



# Statewide Interstate Tolling Strategic Plan

*APPENDIX D: FINANCIAL ANALYSIS*

Indiana Department of Transportation



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# 1. INTRODUCTION

This document summarizes the financial analysis that supported INDOT's strategic planning effort. As part of the process, INDOT evaluated the potential for toll revenue to independently fund all capital and lifecycle costs associated with a statewide interstate tolling program that includes border-to-border widening of I-65 and I-70 to at least six lanes outside of I-465.

As INDOT explores options for a potential statewide interstate tolling program, a key question is: can toll revenue bonds be used to finance all related project development costs without any state or INDOT funding? INDOT conducted a planning-level financing analysis to answer this question. This document presents the results of the analysis.

The financial analysis described in this document is intended to provide an indication of financing potential. It is based on financial simulations performed using high-level financial metrics and initial traffic and revenue forecasts completed as part of INDOT's strategic planning effort. It does not represent a detailed financial analysis with a complex financial model.

## 2. ASSUMPTIONS

This section defines the key assumptions used in the financial analysis.

- **Toll rates.** The financial analysis is based on the toll rates shown in Table 2-1. These rates are per mile rates for vehicles with a registered transponder and are assumed to increase annually by inflation. It is further assumed that the rates would increase by 50 percent for vehicles without a transponder.

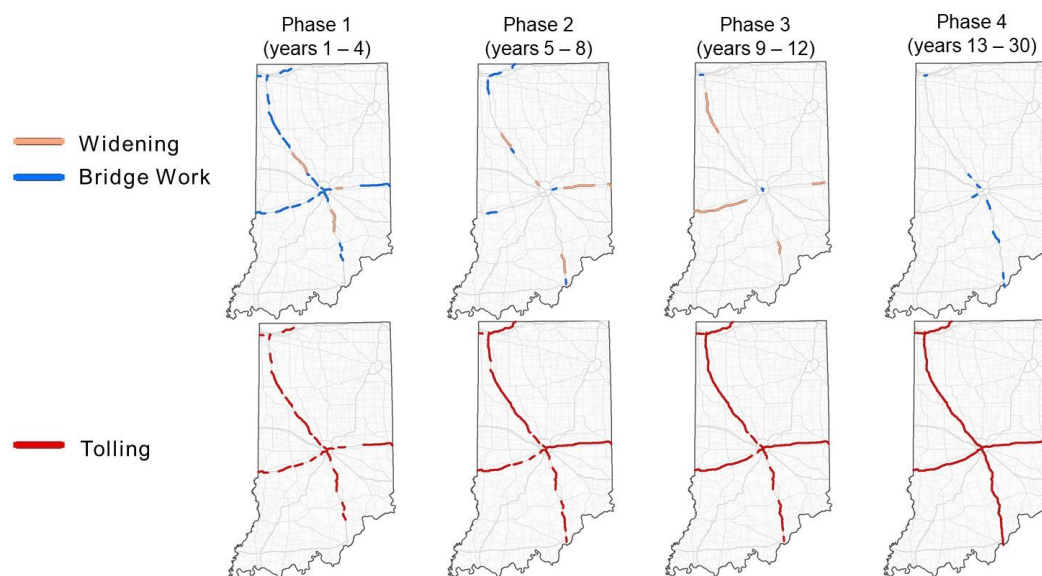
**Table 2-1. Toll Rate Assumptions**

	Rate per Mile
2 axles	\$0.05
3 and 4 axles	\$0.07
5 or more axles	\$0.20

- **Transponder usage rates.** Following are the assumptions regarding the percent of vehicles paying via transponder. Transponder use is expected to increase over time.
  - Vehicles with 2, 3, and 4 axles
    - Year 1 = 60 percent
    - Year 10 = 80 percent
    - Year 15 = 85 percent
  - Vehicles with 5 or more axles
    - Year 1 = 75 percent
    - Year 10 = 90 percent

- Sequencing.** The financial analysis is based on the toll sequencing illustrated in Figure 2-1.<sup>1</sup> It shows how tolling could be sequenced based on interstate widening and bridge reconstruction. The sequencing is broken into phases, with each phase lasting four years. The top series of maps identifies work that INDOT could perform in each phase that would make a segment of interstate eligible for tolling. The bottom series of maps identifies the portion of the interstate system that would be eligible for tolling by the end of the phase.

