

FY 2020 INFRA GRANT APPLICATION

# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY



U.S. Department of Transportation Nationally Significant  
Freight and Highway Projects (INFRA Grants) for Fiscal Year 2020  
*Submitted by: Missouri Department of Transportation*

February 25, 2020

# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

## FHWA Cover Page

### Basic Project Information:

• What is the Project Name?	I-270 North GAP Project: Greater Access to Prosperity
• Who is the Project Sponsor?	Missouri Department of Transportation
• Prior INFRA Application	No

### Project Costs:

• INFRA Request Amount	\$23,760,000
• Estimated federal funding (excl. INFRA)	\$7,920,000
• Estimated non-federal funding	\$7,920,000
• Future Eligible Project Cost (Sum of previous three rows)	\$39,600,000
• Previously incurred project costs (if applicable)	\$0
• Total Project Cost (Sum of 'previous incurred' and 'future eligible')	\$39,600,000
• Are matching funds restricted to a specific project component? If so, which one?	No

### Project Eligibility:

• Approximately how much of the estimated future eligible project costs will be spent on components of the project currently located on National Highway Freight Network (NHFN)?	\$39,600,000
• Approximately how much of the estimated future eligible project costs will be spent on components of the project currently located on the National Highway System (NHS)?	\$39,600,000
• Approximately how much of the estimated future eligible project costs will be spent on components constituting railway-highway grade crossing or grade separation projects?	\$1,216,000
• Approximately how much of the estimated future eligible project costs will be spent on components constituting intermodal or freight rail projects, or freight projects within the boundaries of a public or private freight rail, water (including ports), or intermodal facility?	\$0

### Project Location:

• State(s) in which project is located	Missouri
• Small or large project	Small
• Urbanized Area in which project is located, if applicable	St. Louis, MO – IL
• Population of Urbanized Area	2,150,706
• Is project located (entirely or partially) in an Opportunity Zone? <b>Census Tracts: 29510127000</b>	Yes
• Is the project currently programmed in the:	
○ TIP	No
○ STIP	No
○ MPO Long Range Transportation Plan	Yes
○ State Long Range Transportation Plan	Yes
○ State Freight Plan	Yes



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# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

## 1.0 Project Description/Summary

**Project Description.** The Missouri Department of Transportation (MoDOT) requests \$23.760 million in INFRA funds to complete the I-270 North GAP Project: Greater Access to Prosperity. The project will close a major gap and eliminate a significant bottleneck along approximately 3.2 miles of Interstate 270 North (I-270 North) through suburban St. Louis, Missouri. The interstate lane configuration within the project area currently consists of two or three lanes in each direction (eastbound and westbound) with either a concrete median divider or grass median and substandard shoulders. The posted speed limit is 60 miles per hour (mph). The scope of work includes:

- **Road Widening:** Adding one lane in each direction on I-270 from just west of Lilac Avenue to Riverview Drive (approximately 1.25 miles); this segment is currently two lanes in each direction.
- **Bridge Improvements:** Replacing I-270 bridges over Route 367 (Lewis and Clark Boulevard) and over Bellefontaine Road; replacing Lilac Bridge over I-270; and rehabilitating the I-270 bridges over a BNSF railroad corridor. The Bellefontaine bridge replacement will also correct a deficient vertical clearance (currently 14'7").
- **Roadway Improvements:** Widening the outside shoulder and resurfacing the existing roadway in each direction from Route 367 to Riverview Drive (3.2 miles) and 1.25 miles of new, full depth lanes.
- **Transportation Systems Management Operations Strategies (TSMO)** that include:

- 1) V2X (Vehicle to Everything) technology and Intelligent Transportation System (ITS) features to prevent wrong way driving, increase pedestrian safety and produce predictive analytics. MoDOT uses Waycare's platform to harness in-vehicle and city data and analyze these to provide traffic management and safety information in real-time. The platform is capable of using complex algorithms to analyze traffic, weather and incident data to better inform deployment of costly and limited resources (for example traffic incident management and emergency response) and to inform the driving public about incidents and blockages. The new ITS elements described above will support robust Predictive Analytics already in use along this busy and congested stretch of I-270 North.
- 2) Automated Traffic Signal Performance Measures (ATSPM) to show real-time functionality of signalized intersections and allow traffic engineers to make data-based management decisions;
- 3) Dynamic trailblazer assembly systems to guide motorists along alternate routes during major incidents and ramp closures;
- 4) Transit and emergency vehicle signal priorities, as well as pedestrian detection/priority to improve safety and increase transit efficiency and response time for first responders; and

