

IOWA

Agency Street Trail Project

City of West Burlington, Iowa

University of Iowa

Department of Civil & Environmental Engineering

December 2024

Team Member Introductions

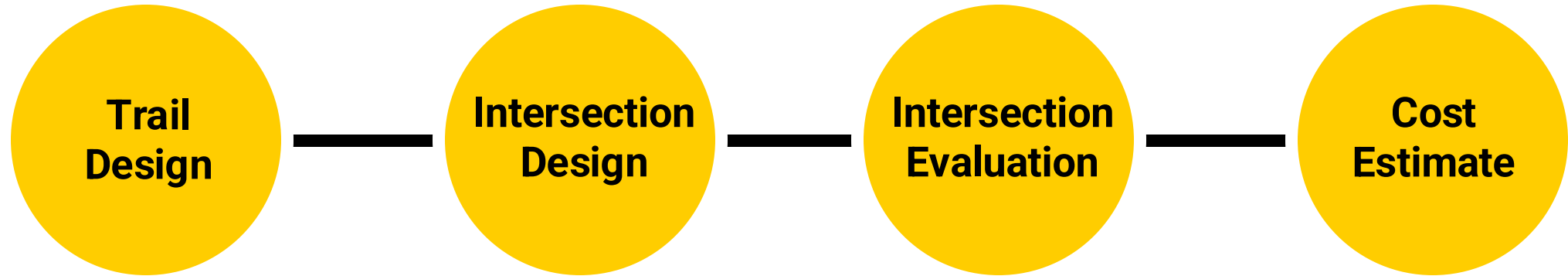
Emma Oelmann – Project Manager



Blake Misfeldt



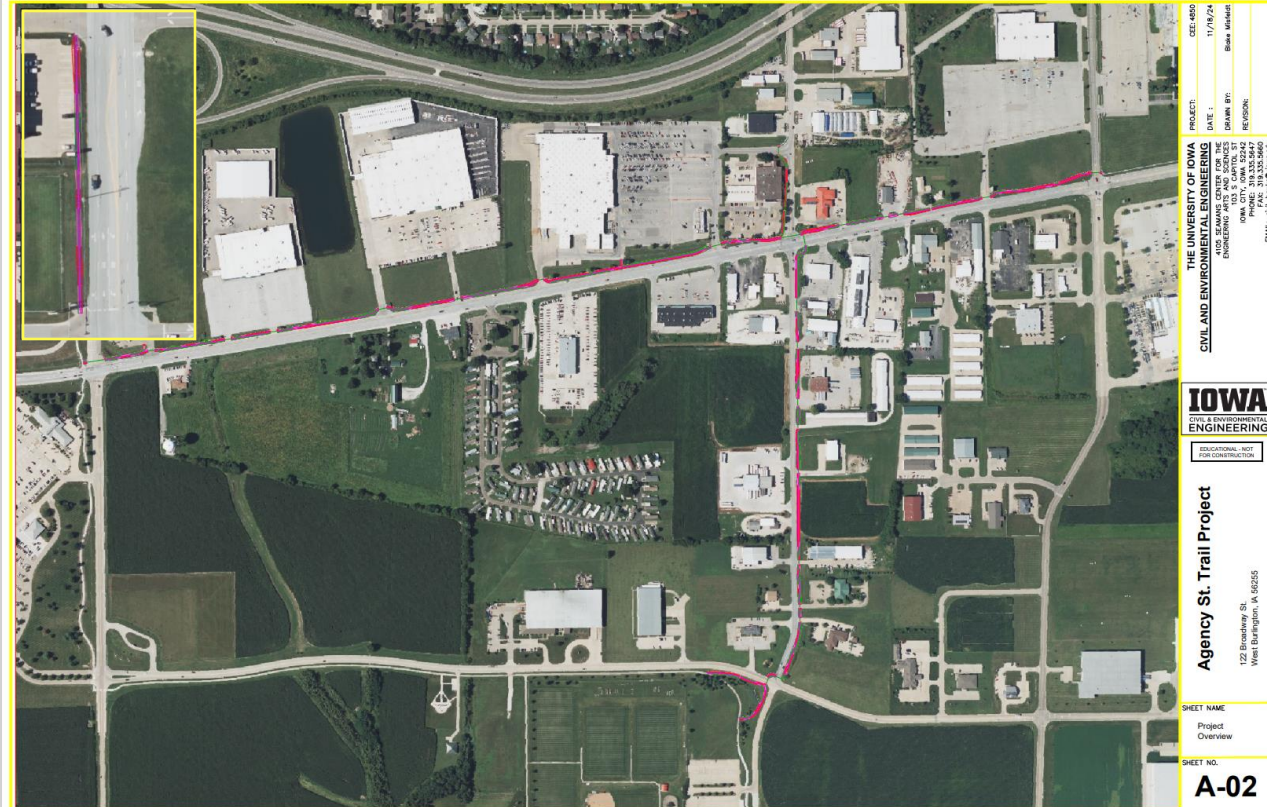
Agenda



Scope of Work

Trail Design

- Current pedestrian traffic is unsafe
- Pedestrian trail along Agency St., Broadway St., and Gear Ave. crossing by the mall
- Connects the senior living center and community college to local businesses and the Rec Plex
- Evaluate Intersections to accommodate pedestrian traffic



Trail Design Elements

Design Standards