**Figure 2-1. Toll Sequencing Used for Financial Analysis**



- Potential gross toll revenue and transactions.** The financial analysis is based on future projections of toll revenue and toll transactions developed with a statewide tolling model in support of the strategic planning process. For more information on the development of the model and model results, refer to *Appendix C: Traffic & Revenue Analysis*.

<sup>1</sup> For more information on the sequencing options, refer to *Appendix C: Traffic & Revenue Analysis*. The sequencing option used for the financial analysis is referred to as Option 3 – Widening in Central Indiana First.

- **Revenue leakage.** Leakage is the term used to describe toll revenue that an agency is unable to collect. For example, in an open road tolling system, it is difficult to collect tolls from vehicles that do not have a transponder or a license plate. Table 2-2 summarizes the revenue leakage assumptions used for the financial analysis. Leakage is assumed to decrease over time as drivers become more accustomed to tolling and as tolling equipment improves.

**Table 2-2. Leakage Assumptions**

	Leakage
2024	10%
2029 and beyond	5%

- **Collection costs.** The project team estimated the cost of toll collections based on the number of projected toll transactions. The result are provided in Table 2-3. Collection costs are expected to decrease over time as the number of toll transactions increases.

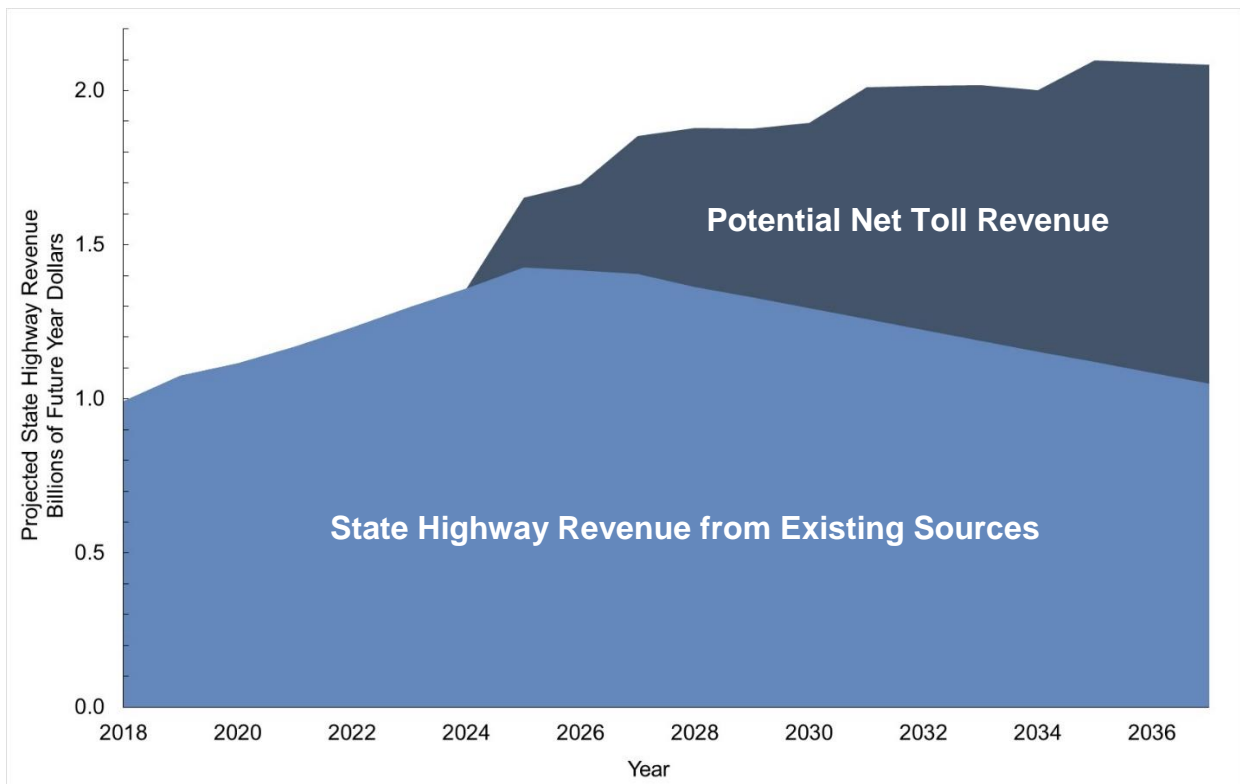
**Table 2-3. Collection Costs**

	Cost per Transponder Transaction	Cost per Video Transaction
2024	\$0.08	\$0.19
2028	\$0.07	\$0.14
2032 and beyond	\$0.06	\$0.11