### Significance of Missouri's I-270 Freight Corridor

- ✓ Over 18% of freight moving on I-270 North in Missouri is through-traffic.
- ✓ I-270 North provides direct access to the "America's Agriculture Coast" where over 150 barges can be serviced in one day on the Mississippi River.
- ✓ 60% of the trucks moving through the project limits are over-the-road freight haulers.
- ✓ St. Louis is the second largest city in Missouri, but the hub for a vast number of farm-to-market rural counties.



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- 5) Technology in new signage to allow communication with Connected Automated Vehicles (CAVs) and other mapping devices. Intelligent Transportation System (ITS) elements will include two new closed-circuit television (CCTV) cameras eastbound and westbound; wrong-way driver detection, five signals and upgraded broadband fiber to support the new ITS elements and to support additional future ITS elements.
- **Rehabilitating Watkins Creek Culvert** which runs north/south under I-270 North approximately 0.6 miles west of the Mississippi River. The culvert is approximately 640 feet (+/-) long and runs underneath an access road on the north (Dunn Road) and both the eastbound and westbound lanes of I-270.
  - **Active Transportation** element that includes extending a shared-use trail from Route 367 to Riverview Drive (3 miles) to connect to the existing 12-mile St. Louis Riverfront Trail providing connectivity throughout the City and to Illinois bike trails via the Old Chain of Rocks Bridge.

**Project Readiness.** The proposed project elements are “project ready” with the following tasks already completed or in progress:

- ✓ MoDOT, in cooperation with the Federal Highway Administration (FHWA), prepared a National Environmental Policy Act (NEPA) Environmental Assessment (EA) that includes the proposed project limits herein. The EA was signed by the FHWA on November 21, 2016,<sup>1</sup> and a Finding of No Significant Impact (FONSI) was signed by the FHWA on April 12, 2017.<sup>2</sup>
- ✓ The EA introduced innovative approaches to conducting NEPA and won the American Council of Engineering Companies of Missouri’s “Engineering Excellence Award” in 2018.
- ✓ The entire corridor has completed FHWA’s Cost Estimate Review program.
- ✓ Based on the environmental findings, concept level engineering designs have been developed.
- ✓ A full implementation schedule has been developed, permits identified, and the local match secured.
- ✓ MoDOT proposes to meet the mandatory obligation date by April 2023, construction will begin by June 2023, and the project fully completed and closed out by December 2024, as part of the INFRA grant accountability metric.

All proposed improvements will significantly enhance safety, reduce congestion and enable more efficient movement of people and goods within this heartland crossroads of the United States. INFRA funding represents 60 percent of the \$39.6 million total project cost. All proposed improvements are located directly on or immediately adjacent to I-270 North, which is a route on the USDOT National Highway Freight Network.

**Significance of Missouri and the Project to the U.S. Freight Transportation System.** As the transportation crossroads for the entire nation, Missouri’s strategic location puts it within 500 miles of 43 percent of the U.S. population, 44 percent of all U.S. manufacturing plants, and seven of the top 25 international cargo hubs in the United States. The I-270 outer belt is one of the most traveled freight corridors in the St. Louis region and is a link to the national freight network with connections to I-70, I-64, I-44, I-170 and I-55. The project segment is a bypass route for I-70 in St. Louis and is

<sup>1</sup> Link to EA: <https://blaisassoc.egnyte.com/dl/wCNiDW2jUW>

<sup>2</sup> Link to FONSI: <https://blaisassoc.egnyte.com/dl/lt9tzppfDP>



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used heavily by freight haulers using I-70 for cross-country travel because it is a more direct route and avoids congestion, lower speed geometrics and bridge clearance restrictions in downtown St. Louis. Missouri is home to the country's 2nd and 3rd largest rail hubs (Kansas City and St. Louis, respectively) and 3<sup>rd</sup> and 8<sup>th</sup> largest inland ports (Port of Metropolitan St. Louis and Port of Kaskaskia, Illinois, respectively, which together comprise the St. Louis Regional Freightway's port system). These ports are the northernmost lock- and ice-free ports on the Mississippi River.

