ILLINOIS SOYBEAN ASSOCIATION

# THE ECONOMIC IMPACT of Rural Bridges in Illinois

The Illinois Soybean Association (ISA) is interested in evaluating the potential value and benefits of investing in the state's bridges. Many of the bridges in Illinois are in poor condition and are approaching their useful life benchmark (ULB). As the bridges continue to deteriorate, this would mean the bridges would eventually require closure for emergency repairs, necessitating vehicles to detour and leading to additional travel time. Illinois has over 26,000 bridges in the entire state, second only to Texas in the nation. Investment in repair and rehabilitation of bridge infrastructure would benefit residents and businesses who rely on these bridges on a daily basis.

The ISA recognizes the importance of maintaining bridge infrastructure not only for the state's overall economy but also for industries such as agriculture, which depend on a functional and reliable transportation system. Bridges are a critical component of the Illinois transportation network as they connect communities and economies, allow for greater social integration, allow emergency services to reach destinations promptly, and overall improve the quality of life for residents who rely on them daily. Bridges allow connection across natural and man-made barriers, which often divide communities and create obstacles for commerce. This report will provide information on the various bridge types and their repair/construction needs, a general overview of Illinois Bridges and the agriculture industry in the state, and details on the economic impact bridges have on the State of Illinois.

# CONTENTS



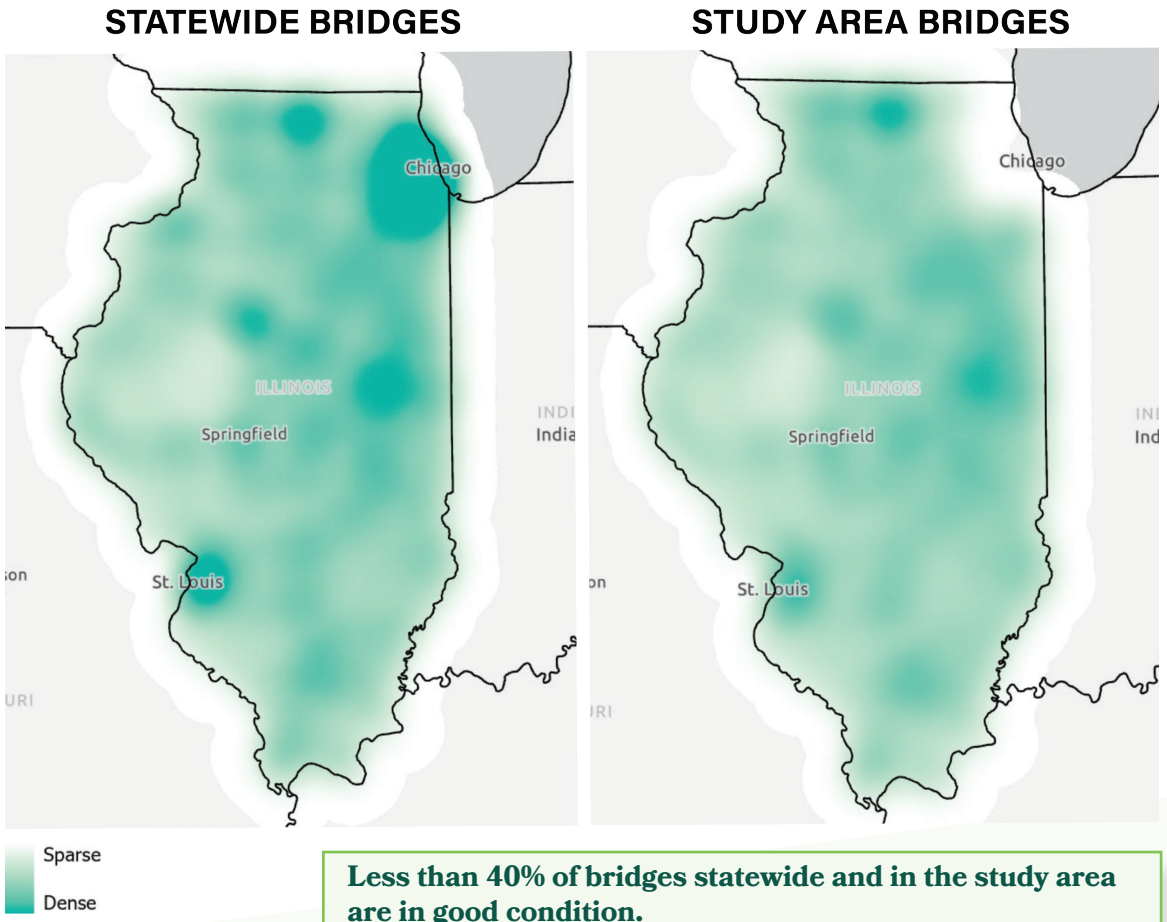
LIST OF TABLES AND FIGURES

# 01| ILLINOIS BRIDGES

Illinois has 26,873 bridges in each of the 102 counties across the state. **Figure 1** shows the bridge density statewide and for the study area communities. For this study, study area bridges are defined as non-interstate bridges and those outside the Chicago metropolitan area. As a note, bridges that cross over an interstate are included. The bridges included in the study area cross rivers, streams, ditches, railroads, and other roadways, and are vitally important to the economy of communities statewide.