- Potential net toll revenue.** For the purposes of this financial analysis, net revenue is defined as gross revenue minus leakage and the cost of collections. Net revenue is a key input for the financial analysis. Figure 2-2 presents potential net toll revenue as compared to the projected revenue from existing state sources.<sup>2</sup> In the financial analysis, it was assumed that tolling could begin in 2024. This assumption is an example for planning purposes and is not meant to suggest that any type of tolling implementation timeframe has been established.

**Figure 2-2. Potential Net Toll Revenue Compared to Revenue from Existing Sources**



<sup>2</sup> The projection of revenue from existing sources does not include Next Level Connections funds because they have already been targeted to specific projects and non-roadway programs.

- Construction phasing.** The financial analysis focuses on the first three phases illustrated in Figure 2-1. The fourth phase does not require a significant up-front capital expense. It involves reconstructing bridges as needed over a 17 year period. The development costs associated with the first three phases (including project development and capital costs for roadway construction and tolling equipment) are summarized in Table 2-4. The financial analysis was performed in year of expenditure dollars, assuming an annual inflation rate of 2.5 percent.

**Table 2-4. Construction Phasing**

	Construction Time Frame	Development Costs in 2018 Dollars (millions)	Inflated to Year of Expenditure Dollars (millions)
Phase I	2023-2026	\$1,437	\$1,679
Phase II	2027-2030	\$1,605	\$2,070
Phase III	2031-2034	\$2,403	\$3,418

- Life cycle costs.** The financial analysis assumes that once a segment of roadway is tolled, toll revenue covers all life cycle costs. These costs include rehabilitation, repairs, maintenance, and operations. Pavement life cycle costs were estimated based on INDOT guidance on the timing and cost of pavement preservation activities. Bridge life cycle costs were estimated based on work recommended by INDOT's bridge management system. The cost of routine roadway maintenance and operations was estimated based on the costs incurred by other toll agencies throughout the U.S. Toll revenue is also assumed to cover the life cycle costs associated with toll operations, which include the ongoing costs of tolling equipment and a back office system. The project team developed these costs based on the operational details defined in *Appendix A: Concept of Operations Report*.
- Financing structure and assumptions.** The study team simulated toll revenue financings for three construction phases to test the ability to fully finance each phase through a system pledge. Under a system pledge, only toll revenues are pledged to repay the debt. This means that no tax revenues are pledged if toll revenues are insufficient and that no state credit ratings would be affected. The consolidated system revenue pledge is for a single "standalone" interstate toll credit that pools toll revenue across corridors to make debt service payments. As new toll corridors are added to the system, it was assumed that the revenues would also be added and all debt would be at parity with earlier and future debt. The financings were conservatively structured with adequate coverage for investment grade ratings and to allow for considerable excess revenues (after all lifecycle and

debt service payments) to fund other ongoing improvements. Table 2-5 summarizes other major financial assumptions.

**Table 2-5. Financial Assumptions**

Item	Description
Financial structure	<ul style="list-style-type: none"> <li>• Non-recourse (standalone) toll revenue bonds</li> <li>• One consolidated credit, solely supported by toll revenues</li> <li>• All revenues and debt service are pooled across the system</li> </ul>
Debt product	<ul style="list-style-type: none"> <li>• Toll revenues bonds are Current Interest Bonds (CIBs) that pay interest semi-annually</li> <li>• Transportation Infrastructure Finance and Innovation Act (TIFIA) loans and Capital Appreciation Bonds (CABs) were not utilized but could enhance a financing</li> </ul>
Term	<ul style="list-style-type: none"> <li>• 30-year debt for Phase I and II and 35-year debt for Phase III</li> </ul>
Debt coverage ratio	<ul style="list-style-type: none"> <li>• Varies by phase but minimum requirement is 1.75x</li> <li>• Debt coverage ratio is equal to net toll revenue divided by debt service</li> </ul>
Borrowing rate	<ul style="list-style-type: none"> <li>• Average borrowing cost of 5 percent</li> <li>• Includes cushion for future interest rate movements and a lower investment grade credit rating</li> </ul>
Debt service reserve fund	<ul style="list-style-type: none"> <li>• Funded based on the conventional three-pronged test</li> </ul>
Capitalized interest	<ul style="list-style-type: none"> <li>• Funded at two years for each financing</li> </ul>

