



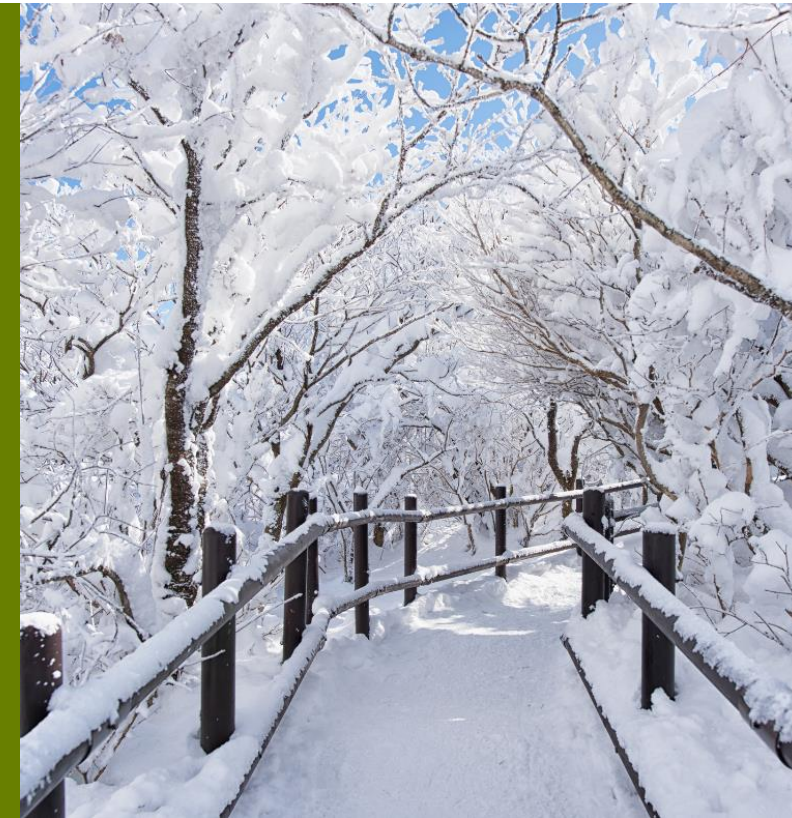
Sunflower Foundation



Trail Talk Tuesday:

Let's Get Started!

December 12, 2023



K-STATE
Research and Extension

Mike Goodwin

Surface Trail Types, Costs

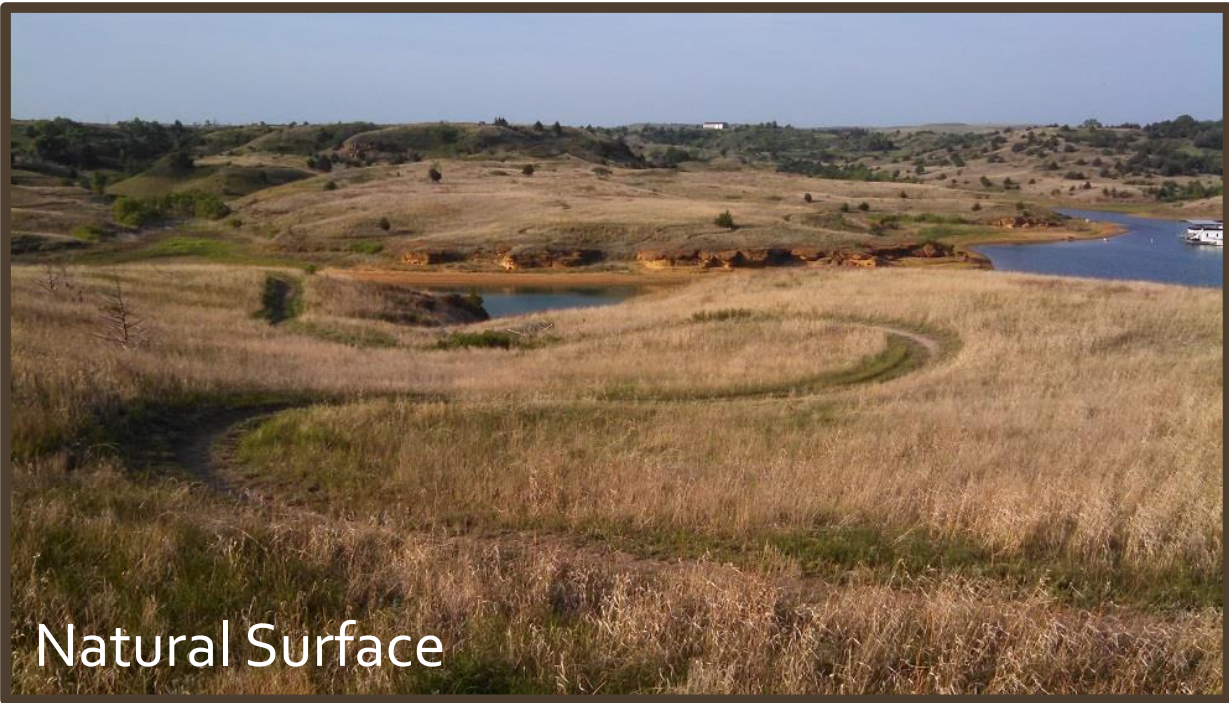
Trail in a Box



What will it cost – Surface Type?