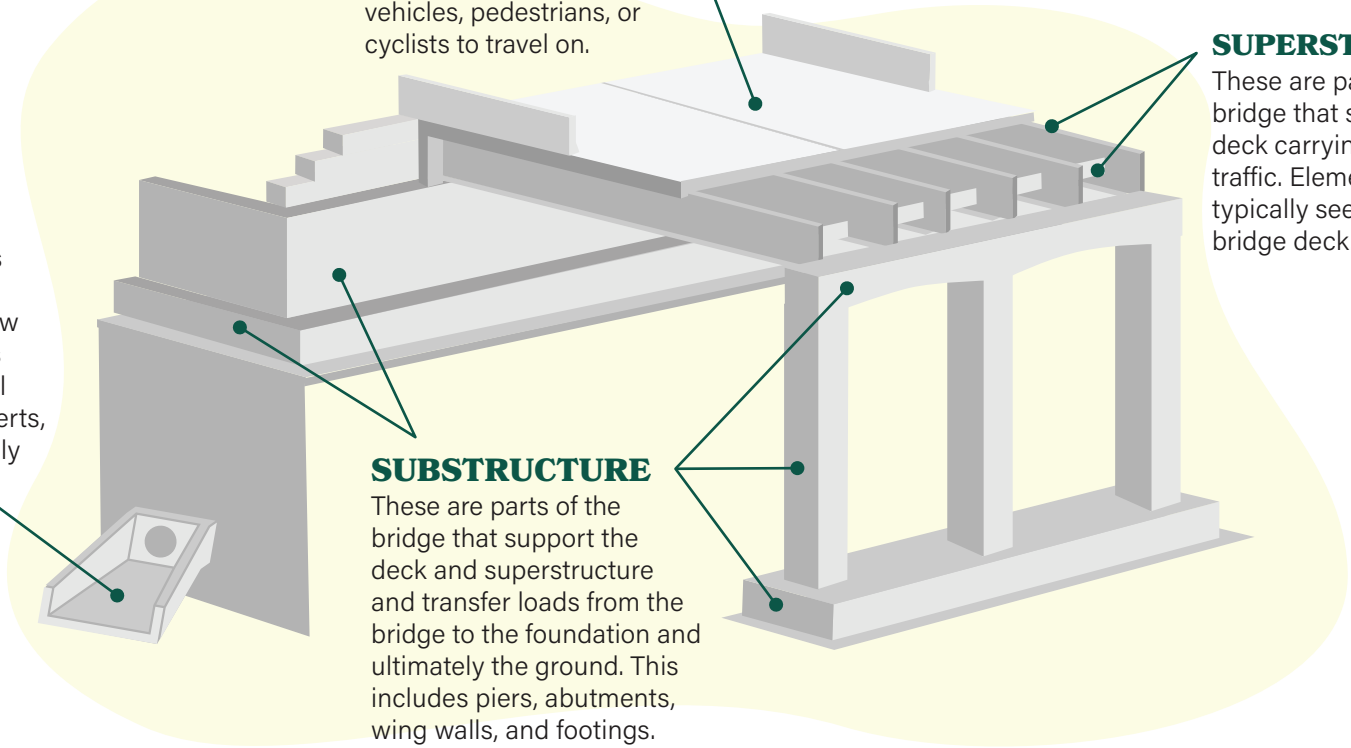
The average age of bridges in Illinois is 45 years old. The oldest bridge is 161 years old and located in Bureau County, while the oldest that still allows truck traffic is 151 years old located in Grundy County. While bridge ages vary, the state and local agencies with jurisdiction inspect them regularly to ensure they are safe for vehicles. Through these inspections, bridges will occasionally be closed or weight-restricted which can interfere with the movement of people and goods. Sixty-four percent of bridges statewide are in fair or worse condition, and sixty percent within the study area are in fair or worse condition as shown in **Table 1**. This highlights the backlog of bridges that will be in need of substantial maintenance or reconstruction in the coming years. Condition rating is determined via bridge inspections, and standards are set by the Federal Highway Administration (FHWA). To determine the bridge condition, FHWA examines four items from a bridge inspection report including the deck, superstructure, substructure, or culvert individual rating. If the lowest rated element falls between 1-4 then it's considered in poor condition, 5-6 is considered in fair condition, and 7–9 is considered in good condition. It is important to note that bridges in poor condition are not necessarily unsafe; however, it does indicate that they might require sooner repair or replacement.

FIGURE 1: **Bridge Density Statewide and Rural Study Area**




**Less than 40% of bridges statewide and in the study area are in good condition.**

ELEMENTS OF BRIDGE



**DECK**
The deck is the surface of the bridge which allows vehicles, pedestrians, or cyclists to travel on.

**SUPERSTRUCTURE**
These are parts of the bridge that support the deck carrying the load of traffic. Elements are visible typically seen above the bridge deck.

**CULVERT**
These are smaller structures that are embedded in the ground allowing water to flow underneath the roadway. It's important to note that not all bridges are considered culverts, but all culverts are technically considered bridges.

**SUBSTRUCTURE**
These are parts of the bridge that support the deck and superstructure and transfer loads from the bridge to the foundation and ultimately the ground. This includes piers, abutments, wing walls, and footings.

TABLE 1: **Bridge Condition**

| Bridge Condition | Statewide | | Study Area* | |
|---|---|---|---|---|
| | COUNT | PERCENT | COUNT | PERCENT |
| **Good** | 9,521 | 35% | 8,432 | 39% |
| **Fair** | 13,848 | 52% | 10,548 | 48% |
| **Poor** | 3,191 | 12% | 2,723 | 12% |
| **#N/A** | 313 | 1% | 110 | 1% |
| **Grand Total** | **26,873** | **100%** | **21,813** | **100%** |

Source: WSP Analysis of IDOT Technology Transfer Program 2023, Structures

* Study area bridges were calculated by removing bridges in the Chicago Metropolitan Area and interstate bridges

Bridges are often thought about as being large multiple-span structures supported by ornate superstructures with trusses, arches, or cables crossing the Mississippi and Illinois rivers. While many of these types of bridges are critical to the movement of people of goods, a large portion of bridges in Illinois - especially in rural areas - are short single-span bridges often less than 50 feet long. An analysis of IDOT Data found that 31 percent of bridges statewide are less than 50 feet, and 34 percent of the study area bridges are less than 50 feet. **Table 2** provides a listing of the number of bridges within Illinois both statewide and for the designated study area.