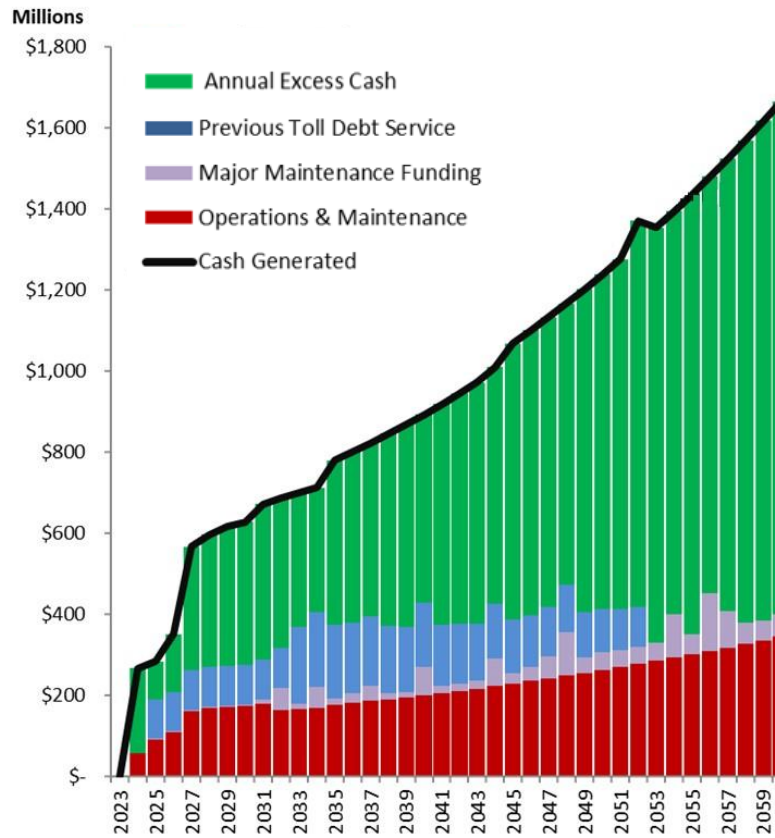
### 3. RESULTS

The financing analysis demonstrated that toll revenues can fully support the financing phases for the entire interstate widening program. Additionally, the debt coverage ratio produces considerable excess revenues that could be used for any approved transportation purpose. In addition, INDOT could use bond proceeds to reimburse itself for pre-construction expenses incurred before tolls are collected. Table 3-1 summarizes the financing phases and amount of excess revenue by phase. Figures 3-1 through 3-3 show the results for each phase. Additional details are provided in the Appendix.