Mike Goodwin

- Natural – dirt is free! Mostly labor.
- Gravel/Screenings - \$15,000 to \$30,000 per mile plus excavation
- Recycled asphalt or concrete – sometimes free from local road department
- Asphalt - \$150,000 to \$300,000 per mile – depending on width, terrain, soils
- Concrete - \$300,000 to \$600,000 per mile - depending on width, terrain, soils
- **Every trail project is unique – hard to generalize costs/mile**



Natural Surface



Gravel



Concrete

What will it cost?

- Natural Surface – dirt is free!
 - Specialized tools and equipment
 - Mostly labor
 - Culverts
 - Bridges
 - Armoring



Mike Goodwin



What will it cost?

Mike Goodwin

Trail in a Box

All the tools and equipment you need to build natural surface trails

For more information and applications go to:

kansastrailscouncil.org/about/trail-in-a-box/



Trail Building Metrics - Dirt Tread Work

Data Input	
Benchmark treadwork for easiest conditions	
1 Distance completed (Feet)	200
2 Time (Minutes)	100
3 Completion rate (Feet / Minute)	2.0
4 Difficulty level	3.0
5 Distance to complete (feet)	5,280
6 Minutes to complete	2,640
7 Hours to complete	44.00
8 Fatigue adjustment	1.50
9 Difficulty level adjustment	1.50
10 Total hours to complete	99.00
11 Hours per day	6
12 Days to complete for one person	16.50
13 Crew size	4
14 Days to complete for crew	4.13
15 Cost (or value) per hour for crew	\$ 20.00
16 Total cost to complete	\$ 1,980
17 Cost per mile	\$ 1,980

Notes:	
1,2	Site specific metrics for one person in easiest conditions and assumes the corridor is clear and ready for dirt work
4	1=sandy; 2=sandy, vegetation, rocks; 3=clay; 4=clay, vegetation, rocks; 5=deep benchcutting
8	This factor is unrelated to the difficulty level. It simply represents the decrease in output/hour which typically declines after two hours of work

If you'd like a copy of this spreadsheet just email us at: info@kansastrailsCouncil.org

What will it cost – Gravel/Screenings?

- Grades are crucial for durability (ADA)
- Aggregate Base (AB₃) – at least 3"
- Screenings with fines – at least 3"
- Dumped vs Spread
- Calcium Chloride to bind screenings
- Compaction – Roller
[or track machines, rain, heat, time]



Gravel/Screenings: How much material do I need?

Gravel/Screenings

	Gravel	Screenings
Length (Feet)	5,280	5,280
Width (Feet)	10	10
Depth (Inches)	3	3
Cubic Yards [Length x Width x (Depth/12) / 27]	489	489
Tons [CY x 1.5]	733	733
\$/Ton	\$ 20.00	\$ 15.00
Cost	\$ 14,667	\$ 11,000

Measurements



Cubic Yards



Convert to tons



What will it cost – Recycled Materials?

Concrete

Asphalt



What will it cost – Hard Surface?

- Above grade – no excavation
- Flush – excavation required – soils, rock, terrain
- Width – At least 6' for ADA, most are 8' – 10'
- Depth – 4" for people - 6" for vehicles
- **Local contractors and trail design**

What will it cost - Asphalt?

Limited life

Cracking

Less expensive than concrete

Available machines?



What will it cost - Concrete?

- Longest Life
- Most durable
- Most expensive



What will it cost - Concrete?

	<u>ITEM</u>		<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization		1	L.S.	\$60,000.00	\$60,000.00
2	Clearing and Grubbing	\$3.20 / SF	1	L.S.	\$15,000.00	\$15,000.00
3	Common Excavation		2000	C.Y.	\$30.00	\$60,000.00
4	Sidewalk Construction (4")(AE)	\$11.50 / SF	4550	S.Y.	\$75.00	\$341,250.00
5	Sidewalk Construction (6")(AE)		75	S.Y.	\$105.00	\$7,875.00
6	Drainage Piping		300	L.F.	\$130.00	\$39,000.00
7	Kiosk		2	Each	\$5,000.00	\$10,000.00
8	Pedestrian Bridge		1	L.S.	\$85,000.00	\$85,000.00
9	Lighting & Electrical		1	L.S.	\$110,000.00	\$110,000.00
10	Fencing		1	L.S.	\$23,000.00	\$23,000.00
			TOTAL CONSTRUCTION COSTS			\$751,125.00

Other Costs?