TABLE 2: **Bridges in Illinois by Length**

| Length of Bridge | Statewide | | Study Area* | |
|---|---|---|---|---|
| | COUNT | PERCENT OF TOTAL | COUNT | PERCENT OF BRIDGES |
| **Less than 25 Feet** | 1,573 | 6% | 1,324 | 6% |
| **50 to 75 Feet** | 5,212 | 19% | 4,828 | 22% |
| **75 to 100 Feet** | 2,877 | 11% | 2,466 | 11% |
| **Greater than 100 Feet** | 10,537 | 39% | 7,161 | 33% |
| **Total** | **26,873** | **100%** | **21,832** | **100%** |

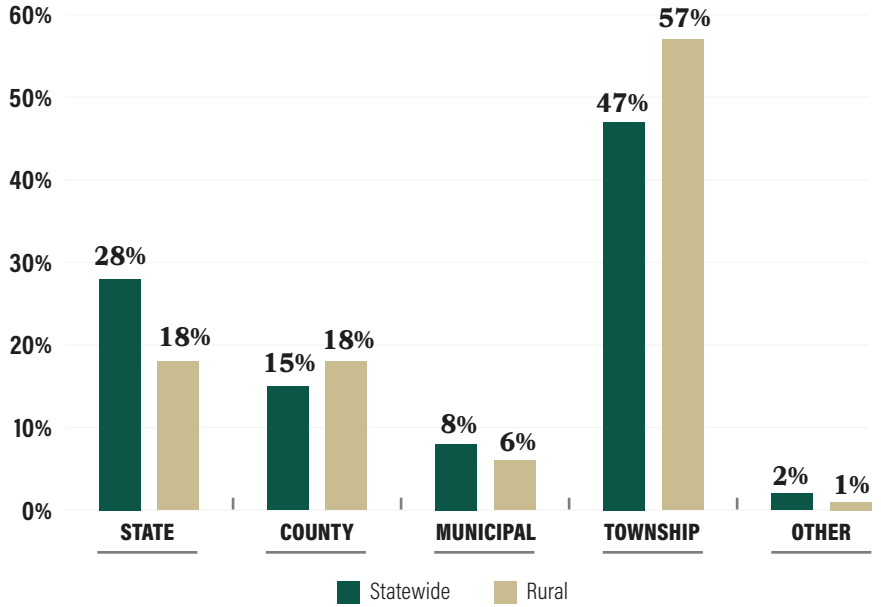
Source: WSP Analysis of IDOT Technology Transfer Program 2023, Structures

* Study area bridges were calculated by removing bridges in the Chicago Metropolitan Area and interstate bridges

Once a bridge needs repair, rehabilitation, or reconstruction, the responsibility of doing so falls under the responsibility of the governmental entity that has jurisdiction. Within Illinois, four main governmental entities have jurisdiction, the State, counties, municipalities, and townships. A large portion of the bridges of the bridges within the state fall under the jurisdiction of local units of government with the state only being responsible for 28 percent of bridges statewide and 18 percent in the study area. With smaller budgets, local units of government bear a majority of the responsibility for the repair and replacement of bridges. **Figure 2** provides the breakdown of bridge ownership within the State. Statewide, 71 percent of bridges are under the jurisdiction of local governments; while in the study area, 81 percent are under local jurisdiction. An overwhelming portion of bridges fall under the jurisdiction of townships, 47 percent statewide and 57 percent in the study area communities. There are 1,428 townships within the State, each year combined they receive $60 million from the State specifically for bridges via the Township Bridge Program.

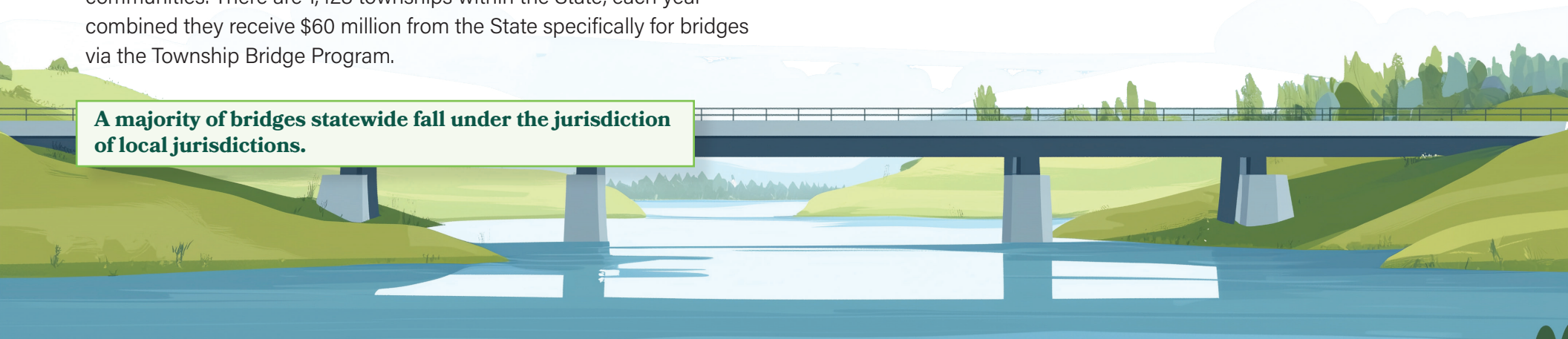
**A majority of bridges statewide fall under the jurisdiction of local jurisdictions.**

FIGURE 2: **Bridge Jurisdiction Statewide**




Source: WSP Analysis of IDOT Technology Transfer Program 2023, Structures

Given the age and importance of and demand placed on bridges, older and deteriorated bridges must be replaced in a programmed manner. Several factors can affect the cost of these bridge replacements, such as the bridge's width, length, number of spans, and the complexity of the geometry of the crossing. Many rural bridges are simple with single spans over streams and ditches, while other main rural highways can cross over rivers and wider roads with multiple spans.