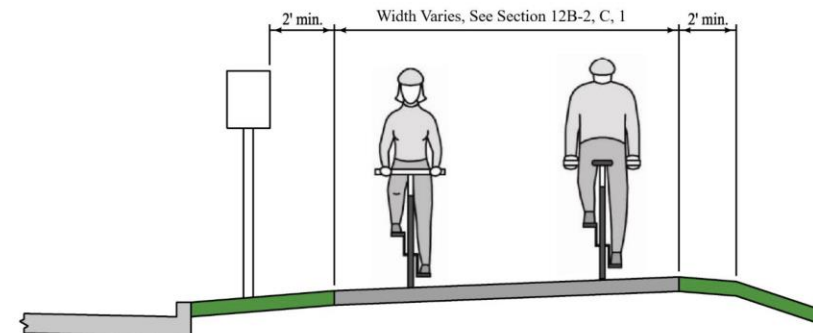
- Iowa DOT Design Manual, Chapter 8 – Roadside Safety
- Iowa DOT Design Manual, Chapter 12 – Pedestrian and Bicycle Facilities



Horizontal Alignment

- 10' wide along most of the trail
- 5' wide trail in some areas
- 8' clear space along Agency St.
- 6' clear space along Broadway St.
- 10' clear space by the Mall

Figure 12B-2.01: Typical Cross-Section of Two-Way Shared Use Path on Independent Right-of-Way



Source: Adapted from AASHTO *Bicycle Guide* Exhibit 5.1

Trail Design Elements

Surveying

- Second trip to West Burlington
- Provided more accurate existing ground for vertical alignment
- Refined horizontal alignment



