

Benefit-Cost Analysis: Methodology and Assumptions

Analysis Period

The Benefit-Cost analysis period is 18 years beginning in 2022 through 2040. The majority of the preservation activities will extend the service life of the structure by 15 years after the completion of the project in 2025. More extensive superstructure repairs, such as a deck replacement or the installation of a new concrete culvert, will extend the service life of the structure by 20 years¹.

Based on the year-built of the bridge structures in the Bridge Project four bridges (24%) were built between 1960 and 1969; five bridges (29%) were built between 1970 and 1979; seven bridges (41%) were built between 1980 and 1989; one bridge (6%) was built after 1990². This data indicates that 53% of the bridges built from 1960 to 1979 have already exceeded or are soon to reach the end of their service life of 40 to 50 years³; the remaining 47% of the bridges will be approaching the end of their service life within the next ten to fifteen years. Refer to the MDOT SHA Structures Asset Management (SAM) on Exhibit 21 for supporting data.

The project preliminary design started in 2018 with the initial asset data analysis, site assessments, determination of repair priorities, development of construction documents, and cost estimates. The preliminary design was carried through 2021 and developed to the 60% Design Phase. Additional funds were allocated in 2022 by Prince George's County DPW&T to update the preliminary documents with the latest condition rating for the structures and to prepare the design documents for the Bridge Grant Application. The project construction is estimated to be completed in 2025, thus resulting on a 15-year period after the initial project investment is made to realize the whole benefits of the project at the local level, and consequently across the entire community of Prince George's County.

The residual value of the preservation work beyond the analysis period, computed as the expected service life minus the analysis period, will be discounted at its present monetized value for the last year of the analysis period⁴.

$$\text{Project Value per Year} = \text{Total Investment} / \text{Years of Service Life.}$$

$$\text{Residual Value} = [\text{Service Life} - 18] \times \text{Project Value per Year}$$

¹ FHWA Bridge Preservation Guide. 2018.

² Refer to MDOT SHA Structure Asset Management (SAM) query for bridge elements rated 5 or less. August 2022.

³ FHWA Definition of Service Life: The service life is the period for which a component, element, or bridge provides the desired function and remains in service with appropriate preservation activities. Service life of bridge components or elements is the period during which the item actually performs. The service life of a bridge and components in good to fair condition can be extended with cyclical and/or condition-based PM activities. Bridge Preservation Guide. 2018.

⁴ USDOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs. March 2022.

Alternative 1 – No-Build (Baseline)

This alternative includes the minimal cost of operations and maintenance (O&M) for the structure to keep it open for traffic and in a safe condition for the travelling public. O&M includes activities such as debris removal, snow removal, and minor holding repairs which do not improve the condition rating of the bridge elements.

COSTS:

Alternative 1 - Operating and Maintenance (O&M)

Based on the 2022 Prince George's County Operating Budget, the DPW&T operating budget is \$43,351,205, of which 1% is allocated to roadway and bridge maintenance and 1/3 of that budget or approximately \$144,504 is dedicated to the maintenance of NBIS bridges. Based on the SAM query on Exhibit 21, the number of bridges with elements in condition 5 or less is 63, deriving a maintenance cost of \$2,294 per bridge structure per year. The trend on the Operating Budget was estimated at +10.9% mostly due to increase on operating cost of bus services, snow and ice control, fuel cost, and technology. For the O&M related budget, the trend will be considered equal to 0%.

Refer to Exhibit 21 for supporting data related to the Prince George's County DPW&T Operating Budget.

The Prince George's County DPW&T Operating Budget encompasses the following: Human resources, i.e., maintenance personnel, bridge program manager; and other related administrative cost, i.e., pavement and pothole repairs, trip hazard repairs, cleaning of drainage inlets, stabilization of minor erosion associated with the bridge structure, signage installation and repair, object markers, weight limit posting signs, vegetation control at bridge sites, etc.

Alternative 1 - Construction Zone Cost:

Construction zone road user cost is defined as the additional costs borne by motorists and the community at-large as a result of work zone activity. such as the user delay costs, vehicle operating costs (VOC), and emission costs. Additionally, other off-site components such as noise, business and local community impacts could also be a consequence of implementation of construction zones. These off-site impacts are hard to monetize and require in-depth analysis that are often site-specific. Based on FHWA research no generalized method or tool is yet available to determine these off-site impacts (⁵).

For the purpose of this BCA analysis, the construction zone cost includes the cost incurred by users travelling on the roadway due to the additional time necessary to traverse the work zone at the lower posted speed; it correlates the upstream and work zone speed differential and length of the work zone under both unrestricted and restricted traffic flow.

⁵ Work Zone Road User Costs. FHWA Office of Operations.

Work Zone Travel Delay Cost = Work Zone Delay Time X \$/hr value of personal travel X Number of passenger cars on personal travel

Work Zone Travel Delay Cost = Work Zone Delay Time X \$/hr value of business travel X Number of passenger cars on business travel

Work Zone Travel Delay Cost = Work Zone Delay Time X \$/hr value of trucks travel x Number of Trucks

The Value of personal travel, business travel, and truck travel are assumed as follows:⁶

Personal Travel = \$16.20/hr. Vehicle occupancy for all travels = 1.67.

Business Travel = \$29.40/hr. The distribution of personal / business travel is 88.2% personal, 11.8% business.

Trucks Travel = \$32.00/hr. Vehicle occupancy = 1.00.

Assumed Work Zone Delay Time = distance traveled /speed reduction.

Speed reduction = 10 mph (assumed reduction from 40 mph to 30 mph).

Distance traveled (mi) = Work zone length = Bridge length + Buffer length + Taper Length

Bridge Length and ADT values were obtained from the bridge SI&A data sheet. Buffer length and Taper Length are based on MDOT SHA Standard Details for maintenance of traffic Detail No. 104.02-02, 104.02-04, 104.02-08, and 104.02-10 for shoulder work, lane shift, and flagging operations on a 2-lane 2-way roadway with prevailing speed less than 40 mph. A conservative value of 1000' has been assumed for Buffer length + Taper Length at all bridge sites.

The number of users is obtained by multiplying the number of vehicles x the number of occupants, distributed by personal travel or business travel. For trucks, the number of users is directly obtained from the number of truck (occupancy factor is equal to 1.0). A growth rate of 2% on the ADT was assumed for the forecasting of travel volume beyond the ADT year from the SI&A. Refer to Alternative 2 – Bridge Preservation Construction Zone Cost for an example computation of Work Zone Travel Delay Cost.

Alternative 1 - Loss of Service

The loss of service is derived as a consequence of having loss of capacity to carry the Maryland Legal Loads. This loss in capacity is due to the deterioration of the main load carrying members to the point of partial failure or complete failure and the inability of the structure to redistribute the loading. The load posting on the structure to restrict the passage of vehicles/trucks exceeding the capacity of the bridge members constitute a direct loss of service for the facility in which the structure is located. Depending on the severity of the deterioration, the load posting and thus the loss of service can range from minor to significant to complete bridge closure. Loss of service is

⁶ USDOT benefit-Cost Analysis Guidance for Discretionary Grant Programs.

directly correlated to loss of connectivity between facility users and services, and negatively impacting the user's perception of safety. Indirectly, the loss of service negatively affects the community's economy by limiting connectivity through freight distribution routes and compounding the community's perception of economic growth. Loss of service could increase the user's travelling time and distance through alternate routes consequently increasing congestion on those detour routes.

By simple inspection, the connectivity provided by the bridges in this Bridge Project is as follows:

1. Bridge No. P-0117, Cherrywood Ln. over I-95/I-495. ADT = 9,620 vpd. ADTT = 5%. Detour length = 2 mi.⁷

Cherrywood Lane is classified as an urban local road and provides direct entrance/exit route for the Greenbelt METRO Station in Greenbelt, MD. This structure also connects the local Route 201 (Kenilworth Avenue) and local Route 193 (Greenbelt Road) to many different businesses, Springhill Elementary school, apartment buildings, Springhill Recreation Center, and Franklin Park at Greenbelt Station. Bridge No. P-0117 spans Cherrywood Lane over I-95/I-495 serving as a link between the developed areas inside and outside of the I-95/I-495 beltway.

2. Bridge No. P-0169, Contee Road over CSX. ADT = 22,202 vpd. ADTT = 5%. Detour length = 6 mi.

Contee Road connects collector Route 1 Baltimore Avenue with Route 197 Laurel/Bowie Road and provides connectivity to residential areas, supermarket, pharmacy, Lanchdale Park, St. Nicholas Catholic Church, James H. Harrison Elementary School, Maryland National Memorial, and many private businesses. Contee Road crosses the CSX Railroad which divides the area from the north to the south. The nearest railroad crossing to the north or south is approximately 1.0 mile away.

3. Bridge No. P-0185, Metzertott Road Over Paint Branch. ADT = 14,850 vpd. ADTT = 10%. Detour length = 1 mi.

Metzertott Road connects collector Route 1 Baltimore Avenue with Route 193 University Blvd E in College Park, MD. Metzertott Road is considered a bicycle-friendly road with supports bicycle traffic between the dedicated bicycle lanes along University Blvd E and the Anacostia Tributary Trail System/Paint Branch Trail. Metzertott Road provides connectivity between Acredale Community Park, College Park Dog Park, College Park North Campus Office Annex, Christian Community Church, residential areas, and private businesses.

4. Bridge No. P-0190, Sellman Road over Little Paint Branch. ADT = 5,820 vpd. ADTT = 10%. Detour length = 2 mi.

Sellman Road connects Cherry Hill Road to Montgomery Road and Rhode Island Avenue in Beltsville, MD. Sellman Road crosses Little Paint Branch and provides connectivity to the

⁷ ADT, ADTT, detour length, and load posting data was obtained from the bridge SI&A.

Beltsville Community Center, Little Paint Branch Park, park trails, walking trails along Sellman Road, Beltsville Branch Library, and residential areas.

- 5. Bridges No. P-0198031 & P-0198041, Cherry Lane over CSX RR. ADT = 10,861 Eastbound & 10,860 vpd Westbound. ADTT = 10%. Detour length = 6 mi.**
Cherry Lane connects collector Route 1 Baltimore Avenue with Route 197 Laurel/Bowie Road and provides connectivity to residential areas, Cherry Lane Business Park, Self-Storage Facilities, Bear Brach Public Storage, Autumn Lake Healthcare at Cherry Lane, and many private businesses.
- 6. Bridge No. P-0204 Ritchie Road over Southwest Branch. ADT = 22,445 vpd. ADTT = 10%. Detour length = 3 mi.**
Ritchie Road connects Route 214 Central Avenue on the north to Ritchie Marlboro Road on the south. Ritchie Road provides connectivity to Sacred Ground Praise and Worship Center, Amazon Hub Counter, Public Storage, Prince George's County Materials Recycling, and numerous residential and business areas.
- 7. Bridge No. P-0205, Walker Mill Road over Southwest Branch. ADT = 39,421 vpd. ADTT = 5%. Detour length = 3 mi.**
Walker Mill Road connects Ritchie Road on the east to Route 458 on the west. Walker Mill Road provides connectivity to Walker Mill Regional Park and trails, Woodland Wonderland Playground, Walker Mill Regional Park Community Garden, and numerous residential and business areas.
- 8. Bridge No. P-0220 Riverdale Road over Trib. To Northeast Branch. ADT = 5,000 vpd. ADTT = 10%. Detour length = 1 mi.**
Riverdale Road connects Route 201 Kenilworth Avenue on the east to Taylor Road on the west and flanked by the CSX railroad on the west. Riverdale Road crosses the Northeast Branch of the Anacostia River and the Northeast Branch Trail. Riverdale Road provides connectivity to multiple residential areas, Riverdale Elementary School, Riverdale Garden, Riverdale House Museum, Riverside Community Park and Playground, Tanglewood Park, and many residential and business areas.
- 9. Bridge No. P-0273, Carter Ave. over Amtrak Railroad. ADT = 15,218 vpd. ADTT = 10%. Detour length = 2 mi.**

Carter Avenue connects Route 450 Annapolis Road on the east to Route 564 Lanham Severn Road on the west. Carter Avenue crosses the Amtrak railroad which divides the area from north to south. Connectivity is provided to numerous private businesses, pharmacy, MARC Metro Seabrook Station and Park and Ride, Seabrook Elementary School, Seabrook Public Bus Services and bicycle access along Route 564, and residential areas.
- 10. Bridge No. P-0283, Lottsford Road over Western Branch. ADT = 18,846 vpd. ADTT = 10%. Detour length = 2 mi.**

Lottsford Road connects Route 193 - Enterprise Road on the east to Route 202 – Landover Road on the west. Lottsford Road provides connectivity to grocery stores, Enterprise Park, Enterprise Golf Course, University of Maryland Capital Region Medical Center, and numerous residential and business areas.

- 11. Bridge No. P-0294, Decatur Street over Northeast Branch. ADT = 8,680 vpd. ADTT = 25%. Detour length = 1 mile. This bridge is currently posted for 48,000 lbs./ 54,000 lbs. single/combination.**

Decatur Street connects Route 201 Kenilworth Avenue on the east to US Route 1 Baltimore Avenue on the west. Decatur road is flanked by the CSX railroad on the west. Decatur Road crosses the Northeast Branch of the Anacostia River and the Northeast Branch Trail. Decatur Road provides connectivity to multiple residential areas, Riverdale Elementary School, Riverdale Garden, Riverdale House Museum, Riverside Community Park and Playground, Tanglewood Park, and many residential and business areas.

- 12. Bridge No. P-0396, Tucker Road over Henson Creek. ADT = 6,842 vpd. ADTT = 5%. Detour length = 2 mi.**

Tucker Road connects Livingston Road on the north to Palmer Road on the south; connectivity is provided to Henson Valley Christian Church, Tucker Road Community Center, Henson Creek Trail, Tucker Road Athletic Complex, and Ice Rink, Henson Creek Golf Course, Knights of Columbus, Oxon Hill Recreation Club, and numerous residential and business areas.

- 13. Bridge No. P-0484, McKendree Road over Timothy Branch. ADT = 4,806 vpd. ADTT = 10%. Detour length = 4 mi.**

McKendree Road connects US Route 301 on the east to Route 373 on the west. McKendree Road provides connectivity to Aggregate Industries (sand and gravel supplier) and many other private business and residents.

- 14. Bridge No. P-0490, Gallahan Road over Tinkers Creek. ADT = 3,793 vpd. ADTT = 10%. Detour length = 4 mi.**

Gallahan Road connects Piscataway Road on the east to Old Ford Road on the west. Gallahan Road is a bicycle-friendly roadway and provides connectivity to numerous residential areas continuing the bicycle loop onto Route 223 Piscataway Road and Old Ford Road.

- 15. Bridge No. P-0579, Derrick Place over Butler Branch. ADT = 270 vpd. ADTT = 2%. Detour length = 1 mi.**

Derrick Place connects Hellen Lee Drive on the north to Armor Drive on the south. Derrick Place provides a second point of access to a closed loop residential neighborhood located approximately 0.5 mile west of Brandywine Road.

- 16. Bridge No. P-0596, Leeland Road over Collington Branch. ADT = 3,568 vpd. ADTT = 10%. Detour length = 3 mi.**

Leeland Road connects US Route 301 on the east to Oak Grove Road and Route 202 on the west. Leeland road provides connectivity to St. Barnabas Episcopal Anglican church, Imagine Foundations at Leeland Public Charter School, and numerous residential and business area.

For this analysis the loss of service is quantified by the Detour Delay Time incurred when trucks traverse the additional detour length to circumvent or bypass a load-posted bridge. The delay time is equal to the detour length divided by the posted speed (40 mph). In the case of passenger vehicles, it is assumed that the bridge will remain open during the analysis period and therefore will not contribute to the travel delay cost.

The load posting of the bridges is assumed to occur beginning in the year 2025, three years into the analysis period and continuing constant each year thereafter.

$$\text{Travel Delay Cost} = \text{Detour Delay Time} \times \text{\$/hr value of trucks travel} \times \text{Number of Trucks}$$

The value of truck travel is assumed as follows:⁸

$$\text{Trucks} = \$32.00/\text{hr. Occupancy rate} = 1.00.$$

The number of users is obtained by directly multiplying the number of trucks (occupancy factor is equal to 1.0). A growth rate of 2% on the ADT was assumed for the forecasting of travel volume beyond the ADT year from the SI&A.

Example: For Bridge P-0177, the detour length from the SI&A is 2 mi, the ADT is 9,620 vpd with 5% trucks.

Detour delay time = 2 mi / 40 mph = 0.05 hr or 3 minutes.

Travel delay cost = 0.05 hr X \$32/hr X 9620 vpd X 0.05 = \$769.60/day. If the detour is implemented 365 days in a year, then the annual cost = \$769.60/day X 365 days = \$280,900/year

For subsequent years after 2022, the ADT value will increase 2% annually.

Alternative 2 – Bridge Preservation

COSTS:

Alternative 2 – Operating and Maintenance (O&M)

Operating and maintenance expenditures incurred in the period of 2025 through 2040 are forecasted using the expenditure trend from the Alternative -1 Baseline O&M analysis applied to the remainder of the bridges in the asset inventory with elements in fair or poor condition.

⁸ USDOT benefit-Cost Analysis Guidance for Discretionary Grant Programs.

After the Bridge Project is completed, the Prince George's County DPW&T Operating Budget will be utilized to maintain 46 bridge structures with elements still in condition 5 or less in addition to any other asset which would have fallen into condition five or less from 2022 through 2025.

Alternative 2 – Professional Services for Preliminary Design

The BCA estimates the return on the total investment related to the Bridge Project, hence all expenditures incurred from the inception of project must be accounted for.

Professional services cost incurred for the development of the Preliminary Design of the project during 2018-2022 was \$ 122,684. Refer to Exhibit 21 for supporting data related to professional services for preliminary design. An inflation factor of 3% was used to discount the cost to the year 2020.

Alternative 2 – Professional Services for Final Design and Construction Services

The total estimated cost for professional services required to develop the project design to construction documents during the period of 2023 through 2025 is \$525,000. Based on the project schedule, 90% of the cost will be spent in 2023 prior to project advertisement and the remainder 10% cost will be spent in 2024 prior to or at the beginning of the bridge construction. Professional services for final design are forecasted using past experiences with similar projects and the total cost for professional services was assumed evenly spent among all bridges in the Bridge Project.

Construction Services include the review of bid documents, responding to inquiries from bidding contractors, preparing bid price justifications, submittal reviews, and technical consultations during the project construction. The professional services for construction are forecasted using past experiences with similar projects. Refer to Exhibit 21 – BCA Supporting Data and Exhibit 22 – Detailed Cost Estimate for detailed cost for professional services.

Alternative 2 – Construction cost

The estimated total construction cost for the Bridge Project is \$12,264,613 including \$87,000 for legal fees and administrative expenses, \$870,000 for project inspection and management, and 30% contingency. The construction cost is evenly distributed among all structures deriving a cost per bridge of \$721,448. The project construction cost is distributed 6% during 2023, 41% during 2024, and 53% during 2025. The contingency of 30% accounts for unforeseen and/or unknown changes on the scope or site conditions.

Refer to the Bridge Project budget narrative for details and estimation related to the project construction.

Alternative 2 – Construction Zone Cost:

Construction zone user cost is defined as the additional costs borne by motorists and the community at-large as a result of work zone activity, such as the user delay costs, vehicle operating costs (VOC), crash costs and emission costs. Additionally, other off-site components such as noise, business and local community impacts may also be a consequence related to the implementation of construction zones. These off-site impacts are hard to monetize since the factors that influence their computation are often site-specific. Based on FHWA research no generalized method or tool is yet available to determine these off-site impacts (⁹).