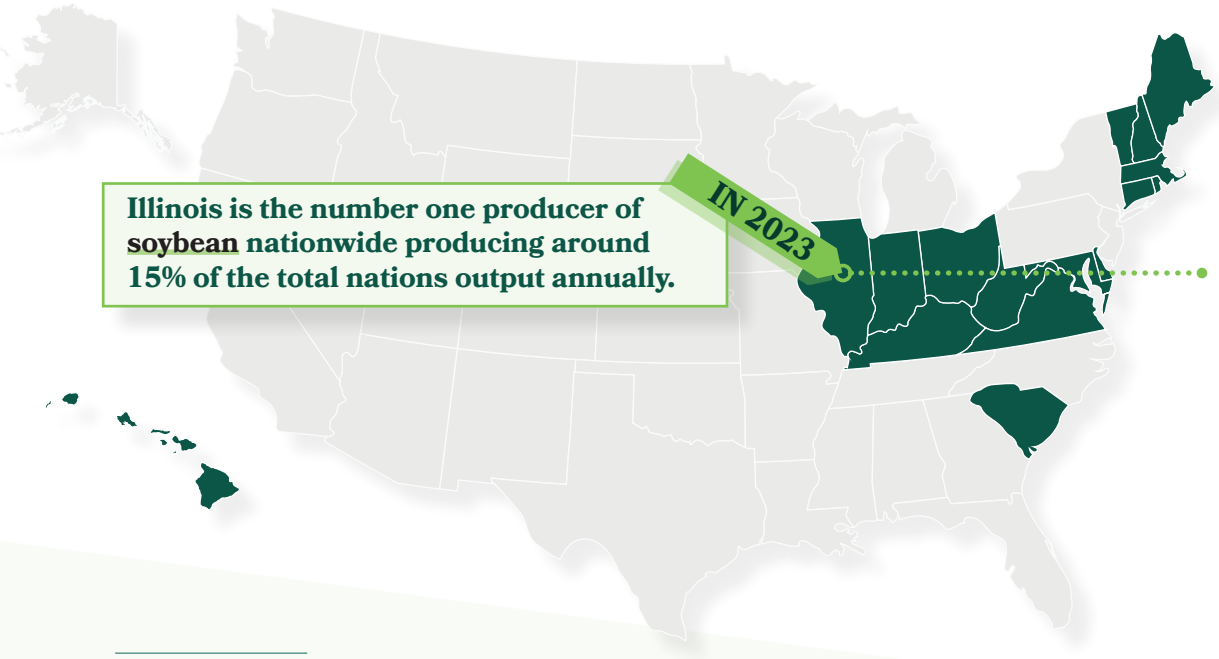
# 02| AGRICULTURE IN ILLINOIS

Agriculture is an important part of Illinois's economy significantly contributing to the state's GDP and a substantial source of employment. The state is a leading producer of corn and soybeans which are used for both domestic consumption and export. The marketing of Illinois' agricultural products generates more than $51.1 billion annually, with crops accounting for 40 percent or $20.4 billion annually.[1] According to the Illinois Department of Agriculture, the agriculture industry employs nearly 1 million people while there are only 75,087 farm operators in the state.[2] Agriculture in the state contributes to a wide variety of related industries including food processing, equipment manufacturing, and transportation. Additionally, Illinois contains one of the largest concentrations of food-related businesses in the world. These food processing businesses greatly benefited from the proximity to the wealth of crops being produced by Illinois farmers.

## Agriculture in Illinois by the Numbers

According to the United States Department of Agriculture in 2023, Illinois had 26.3 million acres or 41,093.75 square miles of operated farmland.[3] Illinois has more acres of operational farmland than 16 states in land area as shown in **Figure 3**. Thirty-nine percent of all operational farmland is in use for soybean production and 42 percent is in use for corn production.

FIGURE 3: **Illinois Farmland Comparison to States Size**




| Harvested | Produced | Product Value |
|---|---|---|
| 11 MILLION ACES OF CORN | 2.2 BILLION BUSHELS OF CORN | $10.8 BILLION CORN |
| 10.3 MILLION ACRES OF SOYBEANS | 648 MILLION BUSHELS OF SOYBEANS | $8.2 BILLION SOYBEANS |
| 1.7 MILLION ACRES OF WHEAT | 135.7 MILLION BUSHELS OF WHEAT | $855 MILLION WHEAT |
| 830 THOUSAND ACRES OF HAY | 2.6 MILLION TONS OF HAY | $315.8 MILLION HAY |

Source: USDA/NASS 2023 State Agriculture Overview for Illinois

1 Facts About Illinois Agriculture
2 Facts About Illinois Agriculture
3 USDA/NASS 2023 State Agriculture Overview for Illinois

# 03| ECONOMIC IMPACT OF BRIDGES IN ILLINOIS

The ISA recognizes the importance of maintaining bridge infrastructure not only for the state's economy but also for industries such as agriculture, which depend significantly on a well-functioning transportation network. With many of the bridges in Illinois nearing the end of their useful life benchmark (ULB), an investment in the repair and rehabilitation of bridges across the state will be a crucial step in maintaining this transportation network in a state of good repair. This section of the report provides an in-depth analysis of the current state of Illinois bridges, cost savings and economic impacts from a proactive investment into the state's bridge infrastructure, and a cost estimate of the repair and rehabilitation investment.

The two elements of the economic analysis are:

- **Benefit-Cost Analysis (BCA)** – The BCA estimates benefits associated with keeping the bridge transportation network of Illinois reliable, such as travel time savings, vehicle operating cost savings, and other benefits such as emission and crash reductions.
- **Economic Impact Analysis (EIA)** – The EIA estimates the broader economic impacts of a reliable transportation network on local jobs, labor income, value-added, and economic output in agricultural and other industries.

These findings will help quantify the importance of investing in the state's bridge infrastructure and enable the ISA, as well as the state of Illinois, to recognize the value of such an investment for its continued safety, efficiency, and economic growth.

## Data Collection and Universe Overview

The analysis comprised publicly available datasets from the Illinois Department of Transportation and the United States Department of Transportation. The first step in the analysis was to remove bridges which are in the Chicago Metropolitan area, and interstate bridges statewide. The next step was to go through the existing data and remove data inconsistencies to create three scenarios of bridges that were examined. The three scenarios were as follows:

1. **All Counties (excluding Chicago Metro)** – All 11,275 bridges were included in this analysis.
2. **Top 13 Agriculture Producing Counties**
   - ☑ Bureau
   - ☑ Champaign
   - ☑ Christian
   - ☑ Henry
   - ☑ Iroquois
   - ☑ Lasalle
   - ☑ Lee
   - ☑ Livingston
   - ☑ Mclean
   - ☑ Ogle
   - ☑ Sangamon
   - ☑ Shelby
   - ☑ Vermillion
3. **16-Year ULB** – This analysis includes only the bridges that will reach the end of their ULB within the next 16 years in all counties.