Vertical Alignment

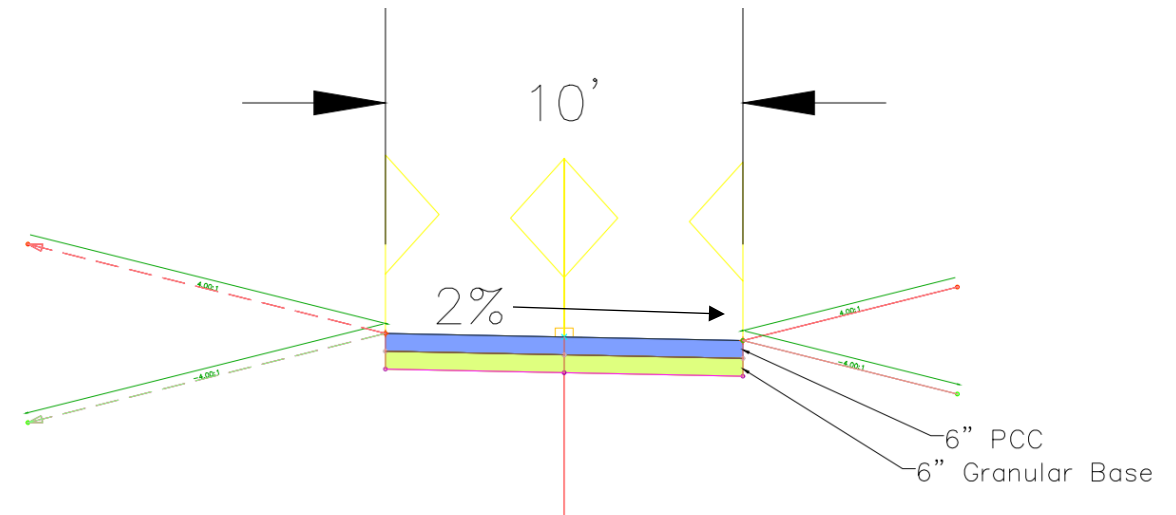
- Priority was to minimize cut and fill
- ADA Standard is no more than 5% slope
- Relatively flat area
- Slope does not exceed 4%



Trail Design Elements

Cross Sections

- Pavement Thickness: 6" PCC
- Base Thickness: 6" Granular Base
- Cross Slope: 2%
- Curb and Gutter dictates direction of cross slope
- Daylighting: 4:1



Intersection Design Elements

Scope of Work

- New trail requires safe crossings
- New crossings require timing and phasing adjustments



West Burlington Avenue Intersection

Design Standards

- Iowa DOT Design Manual
- SUDAS
- Manual of Uniform Traffic Control Devices

West Walmart Driveway

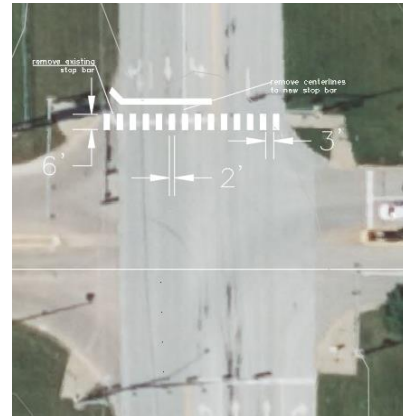
Alternatives

- Eliminate left turns in favor of right-turn only median
- Close driveway entirely

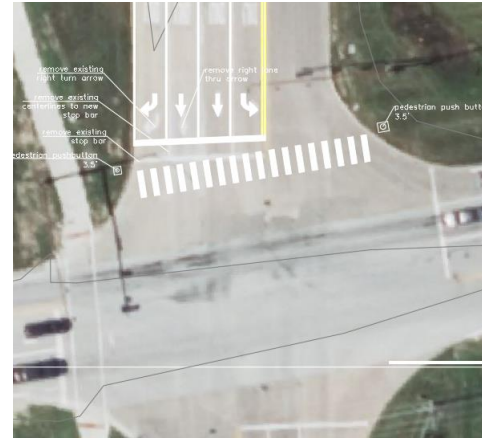


Pavement Markings

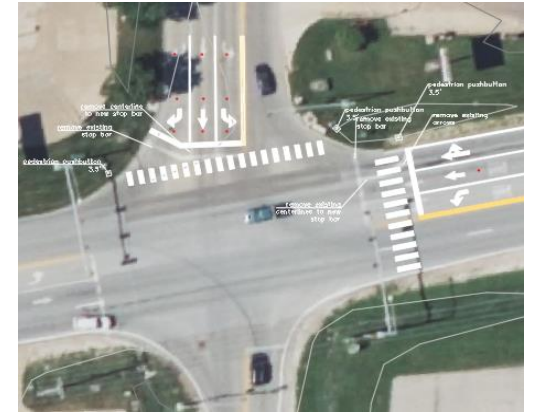
- Crosswalks
- Stop lines
- Removals
- Lane indicator arrows



