ 751,847

DISCLAIMER

Any cost opinions or estimates provided by Kittelson are on the basis of its experience and best judgment, however, since Kittelson has no control over market conditions or bidding procedures, it cannot and does not warrant the bids, ultimate construction cost, or project economics will not vary from said opinions or estimates.

Preliminary Cost Estimate (Asphalt Pathway)



Consultant Name: Kittelson & Associates, Inc.
Project Name: Boise State Greenbelt, Theatre-Broadway
Project Number: 22944.001
Estimate Version: 3.0
Date: Thursday, March 19, 2020
Prepared By: MZJ
Checked By: YSM

CONSTRUCTION COSTS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
1	Mobilization	1	LS	\$ 56,000.00	\$ 56,000
2	Traffic control	1	LS	\$ 3,000.00	\$ 3,000
3	Clearing and grubbing	1	LS	\$ 5,000.00	\$ 5,000
4	Removal of posts and misc. items	1	LS	\$ 3,000.00	\$ 3,000
5	Remove & replace irrigation	1	LS	\$ 5,000.00	\$ 5,000
6	Signing relocation/additions	1	LS	\$ 1,500.00	\$ 1,500
7	Erosion control/SWPPP	1	LS	\$ 10,000.00	\$ 10,000
8	Relocate telephone pedestal	2	EACH	\$ 3,000.00	\$ 6,000
9	Relocate light pole	25	EACH	\$ 5,000.00	\$ 125,000
10	Excavation and soft spot repair	1,444	CY	\$ 10.00	\$ 14,436
11	Asphalt repair	412	SY	\$ 75.00	\$ 30,934
12	Asphalt pathway (3" depth)	404	TON	\$ 100.00	\$ 40,368
13	3/4" minus crushed gravel base (6" depth)	321	CY	\$ 28.00	\$ 8,983
14	4-6" uncrushed aggregate subbase (8" depth)	642	CY	\$ 15.00	\$ 9,624
15	3' landscape buffer	5,568	SF	\$ 7.00	\$ 38,976
16	Retaining wall in area of constraint	750	SF	\$ 65.00	\$ 48,750
17	24" Bio-Barrier fabric (both sides of path)	3,712	LF	\$ 5.00	\$ 18,560
18	Growth retardant agents	404	SF	\$ 0.50	\$ 202
19	Landscaping north of pathway	1	LS	\$ 5,000.00	\$ 5,000
20	Pavement markings (paint)	1,856	LF	\$ 0.75	\$ 1,392
CONSTRUCTION SUBTOTAL =					\$ 431,725

CONSTRUCTION SUPPORT

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
1	Engineering and permits	1	LS	\$ 75,000.00	\$ 75,000
2	Planning and administrative costs	5%	LS	\$ 431,725.00	\$ 21,587
3	Construction management & survey	10%	LS	\$ 431,725.00	\$ 43,173
CONSTRUCTION SUPPORT SUBTOTAL =					\$ 139,760

PROJECT SUBTOTAL	=	\$ 571,485
CONTINGENCY & ESCALATION	=	10%
TOTAL ESTIMATED PROJECT COST	=	\$ 628,634

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Appendix 2 City Greenbelt Standards



PARKS AND RECREATION DEPARTMENT

MAYOR: David H. Bieter | DIRECTOR: Doug Holloway

Greenbelt Standards

1. All work shall be done in conformance to Boise Parks & Recreation Department specifications and details, which shall be included in all contract work involving Boise City pathways. Any deviation from these standards must be approved by Boise Parks and Recreation.
2. All bridge design, roadway crossings and pathway development and their associated impacts to any parks and greenbelt properties must be presented to Boise Parks & Recreation designated representatives for review and acceptance prior to contracting.
3. All greenbelt path construction shall include two 2" electrical conduits, with pull rope, 30" below grade. Install pull boxes with lockable lids at each end and at 500' maximum intervals. Sweep conduit into boxes.
4. Striping and stenciling plan shall be approved by Boise Parks and Recreation.
5. Path construction shall be concrete unless approved by Boise Parks and Recreation.

Widths

1. Concrete: minimum 12' wide. 14' at underpasses and where heavy traffic occurs.
2. Shoulders: gravel or sod, minimum 2' both sides
3. Sloped shoulder: maximum 5:1 both sides

Clearance Height/Width

1. Vertical clearance, 10' minimum
2. horizontal clearance, 3' either side from shoulders preferred, 2' minimum

Note: A separation of pedestrian from bike traffic is best if possible.

Cross-sectional Path Thickness

1. Concrete – minimum base of 6" of $\frac{3}{4}$ " minus crushed gravel at 95% compaction. Concrete pavement minimum of 5" thickness with a compressive strength of 4,000 PSI in 28 days curing with fibermesh reinforcement.