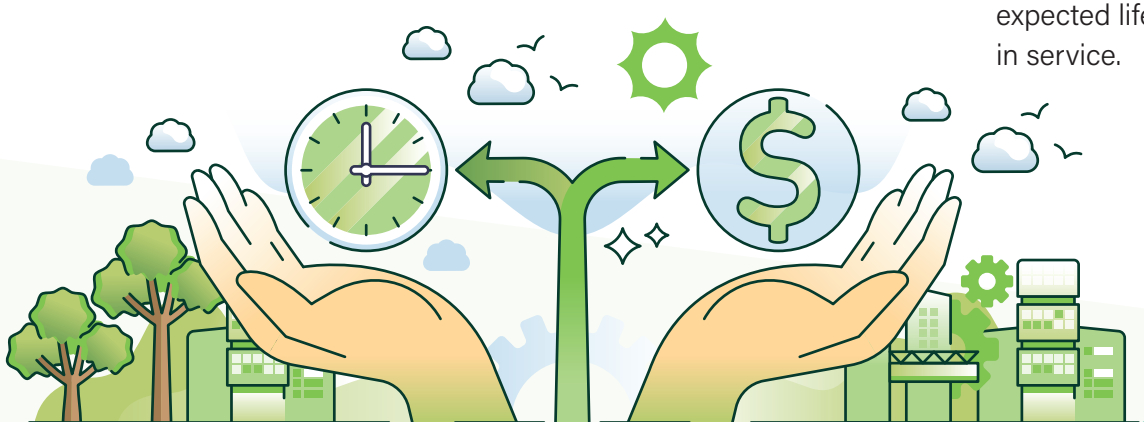
As a note, the original data of 21,832 bridges were pared down to 11,275 bridges due to inconsistencies with the data. To conduct a benefit-cost-analysis and economic impact analysis of this magnitude there are specific data requirements. These data requirements include available vehicles counts and truck traffic volumes, detour length in the event of closure, and years remaining until the bridge is no longer in a state of good repair. These limitations and the magnitude of bridges examined result in a reduced dataset to ensure consistency in the analysis.

## Benefit-Cost Analysis

A Benefit-Cost Analysis (BCA) is an evaluation framework to assess the economic advantages (benefits) and disadvantages (costs) of an investment alternative (or alternatives, if applicable). Benefits and costs are broadly defined and are quantified in monetary terms to the extent possible. The overall goal of a BCA is to assess whether the expected benefits of a project or investment justify the costs. A BCA framework attempts to capture the net welfare change created by a project, including cost savings and increases in welfare (benefits), as well as disbenefits where costs can be identified (e.g., project capital costs), and welfare reductions where some groups are expected to be made worse off because of the proposed project or investment.

The BCA framework involves defining a Base Case or "No Build" Case, which is compared to the "Build" Case, where the project is built, or an investment is made. The BCA assesses the incremental difference between the Base Case and the Build Case, which represents the net change in welfare. BCAs are forward-looking exercises that seek to assess the incremental change in welfare over a project lifecycle. The importance of future welfare changes is determined through discounting, which is meant to reflect both the opportunity cost of capital as well as the societal preference for the present.

The analysis was conducted in accordance with the benefit-cost methodology as recommended by the U.S. Department of Transportation (U.S. DOT) in the 2023 BCA Guidance for Discretionary Grant Programs.



### DEFINITIONS

**No Build Case:** This scenario assumes no investment is made. Once they reach their ULB, bridges in the state of Illinois will have to be closed for emergency repairs for one year to be fixed. This will force vehicles, including trucks to take detour routes around these bridges, which results in additional vehicle-miles traveled (VMT) and vehicle-hours traveled (VHT).

**Build Case:** The investment will rehabilitate the bridges into a state of good repair, which prevents the need to go under emergency repairs and closures in the long-term. As a result, vehicles will not need to use detour routes, as the bridges will remain open and fully operational.

**Benefits:** Investing in this bridge infrastructure will prevent anticipated closures and traffic diversions, saving auto and truck drivers time and reducing VMT on the roadway. The analysis assumes a bridge will remain closed for one year for emergency repairs once it reaches its ULB. The benefits are as follows:

1. Travel Time Savings
2. Vehicle Operating Cost Savings
3. Non-$CO_2$ Emissions Cost Savings
4. $CO_2$ Emission Cost Savings
5. External Highway Use Cost Savings
6. Safety Cost Savings

**Useful Life Benchmark (ULB):** Is a measure used to estimate the expected lifecycle or acceptable period of use for a capital asset in service.

# Findings

## EVALUATION MEASURES

The BCA converts the projected future economic benefits and costs from the investment into monetary units, discounting them back to their present value, and compares them to determine if the benefits exceed the costs. Present value discounting considers the fact that having access to, or use of a given resource has greater value in the present than having to wait for it until a future date. The following common benefit-cost evaluation measures are included in this BCA:

**Net Present Value (NPV):** NPV compares the net benefits (benefits minus costs) after being discounted to present values using the assumed real discount rate of 3.1 percent. The NPV provides a perspective on the overall dollar magnitude of an investment's economic feasibility.

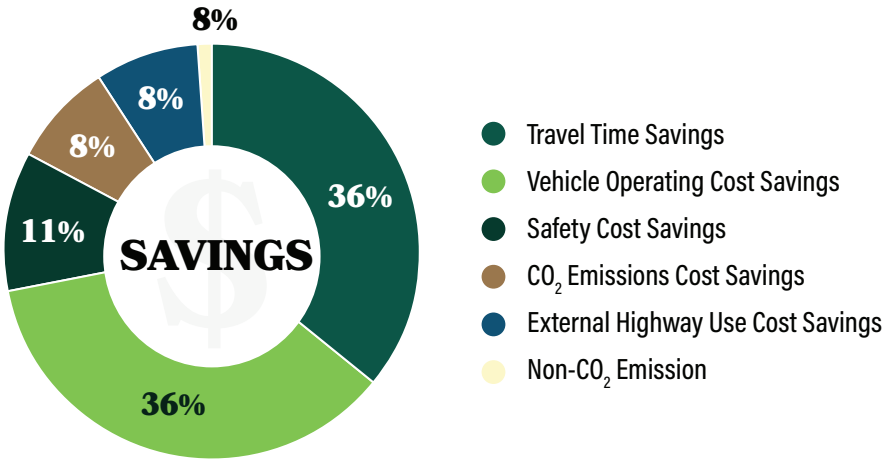
**Benefit Cost Ratio (BCR):** The evaluation also estimates the benefit-cost ratio; the present value of incremental benefits is divided by the present value of incremental costs to yield the benefit-cost ratio. The BCR expresses the relationship of discounted benefits to discounted costs as a factor measure of the extent to which benefits either exceed or fall short of the costs. A BCR greater than one indicates that the investment is cost-effective.