Mall & Target Driveways



Agency St & Gear Ave



Agency St & Broadway St



Agency St & West Burlington Ave



Division St & Broadway St

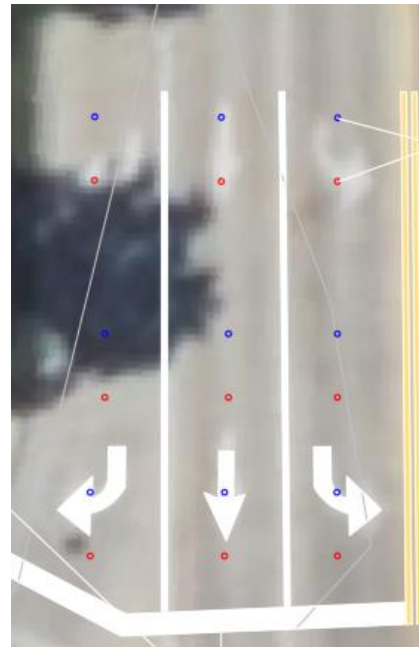
Signage

- Existing mall sidewalk requires no crossing sign
- Stop signs need moved
- Pedestrian pushbutton signage
- Unprotected driveways require yield signs



Pedestrian Phasing

- Stand-alone pedestrian pushbuttons
- Pedestrian signal indicators
- Traffic detector pods



Intersection Evaluation

Process

- Highway Capacity Software – AWSC & Streets
- Turning movement generation
- Traffic signal timing and phasing



Agency Street

Assumptions

- Worst Conditions – Peak at 5pm – 6pm
- 50% AADT split
- Growth rate 1.5%
- 5 year projection
- Pedestrian speed of 3.5 ft/second



Gear Avenue

Intersection Evaluations

Results

	LOS	Multimodal LOS
Agency/Gear	C	B
Agency/Broadway	C	B
Agency/W.Burlington	C	B
Division/Broadway	A	A
Mall/Target	D	B

Recommendations

- **Agency/Gear** - EB & WB green times need increased
- **Agency/Broadway** - SB green time needs increased
- **Agency/W.Burlington** - No change necessary
- **Division/Broadway** - No change necessary
- **Mall/Target** - No change needed