- Signage
- Kiosks
- Lighting
- Bridges
- Culverts



Jeff Bender

Bridges and Culverts





Drainage Structures:

- Ditches
- Pipes
 - steel/iron
 - concrete, clay
 - plastic
- Boxes
- Bridges



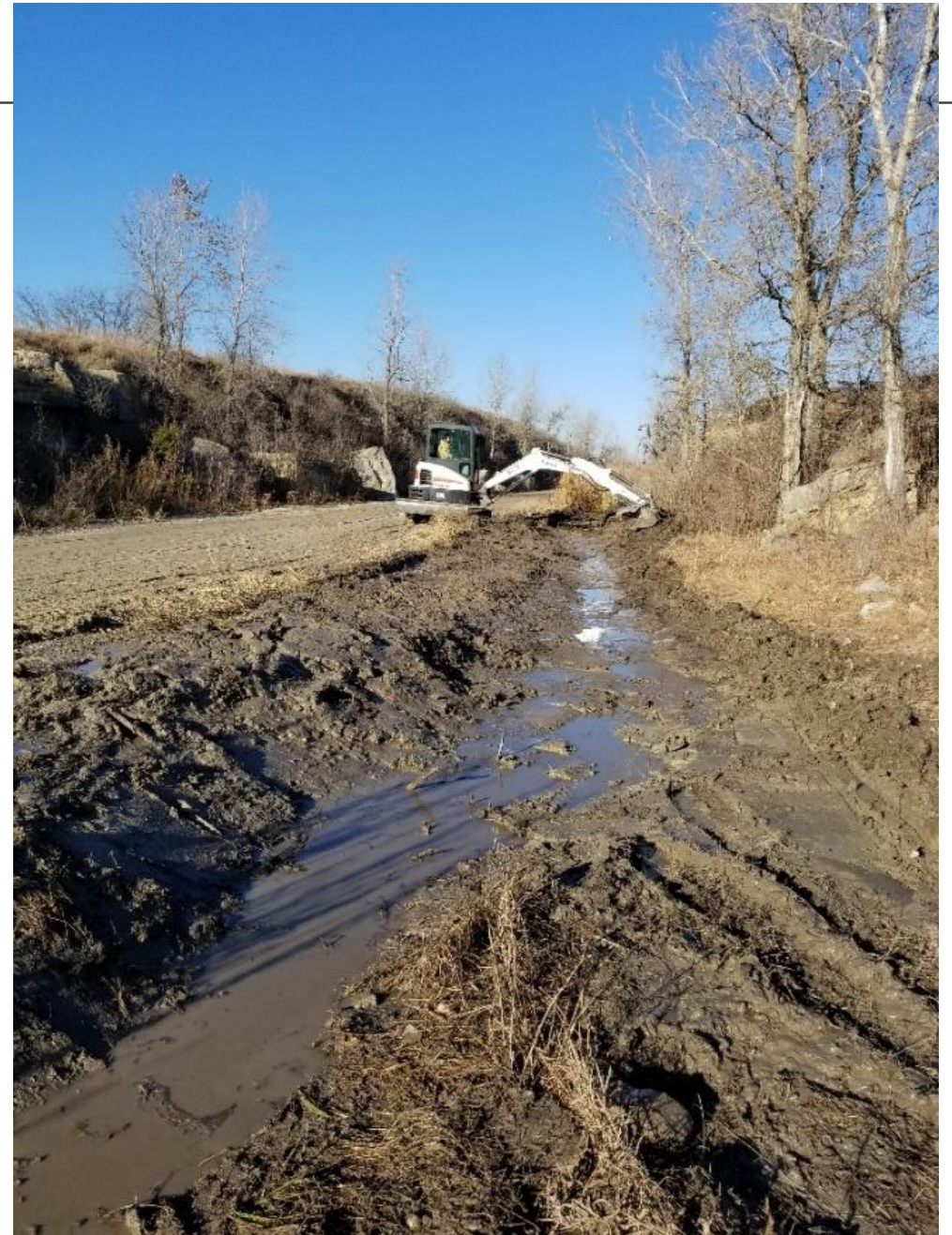
Water Wins.