**Cost:** Bridge costs were determined by developing a cost-per-square-foot price based on several factors available within the data. See the appendix for details on how cost was determined.

## RESULTS

The bridge investment will prevent emergency repairs and bridge closures in key areas in the state of Illinois' transportation network. This generates various types of cost savings due to vehicles not having to take detour routes. **Figure 4** illustrates an approximate distribution of these savings for all three scenarios.

FIGURE 4: **Benefit Distribution**




**BCRs in Table 3** present the detailed evaluation results for this bridge rehabilitation investment. When compared to the total costs, the auto and truck benefits of this investment exceed those across all three scenarios, as shown by a BCR greater than one. For every dollar invested statewide $4.97 will return in value, for the top 13 counties $3.00, and for the 16-year ULB $3.59.

**What is a BCR? It is an economics metric used to evaluate the overall value of money of a project comparing the total benefits from the project to the total cost.**

**For all scenarios examined every dollar spent on a bridge investment provides a net positive in terms of benefits**

$$BCR = \frac{\text{Total Benefits}}{\text{Total Costs}}$$

TABLE 3: **Analysis Results, Millions of Discounted 2022 Dollars unless specified**

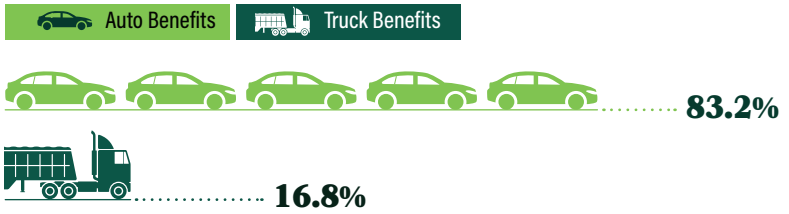
| Benefit Categories | ALL COUNTIES | TOP 13 COUNTIES | 16 YEAR ULB |
|---|---|---|---|
| **Travel Time Savings** | $11,696.7 | $1,355.2 | $732.6 |
| **Vehicle Operating Cost Savings** | $11,737.5 | $1,298.8 | $1,032.0 |
| **Non-$CO_2$ Emission Cost Savings** | $279.8 | $30.9 | $24.5 |
| **$CO_2$ Emission Cost Savings** | $3,288.7 | $368.9 | $253.4 |
| **External Highway Use Cost Savings** | $2,565.8 | $284.1 | $226.1 |
| **Safety Cost Savings** | $3,649.0 | $404.9 | $324.3 |
| **Total Benefits** | $33,217.5 | $3,742.9 | $2,593.0 |
| **Total Costs** | $6,684.9 | $1,246.3 | $721.5 |
| **BCR** | 4.97 | 3.00 | 3.59 |
| **NPV** | $26,532.5 | $2,496.6 | $1,871.5 |

**Table 4** presents the results of the BCA for truck benefits only. Auto benefits account for the large majority of benefits given that they account for approximately 90 percent of traffic on these bridges across all scenarios. The average distribution of auto and truck benefits across all three scenarios is shown in **Figure 5**. When examining benefits specially to the trucking industry, statewide for every dollar spent there is $0.84 is realized value for the trucking industry, for the $0.50 for the Top 13 counites, and $0.63 for the 16-year ULB.

TABLE 4: **Truck Analysis Results, Millions of Discounted 2022 Dollars unless specified**

| Benefit Categories | ALL COUNTIES | TOP 13 COUNTIES | 16 YEAR ULB |
|---|---|---|---|
| **Travel Time Savings** | $1,302.0 | $146.6 | $106.1 |
| **Vehicle Operating Cost Savings** | $2,604.0 | $282.9 | $212.9 |
| **Non-$CO_2$ Emission Cost Savings** | $69.0 | $7.5 | $5.6 |
| **$CO_2$ Emission Cost Savings** | $790.1 | $86.9 | $57.0 |
| **External Highway Use Cost Savings** | $509.0 | $55.3 | $41.6 |
| **Safety Cost Savings** | $368.5 | $40.0 | $30.1 |
| **Total Benefits** | $5,642.6 | $619.2 | $453.4 |
| **Total Costs** | $6,684.9 | $1,246.3 | $721.5 |
| **BCR** | 0.84 | 0.50 | 0.63 |
| **NPV** | -$1,042.3 | -$627.0 | -$268.2 |

FIGURE 5: **Vehicle Mode Benefit Distribution**




## Economic Impact Analysis

The purpose of the Economic Impact Analysis (EIA) is to quantify the economic impacts of a bridge rehabilitation investment in the State of Illinois. The analysis estimates the economic impacts of improved movement of goods to the agricultural industry in particular by bringing the bridges across Illinois to a state of good repair. Investing in the rehabilitation of bridges across Illinois and bringing them to a state of good repair will enhance accessibility in the region which can open up new economic opportunities for local communities. The EIA estimates the number of jobs, labor income, value-added, and economic output that would be lost in the event that the bridges are not rehabilitated.

The EIA does not estimate the impacts associated with the following improvements:

- Auto Travel Time Savings
- Auto Vehicle Operating Cost Savings.

The analysis assumes that travel time savings and vehicle operating cost savings for commuters and other motorists in the study area primarily increase their leisure time which does not necessarily lead to increased earnings or economic activity. Impacts associated with business travel are expected to be minimal.

## METHODOLOGY

An EIA quantifies economic impacts generated by project investment, government policies, increase in household income, and other events. These types of economic events alter expenditures in an economy, shifting the demand for goods and services. These changes have implications on the number of jobs and other measures of economic activity in the region.

### Key Concepts

An EIA involves the estimation of three distinct types of economic activity, commonly referred to as direct effects, indirect effects, and induced effects. These are defined as follows:

- **Direct:** Economic activity generated by injection of spending (aka "change in final demand") to any one or sets of industries in an economy. This is the first step in a spending pattern. Direct effects refer to the local supply chain re-investment due to truck freight cost savings (long-term impacts).
- **Indirect:** Second-order economic impacts that result from inter-industry purchases necessary to produce the goods and services. An agriculture company will spend money on intermediate inputs (fertilizer) and other non-agriculture-related items (research and development) that can be considered as downstream supply chain effects.
- **Induced:** Economic impacts generated by spending patterns of households who, after receiving wages from the direct and indirect effects, purchase goods and services. As local businesses employ people, those individuals spend their earnings on household expenses. These expenditures then benefit local businesses and produce the induced effects.
- **Total**: Combines direct, indirect, and induced effects.