**Table 3-1. Financings by Phase and Amount of Excess Revenue**

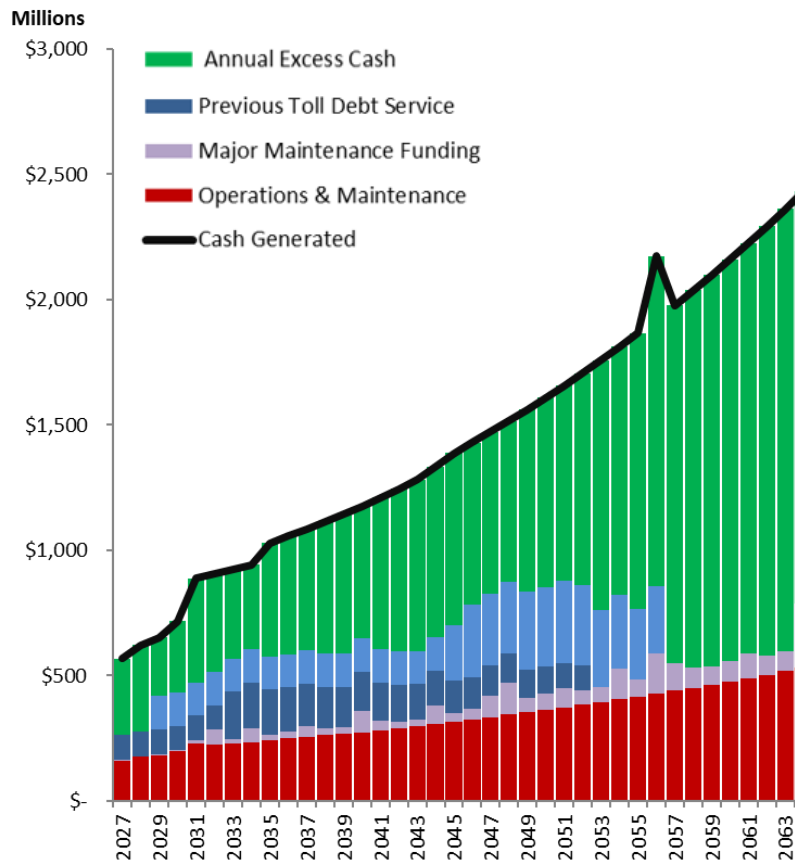
Phase	Escalated Capital Cost (millions of year of expenditure dollars)	Financing Amount (millions of year of expenditure dollars)	Present Value of Excess Revenue (millions of 2018 dollars)
Phase I	\$1,679	\$1,685	\$7,698
Phase II	\$2,070	\$2,075	\$10,551
Phase III	\$3,418	\$3,425	\$10,369
Total	\$7,167	\$7,185	

Figure 3-1. Phase I Results



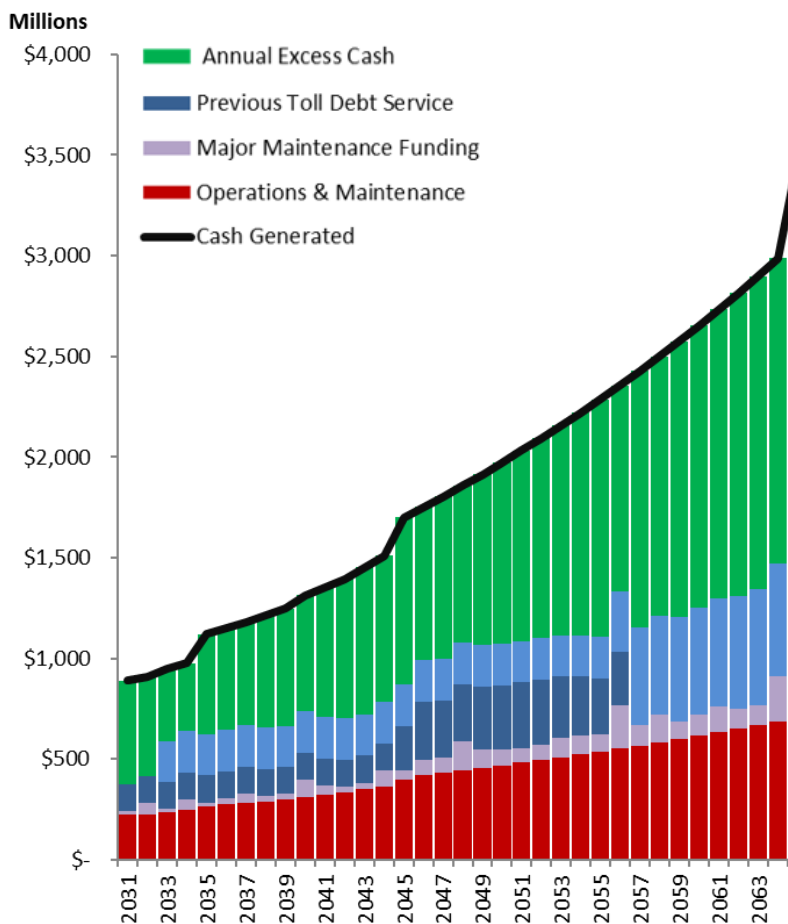
- Highlights of Phase I
  - Fully finances \$1.679 billion capital costs;
  - 30-year debt;
  - Average debt coverage ratio exceeds 4x; and
  - Two years of capitalized interest.

**Figure 3-2. Phase II Results**



- Highlights of Phase II
  - Fully finances \$2.070 billion of capital costs;
  - 30-year debt;
  - Average debt coverage ratio of 3x; and
  - Two years of capitalized interest.