Construction

1. Control joints shall be saw cut 10' O.C.

2. Expansion joints shall be a Key-Loc joint 40' O.C. Provide and install (5) 24" length #3 rebar
3. A non-skid surface (medium broom finish) is required for concrete surfaces, while not being rough.
4. Growth retardant agents, Monobar-Chlorate and Trifluralin, are mandatory under asphalt and concrete.
5. Install 24" Bio-Barrier fabric along both sides of path.
6. Closures and detour routes must be approved by Boise Parks and Recreation and be signed appropriately for public convenience and safety during construction.

Grades

1. Running slope maximum of 5%
2. Cross slope maximum of 2% to meet ADA requirements.

Elevation

1. All sections of Greenbelt path below the accepted 6,500 CFS line of the Boise River shall be in concrete.

Sightlines

1. Minimum of 150' clear view sight lines are required.

Lighting

1. Lighting that illuminates all underpasses that would otherwise obscure normal vision during daylight hours.

Landscapes

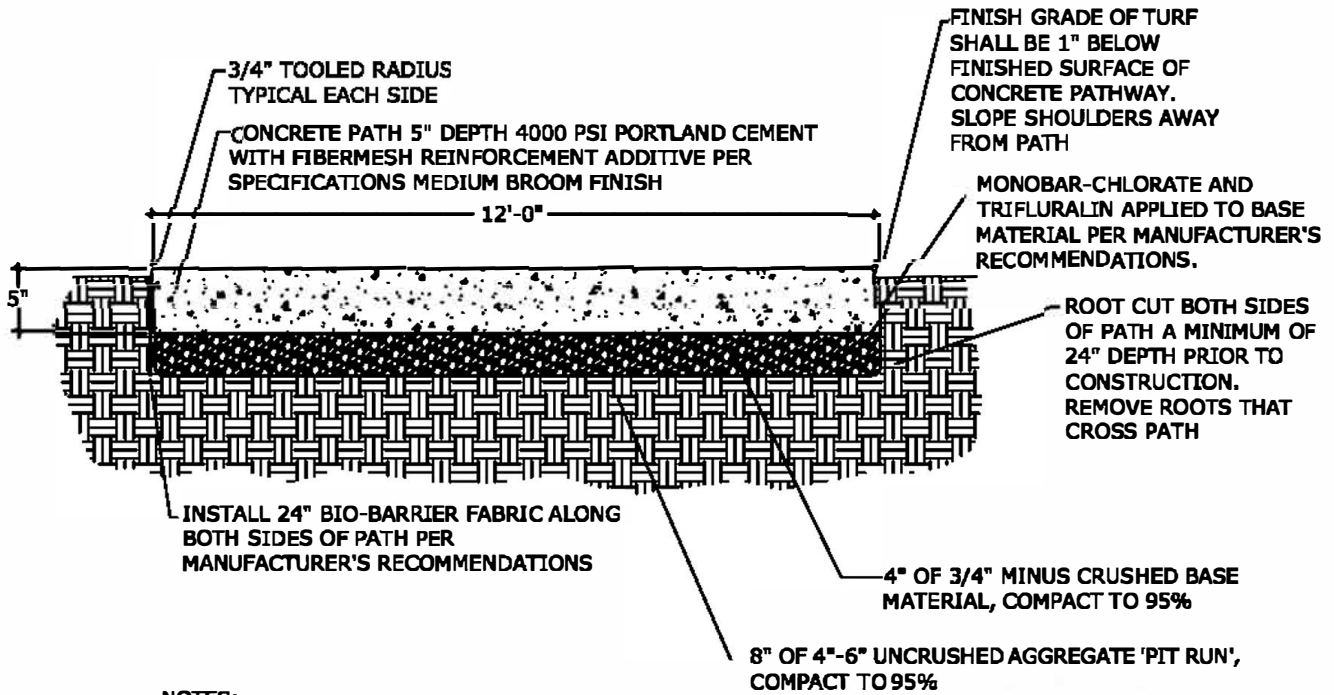
1. Landscapes and hardscape features will be reviewed by Boise Parks & Recreation representatives to assure department standards of positive drainage, visual appeal, and low labor intensity maintenance are upheld.

Signage

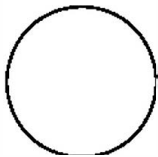
1. Must meet current Boise Parks and Recreation standards and approval and fully inform public of desired information and safety concerns.

Special Note: Boise Parks & Recreation Department reserves the right to submit timely changes and upgrades to these standards.





NOTES:
CONTROL JOINTS SHALL BE 10' O.C., SAW CUT
EXPANSION JOINTS SHALL A KEYLOCK JOINT 40' O.C.
PROVIDE AND INSTALL (5) 24" IN LENGTH #3 REBAR



CONCRETE PATH

N.T.S.

Drawn By:	BPR
Checked By:	TN
Date:	3/14/19



CONCRETE GREENBELT

CONSTRUCTION DETAIL
Drawing #: 1

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