For the purpose of this BCA analysis, the construction zone cost includes the cost incurred by users travelling on the roadway due to the additional time necessary to traverse the work zone at the lower posted speed. The construction zone cost correlates the upstream and work zone speed differential and length of the work zone under both unrestricted and restricted traffic flow. The Work Zone Travel Delay calculated using the following formulas¹⁰:

Work Zone Travel Delay Cost = Work Zone Delay Time X \$/hr value of personal travel X Number of passenger cars on personal travel

Work Zone Travel Delay Cost = Work Zone Delay Time X \$/hr value of business travel X Number of passenger cars on business travel

Work Zone Travel Delay Cost = Work Zone Delay Time X \$/hr value of trucks travel x Number of Trucks

The value of personal travel, business travel, and truck travel are assumed as follows¹⁰:

Personal Travel = \$16.20/hr. Vehicle occupancy all travels = 1.67.

Business Travel = \$29.40/hr. The distribution of personal / business travel is 88.2% personal, 11.8% business.

Trucks = \$32.00/hr.

Assumed Work Zone Delay Time = distance traveled /speed reduction.

Speed reduction = 10 mph (assumed reduction from 40 mph to 30 mph).

Distance traveled (mile) = Work zone length = Bridge length + Buffer length + Taper Length

Bridge Length and ADT values were obtained from the bridge SI&A data sheet. Buffer length and Taper Length are based on MDOT SHA Standard Details for Maintenance of Traffic Details No. 104.02-02, 104.02-04, 104.02-08, and 104.02-10 for shoulder work, lane shift, and flagging operations on a 2-lane 2-way roadway with prevailing speed less than 40 mph. A conservative value of 1000 Feet has been assumed for Buffer length + Taper Length at all bridge sites.

⁹ Work Zone Road User Costs. FHWA Office of Operations.

¹⁰ USDOT benefit-Cost Analysis Guidance for Discretionary Grant Programs.

The number of users is obtained by multiplying the number of vehicles by the number of occupants, distributed by personal travel or business travel respectively. For trucks, the number of users is directly obtained from the number of truck (occupancy factor is equal to 1.0). A growth rate of 2% on the ADT was assumed for the forecasting of travel volume beyond the year 2022.

Example: For Bridge P-0177, the work zone length is equal to 0.2732 mi, the ADT is 9,620 vpd with 5% trucks.

Work Zone Delay Time = 0.2732 mi / 10 mph = 0.0273 hr or 1.64 minutes.

Work Zone Travel Delay Cost = 0.0273 hr X \$16.20/hr X 9620 vpd X 1.67 X 88.2% = \$6266.70/day for personal trips.

Work Zone Travel Delay Cost = 0.0273 hr X \$29.40/hr X 9620 vpd X 1.67 X 11.8% = \$1521.50/day for business trips.

Work Zone Travel Delay Cost = 0.0273 hr X \$32.00/hr X 9620 vpd X 0.05 X 1.0 = \$420.00/day for trucks trips.

If the construction zone is implemented for a maximum of 1.5 months (42 days) in a year, then the annual cost is: \$6,266.70/day X 42 days = \$263,201/year for personal trips, \$1,521.50/day X 42 days = \$63,900/year for business trips, and \$420.00/day X 42 days = \$17,640/year for trucks.

BENEFITS:

Alternative 2 – Avert bubble expenditure for bridge repair:¹¹

Based on the year-built of the bridge structures and as mentioned previously in this analysis, four out of the 17 bridges (24%) were built between 1960 and 1969; five bridges (29%) were built between 1970 and 1979; seven bridges (41%) were built between 1980 and 1989; one bridge (6%) was built after 1990¹². This means that 53% of the bridges are already exceeding their service life (older than 40 years) and that in the next ten to fifteen years the remaining 47% of the bridges will be approaching the end of their service life.

The FHWA Bridge Preservation Guide has defined bridge preservation as those actions or strategies that prevent, delay, or reduce deterioration of bridges or bridge elements; restore the function of existing bridges; keep bridges in good or fair condition; and extend their service life¹³.

¹¹ I-35W Bridge collapse 15 years later: How much safer are Minnesota's bridges? By Caroline Cummings. Article published on CBS News, Minnesota on July 31, 2022. <https://www.cbsnews.com/minnesota/news/i-35w-bridge-collapse-15-years-later-how-much-safer-are-minnesotas-bridges/>

¹² MDOT SHA Structure Asset Management (SAM) query for bridge elements rated 5 or less, Refer to Exhibit 21.

¹³ FHWA, USDOT 2018 Bridge Preservation Guide.

The Prince George's County (DPW&T) 2022 operating budget is \$43,351,205, of which 1% is allocated to roadway and bridge maintenance with 1/3 (\$144,504/year) dedicated to the maintenance of NBIS bridges with elements in fair or poor condition rating. Operating cost also includes employee salaries, technology, fuel, etc. The SAM inventory currently has 63 NBI bridges with sub-elements in condition 5 or less in Prince George's County.

Similarly, the Prince George's County 2022 Capital Improvement Projects budget is \$5,700,000 allocated for several county-wide improvement projects including two bridge design projects and one major bridge replacement project. Based on data from the past 10 years, the cost for a major bridge rehabilitation or replacement project in Prince George's County is \$2,000,000.

If alternative No. 1 "No-Built" is selected, within the next ten to fifteen years, 53% of the bridges will fall into poor condition necessitating major rehabilitation or replacement, while the remaining 47% of the bridges will deteriorate to fair condition. The aggregated expenditure to rehabilitate or replace bridges with poor condition due to exhausted service life and maintaining bridges currently in fair condition within the constraint of the operating and CIP budgets constitute a tremendous challenge for the Prince George's County DPW&T. This compound effect or bubble expenditure is averted by initiating bridge preservation repairs such as those included in this Bridge Project Grant and spreading the cost of the bridge preservation dollars through the next ten to fifteen years with the purpose of reducing the cost of future maintenance and delaying the need for major rehabilitation or replacement of those structures currently having sub-elements in fair or poor condition.

This benefit of averting the bubble expenditure is quantified by amortizing the cost of a bridge replacement from the end of the construction year (2025) through the remaining service life of the bridge within the analysis period and discounting this value at 7% and 3% to the year 2022.

Average cost of major bridge rehabilitation/ replacement = \$4,400,000 (2022 value).

Number of service years remaining = The youngest bridge is 25 years old, so the remaining number of service years, assuming it was built for a 40-year service life, is $40 - 25 = 15$ years.

Amortized value = $\$4,400,000 / 15 \text{ years} = \$293,333/\text{year}$ from 2026 through 2040.

Discounting is computed as follows:¹⁴

$$\text{Present value} = \text{Future value} / (1 + i)^t$$

Where: i is the discount rate, t = years in the future for payment (based year is $t = 0$).

Example:

For the year 2026 the discounted value at 7% is $= \$293,333 / (1.07)^4 = \$223,782.00/\text{year}$

The discounted value at 3% is $= \$293,333 / (1.03)^4 = \$260,622.00/\text{year}$

¹⁴ Based on the USDOT benefit-Cost Analysis Guidance for Discretionary Grant Programs

Alternative 2 – Avert Increased Bridge Inspection Cost (qualitative benefit)

A consequence of loss of capacity on the primary structural members and load posting is the increased frequency of the bridge inspection activities to a period less than the standard routine inspection period. The 2022 NBIS states that a routine bridge inspection must be performed at an interval not to exceed 24 months to properly assess the bridge components and evaluate maintenance needs. The MDOT State Highway Administration Guidelines and Procedures Memorandum SI-12-06(4) supports this requirement for routine bridge inspections and SI-12-05(4) establishes a procedure to increase the inspection frequency based on the load rating factor, load posting, condition rating value, and ADT volumes. For bridges with operating rating factors for any legal vehicle < 1.0, increasing the frequency of the inspection is required. For bridges with inventory rating factors for any legal vehicle < 1.0, the determination of reducing the inspection frequency will depend on the condition rating and the ADT values.

The reduced inspection frequency can vary from 12 to 6 months depending on the severity and extent of the condition. Bridges on the increased inspection cycle will require additional cost expenditure in addition to the routine inspections. By preserving the bridges in good state of repair the loss of capacity can be delayed, thus delaying or preventing altogether additional costs related to frequent inspections.

Alternative 2 – Resiliency of Construction (qualitative benefit)

A good maintenance program will help to reduce the potential for deterioration that leads to a bridge failure.¹⁵ Cleaning and painting of steel bridges and repair of concrete deterioration can reduce deterioration and extend the service life of the structure. The maintenance of drainage features such as scuppers, basins, downspouts and troughs can substantially help preserve other main components for the structure in good state of repair. Deck joint repairs can help prevent the deterioration of steel elements such as bearings, beams, diaphragms, connections, and other superstructure and substructure elements by preventing water-induced corrosion. Effective deck joints can also prevent chloride contamination on the concrete elements of the substructure by warding off moisture and salty runoff.

Alternative 2 – Bundled Project (qualitative benefit)

The Prince George's County will realize savings by bundling the development of the design, procurement, and construction of the group of bridge structures. These savings are mainly caused by the efficiency of designing and constructing similar work activities, spreading administrative costs, and overall requiring fewer man-hour to complete the same project.

¹⁵ USDOT Framework for Improving Resilience of Bridge Design. Publication No. FHWA-IF-11-016. January 2011.

BCA RESULTS:

The BCA comparison for the baseline Alternative 1 No-Build and Alternative 2 Bridge Preservation is shown on Table 21a below. The Benefit to Cost Ratio for the nominal cost of the Bridge Project varies from 3.13 to 44.51. The Benefit to Cost Ratio for the Discounted Cost at 7% varies from 2.10 to 22.98. The Benefit to Cost Ratio for the Discounted Cost at 3% varies from 2.59 to 32.91.

The results of the BCA are summarized in the BCA narrative and are reproduced in the table below.

Bridge No.	Undiscounted Cost BCR	Cost Discounted at 7% BCR	Cost Discounted at 3% BCR
1. Bridge No. P-0117, Cherrywood Ln. over I-95/I-495	3.13	2.10	2.59
2. Bridge No. P-0169, Contee Road over CSX Railroad	44.03	22.76	32.57
3. Bridge No. P-0185, Metzertott Road over Paint Branch	6.96	4.06	5.41
4. Bridge No. P-0190, Sellman Road over Little Paint Branch	4.22	2.56	3.33
5. Bridge No. P-0198031, Cherry Lane (Eastbound) over CSX Railroad	42.44	21.81	31.32
6. Bridge No. P-0198041, Cherry Lane (Westbound) over CSX Railroad	42.43	21.81	31.31
7. Bridge No. P-0204, Ritchie Road over the Southwest Branch	44.51	22.98	32.91
8. Bridge No. P-0205, Walker Mill Road over the Southwest Branch	40.28	20.94	29.84
9. Bridge No. P-0220, Riverdale Road over Tributary to Northeast Branch	-0.45*	0.17*	-0.10*
10. Bridge No. P-0273, Carter Ave. over Amtrak Railroad	18.10	9.64	13.55
11. Bridge No. P-0283, Lottsford Road over Western Branch	23.43	12.35	17.47
12. Bridge No. P-0294, Decatur Street over Northeast Branch	11.64	6.33	8.79
13. Bridge No. P-0396, Tucker Road over Henson Creek	0.87*	0.88*	0.89*
14. Bridge No. P-0484, McKendree Road over Timothy Branch	9.53	5.20	7.21

Table 21a. Comparison Summary No-Build (Baseline) vs. Bridge Preservation			
Bridge No.	Undiscounted Cost BCR	Cost Discounted at 7% BCR	Cost Discounted at 3% BCR
15. Bridge No. P-0490, Gallahan Road over Tinkers Creek	6.62	3.73	5.07
16. Bridge No. P-0579, Derrick Place over Butler Branch	-4.29*	-1.78*	-2.93*
17. Bridge No. P-0596, Leeland Road over Collington Branch	3.43	2.13	2.74
Maximum BCR Value =	44.51	22.98	32.91
Minimum BCR Value =	3.13	2.10	2.59

* Bridge structures receiving the most benefit from the bundled Bridge Project.

References:

1. Work Zone Road User Costs. FHWA Office of Operations.
2. USDOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs. March 2022.
3. FHWA Bridge Preservation Guide. 2018.
4. USDOT Framework for Improving Resilience of Bridge Design. Publication No. FHWA-IF-11-016. January 2011.
5. Prince George's County DPW&T Operating Budget Report for FY 2022, FY 2021, FY 2020, and FY 2019. <https://www.princegeorgescountymd.gov/565/Operating-Budgets>.
6. MDOT SHA Structure Asset Management (SAM) System. Accessed in August 2022.
7. I-35W Bridge collapse 15 years later: How much safer are Minnesota's bridges? By Caroline Cummings. Article published on CBS News, Minnesota on July 31, 2022. <https://www.cbsnews.com/minnesota/news/i-35w-bridge-collapse-15-years-later-how-much-safer-are-minnesotas-bridges/>

BENEFIT - COST ANALYSIS
TABLE 21a - BCR SUMMARY

No.	Bridge No.	Road Name and Crossing	BCR		
			Undiscounted Value	Discounted at 7%	Discounted at 3%
1	P-0117	CHERRYWOOD LANE OVER I-95/I-495	3.13	2.10	2.59
2	P-0169	CONTEE ROAD OVER CSX RAILROAD	44.03	22.76	32.57
3	P-0185	METZEROTT ROAD OVER PAINT BRANCH	6.96	4.06	5.41
4	P-0190	SELLMAN ROAD OVER LITTLE PAINT BRANCH	4.22	2.56	3.33
5	P-0198031	CHERRY LANE (EAST) OVER CSX RAILROAD	42.44	21.81	31.32
6	P-0198041	CHERRY LANE (WEST) OVER CSX RAILROAD	42.43	21.81	31.31
7	P-0204	RITCHIE ROAD OVER SOUTHWEST BRANCH	44.51	22.98	32.91
8	P-0205	WALKER MILL ROAD OVER SOUTHWEST BRANCH	40.28	20.94	29.84
9	P-0220	RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH	-0.45	0.17	-0.10
10	P-0273	CARTER AVENUE OVER AMTRAK RAILROAD	18.10	9.64	13.55
11	P-0283	LOTTSFORD ROAD OVER WESTERN BRANCH	23.43	12.35	17.47
12	P-0294	DECATUR STREET OVER NORTHEAST BRANCH	11.64	6.33	8.79
13	P-0396	TUCKER ROAD OVER HENSON CREEK	0.87	0.88	0.89
14	P-0484	MCKENDREE ROAD OVER TIMOTHY BRANCH	9.53	5.20	7.21
15	P-0490	GALLAHAN ROAD OVER TINKERS CREEK	6.62	3.73	5.07
16	P-0579	DERRICK PLACE OVER BUTLER BRANCH	-4.29	-1.78	-2.93
17	P-0596	LEELAND ROAD OVER COLLINGTON BRANCH	3.43	2.13	2.74

MAXIMUM BCR = 44.51 22.98 32.91

MINIMUM BCR = 3.13 2.10 2.59

THESE STRUCTURES RECEIVE THE MOST BENEFIT FROM THE BUNDLED BRIDGE PROJECT

BRIDGE: P-0117 CHERRYWOOD LANE OVER I-95/I-495

ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (17,098.58)	\$ (14,934.56)			\$ (19,392.29)	\$ (16,937.98)	\$ (18,279.10)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (298,097.57)	\$ (243,336.42)	\$ (300,391.29)	\$ (245,208.77)	\$ (274,900.58)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (17,789.36)	\$ (13,571.42)	\$ (304,059.52)	\$ (231,965.55)	\$ (324,142.60)	\$ (247,286.84)	\$ (287,996.50)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (310,140.71)	\$ (221,126.04)	\$ (312,434.43)	\$ (222,761.43)	\$ (269,508.68)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (18,508.05)	\$ (12,332.70)	\$ (316,343.53)	\$ (210,793.05)	\$ (337,145.29)	\$ (224,654.14)	\$ (282,353.88)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (322,670.40)	\$ (200,942.91)	\$ (324,964.11)	\$ (202,371.32)	\$ (264,225.56)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (19,255.78)	\$ (11,207.04)	\$ (329,123.81)	\$ (191,553.05)	\$ (350,673.30)	\$ (204,095.05)	\$ (276,824.74)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (335,706.28)	\$ (182,601.97)	\$ (338,000.00)	\$ (183,849.60)	\$ (259,048.85)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (20,033.71)	\$ (10,184.12)	\$ (342,420.41)	\$ (174,069.17)	\$ (364,747.83)	\$ (185,419.30)	\$ (271,406.64)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (349,268.82)	\$ (165,935.10)	\$ (351,562.53)	\$ (167,024.83)	\$ (253,976.25)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (20,843.07)	\$ (9,254.57)	\$ (356,254.19)	\$ (158,181.12)	\$ (379,390.98)	\$ (168,454.13)	\$ (266,097.20)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (363,379.28)	\$ (150,789.48)	\$ (365,672.99)	\$ (151,741.29)	\$ (249,005.51)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (21,685.13)	\$ (8,409.87)	\$ (370,646.86)	\$ (143,743.24)	\$ (394,625.71)	\$ (153,042.65)	\$ (260,894.08)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (378,059.80)	\$ (137,026.27)	\$ (380,353.51)	\$ (137,857.62)	\$ (244,134.45)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (22,561.21)	\$ (7,642.26)	\$ (385,621.00)	\$ (130,623.17)	\$ (410,475.92)	\$ (139,042.40)	\$ (255,795.02)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (393,333.42)	\$ (124,519.29)	\$ (395,627.13)	\$ (125,245.42)	\$ (239,360.92)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (23,472.68)	\$ (6,944.72)	\$ (401,200.08)	\$ (118,700.63)	\$ (426,966.48)	\$ (126,323.98)	\$ (250,797.81)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (181,247.57)	\$ (94,481.26)	\$ (5,556,325.68)	\$ (2,785,906.47)	\$ (5,781,153.82)	\$ (2,905,754.12)	\$ (4,229,126.40)

BRIDGE: P-0169 CONTEE ROAD OVER CSX RAILROAD

ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (32,132.80)	\$ (28,066.03)			\$ (34,426.51)	\$ (30,069.45)	\$ (32,450.29)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (2,063,938.35)	\$ (1,684,788.49)	\$ (2,066,232.06)	\$ (1,686,660.84)	\$ (1,890,895.04)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (32,132.80)	\$ (24,513.96)	\$ (2,105,217.11)	\$ (1,606,060.06)	\$ (2,139,643.63)	\$ (1,632,323.88)	\$ (1,901,045.65)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (2,147,321.45)	\$ (1,531,010.52)	\$ (2,149,615.17)	\$ (1,532,645.91)	\$ (1,854,276.93)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (33,430.96)	\$ (22,276.46)	\$ (2,190,267.88)	\$ (1,459,467.97)	\$ (2,225,992.56)	\$ (1,483,272.83)	\$ (1,864,233.73)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (2,234,073.24)	\$ (1,391,268.53)	\$ (2,236,366.96)	\$ (1,392,696.94)	\$ (1,818,370.99)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (34,781.57)	\$ (20,243.19)	\$ (2,278,754.71)	\$ (1,326,255.99)	\$ (2,315,830.00)	\$ (1,347,834.14)	\$ (1,828,137.58)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (2,324,329.80)	\$ (1,264,281.41)	\$ (2,326,623.51)	\$ (1,265,529.04)	\$ (1,783,163.19)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (36,186.75)	\$ (18,395.51)	\$ (2,370,816.40)	\$ (1,205,202.84)	\$ (2,409,296.86)	\$ (1,224,764.35)	\$ (1,792,743.13)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (2,418,232.72)	\$ (1,148,884.95)	\$ (2,420,526.44)	\$ (1,149,974.67)	\$ (1,748,639.80)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (37,648.69)	\$ (16,716.47)	\$ (2,466,597.38)	\$ (1,095,198.73)	\$ (2,506,539.79)	\$ (1,112,933.64)	\$ (1,758,036.58)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (2,515,929.33)	\$ (1,044,021.22)	\$ (2,518,223.04)	\$ (1,044,973.03)	\$ (1,714,787.35)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (39,169.70)	\$ (15,190.69)	\$ (2,566,247.91)	\$ (995,235.19)	\$ (2,607,711.33)	\$ (1,011,315.41)	\$ (1,724,004.39)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (2,617,572.87)	\$ (948,728.87)	\$ (2,619,866.59)	\$ (949,560.22)	\$ (1,681,592.67)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (40,752.16)	\$ (13,804.17)	\$ (2,669,924.33)	\$ (904,395.74)	\$ (2,712,970.20)	\$ (918,976.87)	\$ (1,690,633.34)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (2,723,322.82)	\$ (862,134.26)	\$ (2,725,616.53)	\$ (862,860.39)	\$ (1,649,042.83)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (42,398.55)	\$ (12,544.20)	\$ (2,777,789.27)	\$ (821,847.61)	\$ (2,822,481.53)	\$ (835,070.44)	\$ (1,657,910.43)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (328,633.99)	\$ (171,750.68)	\$ (38,470,335.57)	\$ (19,288,782.38)	\$ (38,842,550.13)	\$ (19,485,899.44)	\$ (28,394,484.53)