Indirect and induced impacts are often referred to as "multiplier effects", since they increase the overall economic impacts of the original expenditure that initiated the rounds of spending and effects described above. Each of the direct, indirect, and induced impacts are estimated in terms of various measures of economic activity that include the following:

- **Employment** – Number of jobs needed to support economic activity. The most common unit of measurement is referred to as "job-years" because one person in one job lasting five years results in five job-years. A job can be full-time or part-time.
- **Labor Income** – Salaries and wages paid to employees.
- **Value Added** – Net additional economic activity (value of output minus value of purchased goods and services used in the production process). It is commonly referred to as gross domestic product (GDP) which represents the unduplicated measure of the total value of economic activity.
- **Output** – total value of business transactions or sales required for the economic activity.

### Impacts of Bridge Rehabilitation Investment in Illinois

The economic impacts of the bridge rehabilitation investment are driven by freight cost savings from avoided detours. Freight cost savings within the agricultural industry in Illinois that are identified as part of this study result in long-term impacts on savings to customers or reinvestment into inventory (both activities produce local economic impacts). The appropriate portion of freight savings producing local economic impacts is based on available research, a summary of which is presented in **Figure 4.** The estimated freight cost savings (truck travel time savings and vehicle operating cost savings) are taken from the BCA conducted as part of this study.

### Data and Input Assumptions

The EIA assumes that some of the savings from reduced freight costs among industries or supply chains in Illinois will be reinvested

into inventory or used to boost production in response to increased consumer demand (due to lower production costs). The conceptual framework for these impacts is presented in **Figure 6.**

The analysis attributed freight truck savings to agricultural and non-agricultural industries based on their freight tonnage share according to Freight Analysis Framework 5 (FAF5) data, which is a database created through a partnership with the Federal Highway Administration and the Bureau of Transportation Statistics. The supply chains assumed to be part of the agriculture industry are cereal grains, other agricultural products, and milled grain products.

For our analysis, bridges, and freight movement on the interstate and within the Chicago area were excluded, and the study only analyzed originating, destination, and intra-region movements to estimate truck freight savings distributions among industries. Savings from freight traffic going through Illinois are not circulated in the state's economy and therefore removed from the analysis. Additionally, the analysis assumes that 11.3 percent of the savings generated from this investment, which are not passed on to consumers or reinvested into the industry, will be retained as profits according to a research paper published by the Kansas State Department of Agricultural Economics. The assumptions used in the estimation of economic impacts are presented in Figure 5

TABLE 5: **EIA Estimation Assumptions**

| Variable | UNIT | VALUE | SOURCE |
|---|---|---|---|
| **Agricultural Products** | percent | 45.3% | FAF5 Data for 2022 Movements in Illinois |
| **Other** | percent | 54.7% | FAF5 Data for 2022 Movements in Illinois |
| **Share of Savings Retained as Profit** | percent | 11.3% | Kansas State University Department of Agriculture Economics |
| **Freight Through Movement** | percent | 32.0% | Illinois 2023 State Freight Plan |

**Figure 7** presents the associated share to the agricultural industry based on their truck freight tonnage moved in the state of Illinois.

Freight transportation cost savings consist of two categories: travel time savings and vehicle operating cost savings. These cost savings are driven by the avoided detour time and travel miles as a result of bridge

FIGURE 6: **Conceptual Framework of Long-Term Economic Impacts**

rehabilitation investment The EIA uses the undiscounted cost savings of these two categories to calculate the economic impact to the agricultural and non-agricultural industries in the state of Illinois.

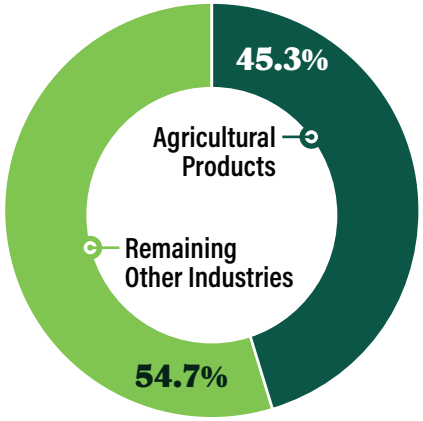
## Results

**Table 6** presents the impacts of the bridge rehabilitation investment in the *All Counties* universe for the State of Illinois. The total truck travel time savings and vehicle operating cost savings of approximately $8.8 billion undiscounted (or $3.9 billion discounted) in 2022 dollars will support 18,381 direct jobs, measured in job-years. In other words, over a 30-year investment analysis period, the investment supports on average 612.7 jobs a year. The indirect and induced effects in other related industries due to spending on infrastructure support an additional 34,259 job-years (or an average annual job supported of 544.4 and 597.6 indirect and induced impacts, respectively) throughout all counties. Combined, an estimated 52,640 job-years will be supported by this investment.

Other industry impacts include a total of $2,833.9 million in labor income, $5,632.5 million in value-added, and $10,385.5 million in output or business sales.

**Investment in bridges statewide, the top 13 producing agriculture counties and 16-year ULB all contribute to substantial employment, labor income, and added value. This is through transportation savings costs which can be reinvested into the local and regional economies. Investment in bridges is a positive for improving the community's quality of life and adding economic benefit as shown in the data from tables 6 through 8.**

FIGURE 7: **Illinois Agricultural Industry Shares (based on Truck Freight Tonnage)**




Note: Agricultural products consist of cereal grains, other agricultural products, and milled grain products.