More specifically, this section of I-270 feeds the Terminal RR Yard, NFS Intermodal Yard and CSX East St. Louis Yard. It also feeds America's Central Port and the St. Louis Port Authority. According to a recent report by the U.S. Army Corps of Engineers, the I-270 feeds, "...a stretch of the Mississippi River that has become America's center of gravity for grain-handling for transit and export. It is so dense with grain- and fertilizer-handling facilities that can handle all transportation modes – truck, rail, and barge – that is it being called 'America's Agriculture Coast.'" Within a 15-mile section of the Mississippi River, the greater St. Louis Metropolitan Statistical Area region has 15 barge transfer facilities handling agricultural and fertilizer products. At capacity, these facilities can handle over 150 barges in a day, providing the highest level of barge handling capacity anywhere along the Mississippi River. The I-270 North project feeds this "Ag Coast of America."<sup>3</sup> Complementary to helping the urban core, **the project also supports the USDOT's ROUTES initiative by providing a seamless connection from the field, to the grain mills, to the barges. There are 27.8 million acres of farmland in Missouri, with 15.6 million acres cropland (56 percent).<sup>4</sup> Missouri ranks #10 in total cropland in the nation; with a \$10.5 billion market value and soybeans, corn and hay topping the most valuable crops produced.** The planned interstate improvement project will benefit Missouri, the Midwest region and the entire nation by enhancing the safety and reliability of this critical national freight highway corridor.

***Project's History and Broader Context.*** Built almost 60 years ago, the northern leg of the I-270 North corridor is one of the oldest segments of the interstate system in the Metropolitan St. Louis region. Within the last 20 years, MoDOT has made several improvements to the corridor, including widening sections, rehabilitating bridges and making safety improvements to the two-way outer road system. However, the combination of age and the growth in traffic (particularly from increased freight movement), has resulted in safety and congestion problems that require large-scale investments if the corridor is to safely and efficiently meet the region's current (and future) travel patterns and demands.

Within the past three years, MoDOT and the Illinois Department of Transportation (IDOT) completed separate NEPA studies on the corridor and scheduled major rebuilding projects with investments totaling \$500 million. To the west of the INFRA project limits, MoDOT funded approximately \$278 million in improvements on 8.6 miles of the I-270 corridor (including replacing and rehabilitating bridges and culverts; widening the interstate; resurfacing existing lanes; converting the two-way outer road system to a one-way system; and building multi-use, non-motorized, active transportation facilities), construction of which is scheduled to begin in 2020. To the east, IDOT and MoDOT jointly funded a project to replace the I-270 bridge over the Mississippi River (the Chain of Rocks Bridge)

<sup>3</sup> <https://www.waterwaysjournal.net/2017/10/16/st-louis-area-riverports-help-earn-title-of-americas-agriculture-coast/>

<sup>4</sup> <https://www.usda.gov/media/blog/2019/08/13/2017-missouri-census-agriculture-show-me-numbers>



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and MoDOT also funded the replacement of the Riverview Bridges to be in line with the new Chain of Rocks Bridge. And finally, IDOT is also funding the I-270 mainline from four to six lanes (another \$250 million investment) in Illinois. All of these financial commitments highlight that MoDOT is stretching every available dollar to make significant improvements within the same INFRA corridor.

The proposed project limits are located within a federally recognized Opportunity Zone where 45 percent of the households in the designated Census Tracts live in poverty. All, or portions, of the project area also have the following designations: Promise Zone, Targeted Employment Area, Community Improvement District and Chapter 353 Development District. The area has clearly been identified as a region in need of renewal and ripe for economic development. Current redevelopment efforts have brought a Federal records center and a healthcare insurance company call center to the project area.