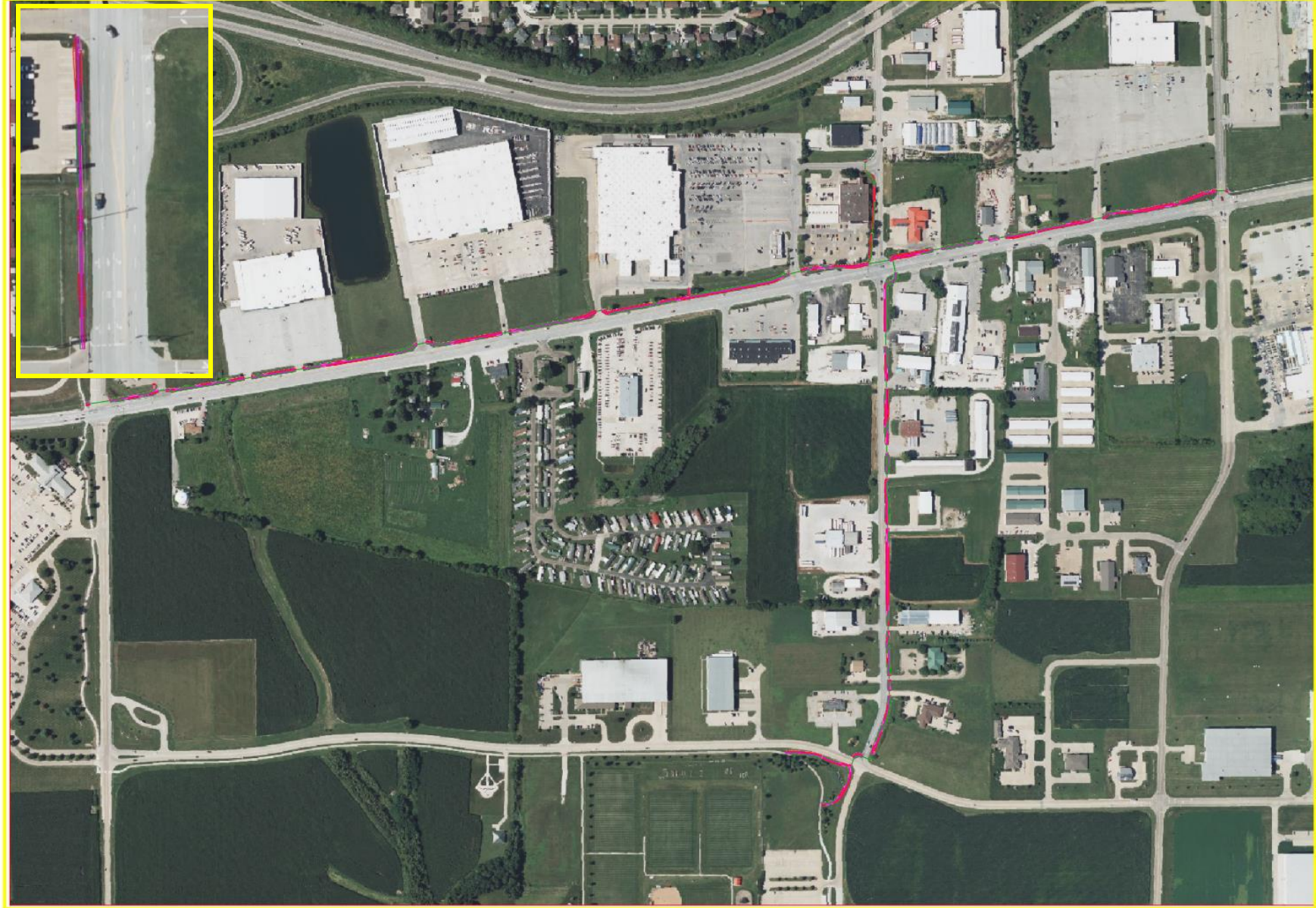
Cost Estimate

Method of Estimation

- Estimation Broken into Phases
- Easements & Property Acquisition are TBD
- 10% Added for Contingencies
- 20% Added for Engineering & Administration
- References
 - Iowa Public Works Bid Tab
 - *2024 RS Means Heavy Construction Costs*

Entity	Cost
Agency St. Trail	\$358,500
Broadway St. Trail	\$202,500
Mall Trail	\$13,000
Construction Subtotal	\$574,000
Easements & Property Acquisition	TBD
10% Contingencies	\$57,400
20% Engineering & Administration	\$114,800
Total Project Cost	\$746,200

Q&A



THE UNIVERSITY OF IOWA CIVIL AND ENVIRONMENTAL ENGINEERING	
PROJECT: CEE-4850	DATE: 11/18/24
DRAWN BY: Blake Missett	REVISION:
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IOWA CIVIL & ENVIRONMENTAL ENGINEERING	
EDUCATIONAL - NOT FOR CONSTRUCTION	
Agency St. Trail Project	
122 Broadway St. West Burlington, IA 52655	
SHEET NAME	Project Overview
SHEET NO.	A-02