TABLE 6: **All CountiesCounties State of Illinois excluding Chicago Metro, in Millions of Dollars unless specified**

| Economic Impact | EMPLOYMENT (JOBS) | LABOR INCOME | VALUE ADDED | OUTPUT |
|---|---|---|---|---|
| Direct | 18,381 | $1,118.7 | $2,389.0 | $5,017.9 |
| Indirect | 16,332 | $872.1 | $1,532.5 | $2,403.9 |
| Induced | 17,927 | $843.1 | $1,711.1 | $2,963.7 |
| **Total** | **52,640** | **$2,833.9** | **$5,632.5** | **$10,385.5** |

The economic impacts for the Top 13 Agriculture Producing Counties and 16 Year ULB analyses were estimated to be 11.4 percent and 5.7 percent, respectively, of the All Counties analysis. These percentages are calculated based on the proportion of savings generated by these universes. These impacts are presented in **Table 7** and **Table 8**.

TABLE 7: **Top 13 Agriculture Producing Counties, in Millions of Dollars unless specified**

| Economic Impact | EMPLOYMENT (JOBS) | LABOR INCOME | VALUE ADDED | OUTPUT |
|---|---|---|---|---|
| Direct | 2,088 | $127.1 | $271.4 | $570.0 |
| Indirect | 1,855 | $99.1 | $174.1 | $273.1 |
| Induced | 2,036 | $95.8 | $194.4 | $336.6 |
| **Total** | **5,979** | **$321.9** | **$639.8** | **$1,179.7** |

TABLE 8: **16 Year ULB, excluding Chicago Metro, in Millions of Dollars unless specified**

| Economic Impact | EMPLOYMENT (JOBS) | LABOR INCOME | VALUE ADDED | OUTPUT |
|---|---|---|---|---|
| Direct | 1,050 | $63.9 | $136.4 | $286.6 |
| Indirect | 933 | $49.8 | $87.5 | $137.3 |
| Induced | 1,024 | $48.1 | $97.7 | $169.3 |
| **Total** | **3,006** | **$161.8** | **$321.7** | **$593.1** |

**Figure 8** gives a side-by-side comparison of the value added and labor income generated from this investment of all three universes.

FIGURE 8: **Value Added and Labor Income Comparison**

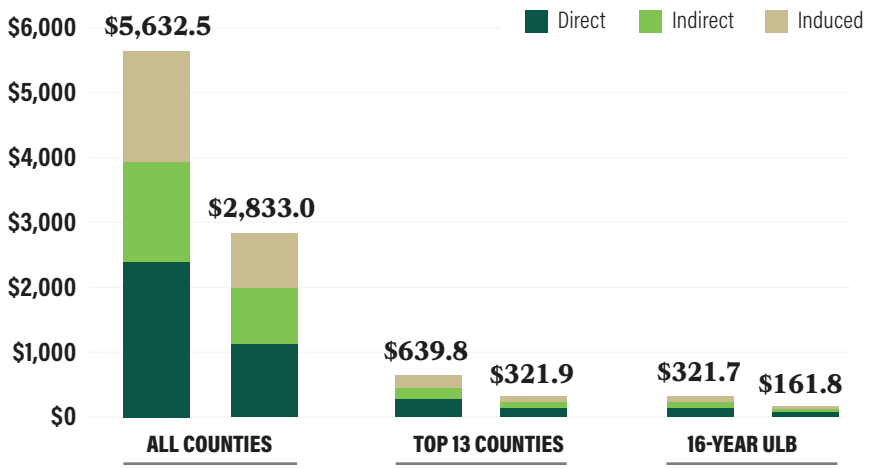



FIGURE 9: **Employment Comparison**

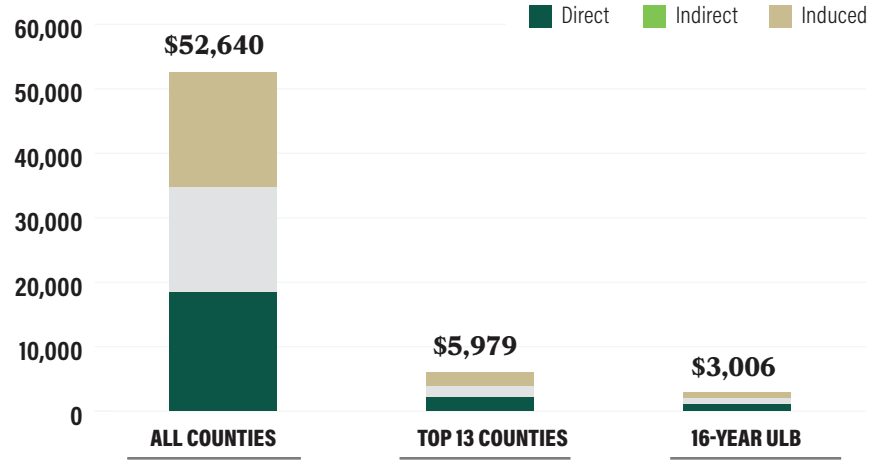



**Figure 9** provides a summary of employment supported by the bridge rehabilitation investment.

# 04| CONCLUSION

Bridges are an important part of the movement of goods and people throughout the State of Illinois. While not all bridges have high vehicle and truck traffic on them, they are vitally important to the individuals who use them. Illinois farmers rely on these bridges to help move their products to the grain elevator or a processing plant. These bridges remove natural and man-made barriers which if it were not for the bridge would add lengthy detours adding to additional time and costs as previously outlined. Bridge rehabilitation investment in the state of Illinois will result in significant impacts to the local economy and industries for several reasons:

- **Economic Growth**: Improved freight connectivity throughout the state of Illinois will benefit both the agriculture and non-agriculture industries. Improved bridges will ensure the efficient movement of goods, reducing delays and transportation costs. This allows farmers to quickly move products to the market, strengthening competitiveness and enhancing economic growth.
- **Improved Infrastructure**: A bridge rehabilitation investment will not only benefit the agriculture and non-agriculture industries but also residents and commuters who rely on these bridges. By preventing unforeseen closures and delays, the investment ensures that people can travel safely and efficiently, contributing to an enhanced quality of life for communities across Illinois.

This investment aims to improve the reliability of bridges across Illinois and has far-reaching implications for the agricultural and non-agricultural industries in the state. It can drive economic growth, promote trade and commerce, enhance infrastructure, reduce environmental impacts, and improve the overall quality of life. By creating a more reliable transportation network, the investment supports the state's long-term prosperity and sustainability.

**The full study and its findings can be found by visiting the Illinois Soybean Association Website.**