While Missouri and Illinois have assembled large sums for removing severe freight bottlenecks in the interstate highway network, a three-mile, \$40 million gap between these large investments leaves a critical freight bottleneck and community challenge. MoDOT's request for INFRA funding provides the resources to close the gap (implementing improvements that emerged as NEPA study recommendations) and addresses freight and other mobility challenges described below. Without INFRA funding, these improvements will likely be delayed for decades, or completed in fragments, due to fuel tax revenue shortfalls that limit MoDOT's ability to fund anything beyond minimal asset management.

## Missouri's Roadway System

- 7<sup>th</sup> largest state highway system in America (33,838 miles)
- Ranks 48<sup>th</sup> in nation in revenue raised per highway mile.
- Gas Tax has remained the same since 1996, despite increased fuel efficiency.

<https://www.modot.org/fast-facts>

**Partnerships.** Immediately after INFRA award and during ramp-up, MoDOT will explore providing STEM opportunities within the local community and create partnerships that may include the St. Louis Community College-Florissant Valley, University of Missouri-Columbia (UMC), University of Missouri-St. Louis (UMSL), the Missouri University of Science and Technology (S&T), other colleges and local high schools (e.g., McCluer South-Berkeley, McCluer, McCluer North, Ferguson/Florissant Innovation School, Hazelwood Central, Hazelwood East, Hazelwood West, Riverview Gardens and North Technical High School). The USDOT provides over \$1 million annually to fund the University Transportation Center at S&T. MoDOT has a strong history of partnering on similar major projects – including the US 54 Champ Clark River Bridge project, in which partnerships were developed between the local high schools and contractors (with respect to engineering trades), and the US 60 Rogersville Freeway Project, in which partnerships were developed with local female and minority STEM students from the surrounding communities.

### ***Transportation Needs and Challenges.***

**Bottleneck Conditions and Gap Closure.** The project location is prone to severe bottlenecks creating unacceptable supply chain disruptions, creating trickle-down delay effects for ports, rail and aviation, all of which negatively impact industry competitiveness. In addition, freight traffic that is disrupted by congestion and lack of capacity in the St. Louis area impacts the economic health and prosperity of **rural Missouri** where goods are produced, refined, or destined in the supply chain. This project aligns with the FHWA's ROUTES initiative. For interstate traffic, bottlenecks cause unexpected slowdowns,



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which lead to more frequent and more severe crashes. For local commuters, bottlenecks increase driver frustration, which in turn results in increased volume on surface streets as alternative travel routes, adding vehicle miles traveled, more emissions (the St. Louis region is not fully compliant with national Clean Air standards) and congestion on roadways that were never intended to carry additional vehicles. The proposed project represents one of the *last priority segments* that must be funded and constructed along a major, 16-mile, bi-state reconstruction initiative. The large Missouri project on I-270 just west of this gap is MoDOT's largest single project funded in the last decade.

Increases in Freight are Altering Operations on I-270 North. Freight trucking is a key component of the I-270 North traffic stream and has significant impacts on operations. These impacts were analyzed by the East-West Gateway Council of Governments, which resulted in the I-270 becoming a top priority of their St. Louis Regional Freightway. Also, a recent study found that **93 percent** of all commercial vehicles serving the St. Louis region reported using I-270 as a primary regional route once in the area.<sup>5</sup> Average daily traffic (ADT) count for vehicles within the proposed project limits is 70,632<sup>6</sup>; 18 percent of these vehicles (or 12,700) are over-the-road (OTR) freight haulers. Due to their physical and operational characteristics, trucks disproportionately affect traffic congestion, safety and the travel experience of non-truck drivers. The percentage of disabling injury crashes and fatal crashes approximately doubles when trucks are involved.

Roadway Elements are Structurally Deficient. First constructed in 1960, the interstate and bridges crossing over I-270 are structurally deficient and have outlived their usefulness for freight and automobile traffic. The original design standards assumed lower traffic and fewer heavy trucks than are currently typical for I-270 North. The most recent improvement on this segment was a mill-and-fill project in 2017.