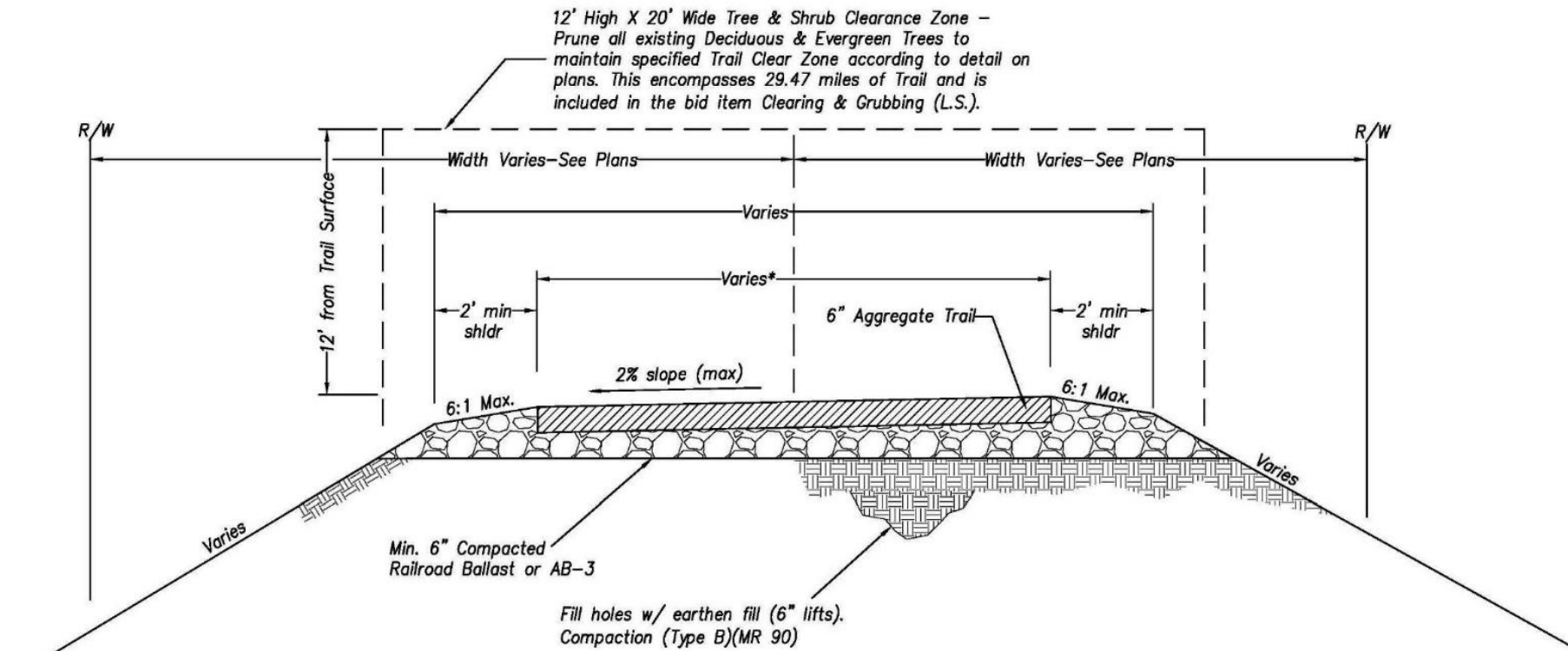


Ditches (on rail-trails)

Ditches

Have ditches for positive drainage
Or elevated trail surface





TYPICAL LIMESTONE SCREENING TRAIL CROSS SECTION

Pipes and Boxes that have failed

Debris piles = holes in pipes

Cracks/ holes in RCB



Pipes

Look for over-topping.

Keep same size if not over-topped.

Bed-into ground with dirt, not gravel.

Use END SECTIONS to prevent erosion!

Riprap at least on outflow side.



RCB's= Reinforced Concrete Boxes



Box Culverts

- Cracks, holes, broken concrete, apron missing or gone
- Long enough for safe shoulders? Does it need safety railings?