**BRIDGE: P-0185 METZEROTT ROAD OVER PAINT BRANCH
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (20,419.80)	\$ (17,835.44)			\$ (22,713.51)	\$ (19,838.86)	\$ (21,409.66)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (460,161.01)	\$ (375,628.46)	\$ (462,454.73)	\$ (377,500.81)	\$ (423,211.59)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (21,244.76)	\$ (16,207.52)	\$ (469,364.23)	\$ (358,075.73)	\$ (492,902.70)	\$ (376,033.11)	\$ (437,937.67)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (478,751.52)	\$ (341,343.22)	\$ (481,045.23)	\$ (342,978.60)	\$ (414,953.84)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (22,103.04)	\$ (14,728.19)	\$ (488,326.55)	\$ (325,392.60)	\$ (512,723.31)	\$ (341,649.19)	\$ (429,397.70)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (498,093.08)	\$ (310,187.34)	\$ (500,386.79)	\$ (311,615.75)	\$ (406,860.25)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (22,996.01)	\$ (13,383.89)	\$ (508,054.94)	\$ (295,692.60)	\$ (533,344.66)	\$ (310,411.45)	\$ (421,027.20)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (518,216.04)	\$ (281,875.19)	\$ (520,509.75)	\$ (283,122.82)	\$ (398,927.38)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (23,925.05)	\$ (12,162.28)	\$ (528,580.36)	\$ (268,703.45)	\$ (554,799.12)	\$ (282,031.74)	\$ (412,822.65)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (539,151.97)	\$ (256,147.22)	\$ (541,445.68)	\$ (257,236.94)	\$ (391,151.88)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (24,891.62)	\$ (11,052.18)	\$ (549,935.01)	\$ (244,177.72)	\$ (577,120.34)	\$ (256,248.33)	\$ (404,780.59)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (560,933.71)	\$ (232,767.55)	\$ (563,227.42)	\$ (233,719.36)	\$ (383,530.47)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (25,897.24)	\$ (10,043.40)	\$ (572,152.38)	\$ (221,890.56)	\$ (600,343.33)	\$ (232,823.50)	\$ (396,897.67)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (583,595.43)	\$ (211,521.84)	\$ (585,889.14)	\$ (212,353.19)	\$ (376,059.95)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (26,943.49)	\$ (9,126.69)	\$ (595,267.34)	\$ (201,637.64)	\$ (624,504.54)	\$ (211,541.29)	\$ (389,170.58)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (607,172.68)	\$ (192,215.32)	\$ (609,466.40)	\$ (192,941.45)	\$ (368,737.19)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (28,032.00)	\$ (8,293.66)	\$ (619,316.14)	\$ (183,233.30)	\$ (649,641.86)	\$ (192,205.58)	\$ (381,596.12)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (216,452.99)	\$ (112,833.24)	\$ (8,577,072.38)	\$ (4,300,489.72)	\$ (8,837,105.95)	\$ (4,438,689.35)	\$ (6,462,993.03)

**BRIDGE: P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (8,191.30)	\$ (7,154.60)			\$ (10,485.02)	\$ (9,158.02)	\$ (9,883.13)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (360,691.86)	\$ (294,432.00)	\$ (362,985.58)	\$ (296,304.36)	\$ (332,183.23)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (8,522.23)	\$ (6,501.57)	\$ (367,905.70)	\$ (280,673.50)	\$ (378,721.65)	\$ (288,924.93)	\$ (336,489.28)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (375,263.82)	\$ (267,557.91)	\$ (377,557.53)	\$ (269,193.30)	\$ (325,684.44)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (8,866.53)	\$ (5,908.14)	\$ (382,769.09)	\$ (255,055.21)	\$ (393,929.34)	\$ (262,491.75)	\$ (329,909.62)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (390,424.47)	\$ (243,136.74)	\$ (392,718.19)	\$ (244,565.15)	\$ (319,315.83)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (9,224.74)	\$ (5,368.88)	\$ (398,232.96)	\$ (231,775.21)	\$ (409,751.42)	\$ (238,479.05)	\$ (323,461.55)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (406,197.62)	\$ (220,944.59)	\$ (408,491.34)	\$ (222,192.22)	\$ (313,074.60)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (9,597.42)	\$ (4,878.84)	\$ (414,321.58)	\$ (210,620.08)	\$ (426,212.71)	\$ (216,664.93)	\$ (317,142.28)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (422,608.01)	\$ (200,778.02)	\$ (424,901.72)	\$ (201,867.75)	\$ (306,958.04)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (9,985.15)	\$ (4,433.53)	\$ (431,060.17)	\$ (191,395.87)	\$ (443,339.03)	\$ (196,847.83)	\$ (310,949.08)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (439,681.37)	\$ (182,452.14)	\$ (441,975.08)	\$ (183,403.95)	\$ (300,963.53)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (10,388.55)	\$ (4,028.86)	\$ (448,475.00)	\$ (173,926.34)	\$ (461,157.26)	\$ (178,844.74)	\$ (304,879.28)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (457,444.50)	\$ (165,798.94)	\$ (459,738.21)	\$ (166,630.29)	\$ (295,088.46)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (10,808.25)	\$ (3,661.13)	\$ (466,593.39)	\$ (158,051.32)	\$ (479,695.35)	\$ (162,489.41)	\$ (298,930.28)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (475,925.26)	\$ (150,665.75)	\$ (478,218.97)	\$ (151,391.88)	\$ (289,330.34)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (11,244.90)	\$ (3,326.96)	\$ (485,443.76)	\$ (143,625.29)	\$ (498,982.38)	\$ (147,630.88)	\$ (293,099.56)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (86,829.07)	\$ (45,262.51)	\$ (6,723,038.56)	\$ (3,370,888.91)	\$ (6,853,448.20)	\$ (3,441,517.81)	\$ (5,011,863.15)

**BRIDGE: P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (16,847.17)	\$ (14,714.97)			\$ (19,140.89)	\$ (16,718.39)	\$ (18,042.12)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (2,019,316.67)	\$ (1,648,363.91)	\$ (2,021,610.39)	\$ (1,650,236.27)	\$ (1,850,059.88)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (17,527.80)	\$ (13,371.87)	\$ (2,059,703.00)	\$ (1,571,337.56)	\$ (2,079,524.52)	\$ (1,586,459.30)	\$ (1,847,630.60)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (2,100,897.06)	\$ (1,497,910.57)	\$ (2,103,190.78)	\$ (1,499,545.96)	\$ (1,814,230.84)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (18,235.92)	\$ (12,151.37)	\$ (2,142,915.01)	\$ (1,427,914.75)	\$ (2,163,444.64)	\$ (1,441,594.51)	\$ (1,811,850.83)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (2,185,773.31)	\$ (1,361,189.76)	\$ (2,188,067.02)	\$ (1,362,618.17)	\$ (1,779,098.72)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (18,972.65)	\$ (11,042.26)	\$ (2,229,488.77)	\$ (1,297,582.76)	\$ (2,250,755.14)	\$ (1,309,959.98)	\$ (1,776,766.89)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (2,274,078.55)	\$ (1,236,948.06)	\$ (2,276,372.26)	\$ (1,238,195.68)	\$ (1,744,649.79)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (19,739.15)	\$ (10,034.38)	\$ (2,319,560.12)	\$ (1,179,146.74)	\$ (2,341,592.98)	\$ (1,190,347.14)	\$ (1,742,365.09)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (2,365,951.32)	\$ (1,124,046.43)	\$ (2,368,245.04)	\$ (1,125,136.16)	\$ (1,710,870.60)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (20,536.61)	\$ (9,118.50)	\$ (2,413,270.35)	\$ (1,071,520.90)	\$ (2,436,100.67)	\$ (1,081,657.83)	\$ (1,708,632.00)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (2,461,535.75)	\$ (1,021,449.83)	\$ (2,463,829.47)	\$ (1,022,401.64)	\$ (1,677,747.98)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (21,366.29)	\$ (8,286.22)	\$ (2,510,766.47)	\$ (973,718.53)	\$ (2,534,426.47)	\$ (982,894.28)	\$ (1,675,554.47)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (2,560,981.80)	\$ (928,217.66)	\$ (2,563,275.51)	\$ (929,049.01)	\$ (1,645,269.01)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (22,229.49)	\$ (7,529.90)	\$ (2,612,201.44)	\$ (884,843.00)	\$ (2,636,724.64)	\$ (893,149.86)	\$ (1,643,119.62)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (2,664,445.46)	\$ (843,495.20)	\$ (2,666,739.18)	\$ (844,221.33)	\$ (1,613,421.06)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (23,127.56)	\$ (6,842.61)	\$ (2,717,734.37)	\$ (804,079.54)	\$ (2,743,155.65)	\$ (811,600.77)	\$ (1,611,314.83)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (178,582.65)	\$ (93,092.08)	\$ (37,638,619.46)	\$ (18,871,765.19)	\$ (37,860,782.68)	\$ (18,990,223.66)	\$ (27,675,144.97)

**BRIDGE: P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (16,845.62)	\$ (14,713.62)			\$ (19,139.34)	\$ (16,717.04)	\$ (18,040.66)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (2,019,130.75)	\$ (1,648,212.14)	\$ (2,021,424.46)	\$ (1,650,084.50)	\$ (1,849,889.74)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (17,526.19)	\$ (13,370.64)	\$ (2,059,513.36)	\$ (1,571,192.88)	\$ (2,079,333.26)	\$ (1,586,313.39)	\$ (1,847,460.67)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (2,100,703.63)	\$ (1,497,772.66)	\$ (2,102,997.34)	\$ (1,499,408.04)	\$ (1,814,063.98)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (18,234.24)	\$ (12,150.25)	\$ (2,142,717.70)	\$ (1,427,783.28)	\$ (2,163,245.66)	\$ (1,441,461.92)	\$ (1,811,684.18)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (2,185,572.06)	\$ (1,361,064.43)	\$ (2,187,865.77)	\$ (1,362,492.84)	\$ (1,778,935.09)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (18,970.91)	\$ (11,041.24)	\$ (2,229,283.50)	\$ (1,297,463.29)	\$ (2,250,548.12)	\$ (1,309,839.50)	\$ (1,776,603.47)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (2,273,869.17)	\$ (1,236,834.17)	\$ (2,276,162.88)	\$ (1,238,081.80)	\$ (1,744,489.32)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (19,737.33)	\$ (10,033.46)	\$ (2,319,346.55)	\$ (1,179,038.18)	\$ (2,341,377.60)	\$ (1,190,237.64)	\$ (1,742,204.82)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (2,365,733.48)	\$ (1,123,942.94)	\$ (2,368,027.20)	\$ (1,125,032.66)	\$ (1,710,713.23)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (20,534.72)	\$ (9,117.66)	\$ (2,413,048.15)	\$ (1,071,422.24)	\$ (2,435,876.59)	\$ (1,081,558.34)	\$ (1,708,474.83)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (2,461,309.11)	\$ (1,021,355.78)	\$ (2,463,602.83)	\$ (1,022,307.59)	\$ (1,677,593.65)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (21,364.32)	\$ (8,285.45)	\$ (2,510,535.30)	\$ (973,628.87)	\$ (2,534,193.33)	\$ (982,803.87)	\$ (1,675,400.34)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (2,560,746.00)	\$ (928,132.20)	\$ (2,563,039.72)	\$ (928,963.54)	\$ (1,645,117.66)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (22,227.44)	\$ (7,529.20)	\$ (2,611,960.92)	\$ (884,761.53)	\$ (2,636,482.08)	\$ (893,067.70)	\$ (1,642,968.47)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (2,664,200.14)	\$ (843,417.54)	\$ (2,666,493.86)	\$ (844,143.67)	\$ (1,613,272.64)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (23,125.43)	\$ (6,841.98)	\$ (2,717,484.14)	\$ (804,005.50)	\$ (2,742,903.29)	\$ (811,526.11)	\$ (1,611,166.60)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (178,566.21)	\$ (93,083.51)	\$ (37,635,153.97)	\$ (18,870,027.62)	\$ (37,857,300.76)	\$ (18,988,477.52)	\$ (27,672,599.97)

**BRIDGE: P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (31,095.95)	\$ (27,160.41)			\$ (33,389.66)	\$ (29,163.83)	\$ (31,472.96)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (2,086,528.07)	\$ (1,703,228.43)	\$ (2,088,821.78)	\$ (1,705,100.79)	\$ (1,911,567.83)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (32,352.23)	\$ (24,681.36)	\$ (2,128,258.63)	\$ (1,623,638.32)	\$ (2,162,904.57)	\$ (1,650,069.54)	\$ (1,921,712.70)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (2,170,823.80)	\$ (1,547,767.37)	\$ (2,173,117.52)	\$ (1,549,402.76)	\$ (1,874,550.26)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (33,659.26)	\$ (22,428.58)	\$ (2,214,240.28)	\$ (1,475,441.79)	\$ (2,250,193.25)	\$ (1,499,398.77)	\$ (1,884,501.42)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (2,258,525.08)	\$ (1,406,495.91)	\$ (2,260,818.80)	\$ (1,407,924.32)	\$ (1,838,252.57)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (35,019.09)	\$ (20,381.43)	\$ (2,303,695.59)	\$ (1,340,771.80)	\$ (2,341,008.39)	\$ (1,362,488.20)	\$ (1,848,013.64)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (2,349,769.50)	\$ (1,278,118.92)	\$ (2,352,063.21)	\$ (1,279,366.55)	\$ (1,802,660.60)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (36,433.86)	\$ (18,521.13)	\$ (2,396,764.89)	\$ (1,218,393.73)	\$ (2,435,492.46)	\$ (1,238,080.87)	\$ (1,812,235.12)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (2,444,700.18)	\$ (1,161,459.45)	\$ (2,446,993.90)	\$ (1,162,549.17)	\$ (1,767,760.46)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (37,905.79)	\$ (16,830.62)	\$ (2,493,594.19)	\$ (1,107,185.64)	\$ (2,533,793.69)	\$ (1,125,034.70)	\$ (1,777,151.92)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (2,543,466.07)	\$ (1,055,447.99)	\$ (2,545,759.79)	\$ (1,056,399.80)	\$ (1,733,538.54)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (39,437.18)	\$ (15,294.42)	\$ (2,594,335.39)	\$ (1,006,127.99)	\$ (2,636,066.29)	\$ (1,022,311.96)	\$ (1,742,750.36)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (2,646,222.10)	\$ (959,112.67)	\$ (2,648,515.82)	\$ (959,944.02)	\$ (1,699,981.52)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (41,030.44)	\$ (13,898.43)	\$ (2,699,146.54)	\$ (914,294.32)	\$ (2,742,470.70)	\$ (928,969.71)	\$ (1,709,017.07)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (2,753,129.47)	\$ (871,570.29)	\$ (2,755,423.19)	\$ (872,296.42)	\$ (1,667,076.34)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (42,688.07)	\$ (12,629.86)	\$ (2,808,192.06)	\$ (830,842.70)	\$ (2,853,173.85)	\$ (844,151.19)	\$ (1,675,938.94)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (329,621.87)	\$ (171,826.24)	\$ (38,891,391.85)	\$ (19,499,897.33)	\$ (39,264,594.29)	\$ (19,697,089.95)	\$ (28,702,702.86)

**BRIDGE: P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (53,217.78)	\$ (46,482.47)			\$ (55,511.50)	\$ (48,485.89)	\$ (52,324.91)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (1,832,323.97)	\$ (1,495,722.17)	\$ (1,834,617.68)	\$ (1,497,594.52)	\$ (1,678,935.07)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (55,367.78)	\$ (42,239.82)	\$ (1,868,970.45)	\$ (1,425,828.61)	\$ (1,926,631.94)	\$ (1,469,818.29)	\$ (1,711,787.53)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (1,906,349.86)	\$ (1,359,201.10)	\$ (1,908,643.57)	\$ (1,360,836.49)	\$ (1,646,412.71)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (57,604.64)	\$ (38,384.40)	\$ (1,944,476.85)	\$ (1,295,687.03)	\$ (2,004,375.21)	\$ (1,335,599.83)	\$ (1,678,632.68)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (1,983,366.39)	\$ (1,235,140.91)	\$ (1,985,660.11)	\$ (1,236,569.32)	\$ (1,614,523.38)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (59,931.87)	\$ (34,880.89)	\$ (2,023,033.72)	\$ (1,177,424.04)	\$ (2,085,259.30)	\$ (1,213,639.90)	\$ (1,646,122.95)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (2,063,494.39)	\$ (1,122,404.23)	\$ (2,065,788.11)	\$ (1,123,651.86)	\$ (1,583,254.57)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (62,353.11)	\$ (31,697.16)	\$ (2,104,764.28)	\$ (1,069,955.43)	\$ (2,169,411.11)	\$ (1,102,818.60)	\$ (1,614,245.61)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (2,146,859.57)	\$ (1,019,957.52)	\$ (2,149,153.28)	\$ (1,021,047.24)	\$ (1,552,594.06)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (64,872.18)	\$ (28,804.02)	\$ (2,189,796.76)	\$ (972,295.95)	\$ (2,256,962.65)	\$ (1,002,118.41)	\$ (1,582,988.20)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (2,233,592.69)	\$ (926,861.56)	\$ (2,235,886.41)	\$ (927,813.37)	\$ (1,522,529.85)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (67,493.02)	\$ (26,174.96)	\$ (2,278,264.55)	\$ (883,550.27)	\$ (2,348,051.28)	\$ (910,614.77)	\$ (1,552,338.51)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (2,323,829.84)	\$ (842,262.88)	\$ (2,326,123.55)	\$ (843,094.22)	\$ (1,493,050.19)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (70,219.73)	\$ (23,785.85)	\$ (2,370,306.44)	\$ (802,904.80)	\$ (2,442,819.88)	\$ (827,467.61)	\$ (1,522,284.59)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (2,417,712.56)	\$ (765,385.88)	\$ (2,420,006.28)	\$ (766,112.01)	\$ (1,464,143.60)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (73,056.61)	\$ (21,614.82)	\$ (2,466,066.82)	\$ (729,620.19)	\$ (2,541,417.14)	\$ (751,913.63)	\$ (1,492,814.72)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (564,116.73)	\$ (294,064.39)	\$ (34,153,209.13)	\$ (17,124,202.55)	\$ (34,760,906.44)	\$ (17,443,633.33)	\$ (25,413,503.74)