A Degrading Safety Environment Exists on I-270 North. The I-270 North mainline and interchanges have been evaluated based on safety, traffic operations and geometric design. Multiple studies dating back more than 10 years found that the majority of the interchanges exceed statewide average crash rates – resulting in the interstate being on MoDOT's "High Severity List" year after year. On this specific 3.2 mile project segment, between 2015 and 2018, more than 260 crashes occurred – including three fatalities and nearly 100 injury accidents – with rear-end and passing crashes the most predominant type. Statewide, the **crash rate** (crashes per year measured against vehicle exposure) on interstates averaged 97.65 over that same four-year period but was 124.94 for the project area. The eastbound I-270's average **crash rate** is 30 percent higher than the statewide average for interstates.

Connectivity Gaps for Disadvantaged Communities. I-270 North separates communities, and there is growing demand for enhanced transit, bicycle and pedestrian connectivity. Currently, most of the existing pedestrian facilities within the project area do not meet ADA requirements, and in some locations, the sidewalks are discontinuous or do not exist. The need for multi-modal options is great. The surrounding communities have higher percentages of residents who are low-income, minority, elderly and disabled. North County has poverty rates more than twice as high as the other areas in the county, and a higher percentage of zero-vehicle households. Some of the nearby large apartment

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<sup>5</sup> I-270 North Corridor Study, Final Report. October 2012, page vii

<sup>6</sup> MoDOT EB and WB Crash Report for Project Limits. Based on most recent counts collected in 2018.



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complexes are quickly approaching 50 percent zero-vehicle households who would benefit from multimodal improvements. Currently, northern St. Louis County generates 20 percent of the region’s bus ridership and Metro has made significant investments in the I-270 North region including a new transfer center and adding additional routes.

**How Project Addresses Transportation Challenges.** The proposed project elements will improve safety, improve travel reliability, reduce bottlenecks and ensure swift movement of freight, workers and residents to keep the regional and national economy strong. Increased capacity will lead to fewer vehicle conflicts and improve travel time for through-traffic. The TSMO elements will improve safety by increasing driver awareness through real-time messaging. Bridge improvements will ensure the long-term viability of the supply chain network by ensuring that the corridor can accommodate all types of loads and sizes. The multimodal enhancements will address the need for transportation choices for the surrounding disadvantaged communities who rely on safe pedestrian and bicycle passage to access employment, shopping, schools, church, entertainment and other destinations. Section 5.0 “Merit Criteria” significantly expands on these themes.

## 2.0 Project Location

The proposed project limits are directly on I-270 North and begin at Route 367 (Lewis and Clark Boulevard) and continue east to just beyond Riverview Drive near the Mississippi River. All work will take place in St. Louis County with a very small portion at Riverview Drive located in St. Louis City. The terrain surrounding the project area is mostly flat and located within a medium-dense, suburban environment but within minutes of highly dense, urban St. Louis. The adjacent land uses are primarily commercial, industrial, light manufacturing, residential, and open space. Nationally, I-270 is a 50.6-mile auxiliary interstate highway that encircles the west, north and south sides of St. Louis. The I-270 North portion of the auxiliary allows through traffic to bypass downtown St. Louis as part of the I-70 system. Interstate 70 is a 2,151-mile major east-west system beginning near I-695 in Baltimore, Maryland to I-15 near Cove Fort, Utah. The project limits are located within 600 miles of major cities, including St. Louis, Chicago, Dallas, Baton Rouge and Atlanta. The project is located in the St. Louis, MO–IL Urbanized Area with a total population of 2,150,706.



**Figure 1: Location of I-270 North corridor improvements in relation to existing transportation infrastructure.**

**Table 1: Geospatial Coordinates**

Location	Urban/Rural	Latitude	Longitude
<b>St. Louis, Missouri</b>	Urban	38°46'01.56" N	90°12'15.53" W
<b>Project End Points</b>	Urban	W: 38°46'14.35" N	90°14'20.78" W
		E: 38°45'59.34" W	90°10'48.84" W



