

TIMBER BRIDGES

Why local road agencies should
consider their use.

POSSIBLE FUNDING SOURCES

- USDA
- USFS
- TRIBAL
- LOCAL GOVERNMENTS
- CONSERVATION GROUPS
- MDOT
- MDNR

THINGS TO CONSIDER

- STREAM BANK FLOW WIDTH
- SOIL CONDITIONS
- AESTHETICS
- USE
- NATURAL RIVERS—FUNDING SOURCE
- UTILIZE OWN FORCES TO CONSTRUCT

EQUIPMENT NEEDED IF DOING THE BRIDGE IN-HOUSE

- EXCAVATOR
- CRANE—WITH PILE DRIVING EQUIPMENT
- SKYTRAK
- AIR COMPRESSOR—JACK HAMMER
- GAS DRILLS
- LADDERS/SLEDGE HAMMERS/PRY BARS..ETC.

THESE NEXT (5) BRIDGES WERE
CONSTRUCTED IN (10) WEEKS USING
IN-HOUSE EMPLOYEES

USFS WITH ROAD COMMISSION
WROTE GRANT TO USDA TO FUND
THESE BRIDGES. THE GRANT CAME IN
SECOND WEEK OF JULY AND GRANT
CYCLE ENDED SEPTEMBER 31ST.



BOSSCHEM ROAD NORTH

20 FOOT LONG 28 FOOT WIDE



BOSSCHEM ROAD SOUTH

24 FOOT BRIDGE 28 FOOT WIDE ON 15 DEGREE SKEW



PINE LAKE ROAD

14 FOOT LONG 24 FOOT WIDE



PINE LAKE SNOWMOBILE TRAIL

14 FOOT LONG 16 FOOT WIDE



WARFIELD ROAD

30 FOOT LONG 28 FOOT WIDE

THINGS LEARNED ALONG THE WAY

- Vibratory pile driver is simpler and way faster
- Complete slope restoration prior to install of panels
- Spreader beams get installed after first two panels are in place per section
- Jack hammer with nut driver head will speed up nail installation
- Gas drills are a life saver
- Utilize 2x4's on each side of pile rows to guide chainsaw. Makes perfect cuts.



WARFIELD ROAD

40 FOOT LONG 28 FOOT WIDE

COORDINATE WITH UTILITIES TO MAKE CONDUIT RACEWAYS



OLD STRONACH ROAD

110 FOOT LONG 32 FOOT WIDE

4% SLOPE, 15 DEGREE SKEW AND 3% DOWN GRADE





**BRIDGE IS STABLE ENOUGH TO LOAD DURING
CONSTRUCTION**



SLOPES ARE COMPLETED PRIOR TO DECK INSTALL



COMPLETED WITH VEGETATION GROWING

IN-HOUSE SAVINGS

- Reduced engineering costs
- In-kind labor and equipment
- Limited costs for advertisement
- Limited or no program application process
- Reduced overhead and profit costs
- Can construct at optimum times. ie: weather, school year, seasonal slow time for employees
- Easier to do repairs

IN-HOUSE

- PROS

- Reduced costs
- Control on timeline
- Less Inspections
- Self pride
- Utilize savings for other maintenance activities
- “FUN!!!”

- CONS

- Takes employees away from maintenance duties
- May not have specialized equipment
- Chemical irritation to skin for some employees
- Lack of knowledge of construction can make very costly mistakes

TIMBER -VS- CONCRETE

- TIMBER

- Less expensive on shorter bridges
- Can be constructed in any weather
- Aesthetically pleasing in most environments
- Quicker construction time
- Damaged parts can be repaired typically easier and cheaper

- CONCRETE

- Stronger
- Longer spans possible
- No odors
- More readily acceptable by MDOT
- Can be stained to numerous colors

HOW TO REPAIR AND MAINTAIN

- Damaged guardrail sections can be unbolted and repaired relatively easy
 - Unbolting guardrail sections with impact tools
 - Curb section will need $\frac{3}{4}$ bolt welded to spiral nails and impact driver will back out the long nails
- Damaged panels can also repaired
 - Backhoe will scrape asphalt from surface
 - 1 inch bolts can be welded to spiral nails and impact driver will back out the long nails
 - $\frac{3}{4}$ inch nuts welded to seam nails will be needed on smaller nails
 - By placing lift rings through previous predrilled lift holes you can lift damaged panels and place new panel and reassemble.

TO WRAP THINGS UP

- Local agencies should consider timber as an alternative for bridges
- Local agencies should consider utilizing in-house labor and equipment for construction
- Talk to counties that have constructed timber bridges and get input.
- Make sure your timber bridge provider has a certified plant treating your bridge materials

QUESTIONS ??