Bridges:
20' and over

Wood

Steel

Concrete

Aluminum

Fiberglass



Existing Bridges



Planning & Design

Sound engineering

AASHTO standards

ADA

Accessibility Standards

Max 5% grade

Max 2% cross slope

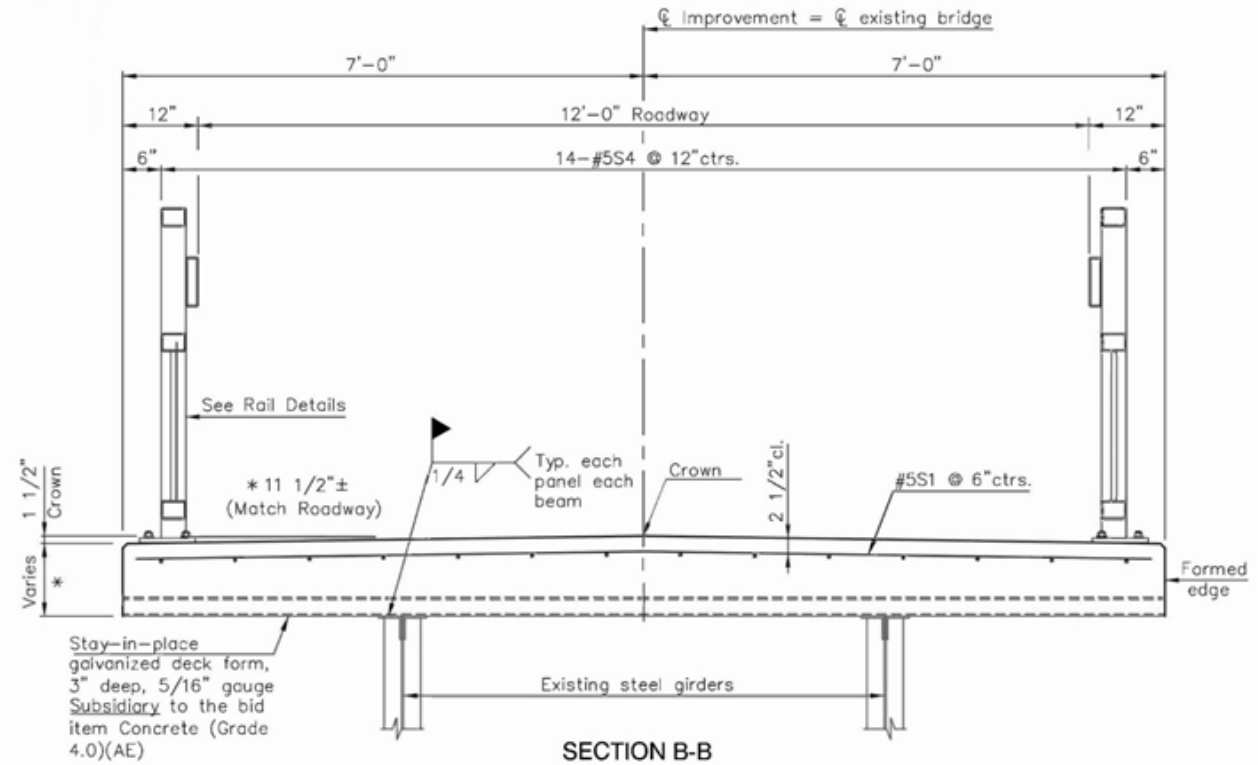
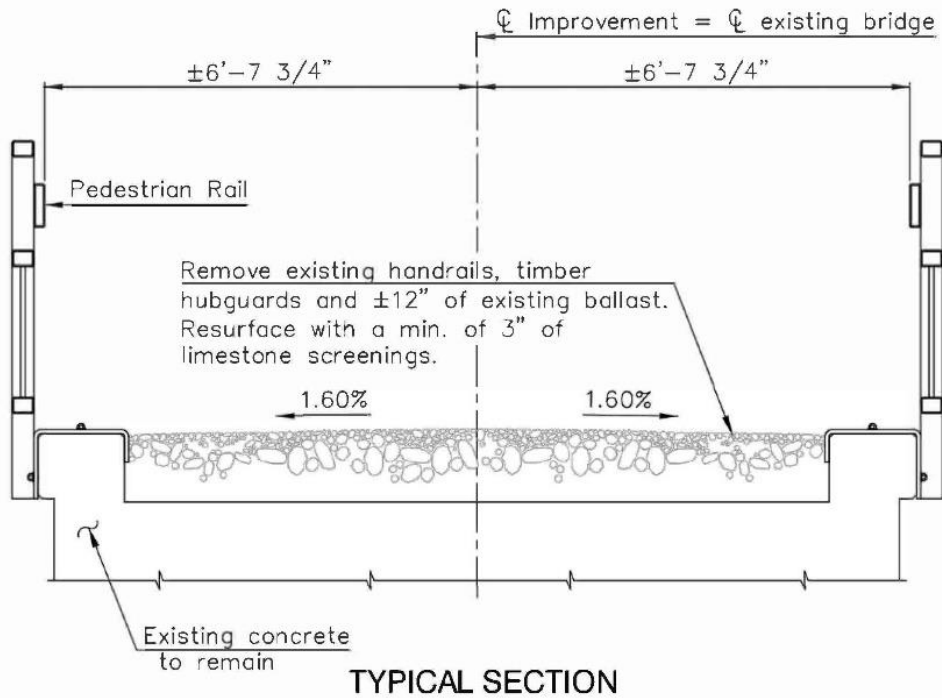
MUTCD

Sign standards and placement

Maintenance considerations

Emergency access considerations





Ottawa: Marais Des Cygnes Bridge



Ottawa: Marais Des Cygnes Bridge



FHT: Bridge Improvements



Phase Implementation: Bridges



Bridges with gabion abutments



Implementation: Surfacing and Highway Crossing



Trailhead Improvements

Crossings, Gates, Bollards

Trailhead Improvements:

Restrooms

ADA parking & accessible route

Water service

Electric service

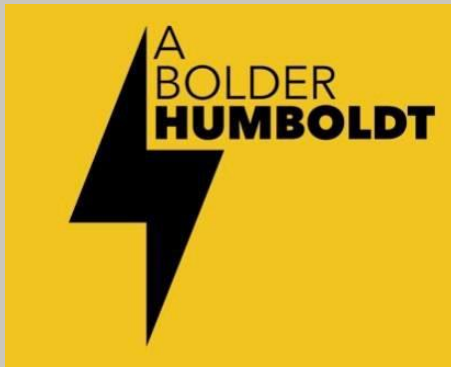
Information kiosks

Bike fix-it stations

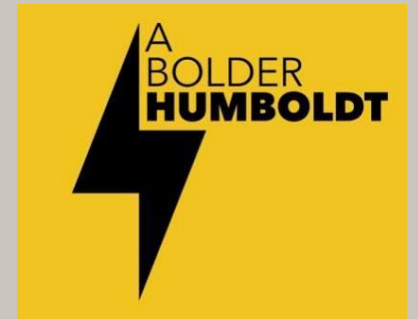


Damaris Kunkler

Working with Engineers



The Last Mile



Finding Engineers:

- **Ask your resources:** Check [KDOT's Pre-Qualified Consultants](#)
- **Networking:**
Attending the Kansas Department of Wildlife for trails grant got us a contact with K-State.
- Setting multiple meetings to find the right fit. We met with three engineers and are working with Wilson & Co.

Know Kansas Trail Grants and Funders:



Sunflower Foundation



Health Forward
FOUNDATION

Why was it so important?

The Last Mile Trail would directly connect the 61-mile rail trail system to our downtown, connecting 40+ daily life needs, amenities, and businesses. Such as:

Grocery Store, Fitness Center, Largest Employer, Churches, Restaurants, Parks, Retail Shopping, Gas Stations, Dr. Offices and Pharmacy, Lodging, City Hall, Post Office, School District, Liquor Store, Entertainment, and Nightlife.

A Bolder Humboldt Projects:

Checkout the link below:

[A Bolder Humboldt](#)

Damaris Kunkler

damaris@abolderhumboldt.com

Elizabeth Burger

Advice from Engineers



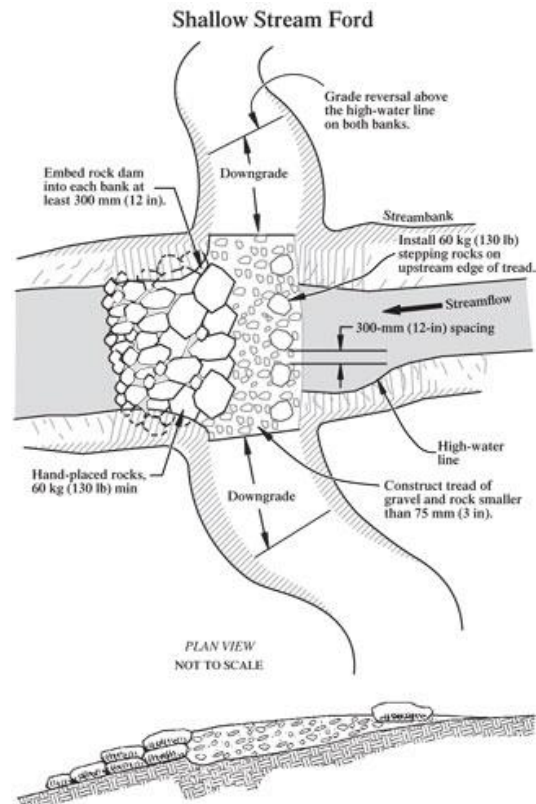
Sunflower Foundation



Demystifying the Engineer Conversations

Tell THEM what you want in a trail – don't expect them to tell you. Include the following:

- Trail type, intended users and purpose
 - Understand life-cycle costs (upfront costs vs ongoing maintenance).
 - Public-use trails carry a higher level of liability, so risk mitigation is important part of engineer's work.
- Estimated budget
 - Are you seeking grants and other support? Engineers can help with data, advocate for your project, and may know of other funding opportunities.
- Clarify Roles of all Parties
 - Landowner/manager (e.g., city)
 - Which entity will work with engineers
 - Will volunteers help build the trail?
 - Have a central point of communication.

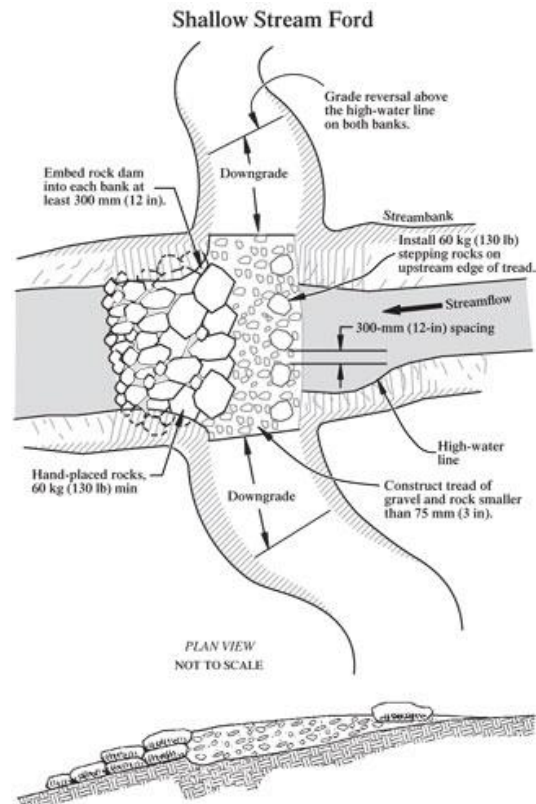




Demystifying the Engineer Conversations

Vetting an engineer firm

- Ask them about experience/knowledge of trails, ask to see trail examples. You want a firm that can think creatively within the framework set by funding and liability.
- Ask about experience with trail grants and other funding opportunities. Have they helped communities secure additional funding and how?
- Ask about ability to provide different options on price, based on expected effort, amount of design and liability (rather than just dollars). Understand that trail grants with federal dollars attached carry a far higher standard for liability.