BRIDGE: P-0220 RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH
ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (6,616.39)	\$ (5,779.01)			\$ (8,910.11)	\$ (7,782.43)	\$ (8,398.63)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (154,936.37)	\$ (126,474.23)	\$ (157,230.08)	\$ (128,346.58)	\$ (143,887.80)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (6,883.70)	\$ (5,251.54)	\$ (158,035.10)	\$ (120,564.22)	\$ (167,212.51)	\$ (127,565.62)	\$ (148,566.15)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (161,195.80)	\$ (114,930.38)	\$ (163,489.51)	\$ (116,565.76)	\$ (141,027.49)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (7,161.80)	\$ (4,772.21)	\$ (164,419.71)	\$ (109,559.80)	\$ (173,875.22)	\$ (115,860.40)	\$ (145,617.76)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (167,708.11)	\$ (104,440.18)	\$ (170,001.82)	\$ (105,868.59)	\$ (138,227.04)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (7,451.13)	\$ (4,336.63)	\$ (171,062.27)	\$ (99,559.80)	\$ (180,807.12)	\$ (105,231.39)	\$ (142,730.81)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (174,483.52)	\$ (94,907.47)	\$ (176,777.23)	\$ (96,155.10)	\$ (135,485.03)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (7,752.16)	\$ (3,940.80)	\$ (177,973.19)	\$ (90,472.54)	\$ (188,019.06)	\$ (95,579.36)	\$ (139,903.84)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (181,532.65)	\$ (86,244.85)	\$ (183,826.36)	\$ (87,334.58)	\$ (132,800.08)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (8,065.35)	\$ (3,581.11)	\$ (185,163.30)	\$ (82,214.72)	\$ (195,522.36)	\$ (86,814.27)	\$ (137,135.45)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (188,866.57)	\$ (78,372.91)	\$ (191,160.28)	\$ (79,324.72)	\$ (130,170.85)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (8,391.19)	\$ (3,254.25)	\$ (192,643.90)	\$ (74,710.63)	\$ (203,328.80)	\$ (78,854.41)	\$ (134,424.29)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (196,496.78)	\$ (71,219.47)	\$ (198,790.49)	\$ (72,050.82)	\$ (127,596.05)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (8,730.19)	\$ (2,957.22)	\$ (200,426.71)	\$ (67,891.46)	\$ (211,450.62)	\$ (71,625.64)	\$ (131,769.03)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (204,435.25)	\$ (64,718.96)	\$ (206,728.96)	\$ (65,445.10)	\$ (125,074.42)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (9,082.89)	\$ (2,687.30)	\$ (208,523.95)	\$ (61,694.71)	\$ (219,900.56)	\$ (65,060.64)	\$ (129,168.40)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (70,134.79)	\$ (36,560.07)	\$ (2,887,903.16)	\$ (1,447,976.34)	\$ (3,001,618.53)	\$ (1,509,902.79)	\$ (2,196,503.74)

BRIDGE: P-0273 CARTER AVENUE OVER AMTRAK RAILROAD
ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (23,881.45)	\$ (20,858.98)			\$ (26,175.16)	\$ (22,862.40)	\$ (24,672.60)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (943,128.66)	\$ (769,873.92)	\$ (945,422.37)	\$ (771,746.28)	\$ (865,195.40)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (24,846.26)	\$ (18,955.09)	\$ (961,991.23)	\$ (733,898.51)	\$ (989,131.20)	\$ (754,603.46)	\$ (878,830.26)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (981,231.06)	\$ (699,604.18)	\$ (983,524.77)	\$ (701,239.57)	\$ (848,397.11)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (25,850.05)	\$ (17,224.98)	\$ (1,000,855.68)	\$ (666,912.40)	\$ (1,028,999.44)	\$ (685,665.77)	\$ (861,770.83)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (1,020,872.79)	\$ (635,748.27)	\$ (1,023,166.51)	\$ (637,176.68)	\$ (831,928.00)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (26,894.39)	\$ (15,652.78)	\$ (1,041,290.25)	\$ (606,040.40)	\$ (1,070,478.35)	\$ (623,028.15)	\$ (845,045.49)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (1,062,116.05)	\$ (577,720.76)	\$ (1,064,409.77)	\$ (578,968.39)	\$ (815,781.46)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (27,980.92)	\$ (14,224.08)	\$ (1,083,358.37)	\$ (550,724.46)	\$ (1,113,633.01)	\$ (566,114.55)	\$ (828,647.55)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (1,105,025.54)	\$ (524,989.67)	\$ (1,107,319.26)	\$ (526,079.40)	\$ (799,950.99)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (29,111.35)	\$ (12,925.79)	\$ (1,127,126.05)	\$ (500,457.45)	\$ (1,158,531.12)	\$ (514,401.67)	\$ (812,570.42)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (1,149,668.57)	\$ (477,071.58)	\$ (1,151,962.29)	\$ (478,023.39)	\$ (784,430.26)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (30,287.45)	\$ (11,745.99)	\$ (1,172,661.94)	\$ (454,778.52)	\$ (1,205,243.11)	\$ (467,414.06)	\$ (796,807.68)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (1,196,115.18)	\$ (433,527.19)	\$ (1,198,408.90)	\$ (434,358.53)	\$ (769,213.07)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (31,511.06)	\$ (10,673.89)	\$ (1,220,037.49)	\$ (413,268.91)	\$ (1,253,842.26)	\$ (424,719.75)	\$ (781,353.05)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (1,244,438.24)	\$ (393,957.28)	\$ (1,246,731.95)	\$ (394,683.41)	\$ (754,293.33)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (32,784.11)	\$ (9,699.63)	\$ (1,269,327.00)	\$ (375,548.06)	\$ (1,304,404.82)	\$ (385,926.32)	\$ (766,200.36)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (253,147.02)	\$ (131,961.21)	\$ (17,579,244.11)	\$ (8,814,121.56)	\$ (17,875,971.71)	\$ (8,971,449.16)	\$ (13,069,608.47)

**BRIDGE: P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (27,793.51)	\$ (24,275.92)			\$ (30,087.22)	\$ (26,279.34)	\$ (28,360.09)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (1,167,972.32)	\$ (953,413.32)	\$ (1,170,266.03)	\$ (955,285.68)	\$ (1,070,959.20)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (28,916.36)	\$ (22,060.16)	\$ (1,191,331.76)	\$ (908,861.30)	\$ (1,222,541.84)	\$ (932,671.32)	\$ (1,086,212.59)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (1,215,158.40)	\$ (866,391.14)	\$ (1,217,452.11)	\$ (868,026.53)	\$ (1,050,184.89)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (30,084.58)	\$ (20,046.63)	\$ (1,239,461.57)	\$ (825,905.58)	\$ (1,271,839.87)	\$ (847,480.60)	\$ (1,065,145.86)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (1,264,250.80)	\$ (787,311.86)	\$ (1,266,544.51)	\$ (788,740.27)	\$ (1,029,816.59)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (31,300.00)	\$ (18,216.89)	\$ (1,289,535.81)	\$ (750,521.58)	\$ (1,323,129.53)	\$ (770,073.43)	\$ (1,044,490.67)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (1,315,326.53)	\$ (715,450.48)	\$ (1,317,620.24)	\$ (716,698.11)	\$ (1,009,846.20)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (32,564.52)	\$ (16,554.15)	\$ (1,341,633.06)	\$ (682,018.22)	\$ (1,376,491.30)	\$ (699,738.38)	\$ (1,024,238.80)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (1,368,465.72)	\$ (650,148.21)	\$ (1,370,759.44)	\$ (651,237.93)	\$ (990,265.78)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (33,880.13)	\$ (15,043.18)	\$ (1,395,835.04)	\$ (619,767.45)	\$ (1,432,008.88)	\$ (635,829.07)	\$ (1,004,382.22)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (1,423,751.74)	\$ (590,806.35)	\$ (1,426,045.45)	\$ (591,758.16)	\$ (971,067.56)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (35,248.89)	\$ (13,670.13)	\$ (1,452,226.77)	\$ (563,198.58)	\$ (1,489,769.37)	\$ (577,758.25)	\$ (984,913.06)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (1,481,271.31)	\$ (536,880.89)	\$ (1,483,565.02)	\$ (537,712.24)	\$ (952,243.93)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (36,672.94)	\$ (12,422.39)	\$ (1,510,896.73)	\$ (511,793.00)	\$ (1,549,863.39)	\$ (524,992.35)	\$ (965,823.62)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (1,541,114.67)	\$ (487,877.44)	\$ (1,543,408.38)	\$ (488,603.57)	\$ (933,787.45)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (38,154.53)	\$ (11,288.55)	\$ (1,571,936.96)	\$ (465,079.43)	\$ (1,612,385.20)	\$ (477,046.60)	\$ (947,106.37)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (294,615.46)	\$ (153,578.00)	\$ (21,770,169.18)	\$ (10,915,424.82)	\$ (22,108,365.22)	\$ (11,094,369.20)	\$ (16,163,365.52)

**BRIDGE: P-0294 DECATUR STREET OVER NORTHEAST BRANCH
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (15,714.51)	\$ (13,725.66)			\$ (18,008.22)	\$ (15,729.08)	\$ (16,974.48)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (672,423.84)	\$ (548,898.15)	\$ (674,717.55)	\$ (550,770.50)	\$ (617,462.14)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (16,349.38)	\$ (12,472.86)	\$ (685,872.31)	\$ (523,248.70)	\$ (704,515.40)	\$ (537,471.43)	\$ (625,952.81)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (699,589.76)	\$ (498,797.83)	\$ (701,883.47)	\$ (500,433.22)	\$ (605,450.85)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (17,009.89)	\$ (11,334.41)	\$ (713,581.56)	\$ (475,489.52)	\$ (732,885.16)	\$ (488,352.33)	\$ (613,779.78)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (727,853.19)	\$ (453,270.38)	\$ (730,146.90)	\$ (454,698.79)	\$ (593,676.25)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (17,697.09)	\$ (10,299.87)	\$ (742,410.25)	\$ (432,089.52)	\$ (762,401.06)	\$ (443,724.36)	\$ (601,846.43)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (757,258.46)	\$ (411,898.43)	\$ (759,552.17)	\$ (413,146.05)	\$ (582,133.49)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (18,412.05)	\$ (9,359.75)	\$ (772,403.62)	\$ (392,650.84)	\$ (793,109.39)	\$ (403,176.60)	\$ (590,147.87)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (787,851.70)	\$ (374,302.67)	\$ (790,145.41)	\$ (375,392.39)	\$ (570,817.86)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (19,155.90)	\$ (8,505.45)	\$ (803,608.73)	\$ (356,811.89)	\$ (825,058.35)	\$ (366,335.77)	\$ (578,679.32)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (819,680.91)	\$ (340,138.43)	\$ (821,974.62)	\$ (341,090.24)	\$ (559,724.72)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (19,929.80)	\$ (7,729.12)	\$ (836,074.52)	\$ (324,244.11)	\$ (858,298.04)	\$ (332,862.78)	\$ (567,436.11)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (852,796.01)	\$ (309,092.52)	\$ (855,089.73)	\$ (309,923.87)	\$ (548,849.56)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (20,734.96)	\$ (7,023.65)	\$ (869,851.93)	\$ (294,648.95)	\$ (892,880.61)	\$ (302,449.55)	\$ (556,413.68)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (887,248.97)	\$ (280,880.30)	\$ (889,542.69)	\$ (281,606.43)	\$ (538,187.96)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (21,572.65)	\$ (6,382.57)	\$ (904,993.95)	\$ (267,755.05)	\$ (928,860.32)	\$ (274,816.25)	\$ (545,607.54)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (166,576.23)	\$ (86,833.34)	\$ (12,533,499.71)	\$ (6,284,217.30)	\$ (12,743,656.52)	\$ (6,396,417.03)	\$ (9,317,661.48)

BRIDGE: P-0396 TUCKER ROAD OVER HENSON CREEK
ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (9,422.01)	\$ (8,229.55)			\$ (11,715.72)	\$ (10,232.97)	\$ (11,043.19)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (212,014.93)	\$ (173,067.33)	\$ (214,308.64)	\$ (174,939.69)	\$ (196,122.76)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (9,802.66)	\$ (7,478.40)	\$ (216,255.22)	\$ (164,980.08)	\$ (228,351.60)	\$ (174,208.34)	\$ (202,887.44)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (220,580.33)	\$ (157,270.73)	\$ (222,874.04)	\$ (158,906.11)	\$ (192,253.11)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (10,198.68)	\$ (6,795.81)	\$ (224,991.94)	\$ (149,921.63)	\$ (237,484.33)	\$ (158,245.84)	\$ (198,889.39)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (229,491.77)	\$ (142,915.94)	\$ (231,785.49)	\$ (144,344.35)	\$ (188,462.81)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (10,610.71)	\$ (6,175.53)	\$ (234,081.61)	\$ (136,237.63)	\$ (246,986.04)	\$ (143,748.12)	\$ (194,973.06)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (238,763.24)	\$ (129,871.38)	\$ (241,056.96)	\$ (131,119.01)	\$ (184,750.08)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (11,039.38)	\$ (5,611.86)	\$ (243,538.51)	\$ (123,802.63)	\$ (256,871.61)	\$ (130,580.50)	\$ (191,136.60)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (248,409.28)	\$ (118,017.46)	\$ (250,702.99)	\$ (119,107.19)	\$ (181,113.18)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (11,485.37)	\$ (5,099.64)	\$ (253,377.46)	\$ (112,502.62)	\$ (267,156.55)	\$ (118,620.70)	\$ (187,378.23)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (258,445.01)	\$ (107,245.49)	\$ (260,738.73)	\$ (108,197.30)	\$ (177,550.39)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (11,949.38)	\$ (4,634.18)	\$ (263,613.91)	\$ (102,234.02)	\$ (277,857.01)	\$ (107,757.74)	\$ (183,696.22)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (268,886.19)	\$ (97,456.73)	\$ (271,179.90)	\$ (98,288.08)	\$ (174,060.06)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (12,432.14)	\$ (4,211.20)	\$ (274,263.91)	\$ (92,902.68)	\$ (288,989.77)	\$ (97,890.83)	\$ (180,088.87)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (279,749.19)	\$ (88,561.43)	\$ (282,042.91)	\$ (89,287.56)	\$ (170,640.60)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (12,934.40)	\$ (3,826.82)	\$ (285,344.18)	\$ (84,423.05)	\$ (300,572.29)	\$ (88,928.49)	\$ (176,554.54)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (99,874.74)	\$ (52,062.99)	\$ (3,951,806.68)	\$ (1,981,410.82)	\$ (4,095,262.00)	\$ (2,058,840.20)	\$ (2,996,121.14)

BRIDGE: P-0484 MCKENDREE ROAD OVER TIMOTHY BRANCH
ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (6,720.60)	\$ (5,870.03)			\$ (9,014.31)	\$ (7,873.45)	\$ (8,496.85)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (595,699.35)	\$ (486,268.11)	\$ (597,993.06)	\$ (488,140.47)	\$ (547,248.36)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (6,992.11)	\$ (5,334.25)	\$ (607,613.33)	\$ (463,545.30)	\$ (616,899.16)	\$ (470,629.42)	\$ (548,106.91)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (619,765.60)	\$ (441,884.31)	\$ (622,059.32)	\$ (443,519.70)	\$ (536,593.83)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (7,274.59)	\$ (4,847.37)	\$ (632,160.91)	\$ (421,235.51)	\$ (641,729.22)	\$ (427,611.28)	\$ (537,438.12)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (644,804.13)	\$ (401,551.61)	\$ (647,097.85)	\$ (402,980.02)	\$ (526,149.77)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (7,568.49)	\$ (4,404.93)	\$ (657,700.21)	\$ (382,787.51)	\$ (667,562.41)	\$ (388,527.40)	\$ (526,979.93)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (670,854.22)	\$ (364,900.25)	\$ (673,147.93)	\$ (366,147.87)	\$ (515,911.84)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (7,874.25)	\$ (4,002.87)	\$ (684,271.30)	\$ (347,848.83)	\$ (694,439.27)	\$ (353,017.71)	\$ (516,728.03)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (697,956.73)	\$ (331,594.21)	\$ (700,250.44)	\$ (332,683.94)	\$ (505,875.82)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (8,192.37)	\$ (3,637.51)	\$ (711,915.86)	\$ (316,099.16)	\$ (722,401.95)	\$ (320,755.11)	\$ (506,678.19)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (726,154.18)	\$ (301,328.17)	\$ (728,447.90)	\$ (302,279.98)	\$ (496,037.57)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (8,523.34)	\$ (3,305.50)	\$ (740,677.26)	\$ (287,247.41)	\$ (751,494.32)	\$ (291,442.45)	\$ (496,826.28)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (755,490.81)	\$ (273,824.64)	\$ (757,784.52)	\$ (274,655.98)	\$ (486,393.05)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (8,867.69)	\$ (3,003.79)	\$ (770,600.63)	\$ (261,029.09)	\$ (781,762.03)	\$ (264,809.85)	\$ (487,168.25)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (786,012.64)	\$ (248,831.47)	\$ (788,306.35)	\$ (249,557.60)	\$ (476,938.31)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (9,225.94)	\$ (2,729.62)	\$ (801,732.89)	\$ (237,203.83)	\$ (813,252.55)	\$ (240,612.08)	\$ (477,700.16)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (71,239.38)	\$ (37,135.87)	\$ (11,103,410.07)	\$ (5,567,179.42)	\$ (11,218,230.03)	\$ (5,629,681.68)	\$ (8,201,791.91)

BRIDGE: P-0490 GALLAHAN ROAD OVER TINKERS CREEK
ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (5,667.47)	\$ (4,950.19)			\$ (7,961.18)	\$ (6,953.61)	\$ (7,504.18)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (470,138.92)	\$ (383,773.40)	\$ (472,432.63)	\$ (385,645.75)	\$ (432,342.78)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (5,896.43)	\$ (4,498.36)	\$ (479,541.69)	\$ (365,840.06)	\$ (487,731.84)	\$ (372,088.29)	\$ (433,343.42)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (489,132.53)	\$ (348,744.73)	\$ (491,426.24)	\$ (350,380.12)	\$ (423,908.59)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (6,134.65)	\$ (4,087.78)	\$ (498,915.18)	\$ (332,448.25)	\$ (507,343.54)	\$ (338,064.42)	\$ (424,892.23)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (508,893.48)	\$ (316,913.28)	\$ (511,187.20)	\$ (318,341.69)	\$ (415,641.97)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (6,382.49)	\$ (3,714.67)	\$ (519,071.35)	\$ (302,104.25)	\$ (527,747.55)	\$ (307,153.88)	\$ (416,608.79)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (529,452.78)	\$ (287,987.23)	\$ (531,746.49)	\$ (289,234.86)	\$ (407,539.41)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (6,640.34)	\$ (3,375.61)	\$ (540,041.83)	\$ (274,529.88)	\$ (548,975.89)	\$ (279,071.51)	\$ (408,489.62)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (550,842.67)	\$ (261,701.38)	\$ (553,136.38)	\$ (262,791.11)	\$ (399,597.49)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (6,908.61)	\$ (3,067.51)	\$ (561,859.52)	\$ (249,472.35)	\$ (571,061.85)	\$ (253,558.29)	\$ (400,531.29)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (573,096.71)	\$ (237,814.76)	\$ (575,390.43)	\$ (238,766.57)	\$ (391,812.88)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (7,187.72)	\$ (2,787.52)	\$ (584,558.65)	\$ (226,701.92)	\$ (594,040.08)	\$ (230,378.99)	\$ (392,730.48)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (596,249.82)	\$ (216,108.37)	\$ (598,543.54)	\$ (216,939.72)	\$ (384,182.32)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (7,478.10)	\$ (2,533.09)	\$ (608,174.82)	\$ (206,009.85)	\$ (617,946.64)	\$ (209,319.91)	\$ (385,083.91)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (620,338.31)	\$ (196,383.22)	\$ (622,632.03)	\$ (197,109.35)	\$ (376,702.62)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (7,780.22)	\$ (2,301.89)	\$ (632,745.08)	\$ (187,206.44)	\$ (642,819.01)	\$ (190,186.95)	\$ (377,588.42)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (60,076.04)	\$ (31,316.61)	\$ (8,763,053.35)	\$ (4,393,739.40)	\$ (8,866,709.96)	\$ (4,450,422.39)	\$ (6,483,021.04)

