

Paint Creek Trailway Bridge 33.7 Renovation Maintenance Plan (March 5, 2016)

The proposed precast concrete arch bridge is a single span, 60-foot long, 14-foot wide, 3-sided or arch segmental precast concrete culvert (each segment is six feet wide). The superstructure consists of a precast concrete arch that will be filled with structural granular backfill. Since this type of structure is earthen backfilled over the arch, the trailway surface will be placed to match the existing aggregate trail. The arch is supported by concrete footings and precast wingwalls. 54"- tall weathered steel pedestrian railings will be integrated across the bridge.

Expected life of precast concrete arch would be 50 years. This bridge requires almost no maintenance during the life of the bridge.

Current Maintenance Budget

Oakland Township’s Parks and Recreation Parks and Recreation millage funds the improvements, operation and maintenance of the 5+ miles of the Paint Creek Trail that are located in Oakland Township. Oakland Township's 2016/2017 Parks and Recreation Millage budget for these services will total \$44,200 plus \$36,500 is also being reserved from this budget each year in preparation for the 2018/2019 resurfacing of the entire Paint Creek Trail.

Annual Maintenance Schedule and Costs for Bridge 33.7 Renovation

TASK NAME	FREQUENCY	ANNUAL STAFF TIME	EQUIPMENT/MATERIALS COST	COMMENTS
Inspection	monthly	12 hours staff time 1 person		Inspect entire bridge including footings
Remove Debris	spring and fall	6 hours staff time 1 person		Removal of sediment, vegetation, or debris.
Graffiti Removal and Superstructure Washing	on demand	varies depending on conditions		Weathered railings would need to be power washed
Grading and Replenishment of Limestone Surface	spring and fall	6 hours staff time 1 person	\$250.00 for limestone delivered	
Vegetation Removal	Spring and fall	8 hours staff time 1 person	Chainsaw / chipper \$300.00	Removal of brush around each approach and foundation
TOTALS		\$522.24	\$550.00	GRAND TOTAL <u>\$1,072.24</u>

Additional Inspection/Rehabilitation Costs

TASK NAME	FREQUENCY	ANNUAL STAFF TIME	EQUIPMENT/MATERIALS COST	TOTAL COST DURING 50 YEARS
National Bridge Inspection for Structural Safety	Every 5 Years	Performed by Structural Engineer	\$2000	\$20,000
Seal Concrete crack/joints and Patching	Every 5 Years	Performed by Masonry Contractor	\$1000	\$10,000
Place Rip Rap at Abutments and Wingwalls	Every 8 Years (or as necessary)	Performed by Excavation Contractor	\$6,000	\$0 - \$48,000
Maintenance Painting of Weathered Steel Railing in Corrosive Areas	Every 10-20 years	Performed by Staff or Painting Contractor	\$3000	\$6,600 - \$15,000
TOTAL 50-Year COSTS				<u>\$36,600 - \$93,000</u>

Total Life Cycle Cost Estimate

TASK NAME	FREQUENCY	ANNUAL STAFF TIME	EQUIPMENT/MATERIALS COST	TOTAL LIFE CYCLE COST DURING 50 YEARS
Design/Construction	Once			\$756,200
Annual Maintenance	Annual	\$523	\$550	\$53,650
Inspection/Rehabilitation	As Necessary			\$36,600 - \$93,000
TOTAL 50-Year COST				<u>\$846,400 - \$902,850</u>