IOWMATM

ENGINEERING

Agency Street Trail Cost Estimate

Agency St. Trail

Reference	Item Code	Bid Item Description	Unit	Unit Price	Quantity	Cost
Iowa Public Works Service Bureau Bid Tabulation Report	2010-B	CLEARING AND GRUBBING	Acre	\$ 7,102.73	1.405	\$ 9,976.74
Iowa Public Works Service Bureau Bid Tabulation Report	1020-E	EXCAVATION, CLASS 10, CLASS 12, OR CLASS 13	CY	\$ 8.12	216.12	\$ 1,754.89
RS Means Heavy Construction Costs	G1030 115 1000	CUT & FILL COMMON EARTH	CY	\$ 10.56	202.39	\$ 2,137.24
Iowa Public Works Service Bureau Bid Tabulation Report	7030-C	SHARED USE PATH, PCC, 6"	SY	\$ 48.20	5354.04	\$ 258,064.73
Iowa Public Works Service Bureau Bid Tabulation Report	1020-J	SUBBASE, GRANULAR, 6"	SY	\$ 10.75	5354.04	\$ 57,555.93
Iowa Public Works Service Bureau Bid Tabulation Report	9010-A	CONVENTIONAL SEEDING, SEEDING, FERTILIZING, AND MULCHING. 1	Acre	\$ 2,451.62	1.405	\$ 3,443.63
Pilot Rock RJ Thomas Mfg. Co.	N/a	*100% RECYCLED PLASTIC BENCH - WITH BACKREST. RBB SERIES. (FULLY INSTALLED)	EA	\$ 1,000.00	2	\$ 2,000.00
RS Means Heavy Construction Costs	32 17 23.13 0604	ACRYLIC WATERBORNE, WHITE, 12" WIDE, LESS THAN 3,000-16,000 LF	LF	\$ 1.60	2886	\$ 4,617.60
Iowa Public Works Service Bureau Bid Tabulation Report	8020-K	PAVEMENT MARKINGS REMOVED	STA	\$ 10.78	3.62	\$ 39.02
Iowa Public Works Service Bureau Bid Tabulation Report	8020-G	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EA	\$ 102.40	4	\$ 409.60
Iowa Public Works Service Bureau Bid Tabulation Report	8020-L	SYMBOLS AND LEGENDS REMOVED	EA	\$ 88.33	4	\$ 353.32
Traffic Safety Corp	N/a	BULLDOG III PUSH-BUTTON STATIONS	EA	\$ 3,000.00	6	\$ 18,000.00
Total						\$ 358,352.71

Footnote:

*Unit Price for 100% Recycled Plastic Bench – with Backrest. RBB Series. (Fully Installed) includes excavation costing \$4.06, 6' x 4' - 6" PCC pad costing \$128.53, 6' x 4' - 6" granular subbase costing \$28.67, and 100% Recycled Plastic Bench – with Backrest. RBB Series. costing \$667 with an approximate \$175 installation fee, making the total unit cost in the bid item cost breakdown approximately \$1,000