kshub.org

The Build Kansas Matching Fund (Build Kansas Fund) will provide state matching dollars for projects throughout Kansas that successfully apply for Federal grants under the Bipartisan Infrastructure Law (BIL).

- The intent of the Build Kansas Fund is to accelerate local infrastructure investment to support transformative community projects enabling Kansas communities to move forward with infrastructure projects.
- The Build Kansas Fund can provide **up to \$200M in state matching dollars** to Kansan entities to apply for and achieve federal local match requirements until the fund has been fully expended.
- Applications for local match funding assistance will be accepted on a rolling basis over the next 4 years, until all funds are committed or the Fund expires June 30, 2027.

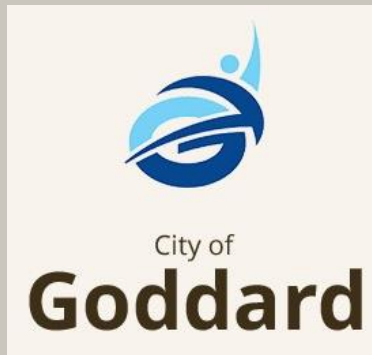
*Many thanks to Dan Holloway, P.E. with
CFS Engineers for this information!*



Craig Crossette

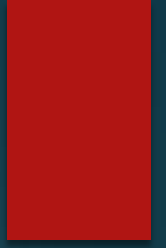
Amenity Costs:

Kiosks, Signage, Benches, etc.



Trail Talk: COSTS

CRAIG R CROSSETTE,
City Administrator
Goddard, KS



Active Lifestyle Opportunities =

Positive Healthcare outcomes

Community connectedness

Economic Vitality



Community Involvement

Community Visioning Sessions

Survey

“Walkie Talkies”



Amenity Selection

Start with the basics (benches/trashcans/doggie bag stations)