Figure 3-3. Phase III Results



- Highlights of Phase III
  - Fully finances \$3.418 billion of capital costs;
  - 35-year debt;
  - Debt coverage ratio ranges from 1.75 to 2.67x;
  - Requires a debt service accrual of \$360 million for years 2033-2037 to meet the 1.75x debt coverage ratio target; and
  - Two years of capitalized interest.

## **Conclusion**

The financial analysis conducted as part of the strategic planning process illustrates that a potential statewide interstate tolling program can fully support itself without any state taxes. It also illustrates that INDOT has considerable flexibility as it evaluates interstate tolling. For example, the analysis assumes that all capital costs are funded with bond proceeds. However, ongoing toll revenues could allow for some capital costs to be funded directly from toll revenues and decrease the size of the financings. INDOT also has considerable flexibility in terms of the which federal tolling program is used as the basis for interstate tolling, how it sequences tolling, how it structures the financings, and what toll rates are used.



## 4. SUPPLEMENTAL INFORMATION

This chapter provides additional details on projected debt service, debt coverage ratio, and potential excess revenue by year for each phase. All figures are in future year dollars. These figures have been calculated based on the assumptions described throughout this analysis. Any changes to those assumptions will impact these results.

**Table 4-1. Phase I Detailed Results**

Year	Total Debt Service	Debt Coverage Ratio	Potential Excess Revenue
2024	-		\$209,168,739
2025	\$93,997,969	2.02	\$95,877,928
2026	\$93,997,969	2.56	\$146,524,332
2027	\$93,997,969	4.28	\$307,845,986
2028	\$93,997,969	4.52	\$330,731,000
2029	\$93,997,969	4.69	\$347,144,606
2030	\$93,997,969	4.78	\$355,093,965
2031	\$93,997,969	5.12	\$387,170,246
2032	\$93,997,969	4.96	\$372,363,229
2033	\$183,296,036	2.84	\$337,958,914
2034	\$178,596,141	2.76	\$313,626,687
2035	\$173,896,243	3.38	\$413,206,905
2036	\$169,196,344	3.53	\$427,290,620
2037	\$164,496,446	3.64	\$433,970,924
2038	\$159,796,547	4.01	\$481,042,989
2039	\$155,096,649	4.25	\$504,684,367
2040	\$150,396,750	4.13	\$470,210,942
2041	\$145,696,852	4.76	\$548,369,068
2042	\$140,996,954	5.07	\$573,967,813
2043	\$136,297,055	5.40	\$599,945,966
2044	\$131,597,157	5.46	\$587,433,969
2045	\$126,897,258	6.41	\$685,991,152
2046	\$122,197,360	6.79	\$707,638,310
2047	\$117,497,461	7.12	\$719,018,681
2048	\$112,797,563	7.19	\$698,086,725
2049	\$108,097,664	8.40	\$799,711,598
2050	\$103,397,766	9.01	\$828,249,995
2051	\$98,697,867	9.77	\$865,191,196
2052	\$93,997,969	10.57	\$899,560,747
2053	-		\$1,023,970,788

Year	Total Debt Service	Debt Coverage Ratio	Potential Excess Revenue
2054	-		\$995,056,920
2055	-		\$1,084,846,932
2056	-		\$1,027,782,585
2057	-		\$1,117,007,887
2058	-		\$1,189,664,137
2059	-		\$1,231,870,906
2060	-		\$1,264,490,636

Table 4-2. Phase II Detailed Results

Year	Total Debt Service	Debt Coverage Ratio	Potential Excess Revenue
2027	\$93,997,969	4.30	\$310,295,123
2028	\$93,997,969	4.71	\$348,283,260
2029	\$223,543,354	2.09	\$242,820,032
2030	\$223,543,354	2.31	\$291,943,178
2031	\$223,543,354	2.89	\$421,810,175
2032	\$223,543,354	2.78	\$398,952,315
2033	\$312,841,420	2.18	\$368,028,473
2034	\$308,141,526	2.12	\$346,568,384
2035	\$303,441,627	2.52	\$462,500,826
2036	\$298,741,729	2.61	\$481,515,438
2037	\$294,041,831	2.68	\$493,262,939
2038	\$289,341,932	2.86	\$537,008,321
2039	\$284,642,034	2.99	\$566,302,102
2040	\$279,942,135	2.92	\$536,555,901
2041	\$275,242,237	3.23	\$613,429,375
2042	\$270,542,338	3.44	\$660,071,545
2043	\$265,842,440	3.61	\$692,541,055
2044	\$261,142,541	3.65	\$691,096,356
2045	\$339,234,251	3.06	\$698,844,207
2046	\$403,619,168	2.63	\$657,341,047
2047	\$395,952,641	2.66	\$656,607,940
2048	\$388,086,406	2.69	\$655,258,309
2049	\$411,142,242	2.80	\$740,427,151
2050	\$413,368,445	2.86	\$767,619,842
2051	\$415,044,128	2.91	\$793,398,587
2052	\$404,906,893	3.12	\$859,035,545