BRIDGE: P-0579 DERRICK PLACE OVER BUTLER BRANCH
ALTERNATIVE 1 - NO BUILD

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (333.31)	\$ (291.13)			\$ (2,627.03)	\$ (2,294.55)	\$ (2,476.23)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (1,673.31)	\$ (1,365.92)	\$ (3,967.03)	\$ (3,238.28)	\$ (3,630.39)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (346.78)	\$ (264.56)	\$ (1,706.78)	\$ (1,302.09)	\$ (4,347.27)	\$ (3,316.51)	\$ (3,862.50)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (1,740.91)	\$ (1,241.25)	\$ (4,034.63)	\$ (2,876.63)	\$ (3,480.31)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (360.79)	\$ (240.41)	\$ (1,775.73)	\$ (1,183.25)	\$ (4,430.24)	\$ (2,952.05)	\$ (3,710.25)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (1,811.25)	\$ (1,127.95)	\$ (4,104.96)	\$ (2,556.36)	\$ (3,337.71)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (375.37)	\$ (218.47)	\$ (1,847.47)	\$ (1,075.25)	\$ (4,516.55)	\$ (2,628.68)	\$ (3,565.41)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (1,884.42)	\$ (1,025.00)	\$ (4,178.14)	\$ (2,272.63)	\$ (3,202.19)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (390.53)	\$ (198.53)	\$ (1,922.11)	\$ (977.10)	\$ (4,606.36)	\$ (2,341.64)	\$ (3,427.56)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (1,960.55)	\$ (931.44)	\$ (4,254.27)	\$ (2,021.17)	\$ (3,073.37)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (406.31)	\$ (180.41)	\$ (1,999.76)	\$ (887.92)	\$ (4,699.79)	\$ (2,086.76)	\$ (3,296.34)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (2,039.76)	\$ (846.43)	\$ (4,333.47)	\$ (1,798.24)	\$ (2,950.88)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (422.72)	\$ (163.94)	\$ (2,080.55)	\$ (806.87)	\$ (4,796.99)	\$ (1,860.36)	\$ (3,171.38)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (2,122.17)	\$ (769.17)	\$ (4,415.88)	\$ (1,600.52)	\$ (2,834.39)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (439.80)	\$ (148.98)	\$ (2,164.61)	\$ (733.23)	\$ (4,898.12)	\$ (1,659.16)	\$ (3,052.35)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (2,207.90)	\$ (698.96)	\$ (4,501.62)	\$ (1,425.10)	\$ (2,723.55)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (457.57)	\$ (135.38)	\$ (2,252.06)	\$ (666.30)	\$ (5,003.34)	\$ (1,480.31)	\$ (2,938.94)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (3,533.19)	\$ (1,841.79)	\$ (31,189.35)	\$ (15,638.14)	\$ (78,303.12)	\$ (42,846.32)	\$ (59,254.37)

**BRIDGE: P-0596 LEELAND ROAD OVER COLLINGTON BRANCH
ALTERNATIVE 1 - NO BUILD**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Work Zone Cost	Discounted Work Zone Cost at 7%	Delay Freight Travel Cost	Discounted Delay Freight Travel Cost at 7%	Total Cost Alternative 1	Total Cost Alt 1 Discounted at 7%	Total Cost Alt 1 Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)					\$ (2,293.71)	\$ (2,293.71)	\$ (2,293.71)
2023	2	\$ (2,293.71)	\$ (2,143.66)					\$ (2,293.71)	\$ (2,143.66)	\$ (2,226.91)
2024	3	\$ (2,293.71)	\$ (2,003.42)	\$ (4,924.73)	\$ (4,301.45)			\$ (7,218.45)	\$ (6,304.87)	\$ (6,804.08)
2025	4	\$ (2,293.71)	\$ (1,872.35)			\$ (331,687.78)	\$ (270,756.03)	\$ (333,981.49)	\$ (272,628.38)	\$ (305,640.38)
2026	5	\$ (2,293.71)	\$ (1,749.86)	\$ (5,123.69)	\$ (3,908.84)	\$ (338,321.53)	\$ (258,103.88)	\$ (345,738.94)	\$ (263,762.58)	\$ (307,184.57)
2027	6	\$ (2,293.71)	\$ (1,635.39)			\$ (345,087.96)	\$ (246,042.95)	\$ (347,381.68)	\$ (247,678.33)	\$ (299,654.49)
2028	7	\$ (2,293.71)	\$ (1,528.40)	\$ (5,330.69)	\$ (3,552.06)	\$ (351,989.72)	\$ (234,545.61)	\$ (359,614.12)	\$ (239,626.07)	\$ (301,171.17)
2029	8	\$ (2,293.71)	\$ (1,428.41)			\$ (359,029.52)	\$ (223,585.54)	\$ (361,323.23)	\$ (225,013.95)	\$ (293,788.85)
2030	9	\$ (2,293.71)	\$ (1,334.96)	\$ (5,546.05)	\$ (3,227.85)	\$ (366,210.11)	\$ (213,137.62)	\$ (374,049.87)	\$ (217,700.43)	\$ (295,278.42)
2031	10	\$ (2,293.71)	\$ (1,247.63)			\$ (373,534.31)	\$ (203,177.91)	\$ (375,828.02)	\$ (204,425.54)	\$ (288,040.89)
2032	11	\$ (2,293.71)	\$ (1,166.01)	\$ (5,770.11)	\$ (2,933.23)	\$ (381,005.00)	\$ (193,683.62)	\$ (389,068.82)	\$ (197,782.86)	\$ (289,503.74)
2033	12	\$ (2,293.71)	\$ (1,089.73)			\$ (388,625.10)	\$ (184,632.98)	\$ (390,918.81)	\$ (185,722.71)	\$ (282,408.07)
2034	13	\$ (2,293.71)	\$ (1,018.44)	\$ (6,003.22)	\$ (2,665.50)	\$ (396,397.60)	\$ (176,005.27)	\$ (404,694.53)	\$ (179,689.21)	\$ (283,844.60)
2035	14	\$ (2,293.71)	\$ (951.81)			\$ (404,325.55)	\$ (167,780.73)	\$ (406,619.26)	\$ (168,732.54)	\$ (276,887.93)
2036	15	\$ (2,293.71)	\$ (889.54)	\$ (6,245.75)	\$ (2,422.21)	\$ (412,412.06)	\$ (159,940.51)	\$ (420,951.52)	\$ (163,252.26)	\$ (278,298.55)
2037	16	\$ (2,293.71)	\$ (831.35)			\$ (420,660.30)	\$ (152,466.65)	\$ (422,954.02)	\$ (153,298.00)	\$ (271,478.09)
2038	17	\$ (2,293.71)	\$ (776.96)	\$ (6,498.08)	\$ (2,201.12)	\$ (429,073.51)	\$ (145,342.04)	\$ (437,865.30)	\$ (148,320.13)	\$ (272,863.18)
2039	18	\$ (2,293.71)	\$ (726.13)			\$ (437,654.98)	\$ (138,550.36)	\$ (439,948.69)	\$ (139,276.49)	\$ (266,176.19)
2040	19	\$ (2,293.71)	\$ (678.63)	\$ (6,760.60)	\$ (2,000.22)	\$ (446,408.08)	\$ (132,076.04)	\$ (455,462.39)	\$ (134,754.89)	\$ (267,536.15)
TOTAL=		\$ (43,580.58)	\$ (25,366.39)	\$ (52,202.91)	\$ (27,212.48)	\$ (6,182,423.08)	\$ (3,099,827.74)	\$ (6,278,206.57)	\$ (3,152,406.61)	\$ (4,591,079.95)

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0117 CHERRYWOOD LANE OVER I-95/I-495	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0117 CHERRYWOOD LANE OVER I-95/I-495							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	9620	5%	0.05	32	481	24.05	\$ (280,904.00)
Detour Length = 2 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0117 CHERRYWOOD LANE OVER I-95/I-495									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	9620	88.2%	0.02733	16.200	14169.6828			387.251	\$ 12,546.93
Business travel. 11.8% of total trips.		11.8%	0.02733	29.400		1895.717		51.809	\$ 3,046.37
Truck travel cost. Vehicle occupancy = 1	5% of ADT	5.0%	0.02733	32.000			481.000	13.146	\$ 841.31
Work Zone Length =	0.2733 mi.	Maintenance Duration =	2 Days						
Speed Reduction =	10 MPH	Maintenance Frequency =	Every 2 Years						
TOTAL=								\$ (16,434.62)	

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0169 CONTEE ROAD OVER CSX RAILROAD	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0169 CONTEE ROAD OVER CSX RAILROAD							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	22202	5%	0.15	32	1110.1	166.515	\$ (1,944,895.20)
Detour Length = 6 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0169 CONTEE ROAD OVER CSX RAILROAD									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	22202	88.2%	0.02225	16.200	32702.2139			727.748	\$ 23,579.04
Business travel. 11.8% of total trips.		11.8%	0.02225	29.400		4375.126		97.363	\$ 5,724.95
Truck travel cost. Vehicle occupancy = 1	5% of ADT	5.0%	0.02225	32.000			1110.100	24.704	\$ 1,581.05
Work Zone Length =	0.2225 mi.	Maintenance Duration =	2 Days						
Speed Reduction =	10 MPH	Maintenance Frequency =	Every 2 Years						
TOTAL=								\$ (30,885.04)	

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0185 METZEROTT ROAD OVER PAINT BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0185 METZEROTT ROAD OVER PAINT BRANCH							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	14850	10%	0.025	32	1485	37.125	\$ (433,620.00)
Detour Length = 1 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0185 METZEROTT ROAD OVER PAINT BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	14850	88.2%	0.02011	16.200	21873.1590			439.949	\$ 14,254.34
Business travel. 11.8% of total trips.		11.8%	0.02011	29.400		2926.341		58.859	\$ 3,460.93
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02011	32.000			1485.000	29.869	\$ 1,911.60
Work Zone Length =	0.2011 mi.	Maintenance Duration =		2 Days					
Speed Reduction =	10 MPH	Maintenance Frequency =		Every 2 Years					
TOTAL=								\$ (19,626.87)	

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	5820	10%	0.05	32	582	29.1	\$ (339,888.00)
Detour Length = 2 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	5820	88.2%	0.02059	16.200	8572.5108			176.483	\$ 5,718.06
Business travel. 11.8% of total trips.		11.8%	0.02059	29.400		1146.889		23.611	\$ 1,388.34
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02059	32.000			582.000	11.982	\$ 766.83
Work Zone Length =	0.2059 mi.	Maintenance Duration =		2 Days					
Speed Reduction =	10 MPH	Maintenance Frequency =		Every 2 Years					
TOTAL=								\$ (7,873.22)	

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	10861	10%	0.15	32	1086.1	162.915	\$ (1,902,847.20)
Detour Length = 6 mi.	Analysis Period = 365 Days						
Speed = 40 MPH	Duration = Each Year after the Third Year						
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	10861	88.2%	0.02269	16.200	15997.6013			362.976	\$ 11,760.42
Business travel. 11.8% of total trips.		11.8%	0.02269	29.400		2140.269		48.561	\$ 2,855.41
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02269	32.000			1086.100	24.643	\$ 1,577.15
Work Zone Length =	0.2269 mi.	Maintenance Duration =	2 Days						
Speed Reduction =	10 MPH	Maintenance Frequency =	Every 2 Years						
								TOTAL=	\$ (16,192.98)

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	10860	10%	0.15	32	1086	162.9	\$ (1,902,672.00)
Detour Length = 6 mi.	Analysis Period = 365 Days						
Speed = 40 MPH	Duration = Each Year after the Third Year						
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	10860	88.2%	0.02269	16.200	15996.1284			362.942	\$ 11,759.34
Business travel. 11.8% of total trips.		11.8%	0.02269	29.400		2140.072		48.557	\$ 2,855.15
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02269	32.000			1086.000	24.641	\$ 1,577.00
Work Zone Length =	0.2269 mi.	Maintenance Duration =	2 Days						
Speed Reduction =	10 MPH	Maintenance Frequency =	Every 2 Years						
								TOTAL=	\$ (16,191.49)

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	22445	10%	0.075	32	2244.5	168.3375	\$ (1,966,182.00)
Detour Length = 3 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	22445	88.2%	0.02027	16.200	33060.1383			669.969	\$ 21,706.99
Business travel. 11.8% of total trips.		11.8%	0.02027	29.400		4423.012		89.633	\$ 5,270.42
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02027	32.000			2244.500	45.485	\$ 2,911.05
Work Zone Length =	0.2027 mi.	Maintenance Duration =		2 Days					
Speed Reduction =	10 MPH	Maintenance Frequency =		Every 2 Years					
TOTAL=								\$ (29,888.46)	

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	39421	5%	0.075	32	1971.05	147.82875	\$ (1,726,639.80)
Detour Length = 3 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	39421	88.2%	0.02076	16.200	58064.7677			1205.284	\$ 39,051.20
Business travel. 11.8% of total trips.		11.8%	0.02076	29.400		7768.302		161.251	\$ 9,481.57
Truck travel cost. Vehicle occupancy = 1	5% of ADT	5.0%	0.02076	32.000			1971.050	40.914	\$ 2,618.51
Work Zone Length =	0.2076 mi.	Maintenance Duration =		2 Days					
Speed Reduction =	10 MPH	Maintenance Frequency =		Every 2 Years					
TOTAL=								\$ (51,151.27)	

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	18846	10%	0.05	32	1884.6	94.23	\$ (1,100,606.40)
Detour Length = 2 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	18846	88.2%	0.02157	16.200	27759.0272			598.817	\$ 19,401.67
Business travel. 11.8% of total trips.		11.8%	0.02157	29.400		3713.793		80.114	\$ 4,710.69
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02157	32.000			1884.600	40.655	\$ 2,601.89
Work Zone Length =	0.2157 mi.	Maintenance Duration =	2 Days	TOTAL=					
Speed Reduction =	10 MPH	Maintenance Frequency =	Every 2 Years	\$ (26,714.25)					

ALTERNATIVE 1 - NO BUILD

OPERATING AND MAINTENANCE COST P-0294 DECATUR STREET OVER NORTHEAST BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among 63 assests with poor or fair condition elements =	\$ 2,293.71
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (2,293.71)
Inflation was assumed at 3% per year	

LOSS OF SERVICE P-0294 DECATUR STREET OVER NORTHEAST BRANCH							
Loss of Service - Freight Traffic	ADT	Volume Distribution	Delay Time hr/day	Value of Travel (\$/hr)	Number of Trucks	Total Travel Delay Time veh-hr/day	Total Freight Travel Delay Cost (\$/year)
Truck travel cost. Vehicle occupancy = 1	8680	25%	0.025	32	2170	54.25	\$ (633,640.00)
Detour Length = 1 mi.		Analysis Period = 365 Days					
Speed = 40 MPH		Duration = Each Year after the Third Year					
ADT Growth = Assume 2%							

CONSTRUCTION ZONE COST P-0294 DECATUR STREET OVER NORTHEAST BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Car Users	Number of Business Car Users	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all traves = 1.67. 88.2% of total trips.	8680	88.2%	0.02311	16.200	12785.1192			295.414	\$ 9,571.41
Business travel. 11.8% of total trips.		11.8%	0.02311	29.400		1710.481		39.522	\$ 2,323.92
Truck travel cost. Vehicle occupancy = 1	25% of ADT	25.0%	0.02311	32.000			2170.000	50.140	\$ 3,208.97
Work Zone Length =	0.2311 mi.	Maintenance Duration =	2 Days	TOTAL=					
Speed Reduction =	10 MPH	Maintenance Frequency =	Every 2 Years	\$ (15,104.30)					

ALTERNATIVE 1 - NO BUILD

SIA Data										
Bridge	Item 19 Bypass Detour Length (mi)	Item 29 ADT (vpd)	Item 109 ADTT (%) (tpd)		Item 27 Year Built	Item 106 Year Reconstr.	Age	Item 49 Bridge Length (ft)	Bridge Construction Zone Length (Mi)	Road Name and Crossing
P-0117	2	9620	5	481	1990	0	32	443	0.2733	CHERRYWOOD LANE OVER I-95/I-495
P-0169	6	22202	5	1110.1	1997	0	25	175	0.2225	CONTEE ROAD OVER CSX RAILROAD
P-0185	1	14850	10	1485	1900	1970	52	62	0.2011	METZEROTT ROAD OVER PAINT BRANCH
P-0190	2	5820	10	582	1985	0	37	87	0.2059	SELLMAN ROAD OVER LITTLE PAINT BRANCH
P-0198031	6	10861	10	1086.1	1990	0	32	198	0.2269	CHERRY LANE (EAST) OVER CSX RAILROAD
P-0198041	6	10860	10	1086	1979	0	43	198	0.2269	CHERRY LANE (WEST) OVER CSX RAILROAD
P-0204	3	22445	10	2244.5	1980	0	42	70	0.2027	RITCHIE ROAD OVER SOUTHWEST BRANCH
P-0205	3	39421	5	1971.05	1969	0	53	96	0.2076	WALKER MILL ROAD OVER SOUTHWEST BRANCH
P-0220	1	5000	10	500	1957	0	65	22	0.1936	RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH
P-0273	2	15218	10	1521.8	1979	0	43	212	0.2295	CARTER AVENUE OVER AMTRAK RAILROAD
P-0283	2	18846	10	1884.6	1989	0	33	139	0.2157	LOTTSFORD ROAD OVER WESTERN BRANCH
P-0294	1	8680	25	2170	1955	1994	28	220	0.2311	DECATUR STREET OVER NORTHEAST BRANCH
P-0396	2	6842	5	342.1	1979	0	43	118	0.2117	TUCKER ROAD OVER HENSON CREEK
P-0484	4	4806	10	480.6	1986	0	36	80	0.2045	MCKENDREE ROAD OVER TIMOTHY BRANCH
P-0490	4	3793	10	379.3	1989	0	33	154	0.2186	GALLAHAN ROAD OVER TINKERS CREEK
P-0579	1	270	2	5.4	1974	0	48	34	0.1958	DERRICK PLACE OVER BUTLER BRANCH
P-0596	3	3568	10	356.8	1985	0	37	66	0.2019	LEELAND ROAD OVER COLLINGTON BRANCH