Dirt path → asphalt millings → concrete

Create a multi-year budget for capital expenses

GRANTS/PRIVATE BUSINESS DONATION/IN-KIND LABOR



TRAIL BEST PRACTICES

Bernsten Trail Markers

Wayfinding Signage

Kiosks



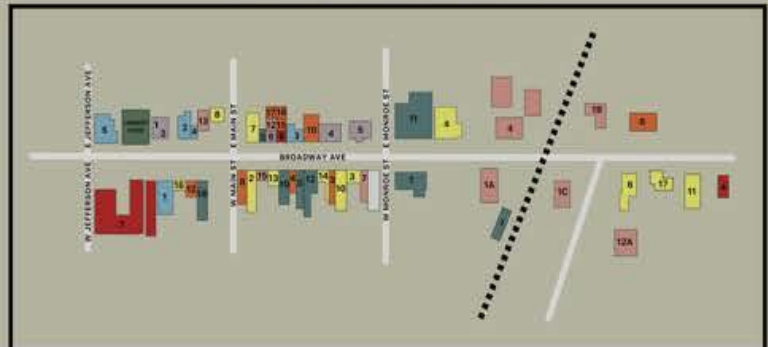
THE CITY OF STERLING • KANSAS

- FOOD & SHOPPING**
 1. CASEY'S
 2. ALL CARED UP
 3. OLIVE'S BAKERY COFFEE AND BAKERY
 4. DILLON'S GROCERY STORE
 5. DOLLAR GENERAL
 6. DOS AMIGOS
 7. DOUBLE SHOT LIQUOR
 8. GAMING'S PIZZA
 9. SONIC
 10. STERLING CAFE
 11. STERLING BOWL
 12. SUBWAY
 13. SUGAR CHOC ROUTIQUE
 14. THE FLOWER SHOP ON BROADWAY
 15. TABLE COFFEE ROASTERS
 16. TMT DAIRYLAND
 17. HANGER BOUTIQUE
 18. TENTH STREET ORCHARD
 19. STERLING AMERICAN LEGION
- HEALTH & BEAUTY**
 1. ADVANCED PHYSICAL THERAPY
 2. ANK VETERINARY CLINIC
 3. OC TIME BARBER SHOP
 4. BELLA VITA SALON
 5. BRIZER-SILIN FUNERAL HOME
 6. CORDELL CHIROPRACTIC
 7. HINSHAW DOUGLAS E DDS
 8. RYATT LIFE SCIENCE
 9. AB'S BARBERSHOP
 10. STERLING PHARMACY
 11. SALEX CHIROPRACTIC
 12. SHINE SALON
 13. STERLING MEDICAL CENTER
 14. STERLING VILLAGE
 15. STUDIO M SALON
 16. STERLING EMS
 17. HEALING MECHANIC
 18. PIVOTAL POINT FAMILY THERAPY LLC
- HOME & AUTO**
 - 1A. CENTRAL PRAIRIE MAIN OFFICE
 - 1B. CENTRAL PRAIRIE CO-OP GAS STATION
 - 1C. CENTRAL PRAIRIE CO-OP ELEVATOR AND FEED STORE
 2. COACH LITE CAR WASH
 3. FERRELL GAS
 4. HOME LUMBER & SUPPLY
 5. HOOD CONSTRUCTION
 6. JEREMY'S PAINT & BODY SHOP
 7. ALEX KEY AND SECURITY
 8. MAA PROPERTY MANAGEMENT
 9. OUTLAW SHOP, REPAIR
 10. PEACE VALLEY CONSTRUCTION
 11. PRESCRIPTION DIESEL
 12. BENNETT INSULATION AND STORAGE
 - 13A. BENNETT STORAGE UNITS
 - 13B. WALTON PLUMBING
 14. SILVER THREADS
- BUSINESS & INDUSTRY**
 1. BUSH, BUSH, & SHAMELO LAW OFFICE
 2. CENTURYLINK
 3. EMPORIUM
 4. GENZADA LAB
 5. IMADINEIT
 6. JACAM
 7. JACAM CATALYST
 - 7A. JACAM CHEMICALS
 8. KMW
 9. OBSERVANT MEDIA
 10. RANDALL C. HENRY LAW OFFICE
 11. STERLING SERVICES
 12. STUDIO DE
 13. SUPERIOR SAND
 14. MTC
 15. UNITED INDUSTRIES
 16. LAKEWOOD STORAGE
 17. LUKE DESIGN AND BUILD
 18. STERLING BULLETIN
 19. NOVY OIL
- CITY OFFICES**
 1. FIRE DEPARTMENT
 2. POLICE DEPARTMENT
 3. POST OFFICE
 4. STERLING CITY HALL
 5. STERLING FREE PUBLIC LIBRARY

- HOUSING**
 1. COUNTRY INN MOTEL
 2. 1848 STREET COTTAGE BED AND BREAKFAST
 3. PUBLIC HOUSING AUTHORITY
 4. STERLING LAKE HOUSE BED AND BREAKFAST
 5. 7TH STREET CHALLET
- BANK & INSURANCE**
 1. BANK OF THE PLAINS
 2. ALDEN STATE AGENCY LLC
 3. FARM BUREAU INSURANCE
 4. FIRST BANK
 5. FIRST GROUP INSURANCE
 6. MISHLER ACCOUNTING
- RELIGION**
 1. GALLERY BAPTIST CHURCH
 2. CROSSPOINT STERLING
 3. ENCOUNTER CHURCH
 4. STERLING CHURCH OF CHRIST
 5. STERLING REFORMED PRESBYTERIAN CHURCH
 6. THE LIGHT POST
 7. UNITED METHODIST CHURCH
 8. UNITED PRESBYTERIAN CHURCH OF STERLING
 9. ISAM AMERICA



THE DOWNTOWN CORRIDOR



COSTS/Funding Sources



- ▶ KDOT: Transportation Alternatives Program (\$300,000)
- ▶ Sunflower Foundation: Trails (\$55,000)
- ▶ KDHE: Healthy Living (\$3,000)
- ▶ Kansas Department of Wildlife Parks and Tourism: CFAP (\$40,000)
- ▶ KDOC: HEAL (\$75,000)
- ▶ KDOC: Attraction Devp Grants (\$80,000)
- ▶ Community Partnerships (Active Sterling Committee) (small awards)



Contact:
Craig R Crossette, City Administrator
ccrossette@goddards.gov
316-794-2441

The Trails Capacity Program

Funds projects that strategically improve the abilities and capacity of the trails community as a whole.

Trail Maintenance

Volunteers build and maintain trails!

Stewardship Training

Puts limited dollars to effective use by training the next generation of trails stewards.

Research and Education

Informs strategic training and stewardship.



- * Application portal is open NOW
- * Deadline for submissions: January 15, 2024
- * Funding available March 2024
- * Awards range from \$5 to \$10K
- * ALL types of trails are eligible
- * Applicants: nonprofits or local governments
- * No match required (but encouraged)

<https://www.americantrails.org/the-trails-capacity-program>





Sunflower Foundation

October 10
November 14
December 12
January 9
February 13
March 12

Where do we start?
Let's get started!
What will this cost?
Where will we find the money?
Trail sustainability
Rail trail issues

2nd Tuesday, Noon-1 pm CT