Year	Total Debt Service	Debt Coverage Ratio	Potential Excess Revenue
2053	\$297,954,386	4.37	\$1,004,844,335
2054	\$284,999,847	4.50	\$997,592,916
2055	\$272,045,309	5.08	\$1,109,317,252
2056	\$259,090,770	6.08	\$1,316,932,033
2057	-		\$1,429,883,554
2058	-		\$1,503,902,037
2059	-		\$1,561,169,978
2060	-		\$1,601,547,655
2061	-		\$1,639,492,603
2062	-		\$1,715,645,180
2063	-		\$1,766,893,478
2064	-		\$1,647,579,696

Table 4-3. Phase III Detailed Results

Year	Total Debt Service	Debt Coverage Ratio	Potential Excess Revenue
2031	\$223,543,354		\$243,895,943
2032	\$223,543,354		\$221,038,082
2033	\$528,302,990	1.75	\$300,107,187
2034	\$523,603,096	1.75	\$289,103,008
2035	\$518,903,198	1.75	\$358,384,734
2036	\$514,203,299	1.75	\$362,412,634
2037	\$509,503,401	1.75	\$366,217,933
2038	\$504,803,502	1.77	\$390,633,796
2039	\$500,103,604	1.84	\$420,941,559
2040	\$495,403,705	1.85	\$419,990,654
2041	\$490,703,807	2.01	\$494,946,226
2042	\$486,003,908	2.12	\$544,903,928
2043	\$481,304,010	2.22	\$587,141,361
2044	\$476,604,112	2.24	\$590,676,469
2045	\$554,695,821	2.27	\$702,945,509
2046	\$619,080,738	2.03	\$636,153,187
2047	\$611,414,211	2.13	\$688,044,546
2048	\$603,547,976	2.10	\$666,901,889
2049	\$626,603,812	2.18	\$739,140,061
2050	\$628,830,015	2.27	\$795,661,488
2051	\$630,505,698	2.34	\$845,808,083

Year	Total Debt Service	Debt Coverage Ratio	Potential Excess Revenue
2052	\$620,368,463	2.45	\$899,426,138
2053	\$513,415,956	3.03	\$1,039,956,182
2054	\$563,714,244	2.85	\$1,040,189,038
2055	\$752,568,913	2.22	\$914,847,992
2056	\$716,117,546	2.22	\$874,335,637
2057	\$503,120,265	3.49	\$1,252,769,460
2058	\$507,827,151	3.50	\$1,269,567,876
2059	\$537,559,322	3.51	\$1,349,273,900
2060	\$538,653,925	3.58	\$1,390,706,873
2061	\$517,107,768	3.81	\$1,454,953,821
2062	\$495,561,611	4.16	\$1,567,383,245
2063	\$474,015,454	4.49	\$1,656,574,592
2064	\$452,469,297	4.59	\$1,624,427,674
2065	\$430,923,140	6.19	\$2,237,271,641

## NOTES

- The analysis contained within this document addresses potential tolling along I-65, I-70, I-94. However, no final decisions have been made about if and where to toll. Additionally, tolling may be considered along other interstates (e.g., I-64, I-74, etc.).
- To support the strategic planning process, INDOT evaluated the traffic and revenue implications of various toll rates and implementation timelines. However, neither toll rates nor a timeline have been determined. The actual toll rates and timeline may be different than those analyzed. Additionally, the financial analysis does not take into account any toll discount programs that may be adopted.
- INDOT evaluated the potential to pair tolling with the widening of I-65 and I-70 outside of I-465 to six lanes border-to-border. The analysis assumes that widening these corridors would include bridge reconstruction work that meets the legal basis for tolling under the federal Section 129 General Tolling Program.