BRIDGE: P-0117 CHERRYWOOD LANE OVER I-95/I-495

ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (359,070.14)	\$ (313,625.76)					\$ (660,245.70)	\$ (576,684.16)	\$ (622,344.89)	\$ (679,637.99)	\$ (593,622.14)	\$ (640,623.99)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (685,052.35)	\$ (559,206.78)	\$ (626,919.94)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (33,950.66)	\$ (25,900.79)	\$ (30,164.72)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (22,242.49)	\$ (15,858.59)	\$ (19,186.56)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (46,953.35)	\$ (31,287.00)	\$ (39,322.69)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (34,772.17)	\$ (21,654.36)	\$ (28,272.96)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (60,481.36)	\$ (35,200.70)	\$ (47,744.54)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (47,808.06)	\$ (26,004.41)	\$ (36,640.89)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (74,555.89)	\$ (37,900.43)	\$ (55,476.58)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (61,370.59)	\$ (29,156.73)	\$ (44,335.42)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (89,199.04)	\$ (39,605.44)	\$ (62,562.41)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (75,481.05)	\$ (31,321.95)	\$ (51,398.92)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (104,433.77)	\$ (40,501.22)	\$ (69,043.02)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (90,161.57)	\$ (32,678.70)	\$ (57,871.28)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (120,283.98)	\$ (40,744.35)	\$ (74,957.00)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (105,435.19)	\$ (33,378.08)	\$ (63,790.02)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (136,774.55)	\$ (40,466.65)	\$ (80,340.63)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (359,070.14)	\$ (313,625.76)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,224,870.73	\$ 1,188,527.01	\$ 2,114,989.69	\$ (2,556,283.09)	\$ (1,717,227.11)	\$ (2,114,136.71)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 3.13 2.10 2.59

BRIDGE: P-0169 CONTEE ROAD OVER CSX RAILROAD

ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (674,788.77)	\$ (589,386.65)					\$ (975,964.33)	\$ (852,445.04)	\$ (919,939.99)	\$ (1,010,390.84)	\$ (882,514.49)	\$ (952,390.28)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (2,450,893.12)	\$ (2,000,658.85)	\$ (2,242,914.40)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (1,849,451.68)	\$ (1,410,937.83)	\$ (1,643,213.87)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (1,859,423.23)	\$ (1,325,743.06)	\$ (1,603,954.81)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (1,935,800.62)	\$ (1,289,905.69)	\$ (1,621,202.54)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (1,946,175.01)	\$ (1,211,979.99)	\$ (1,582,418.38)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (2,025,638.05)	\$ (1,178,939.79)	\$ (1,599,057.38)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (2,036,431.57)	\$ (1,107,683.85)	\$ (1,560,755.23)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (2,119,104.92)	\$ (1,077,245.49)	\$ (1,576,813.08)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (2,130,334.50)	\$ (1,012,106.57)	\$ (1,538,998.97)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (2,216,347.85)	\$ (984,084.95)	\$ (1,554,501.79)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (2,228,031.10)	\$ (924,553.69)	\$ (1,517,180.76)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (2,317,519.39)	\$ (898,773.98)	\$ (1,532,153.33)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (2,329,674.64)	\$ (844,381.30)	\$ (1,495,329.50)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (2,422,778.26)	\$ (820,678.82)	\$ (1,509,795.31)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (2,435,424.59)	\$ (770,993.05)	\$ (1,473,471.93)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (2,532,289.60)	\$ (749,213.12)	\$ (1,487,453.26)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (674,788.77)	\$ (589,386.65)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 2,909,152.10	\$ 912,766.13	\$ 1,817,394.59	\$ (35,933,398.04)	\$ (18,573,133.32)	\$ (26,577,089.94)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 44.03 22.76 32.57

BRIDGE: P-0185 METZEROTT ROAD OVER PAINT BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.81)	\$ (7,433.81)													\$ (9,727.53)	\$ (9,727.53)	\$ (9,727.53)	\$ (12,021.24)	\$ (12,021.24)	\$ (12,021.24)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (428,815.71)	\$ (374,544.25)					\$ (729,991.27)	\$ (637,602.65)	\$ (688,086.79)	\$ (752,704.78)	\$ (657,441.51)	\$ (709,496.45)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (847,115.79)	\$ (691,498.82)	\$ (775,230.95)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (202,710.76)	\$ (154,647.07)	\$ (180,105.89)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (190,853.29)	\$ (136,075.76)	\$ (164,631.73)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (222,531.36)	\$ (148,282.04)	\$ (186,366.51)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (210,194.85)	\$ (130,898.79)	\$ (170,907.65)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (243,152.72)	\$ (141,517.10)	\$ (191,947.00)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (230,317.81)	\$ (125,277.63)	\$ (176,519.43)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (264,607.18)	\$ (134,512.87)	\$ (196,892.59)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (251,253.74)	\$ (119,368.84)	\$ (181,511.05)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (286,928.40)	\$ (127,399.64)	\$ (201,245.80)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (273,035.48)	\$ (113,300.02)	\$ (185,923.88)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (310,151.39)	\$ (120,282.06)	\$ (205,046.61)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (295,697.20)	\$ (107,174.27)	\$ (189,796.78)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (334,312.60)	\$ (113,243.24)	\$ (208,332.56)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (319,274.46)	\$ (101,074.12)	\$ (193,166.30)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (359,449.92)	\$ (106,348.26)	\$ (211,138.95)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.81)	\$ (7,433.81)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (428,815.71)	\$ (374,544.25)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,155,124.55	\$ 1,127,607.92	\$ 2,049,247.18	\$ (5,681,981.41)	\$ (3,311,081.43)	\$ (4,413,745.84)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.73)

Benefit to Cost Ratio = 6.96 4.06 5.41

BRIDGE: P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (172,017.35)	\$ (150,246.61)					\$ (473,192.91)	\$ (413,305.01)	\$ (446,029.70)	\$ (483,677.93)	\$ (422,463.03)	\$ (455,912.83)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (747,646.64)	\$ (610,302.37)	\$ (684,202.59)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (88,529.71)	\$ (67,538.89)	\$ (78,657.50)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (87,365.59)	\$ (62,290.46)	\$ (75,362.32)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (103,737.39)	\$ (69,124.61)	\$ (86,878.43)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (102,526.25)	\$ (63,848.19)	\$ (83,363.22)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (119,559.47)	\$ (69,584.70)	\$ (94,381.35)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (118,299.40)	\$ (64,347.03)	\$ (90,666.64)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (136,020.76)	\$ (69,146.06)	\$ (101,212.22)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (134,709.78)	\$ (63,999.65)	\$ (97,317.21)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (153,147.09)	\$ (67,999.14)	\$ (107,414.29)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (151,783.14)	\$ (62,984.61)	\$ (103,356.93)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (170,965.32)	\$ (66,303.30)	\$ (113,028.22)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (169,546.27)	\$ (61,451.37)	\$ (108,825.30)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (189,503.41)	\$ (64,191.36)	\$ (118,092.26)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (188,027.03)	\$ (59,524.54)	\$ (113,759.44)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (208,790.45)	\$ (61,773.56)	\$ (122,642.38)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (172,017.35)	\$ (150,246.61)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,411,923.52	\$ 1,351,906.16	\$ 2,291,304.88	\$ (3,441,524.68)	\$ (2,089,611.65)	\$ (2,720,558.27)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 4.22 2.56 3.33

**BRIDGE: P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD
ALTERNATIVE 2: BRIDGE PRESERVATION**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (353,790.65)	\$ (309,014.46)					\$ (654,966.21)	\$ (572,072.85)	\$ (617,368.47)	\$ (674,107.10)	\$ (588,791.25)	\$ (635,410.59)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (2,406,271.45)	\$ (1,964,234.28)	\$ (2,202,079.25)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (1,789,332.58)	\$ (1,365,073.26)	\$ (1,589,798.82)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (1,812,998.84)	\$ (1,292,643.11)	\$ (1,563,908.72)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (1,873,252.70)	\$ (1,248,227.37)	\$ (1,568,819.65)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (1,897,875.08)	\$ (1,181,901.22)	\$ (1,543,146.12)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (1,960,563.20)	\$ (1,141,065.63)	\$ (1,547,686.69)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (1,986,180.32)	\$ (1,080,350.50)	\$ (1,522,241.83)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (2,051,401.04)	\$ (1,042,828.27)	\$ (1,526,435.03)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (2,078,053.09)	\$ (987,268.06)	\$ (1,501,229.77)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (2,145,908.73)	\$ (952,809.14)	\$ (1,505,097.21)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (2,173,637.53)	\$ (901,982.30)	\$ (1,480,141.39)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (2,244,234.53)	\$ (870,352.84)	\$ (1,483,703.41)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (2,273,083.57)	\$ (823,870.09)	\$ (1,459,005.85)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (2,346,532.70)	\$ (794,851.81)	\$ (1,462,281.60)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (2,376,547.24)	\$ (752,353.99)	\$ (1,437,850.16)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (2,452,963.72)	\$ (725,743.45)	\$ (1,440,857.66)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (353,790.65)	\$ (309,014.46)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,230,150.22	\$ 1,193,138.32	\$ 2,119,966.11	\$ (34,630,632.47)	\$ (17,797,085.34)	\$ (25,555,178.87)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 42.44 21.81 31.32

**BRIDGE: P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD
ALTERNATIVE 2: BRIDGE PRESERVATION**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (353,758.08)	\$ (308,986.00)					\$ (654,933.64)	\$ (572,044.40)	\$ (617,337.77)	\$ (674,072.97)	\$ (588,761.44)	\$ (635,378.43)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (2,406,085.53)	\$ (1,964,082.51)	\$ (2,201,909.10)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (1,789,141.32)	\$ (1,364,927.35)	\$ (1,589,628.89)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (1,812,805.40)	\$ (1,292,505.20)	\$ (1,563,741.86)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (1,873,053.72)	\$ (1,248,094.78)	\$ (1,568,653.00)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (1,897,673.83)	\$ (1,181,775.89)	\$ (1,542,982.48)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (1,960,356.18)	\$ (1,140,945.14)	\$ (1,547,523.27)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (1,985,970.94)	\$ (1,080,236.61)	\$ (1,522,081.36)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (2,051,185.66)	\$ (1,042,718.78)	\$ (1,526,274.76)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (2,077,835.25)	\$ (987,164.56)	\$ (1,501,072.40)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (2,145,684.64)	\$ (952,709.64)	\$ (1,504,940.04)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (2,173,410.89)	\$ (901,888.25)	\$ (1,479,987.06)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (2,244,001.39)	\$ (870,262.43)	\$ (1,483,549.28)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (2,272,847.78)	\$ (823,784.63)	\$ (1,458,854.50)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (2,346,290.14)	\$ (794,769.65)	\$ (1,462,130.44)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (2,376,301.91)	\$ (752,276.33)	\$ (1,437,701.74)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (2,452,711.36)	\$ (725,668.79)	\$ (1,440,709.43)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (353,758.08)	\$ (308,986.00)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,230,182.79	\$ 1,193,166.77	\$ 2,119,996.81	\$ (34,627,117.97)	\$ (17,795,310.75)	\$ (25,552,603.16)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 42.43 21.81 31.31

BRIDGE: P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (640,210.71)	\$ (559,184.83)					\$ (941,386.27)	\$ (822,243.23)	\$ (887,346.85)	\$ (974,775.94)	\$ (851,407.05)	\$ (918,819.81)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (2,473,482.85)	\$ (2,019,098.80)	\$ (2,263,587.20)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (1,872,712.63)	\$ (1,428,683.50)	\$ (1,663,880.91)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (1,882,925.57)	\$ (1,342,499.91)	\$ (1,624,228.14)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (1,960,001.31)	\$ (1,306,031.63)	\$ (1,641,470.24)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (1,970,626.86)	\$ (1,227,207.37)	\$ (1,602,299.97)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (2,050,816.45)	\$ (1,193,593.84)	\$ (1,618,933.44)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (2,061,871.27)	\$ (1,121,521.36)	\$ (1,580,252.64)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (2,145,300.52)	\$ (1,090,562.00)	\$ (1,596,305.06)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (2,156,801.96)	\$ (1,024,681.07)	\$ (1,558,119.62)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (2,243,601.75)	\$ (996,186.01)	\$ (1,573,617.13)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (2,255,567.84)	\$ (935,980.47)	\$ (1,535,931.95)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (2,345,874.35)	\$ (909,770.52)	\$ (1,550,899.30)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (2,358,323.87)	\$ (854,765.10)	\$ (1,513,718.35)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (2,452,278.76)	\$ (830,671.66)	\$ (1,528,179.05)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (2,465,231.25)	\$ (780,429.08)	\$ (1,491,505.45)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (2,562,981.92)	\$ (758,293.87)	\$ (1,505,481.76)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (640,210.71)	\$ (559,184.83)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 2,943,730.16	\$ 942,967.94	\$ 1,849,987.73	\$ (36,320,864.14)	\$ (18,754,122.01)	\$ (26,852,715.14)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 44.51 22.98 32.91

BRIDGE: P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)	\$ (1,117,573.44)	\$ (976,131.93)					\$ (1,418,749.00)	\$ (1,239,190.33)	\$ (1,337,307.01)	\$ (1,474,260.50)	\$ (1,287,676.22)	\$ (1,389,631.92)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)							\$ (384,661.06)	\$ (313,998.01)	\$ (352,019.36)	\$ (2,219,278.75)	\$ (1,811,592.53)	\$ (2,030,954.44)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (1,636,440.00)	\$ (1,248,432.24)	\$ (1,453,955.75)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (1,618,451.63)	\$ (1,153,933.64)	\$ (1,396,090.59)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (1,714,183.27)	\$ (1,142,232.69)	\$ (1,435,601.50)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (1,695,468.16)	\$ (1,055,852.36)	\$ (1,378,570.77)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (1,795,067.36)	\$ (1,044,745.55)	\$ (1,417,042.75)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (1,775,596.17)	\$ (965,806.67)	\$ (1,360,846.61)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (1,879,219.17)	\$ (955,299.73)	\$ (1,398,315.55)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (1,858,961.34)	\$ (883,179.14)	\$ (1,342,953.22)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (1,966,770.71)	\$ (873,269.72)	\$ (1,379,453.41)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (1,945,694.47)	\$ (807,394.03)	\$ (1,324,923.25)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (2,057,859.34)	\$ (798,073.33)	\$ (1,360,487.45)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (2,035,931.61)	\$ (737,915.31)	\$ (1,306,787.03)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (2,152,627.94)	\$ (729,169.56)	\$ (1,341,446.57)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (2,129,814.34)	\$ (674,244.68)	\$ (1,288,572.70)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (576,000.00)	\$ (170,417.62)	\$ (285,808.06)	\$ (84,560.29)	\$ (167,882.11)	\$ (2,827,225.20)	\$ (836,473.92)	\$ (1,660,696.84)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (1,117,573.44)	\$ (976,131.93)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (576,000.00)	\$ (170,417.62)	\$ 1,890,367.43	\$ 355,603.23	\$ 1,061,688.28	\$ (32,870,539.01)	\$ (17,088,030.10)	\$ (24,351,815.46)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 40.28 20.94 29.84

BRIDGE: P-0220 RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (310,085.67)	\$ (270,840.83)	\$ (292,285.48)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (133,548.89)	\$ (109,015.67)					\$ (518,209.95)	\$ (423,013.68)	\$ (474,235.52)	\$ (675,440.04)	\$ (551,360.27)	\$ (618,123.31)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ 122,979.44	\$ 93,820.42	\$ 109,265.64
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ 126,702.43	\$ 90,337.08	\$ 109,294.63
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ 116,316.72	\$ 77,506.74	\$ 97,413.42
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ 120,190.12	\$ 74,848.37	\$ 97,725.57
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ 109,384.82	\$ 63,662.96	\$ 86,349.39
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ 113,414.71	\$ 61,690.09	\$ 86,922.93
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ 102,172.88	\$ 51,939.51	\$ 76,026.22
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ 106,365.58	\$ 50,533.52	\$ 76,840.76
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ 94,669.58	\$ 42,034.42	\$ 66,399.34
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ 99,031.66	\$ 41,094.62	\$ 67,435.74
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ 86,863.14	\$ 33,687.02	\$ 57,426.77
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ 91,401.45	\$ 33,128.09	\$ 58,667.11
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ 78,741.32	\$ 26,672.41	\$ 49,068.99
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ 83,462.98	\$ 26,422.24	\$ 50,496.48
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (84,000.00)	\$ (24,852.57)	\$ 206,191.94	\$ 61,004.76	\$ 121,116.03	\$ (13,708.62)	\$ (4,055.88)	\$ (8,052.37)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (133,548.89)	\$ (109,015.67)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (84,000.00)	\$ (24,852.57)	\$ 3,366,391.99	\$ 1,368,284.53	\$ 2,281,890.43	\$ 364,773.46	\$ (141,618.26)	\$ 85,386.69

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = -0.45 0.17 -0.10

BRIDGE: P-0273 CARTER AVENUE OVER AMTRAK RAILROAD
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (327,350.72)	\$ (285,920.80)	\$ (308,559.45)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (482,036.11)	\$ (393,485.06)					\$ (866,697.18)	\$ (707,483.07)	\$ (793,150.69)	\$ (1,812,119.55)	\$ (1,479,229.34)	\$ (1,658,346.09)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (698,939.26)	\$ (533,217.42)	\$ (620,998.48)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (693,332.83)	\$ (494,336.73)	\$ (598,074.99)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (738,807.50)	\$ (492,298.63)	\$ (618,739.65)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (732,974.56)	\$ (456,459.72)	\$ (595,975.40)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (780,286.41)	\$ (454,133.79)	\$ (615,965.30)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (774,217.83)	\$ (421,123.20)	\$ (593,373.50)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (823,441.07)	\$ (418,595.68)	\$ (612,717.49)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (817,127.31)	\$ (388,211.30)	\$ (590,310.16)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (868,339.17)	\$ (385,552.98)	\$ (609,035.63)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (861,770.35)	\$ (357,604.06)	\$ (586,823.67)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (915,051.17)	\$ (354,872.62)	\$ (604,956.62)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (908,216.96)	\$ (329,179.62)	\$ (582,949.90)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (963,650.32)	\$ (326,421.70)	\$ (600,515.02)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (956,540.01)	\$ (302,816.07)	\$ (578,722.44)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (1,014,212.89)	\$ (300,069.00)	\$ (595,743.18)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (482,036.11)	\$ (393,485.06)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,101,904.75	\$ 1,108,667.72	\$ 2,012,316.40	\$ (14,774,066.96)	\$ (7,862,781.44)	\$ (11,057,292.08)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 18.10 9.64 13.55

**BRIDGE: P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (331,262.78)	\$ (289,337.74)	\$ (312,246.94)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (595,336.90)	\$ (485,972.25)					\$ (979,997.97)	\$ (799,970.26)	\$ (896,836.97)	\$ (2,150,264.00)	\$ (1,755,255.94)	\$ (1,967,796.16)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (932,349.90)	\$ (711,285.27)	\$ (828,380.81)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (927,260.17)	\$ (661,123.69)	\$ (799,862.77)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (981,647.92)	\$ (654,113.46)	\$ (822,114.68)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (976,352.57)	\$ (608,023.31)	\$ (793,863.99)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (1,032,937.59)	\$ (601,179.08)	\$ (815,410.47)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (1,027,428.30)	\$ (558,852.92)	\$ (787,438.24)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (1,086,299.36)	\$ (552,219.51)	\$ (808,308.74)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (1,080,567.49)	\$ (513,369.83)	\$ (780,624.95)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (1,141,816.94)	\$ (506,980.38)	\$ (800,847.43)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (1,135,853.51)	\$ (471,338.82)	\$ (777,460.97)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (1,199,577.43)	\$ (465,216.81)	\$ (793,062.00)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (1,193,373.08)	\$ (432,533.32)	\$ (765,980.77)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (1,259,671.45)	\$ (426,694.30)	\$ (784,985.60)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (1,253,216.44)	\$ (396,736.23)	\$ (758,216.56)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (1,322,193.27)	\$ (391,189.28)	\$ (776,649.20)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (595,336.90)	\$ (485,972.25)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 2,988,603.96	\$ 1,016,180.52	\$ 1,908,630.13	\$ (19,119,761.25)	\$ (10,078,188.68)	\$ (14,254,735.39)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 23.43 12.35 17.47