Broadway Street Trail Cost Estimate

Broadway St. Trail

Reference	Item Code	Bid Item Description	Unit	Unit Price	Quantity	Cost
Iowa Public Works Service Bureau Bid Tabulation Report	2010-B	CLEARING AND GRUBBING	Acre	\$ 7,102.73	0.727	\$ 5,160.17
Iowa Public Works Service Bureau Bid Tabulation Report	1020-E	EXCAVATION, CLASS 10, CLASS 12, OR CLASS 13	CY	\$ 8.12	83.23	\$ 675.83
RS Means Heavy Construction Costs	G1030 115 1000	CUT & FILL COMMON EARTH	CY	\$ 10.56	55.61	\$ 587.24
Iowa Public Works Service Bureau Bid Tabulation Report	7030-C	SHARED USE PATH, PCC, 6"	SY	\$ 48.20	3189.54	\$ 153,735.83
Iowa Public Works Service Bureau Bid Tabulation Report	1020-J	SUBBASE, GRANULAR, 6"	SY	\$ 10.75	3189.54	\$ 34,287.56
Iowa Public Works Service Bureau Bid Tabulation Report	9010-A	CONVENTIONAL SEEDING, SEEDING, FERTILIZING, AND MULCHING. 1	Acre	\$ 2,451.62	0.727	\$ 1,781.11
Pilot Rock RJ Thomas Mfg. Co.	N/a	100% RECYCLED PLASTIC BENCH - WITH BACKREST. RBB SERIES. (FULLY INSTALLED)	EA	\$ 1,000.00	0	\$ -
RS Means Heavy Construction Costs	32 17 23.13 0604	ACRYLIC WATERBORNE, WHITE, 12" WIDE, LESS THAN 3,000-16,000 LF	LF	\$ 1.60	1768	\$ 2,828.80
Iowa Public Works Service Bureau Bid Tabulation Report	8020-K	PAVEMENT MARKINGS REMOVED	STA	\$ 10.78	0.84	\$ 9.06
Iowa Public Works Service Bureau Bid Tabulation Report	8020-G	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EA	\$ 102.40	3	\$ 307.20
Iowa Public Works Service Bureau Bid Tabulation Report	8020-L	SYMBOLS AND LEGENDS REMOVED	EA	\$ 88.33	3	\$ 264.99
Traffic Safety Corp	N/a	BULLDOG III PUSH-BUTTON STATIONS	EA	\$ 3,000.00	1	\$ 3,000.00
Total						\$ 202,637.78

Mall Trail Cost Estimate

Mall Trail

Reference	Item Code	Bid Item Description	Unit	Unit Price	Quantity	Cost
Iowa Public Works Service Bureau Bid Tabulation Report	2010-B	CLEARING AND GRUBBING	Acre	\$ 7,102.73	0.058	\$ 413.67
Iowa Public Works Service Bureau Bid Tabulation Report	1020-E	EXCAVATION, CLASS 10, CLASS 12, OR CLASS 13	CY	\$ 8.12	6.28	\$ 50.99
RS Means Heavy Construction Costs	G1030 115 1000	CUT & FILL COMMON EARTH	CY	\$ 10.56	5.19	\$ 54.81
Iowa Public Works Service Bureau Bid Tabulation Report	7030-C	SHARED USE PATH, PCC, 6"	SY	\$ 48.20	200.58	\$ 9,667.96
Iowa Public Works Service Bureau Bid Tabulation Report	1020-J	SUBBASE, GRANULAR, 6"	SY	\$ 10.75	200.58	\$ 2,156.24
Iowa Public Works Service Bureau Bid Tabulation Report	9010-A	CONVENTIONAL SEEDING, SEEDING, FERTILIZING, AND MULCHING. 1	Acre	\$ 2,451.62	0.058	\$ 142.78
Pilot Rock RJ Thomas Mfg. Co.	N/a	100% RECYCLED PLASTIC BENCH - WITH BACKREST. RBB SERIES. (FULLY INSTALLED)	EA	\$ 1,000.00	0	\$ -
RS Means Heavy Construction Costs	32 17 23.13 0604	ACRYLIC WATERBORNE, WHITE, 12" WIDE, LESS THAN 3,000-16,000 LF	LF	\$ 1.60	248	\$ 396.80
Iowa Public Works Service Bureau Bid Tabulation Report	8020-K	PAVEMENT MARKINGS REMOVED	STA	\$ 10.78	0.84	\$ 9.06
Iowa Public Works Service Bureau Bid Tabulation Report	8020-G	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EA	\$ 102.40	0	\$ -
Iowa Public Works Service Bureau Bid Tabulation Report	8020-L	SYMBOLS AND LEGENDS REMOVED	EA	\$ 88.33	0	\$ -
Traffic Safety Corp	N/a	BULLDOG III PUSH-BUTTON STATIONS	EA	\$ 3,000.00	0	\$ -
Total						\$ 12,892.30