**BRIDGE: P-0294 DECATUR STREET OVER NORTHEAST BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (319,183.78)	\$ (278,787.48)	\$ (300,861.33)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (336,604.80)	\$ (274,769.78)					\$ (721,265.86)	\$ (588,767.79)	\$ (660,060.44)	\$ (1,395,983.42)	\$ (1,139,538.30)	\$ (1,277,522.58)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (414,323.46)	\$ (316,085.39)	\$ (368,121.03)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (411,691.53)	\$ (293,530.37)	\$ (355,128.73)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (442,693.22)	\$ (294,985.18)	\$ (370,748.60)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (439,954.96)	\$ (273,981.84)	\$ (357,723.64)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (472,209.11)	\$ (274,830.00)	\$ (372,766.23)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (469,360.23)	\$ (255,300.87)	\$ (359,725.53)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (502,917.45)	\$ (255,657.73)	\$ (374,217.81)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (499,953.47)	\$ (237,524.29)	\$ (361,177.02)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (534,866.40)	\$ (237,487.08)	\$ (375,144.53)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (531,782.68)	\$ (220,670.91)	\$ (362,118.13)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (568,106.09)	\$ (220,321.34)	\$ (375,585.05)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (564,897.79)	\$ (204,744.95)	\$ (362,586.39)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (602,688.67)	\$ (204,151.50)	\$ (375,575.65)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (599,350.75)	\$ (189,739.10)	\$ (362,617.06)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (638,668.39)	\$ (188,958.93)	\$ (375,150.37)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (336,604.80)	\$ (274,769.78)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,247,336.07	\$ 1,227,382.99	\$ 2,145,406.65	\$ (9,496,320.46)	\$ (5,169,034.04)	\$ (7,172,254.83)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 11.64 6.33 8.79

BRIDGE: P-0396 TUCKER ROAD OVER HENSON CREEK
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (312,891.28)	\$ (273,291.36)	\$ (294,930.04)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (201,819.41)	\$ (164,744.75)					\$ (586,480.47)	\$ (478,742.76)	\$ (536,712.71)	\$ (800,789.11)	\$ (653,682.45)	\$ (732,835.48)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ 61,840.35	\$ 47,177.70	\$ 54,944.35
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ 67,317.90	\$ 47,996.73	\$ 58,069.01
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ 52,707.61	\$ 35,121.30	\$ 44,141.79
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ 58,406.45	\$ 36,372.60	\$ 47,489.79
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ 43,205.91	\$ 25,146.23	\$ 34,107.14
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ 49,134.99	\$ 26,726.18	\$ 37,657.87
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ 33,320.34	\$ 16,938.37	\$ 24,793.46
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ 39,488.95	\$ 18,760.92	\$ 28,527.66
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ 23,035.39	\$ 10,227.99	\$ 16,156.56
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ 29,453.22	\$ 12,222.04	\$ 20,056.21
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ 12,334.93	\$ 4,783.70	\$ 8,154.84
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ 19,012.04	\$ 6,890.84	\$ 12,203.10
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ 1,202.17	\$ 407.22	\$ 749.16
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ 8,149.03	\$ 2,579.78	\$ 4,930.30
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (10,380.36)	\$ (3,071.17)	\$ (6,097.37)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (201,819.41)	\$ (164,744.75)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,382,121.46	\$ 1,337,408.02	\$ 2,268,754.38	\$ (713,140.54)	\$ (721,432.18)	\$ (727,366.77)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 0.87 0.88 0.89

BRIDGE: P-0484 MCKENDREE ROAD OVER TIMOTHY BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (310,189.87)	\$ (270,931.85)	\$ (292,383.71)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (143,955.22)	\$ (117,510.34)					\$ (528,616.28)	\$ (431,508.35)	\$ (483,758.78)	\$ (1,126,609.35)	\$ (919,648.82)	\$ (1,031,007.15)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (326,707.22)	\$ (249,243.37)	\$ (290,275.13)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (331,867.37)	\$ (236,616.85)	\$ (286,271.71)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (351,537.28)	\$ (234,244.13)	\$ (294,406.94)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (356,905.90)	\$ (222,263.06)	\$ (290,197.16)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (377,370.47)	\$ (219,633.05)	\$ (297,899.74)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (382,955.99)	\$ (208,302.69)	\$ (293,503.88)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (404,247.33)	\$ (205,498.84)	\$ (300,797.98)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (410,058.50)	\$ (194,815.84)	\$ (296,234.99)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (432,210.01)	\$ (191,906.41)	\$ (303,143.40)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (438,255.95)	\$ (181,860.64)	\$ (298,430.98)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (461,302.38)	\$ (178,901.02)	\$ (304,975.22)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (467,592.58)	\$ (169,477.07)	\$ (300,129.89)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (491,570.09)	\$ (166,511.80)	\$ (306,330.23)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (498,114.41)	\$ (157,690.27)	\$ (301,367.41)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (523,060.62)	\$ (154,754.76)	\$ (307,242.99)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (143,955.22)	\$ (117,510.34)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,439,985.65	\$ 1,384,642.43	\$ 2,321,708.31	\$ (7,778,244.38)	\$ (4,245,039.25)	\$ (5,880,083.60)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 9.53 5.20 7.21

**BRIDGE: P-0490 GALLAHAN ROAD OVER TINKERS CREEK
ALTERNATIVE 2: BRIDGE PRESERVATION**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (309,136.74)	\$ (270,012.00)	\$ (291,391.03)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (121,397.16)	\$ (99,096.25)					\$ (506,058.23)	\$ (413,094.26)	\$ (463,114.97)	\$ (978,490.86)	\$ (798,740.01)	\$ (895,457.75)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (197,539.90)	\$ (150,702.24)	\$ (175,511.64)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (201,234.30)	\$ (143,477.27)	\$ (173,586.47)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (217,151.60)	\$ (144,697.28)	\$ (181,861.05)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (220,995.25)	\$ (137,624.74)	\$ (179,689.37)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (237,555.61)	\$ (138,259.53)	\$ (187,528.59)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (241,554.55)	\$ (131,389.67)	\$ (185,131.45)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (258,783.95)	\$ (131,552.64)	\$ (192,559.56)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (262,944.44)	\$ (124,923.01)	\$ (189,956.66)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (280,869.91)	\$ (124,709.60)	\$ (196,996.50)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (285,198.49)	\$ (118,347.23)	\$ (194,206.29)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (303,848.14)	\$ (117,837.55)	\$ (200,879.42)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (308,351.59)	\$ (111,760.81)	\$ (197,919.15)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (327,754.69)	\$ (111,021.85)	\$ (204,245.89)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (332,440.09)	\$ (105,242.02)	\$ (201,131.72)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (352,627.08)	\$ (104,329.63)	\$ (207,131.25)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (121,397.16)	\$ (99,096.25)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,462,543.70	\$ 1,403,056.52	\$ 2,342,352.12	\$ (5,404,166.26)	\$ (3,047,365.87)	\$ (4,140,668.91)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 6.62 3.73 5.07

**BRIDGE: P-0579 DERRICK PLACE OVER BUTLER BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION**

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (303,802.59)	\$ (265,352.95)	\$ (286,363.08)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (7,139.60)	\$ (5,828.04)					\$ (391,800.66)	\$ (319,826.05)	\$ (358,553.11)	\$ (395,767.69)	\$ (323,064.33)	\$ (362,183.50)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ 285,844.67	\$ 218,069.53	\$ 253,969.28
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ 286,157.31	\$ 204,026.21	\$ 246,841.81
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ 285,761.70	\$ 190,415.09	\$ 239,320.93
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ 286,086.98	\$ 178,160.59	\$ 232,614.89
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ 285,675.39	\$ 166,265.68	\$ 225,514.79
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ 286,013.81	\$ 155,572.56	\$ 219,205.77
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ 285,585.59	\$ 145,177.23	\$ 212,502.50
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ 285,937.67	\$ 135,846.93	\$ 206,567.46
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ 285,492.15	\$ 126,761.93	\$ 200,238.45
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ 285,858.47	\$ 118,621.10	\$ 194,655.71
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ 285,394.95	\$ 110,681.08	\$ 188,679.68
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ 285,776.06	\$ 103,578.40	\$ 183,428.78
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ 285,293.82	\$ 96,638.89	\$ 177,785.67
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ 285,690.33	\$ 90,442.24	\$ 172,847.35
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ 285,188.59	\$ 84,377.01	\$ 167,518.24
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (7,139.60)	\$ (5,828.04)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,576,801.27	\$ 1,496,324.73	\$ 2,446,913.98	\$ 3,498,498.15	\$ 1,453,478.41	\$ 2,387,659.61

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = -4.29 -1.78 -2.93

BRIDGE: P-0596 LLELAND ROAD OVER COLLINGTON BRANCH
ALTERNATIVE 2: BRIDGE PRESERVATION

Year	Project Year	O&M Cost	Discounted O&M Cost at 7%	Professional Services Cost Preliminary Design	Discounted Professional Services Cost Preliminary Design at 7%	Professional Services Cost Final Design	Discounted Professional Services Cost Final Design at 7%	Professional Services Cost Construction	Discounted Professional Services Cost Construction at 7%	Construction Cost	Discounted Construction Cost at 7%	Construction Zone Cost	Discounted Construction Zone Cost at 7%	Amortized Bridge Replacement Value	Discounted Amortized Bridge Replacement Value at 7%	Residual Value	Discounted Residual Value at 7%	Total Cost Alternative 2	Total Cost Alternative 2 Discounted at 7%	Total Cost Alternative 2 Discounted at 3%	Undiscounted Net Benefits	Benefits Discounted at 7%	Benefits Discounted at 3%
2022	1	\$ (2,293.71)	\$ (2,293.71)	\$ (7,433.21)	\$ (7,433.21)													\$ (9,726.92)	\$ (9,726.92)	\$ (9,726.92)	\$ (12,020.64)	\$ (12,020.64)	\$ (12,020.64)
2023	2	\$ (2,293.71)	\$ (2,143.66)			\$ (27,794.12)	\$ (25,975.81)			\$ (43,286.87)	\$ (40,455.02)							\$ (73,374.70)	\$ (68,574.49)	\$ (71,237.57)	\$ (75,668.42)	\$ (70,718.15)	\$ (73,464.48)
2024	3	\$ (2,293.71)	\$ (2,003.42)					\$ (3,088.24)	\$ (2,697.38)	\$ (295,793.61)	\$ (258,357.59)							\$ (301,175.56)	\$ (263,058.40)	\$ (283,886.85)	\$ (308,394.01)	\$ (269,363.27)	\$ (290,690.93)
2025	4	\$ (2,293.71)	\$ (1,872.35)							\$ (382,367.35)	\$ (312,125.66)	\$ (105,487.73)	\$ (86,109.41)					\$ (490,148.79)	\$ (400,107.42)	\$ (448,555.58)	\$ (824,130.28)	\$ (672,735.80)	\$ (754,195.96)
2026	5	\$ (3,141.39)	\$ (2,396.55)											\$ 293,333.33	\$ 223,782.60			\$ 290,191.94	\$ 221,386.04	\$ 257,831.78	\$ (55,546.99)	\$ (42,376.54)	\$ (49,352.79)
2027	6	\$ (3,141.39)	\$ (2,239.77)											\$ 293,333.33	\$ 209,142.61			\$ 290,191.94	\$ 206,902.84	\$ 250,322.12	\$ (57,189.74)	\$ (40,775.49)	\$ (49,332.37)
2028	7	\$ (3,141.39)	\$ (2,093.24)											\$ 293,333.33	\$ 195,460.39			\$ 290,191.94	\$ 193,367.14	\$ 243,031.18	\$ (69,422.18)	\$ (46,258.93)	\$ (58,139.98)
2029	8	\$ (3,141.39)	\$ (1,956.30)											\$ 293,333.33	\$ 182,673.26			\$ 290,191.94	\$ 180,716.96	\$ 235,952.60	\$ (71,131.29)	\$ (44,296.99)	\$ (57,836.25)
2030	9	\$ (3,141.39)	\$ (1,828.32)											\$ 293,333.33	\$ 170,722.67			\$ 290,191.94	\$ 168,894.35	\$ 229,080.20	\$ (83,857.93)	\$ (48,806.08)	\$ (66,198.22)
2031	10	\$ (3,141.39)	\$ (1,708.71)											\$ 293,333.33	\$ 159,553.90			\$ 290,191.94	\$ 157,845.19	\$ 222,407.96	\$ (85,636.08)	\$ (46,580.35)	\$ (65,632.93)
2032	11	\$ (3,141.39)	\$ (1,596.92)											\$ 293,333.33	\$ 149,115.79			\$ 290,191.94	\$ 147,518.87	\$ 215,930.06	\$ (98,876.87)	\$ (50,263.99)	\$ (73,573.68)
2033	12	\$ (3,141.39)	\$ (1,492.45)											\$ 293,333.33	\$ 139,360.55			\$ 290,191.94	\$ 137,868.10	\$ 209,640.83	\$ (100,726.87)	\$ (47,854.61)	\$ (72,767.23)
2034	13	\$ (3,141.39)	\$ (1,394.82)											\$ 293,333.33	\$ 130,243.51			\$ 290,191.94	\$ 128,848.69	\$ 203,534.79	\$ (114,502.59)	\$ (50,840.52)	\$ (80,309.81)
2035	14	\$ (3,141.39)	\$ (1,303.57)											\$ 293,333.33	\$ 121,722.90			\$ 290,191.94	\$ 120,419.34	\$ 197,606.59	\$ (116,427.32)	\$ (48,313.20)	\$ (79,281.34)
2036	15	\$ (3,141.39)	\$ (1,218.29)											\$ 293,333.33	\$ 113,759.72			\$ 290,191.94	\$ 112,541.44	\$ 191,851.06	\$ (130,759.58)	\$ (50,710.82)	\$ (86,447.49)
2037	16	\$ (3,141.39)	\$ (1,138.58)											\$ 293,333.33	\$ 106,317.50			\$ 290,191.94	\$ 105,178.91	\$ 186,263.16	\$ (132,762.07)	\$ (48,119.09)	\$ (85,214.92)
2038	17	\$ (3,141.39)	\$ (1,064.10)											\$ 293,333.33	\$ 99,362.15			\$ 290,191.94	\$ 98,298.05	\$ 180,838.02	\$ (147,673.36)	\$ (50,022.08)	\$ (92,025.15)
2039	18	\$ (3,141.39)	\$ (994.48)											\$ 293,333.33	\$ 92,861.82			\$ 290,191.94	\$ 91,867.34	\$ 175,570.90	\$ (149,756.75)	\$ (47,409.15)	\$ (90,605.30)
2040	19	\$ (3,141.39)	\$ (929.42)											\$ 293,333.33	\$ 86,786.75	\$ (0.01)	\$ (0.00)	\$ 290,191.93	\$ 85,857.32	\$ 170,457.18	\$ (165,270.46)	\$ (48,897.57)	\$ (97,078.98)
TOTAL=		\$ (56,295.73)	\$ (31,668.67)	\$ (7,433.21)	\$ (7,433.21)	\$ (27,794.12)	\$ (25,975.81)	\$ (3,088.24)	\$ (2,697.38)	\$ (721,447.83)	\$ (610,938.27)	\$ (105,487.73)	\$ (86,109.41)	\$ 4,400,000.00	\$ 2,180,866.12	\$ (0.01)	\$ (0.00)	\$ 3,478,453.14	\$ 1,416,043.36	\$ 2,356,911.51	\$ (2,799,753.43)	\$ (1,736,363.25)	\$ (2,234,168.44)

INITIAL INVESTMENT FOR ALTERNATIVE 2 = \$ (816,059.12)

Benefit to Cost Ratio = 3.43 2.13 2.74

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0117 CHERRYWOOD LANE OVER I-95/I-495	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0117 CHERRYWOOD LANE OVER I-95/I-495	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0117 CHERRYWOOD LANE OVER I-95/I-495	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Evenly distributed among all bridges	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0117 CHERRYWOOD LANE OVER I-95/I-495	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0117 CHERRYWOOD LANE OVER I-95/I-495									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	9620	88.2%	0.02733	16.2	14169.68			387.251	\$ 263,485.57
Business travel. 11.8% of total trips.		11.8%	0.02733	29.4		1895.72		51.809	\$ 63,973.86
Truck travel cost. Vehicle occupancy = 1		5.0%	0.02733	32.0			481.00	13.146	\$ 17,667.57
	Work Zone Length =	0.2733 mi.	Construction Duration =	42 Days	or 1.5 months of Year 3			TOTAL=	\$ (345,127.00)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0169 CONTEE ROAD OVER CSX RAILROAD	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0169 CONTEE ROAD OVER CSX RAILROAD	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0169 CONTEE ROAD OVER CSX RAILROAD	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0169 CONTEE ROAD OVER CSX RAILROAD	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0169 CONTEE ROAD OVER CSX RAILROAD									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	22202	88.2%	0.02225	16.2	32702.21			727.748	\$ 495,159.83
Business travel. 11.8% of total trips.		11.8%	0.02225	29.4		4375.13		97.363	\$ 120,223.99
Truck travel cost. Vehicle occupancy = 1		5.0%	0.02225	32.0			1110.10	24.704	\$ 33,202.08
	Work Zone Length =	0.2225 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 3			TOTAL=	\$ (648,585.90)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0185 METZEROTT ROAD OVER PAINT BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0185 METZEROTT ROAD OVER PAINT BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,694.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.81)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0185 METZEROTT ROAD OVER PAINT BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0185 METZEROTT ROAD OVER PAINT BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0185 METZEROTT ROAD OVER PAINT BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	14850	88.2%	0.02011	16.2	21873.16			439,949	\$ 299,341.14
Business travel. 11.8% of total trips.		11.8%	0.02011	29.4		2926.34		58,859	\$ 72,679.54
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02011	32.0			1485.00	29,869	\$ 40,143.60
	Work Zone Length = 0.2011 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 3			TOTAL=	\$ (412,164.28)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0190 SELLMAN ROAD OVER LITTLE PAINT BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	5820	88.2%	0.02059	16.2	8572.51			176,483	\$ 120,079.25
Business travel. 11.8% of total trips.		11.8%	0.02059	29.4		1146.89		23,611	\$ 29,155.04
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02059	32.0			582.00	11,982	\$ 16,103.41
	Work Zone Length = 0.2059 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 3			TOTAL=	\$ (165,337.71)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0198031 CHERRY LANE (EAST) OVER CSX RAILROAD									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	10861	88.2%	0.02269	16.2	15997.60			362.976	\$ 246,968.79
Business travel. 11.8% of total trips.		11.8%	0.02269	29.4		2140.27		48.561	\$ 59,963.62
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02269	32.0			1086.10	24.643	\$ 33,120.13
	Work Zone Length =	0.2269 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 3			TOTAL=	\$ (340,052.53)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0198041 CHERRY LANE (WEST) OVER CSX RAILROAD									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	10860	88.2%	0.02269	16.2	15996.13			362.942	\$ 246,946.05
Business travel. 11.8% of total trips.		11.8%	0.02269	29.4		2140.07		48.557	\$ 59,958.09
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02269	32.0			1086.00	24.641	\$ 33,117.08
	Work Zone Length =	0.2269 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 3			TOTAL=	\$ (340,021.22)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0204 RITCHIE ROAD OVER SOUTHWEST BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	22445	88.2%	0.02027	16.2	33060.14			669,969	\$ 455,846.71
Business travel. 11.8% of total trips.		11.8%	0.02027	29.4		4423.01		89,633	\$ 110,678.83
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02027	32.0			2244.50	45,485	\$ 61,132.02
	Work Zone Length = 0.2027 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 3			TOTAL=	\$ (627,657.56)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0205 WALKER MILL ROAD OVER SOUTHWEST BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	39421	88.2%	0.02076	16.2	58064.77			1205,284	\$ 820,075.11
Business travel. 11.8% of total trips.		11.8%	0.02076	29.4		7768.30		161,251	\$ 199,112.89
Truck travel cost. Vehicle occupancy = 1	5% of ADT	5.0%	0.02076	32.0			1971.05	40,914	\$ 54,988.71
	Work Zone Length = 0.2076 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 3			TOTAL=	\$ (1,074,176.71)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE OF DECK REPLACEMENT	
Based on project value of \$900,000 and service life of 50 years	
\$	(576,000.00) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0220 RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0220 RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0220 RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0220 RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0220 RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	5000	88.2%	0.01936	16.2	7364.70			142.552	\$ 96,992.09
Business travel. 11.8% of total trips.		11.8%	0.01936	29.4		985.30		19.072	\$ 23,549.52
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.01936	32.0			500.00	9.678	\$ 13,007.27
	Work Zone Length = 0.1936 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 4			TOTAL=	\$ (133,548.89)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE OF CULVERT REPLACEMENT	
Based on project value of \$300,000 and service life of 25 years	
\$	(84,000.00) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0273 CARTER AVENUE OVER AMTRAK RAILROAD	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0273 CARTER AVENUE OVER AMTRAK RAILROAD	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0273 CARTER AVENUE OVER AMTRAK RAILROAD	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0273 CARTER AVENUE OVER AMTRAK RAILROAD	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0273 CARTER AVENUE OVER AMTRAK RAILROAD									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	15218	88.2%	0.02295	16.2	22415.20			514.531	\$ 350,086.72
Business travel. 11.8% of total trips.		11.8%	0.02295	29.4		2998.86		68.837	\$ 85,000.48
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02295	32.0			1521.80	34.932	\$ 46,948.91
	Work Zone Length = 0.2295 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 4			TOTAL=	\$ (482,036.11)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0283 LOTTSFORD ROAD OVER WESTERN BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	18846	88.2%	0.02157	16.2	27759.03			598,817	\$ 407,435.01
Business travel. 11.8% of total trips.		11.8%	0.02157	29.4		3713.79		80,114	\$ 98,924.55
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02157	32.0			1884.60	40,655	\$ 54,639.69
	Work Zone Length =	0.2157 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 4			TOTAL=	\$ (560,999.26)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0294 DECATUR STREET OVER NORTHEAST BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0294 DECATUR STREET OVER NORTHEAST BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0294 DECATUR STREET OVER NORTHEAST BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0294 DECATUR STREET OVER NORTHEAST BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0294 DECATUR STREET OVER NORTHEAST BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	8680	88.2%	0.02311	16.2	12785.12			295,414	\$ 200,999.51
Business travel. 11.8% of total trips.		11.8%	0.02311	29.4		1710.48		39,522	\$ 48,802.35
Truck travel cost. Vehicle occupancy = 1	25% of ADT	25.0%	0.02311	32.0			2170.00	50,140	\$ 67,388.36
	Work Zone Length =	0.2311 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 4			TOTAL=	\$ (317,190.22)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0396 TUCKER ROAD OVER HENSON CREEK	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0396 TUCKER ROAD OVER HENSON CREEK	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0396 TUCKER ROAD OVER HENSON CREEK	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0396 TUCKER ROAD OVER HENSON CREEK	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0396 TUCKER ROAD OVER HENSON CREEK									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	6842	88.2%	0.02117	16.2	10077.86			213.391	\$ 145,191.21
Business travel. 11.8% of total trips.		11.8%	0.02117	29.4		1348.28		28.549	\$ 35,252.19
Truck travel cost. Vehicle occupancy = 1	5% of ADT	5.0%	0.02117	32.0			342.10	7.244	\$ 9,735.54
	Work Zone Length = 0.2117 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 4			TOTAL=	\$ (190,178.94)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0484 MCKENDREE ROAD OVER TIMOTHY BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0484 MCKENDREE ROAD OVER TIMOTHY BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0484 MCKENDREE ROAD OVER TIMOTHY BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0484 MCKENDREE ROAD OVER TIMOTHY BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0484 MCKENDREE ROAD OVER TIMOTHY BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	4806	88.2%	0.02045	16.2	7078.95			144.797	\$ 98,519.67
Business travel. 11.8% of total trips.		11.8%	0.02045	29.4		947.07		19.372	\$ 23,920.41
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02045	32.0			480.60	9.830	\$ 13,212.13
	Work Zone Length = 0.2045 mi.		Maintenance Duration = 42 Days		or 1.5 months of Year 4			TOTAL=	\$ (135,652.22)
	Speed Reduction = 10 MPH		Project Completion Time = 2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0490 GALLAHAN ROAD OVER TINKERS CREEK	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0490 GALLAHAN ROAD OVER TINKERS CREEK	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0490 GALLAHAN ROAD OVER TINKERS CREEK	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0490 GALLAHAN ROAD OVER TINKERS CREEK	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0490 GALLAHAN ROAD OVER TINKERS CREEK									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	3793	88.2%	0.02186	16.2	5586.86			122,107	\$ 83,081.45
Business travel. 11.8% of total trips.		11.8%	0.02186	29.4		747.45		16,336	\$ 20,172.04
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02186	32.0			379.30	8,290	\$ 11,141.77
	Work Zone Length =	0.2186 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 4			TOTAL=	\$ (114,395.26)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0579 DERRICK PLACE OVER BUTLER BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0579 DERRICK PLACE OVER BUTLER BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0579 DERRICK PLACE OVER BUTLER BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0579 DERRICK PLACE OVER BUTLER BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0579 DERRICK PLACE OVER BUTLER BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	270	88.2%	0.01958	16.2	397.69			7,788	\$ 5,299.07
Business travel. 11.8% of total trips.		11.8%	0.01958	29.4		53.21		1,042	\$ 1,286.61
Truck travel cost. Vehicle occupancy = 1	2% of ADT	2.0%	0.01958	32.0			5.40	0.106	\$ 142.13
	Work Zone Length =	0.1958 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 4			TOTAL=	\$ (6,727.80)
	Speed Reduction =	10 MPH	Project Completion Time =	2 Years					

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$	293,333.33 per year after 2025
RESIDUAL VALUE	
\$	(0.01) total after 2040

ALTERNATIVE 2: BRIDGE PRESERVATION

OPERATING AND MAINTENANCE COST P-0596 LEELAND ROAD OVER COLLINGTON BRANCH	
Total P.G. Co. FY 2022 Operating Budget for DPW&T is	\$ 43,351,205.00
Share for Roadway and Bridge Maintenance 1% of Operating Budget =	\$ 433,512.05
Share for Bridge Maintenance NBI Bridges = 1/3	\$ 144,504.02
Assumed evenly distributed among remaining 46 assets with poor or fair condition elements =	\$ 3,141.39
O&M expenditure trend = 0% budget is expected to remain constant in the future	\$ (3,141.39)

PROFESSIONAL SERVICES COST FOR PRELIMINARY DESIGN P-0596 LEELAND ROAD OVER COLLINGTON BRANCH	
The professional services cost for preliminary design was obtained from actual consultant fees	\$ 122,684.00
This cost was spent from 2018 to 2021 at 3% Inflation	\$ (7,433.21)
For 17 Bridges	

PROFESSIONAL SERVICES COST FOR FINAL DESIGN AND CONSTRUCTION SERVICES P-0596 LEELAND ROAD OVER COLLINGTON BRANCH	
The projected cost for Final Design is =	\$ 525,000.00
90% of this cost will be expended in 2023 prior to project advertisement. Cost per bridge =	\$ (27,794.12)
10% of this cost will be expended in 2024 prior to construction. Cost per bridge =	\$ (3,088.24)
Refer to the Bridge Project Grant Cost Estimate	
For 17 Bridges	

CONSTRUCTION AND ADMINISTRATION COST P-0596 LEELAND ROAD OVER COLLINGTON BRANCH	
The projected construction cost is =	\$ 8,698,307.00
30% Contingency Cost	\$ 2,609,492.10
Administration and Legal Fees Cost =	\$ 86,983.00
Construction Management and Inspection Cost =	\$ 869,831.00
Total Construction Cost =	\$ 12,264,613.10
Total Construction Cost per Bridge =	\$ 721,447.83
6% will be spent in 2023	\$ (43,286.87)
41% will be spent in 2024	\$ (295,793.61)
53% will be spent in 2025	\$ (382,367.35)

CONSTRUCTION ZONE COST P-0596 LEELAND ROAD OVER COLLINGTON BRANCH									
Construction Zone Cost	ADT	Volume Distribution	Work Zone Delay Time hr/day	Value of Travel (\$/hr)	Number of Personal Trips	Number of Business Trips	Number of Trucks	Total Work Zone Delay Time veh-hr/day	Total Work Zone Travel Delay Cost
Personal travel. Vehicle occupancy all travels = 1.67. 88.2% of total trips.	3568	88.2%	0.02019	16.2	5255.45			106,104	\$ 72,193.40
Business travel. 11.8% of total trips.		11.8%	0.02019	29.4		703.11		14,195	\$ 17,528.44
Truck travel cost. Vehicle occupancy = 1	10% of ADT	10.0%	0.02019	32.0			356.80	7,204	\$ 9,681.61
Work Zone Length =	0.2019 mi.	Maintenance Duration =	42 Days	or 1.5 months of Year 4		TOTAL=	\$ (99,403.44)		
Speed Reduction =	10 MPH	Project Completion Time =	2 Years						

AMORTIZED BRIDGE REPLACEMENT VALUE	
Based on replacement value of \$4,400,000 through a 15 year period	
\$ 293,333.33 per year after 2025	
RESIDUAL VALUE	
\$ (0.01) total after 2040	

ALTERNATIVE 2: BRIDGE PRESERVATION

SIA Data										
Bridge	Item 19 Bypass Detour Length (mi)	Item 29 ADT (vpd)	Item 109 ADTT (%) (tpd)		Item 27 Year Built	Item 106 Year Reconstr.	Age	Item 49 Bridge Length (ft)	Bridge length (MI)	Road Name and Crossing
P-0117	2	9620	5	481	1990	0	32	443	0.2733	CHERRYWOOD LANE OVER I-95/I-495
P-0169	6	22202	5	1110.1	1997	0	25	175	0.2225	CONTEE ROAD OVER CSX RAILROAD
P-0185	1	14850	10	1485	1900	1970	52	62	0.2011	METZEROTT ROAD OVER PAINT BRANCH
P-0190	2	5820	10	582	1985	0	37	87	0.2059	SELLMAN ROAD OVER LITTLE PAINT BRANCH
P-0198031	6	10861	10	1086.1	1990	0	32	198	0.2269	CHERRY LANE (EAST) OVER CSX RAILROAD
P-0198041	6	10860	10	1086	1979	0	43	198	0.2269	CHERRY LANE (WEST) OVER CSX RAILROAD
P-0204	3	22445	10	2244.5	1980	0	42	70	0.2027	RITCHIE ROAD OVER SOUTHWEST BRANCH
P-0205	3	39421	5	1971.05	1969	0	53	96	0.2076	WALKER MILL ROAD OVER SOUTHWEST BRANCH
P-0220	1	5000	10	500	1957	0	65	22	0.1936	RIVERDALE ROAD OVER TRIBUTARY TO NORTHEAST BRANCH
P-0273	2	15218	10	1521.8	1979	0	43	212	0.2295	CARTER AVENUE OVER AMTRAK RAILROAD
P-0283	2	18846	10	1884.6	1989	0	33	139	0.2157	LOTTSFORD ROAD OVER WESTERN BRANCH
P-0294	1	8680	25	2170	1955	1994	28	220	0.2311	DECATUR STREET OVER NORTHEAST BRANCH
P-0396	2	6842	5	342.1	1979	0	43	118	0.2117	TUCKER ROAD OVER HENSON CREEK
P-0484	4	4806	10	480.6	1986	0	36	80	0.2045	MCKENDREE ROAD OVER TIMOTHY BRANCH
P-0490	4	3793	10	379.3	1989	0	33	154	0.2186	GALLAHAN ROAD OVER TINKERS CREEK
P-0579	1	270	2	5.4	1974	0	48	34	0.1958	DERRICK PLACE OVER BUTLER BRANCH
P-0596	3	3568	10	356.8	1985	0	37	66	0.2019	LEELAND ROAD OVER COLLINGTON BRANCH

TABLE 21a.1 ASSET QUERY FOR CONDITION RATING 5 OR LESS (SOURCE: MDOT SHA STRUCTURES ASSEST MANAGEMENT (SAM) SYSTEM. QUERY DATE: AUGUST 2022)

Parent Asset	Asset Name	(027) Year Built	(106) Year Reconstructed	(058) Deck	Deck - Topside (301)	Deck - Underside (301)	Expansion Joints (305)	(059) Superstructure	Bearing Devices (311)	Girders or Beams (312)	(060) Substructure	(062) Culverts
Prince George's County > NBIS Structures	P-0102001	1970	2008	6	6	6	5	5	4	5	6	N
Prince George's County > NBIS Structures	P-0104001	1966	0000	4	-	-	-	4	7	4	5	N
Prince George's County > NBIS Structures	P-0105001	1963	0000	5	-	5	-	5	-	-	6	N
Prince George's County > NBIS Structures	P-0106001	1964	1994	5	-	5	4	4	4	4	5	N
Prince George's County > NBIS Structures	P-0112001	1969	1996	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0113001	1969	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0114001	1985	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0117001	1990	0000	6	6	6	4	6	5	6	5	N
Prince George's County > NBIS Structures	P-0124002	1993	0000	6	-	7	-	5	6	5	6	N
Prince George's County > NBIS Structures	P-0125001	1960	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0160001	1927	1972	4	-	4	-	4	--	--	5	N
Prince George's County > NBIS Structures	P-0161001	1972	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0169001	1997	0000	7	7	7	4	7	6	7	7	N
Prince George's County > NBIS Structures	P-0171001	1964	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0178001	1964	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0185001	1900	1970	5	6	5	-	5	6	5	5	N
Prince George's County > NBIS Structures	P-0190001	1985	0000	7	7	7	5	6	6	6	7	N
Prince George's County > NBIS Structures	P-0193001	1948	1986	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0196001	1967	1976	5	-	5	-	5	-	-	7	N
Prince George's County > NBIS Structures	P-0198031	1990	0000	6	7	6	5	6	4	6	7	N
Prince George's County > NBIS Structures	P-0198041	1979	0000	7	7	7	5	6	6	6	7	N
Prince George's County > NBIS Structures	P-0204001	1980	0000	7	7	7	5	5	6	5	7	N
Prince George's County > NBIS Structures	P-0205001	1969	0000	5	5	5	4	6	5	6	6	N
Prince George's County > NBIS Structures	P-0220001	1957	0000	N	-	5	-	N	-	3	N	5
Prince George's County > NBIS Structures	P-0273001	1979	0000	6	6	6	6	6	5	6	6	N
Prince George's County > NBIS Structures	P-0274001	1979	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0275001	1977	2003	6	6	6	4	7	7	7	6	N
Prince George's County > NBIS Structures	P-0280001	1956	0000	5	-	5	-	5	-	5	6	N
Prince George's County > NBIS Structures	P-0282001	1967	2003	7	7	7	6	6	5	6	6	N
Prince George's County > NBIS Structures	P-0283001	1989	0000	7	7	7	4	6	4	6	7	N
Prince George's County > NBIS Structures	P-0285001	1968	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0289001	1966	0000	4	-	4	-	4	7	4	6	N
Prince George's County > NBIS Structures	P-0294001	1955	1994	7	7	7	5	7	6	7	5	N
Prince George's County > NBIS Structures	P-0295001	1967	0000	4	-	-	-	4	6	4	5	N
Prince George's County > NBIS Structures	P-0297001	1956	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0299001	1963	0000	5	-	5	-	5	7	5	5	N
Prince George's County > NBIS Structures	P-0302001	2002	0000	7	7	7	4	8	6	8	7	N
Prince George's County > NBIS Structures	P-0310001	1963	0000	5	-	5	4	5	6	5	5	N
Prince George's County > NBIS Structures	P-0324001	1953	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0394001	1948	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0396001	1979	0000	6	6	6	4	6	5	6	7	N
Prince George's County > NBIS Structures	P-0401001	1952	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0406002	1953	0000	1				1			1	N
Prince George's County > NBIS Structures	P-0480001	1989	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0483001	1977	0000	5	-	-	-	5	7	5	6	N
Prince George's County > NBIS Structures	P-0484001	1986	0000	6	7	6	5	6	6	6	6	N

TABLE 21a.1 ASSET QUERY FOR CONDITION RATING 5 OR LESS (SOURCE: MDOT SHA STRUCTURES ASSEST MANAGEMENT (SAM) SYSTEM. QUERY DATE: AUGUST 2022)

Parent Asset	Asset Name	(027) Year Built	(106) Year Reconstructed	(058) Deck	Deck - Topside (301)	Deck - Underside (301)	Expansion Joints (305)	(059) Superstructure	Bearing Devices (311)	Girders or Beams (312)	(060) Substructure	(062) Culverts
Prince George's County > NBIS Structures	P-0487001	1932	1989	5	-	5	-	4	-	4	5	N
Prince George's County > NBIS Structures	P-0488001	1974	0000	5	5	6	4	6	5	6	7	N
Prince George's County > NBIS Structures	P-0490001	1989	0000	6	6	6	5	6	6	6	6	N
Prince George's County > NBIS Structures	P-0494001	1956	0000	5	-	5	-	5	-	5	4	N
Prince George's County > NBIS Structures	P-0495001	1955	1989	5	5	6	-	4	4	4	5	N
Prince George's County > NBIS Structures	P-0502001	1964	0000	5	-	5	-	5	-	-	6	N
Prince George's County > NBIS Structures	P-0504001	1960	0000	N	-	-	-	N			N	4
Prince George's County > NBIS Structures	P-0507001	1964	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-0579001	1974	0000	5	5	6	4	6	6	6	7	N
Prince George's County > NBIS Structures	P-0581001	1974	0000	4	-	4	-	4	7	4	6	N
Prince George's County > NBIS Structures	P-0596001	1985	0000	6	6	6	5	6	6	6	7	N
Prince George's County > NBIS Structures	P-0599001	1920	1995	4	4	4	5	3	5	-	6	N
Prince George's County > NBIS Structures	P-B-02001	1962	0000	N	-	-	-	N			N	4
Prince George's County > NBIS Structures	P-MO03001	1952	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-MO04001	1950	1985	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-MO05001	2020	0000	9	-	5	-	9	-	-	9	N
Prince George's County > NBIS Structures	P-N-01001	1975	0000	5	-	5	-	5	6	5	6	N
Prince George's County > NBIS Structures	P-N-02001	1970	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-UN98001	1977	0000	N	-	-	-	N			N	5
Prince George's County > NBIS Structures	P-UN99002	1924	1962	N				N			N	1

Total Assests in the Query: 66
 Number of bridges curently closed to traffic: 3 (bold)
 Total number of bridges with an element in condition 5 or less: 63

LEGEND

P-0XXX Bridge Structure included in the Bridge Project Grant Application

SAM Query Criteria:

- Year Built and Year Reconstructed: Any
- Bridge length equal or longer than 20 feet (NBIS)
- Item 58 - Deck rated 5 or less
 - Sub-item 58.9 - Roadway Joints rated 5 or less
 - Item 301 - Deck Underside / Top Side rated 5 or less
- Item 59 - Superstructure rated 5 or less
 - Sub-item 59.1 - Bearing Devices rated 5 or less
 - Sub-item 59.2 - Girders or Beams rated 5 or less
- Item 60 - Substructure rated 5 or less
- Item 62 - Culvert rated 5 or less