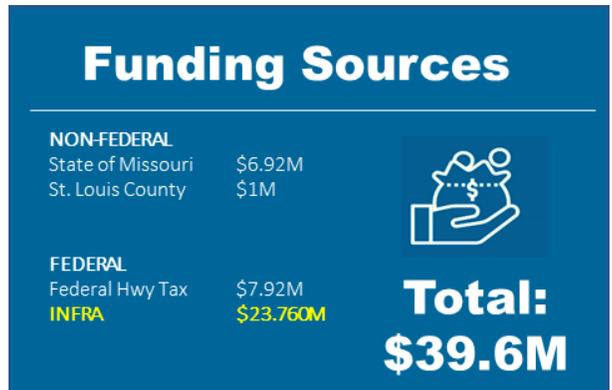
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## 3.0 Project Parties

MoDOT owns all facilities where proposed improvements are located; therefore, no additional public or private entities are required to *deliver* this project. Some right-of-way will be necessary, but these are minimal with no anticipated obstacles.

## 4.0 Grant Funds, Sources and Use of Project Funds

INFRA funding is critical to successfully deliver each project element; absent INFRA assistance, the project could be delayed for decades or completed in fragments. The availability of other revenue sources, as articulated in Merit Criteria #2, is extremely constrained in Missouri. Shortfalls in tax revenue collected for transportation have limited MoDOT’s ability to complete projects beyond basic maintenance and repair. The match contributions represent maximums MoDOT can contribute while ensuring fiscal health. The required project budget details are summarized below:



- The **total INFRA request** represents **60 percent** of the total project cost.
- The project provides for a **20 percent non-federal match** from the Missouri Department of Transportation and St. Louis County. Evidence of these contributions is provided in Appendix A.
- All **non-federal funds are immediately** available and are **not** subject to a fixed time period.
- **Other Federal funds** represent **20 percent** of the total project cost.
- Total federal funding (including INFRA) contributed to the total project cost is **80 percent**.
- All costs are considered future eligible project costs.
- INFRA funds will be used for design-build, construction-related activities, and will result in the completion of all project elements.
- The project budget, including **funding sources for major activities**, is provided in **Table 2**.
- **There are no previously incurred costs** counting toward the minimum project size.
- The project is **not a phased project** and therefore no phasing is illustrated.
- **Contingency** amounts (2 percent) have been included to cover unanticipated cost increases. Also, design-build and lump-sum bidding is proposed, which protects MoDOT and taxpayers by sharing the risk with the successful contractor(s).
- There is one highway/grade separation element within the proposed project and the estimated total for this element is \$1.216 million. The FHWA may determine that this amount counts toward the **\$500 million INFRA cap** for port, rail, and intermodal projects.



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## Project Budget

Table 2: Scope of Work and Detailed Project Budget

Scope of Work and Detailed Project Budget						
No.	Description	INFRA Funds	Other Federal	Non-Federal	Total Cost	% of Total Cost
0.1	Engineering and Final Design			\$ 3,819,781	\$ 3,819,781	
0.2	Other Pre-Construction Costs				\$ -	
0.3	Pre-Construction Cost			\$ 3,819,781	\$ 3,819,781	9.65%
1.1	Grading and Drainage	\$ 2,707,215			\$ 2,707,215	
1.2	Base and Surface	\$ 7,840,520			\$ 7,840,520	
1.3	Bridge	\$ 8,081,117			\$ 8,081,117	
1.4	Miscellaneous (Active Transportation, TSMO, Culvert, etc.)	\$ 5,130,247	\$ 7,920,000	\$ 353,055	\$ 13,403,302	
1.5	Estimated Contract Total	\$ 23,759,098	\$ 7,920,000	\$ 353,055	\$ 32,032,153	
1.6	Construction Contingency			\$ 640,643	\$ 640,643	
1.7	Contract Total + Const. Contingency	\$ 23,759,098	\$ 7,920,000	\$ 993,698	\$ 32,672,796	
1.8	Utilities			\$ 400,000	\$ 400,000	
1.9	Subtotal Construction Cost	\$ 23,759,098	\$ 7,920,000	\$ 1,393,698	\$ 33,072,796	83.52%
1.10	R/W Acquisition			\$ 100,000	\$ 100,000	
1.11	R/W Incidentals			\$ 60,000	\$ 60,000	
1.13	Construction Engineering			\$ 2,546,521	\$ 2,546,521	
1.14	Subtotal Incidentals			\$ 2,706,521	\$ 2,706,521	6.83%
1.15	<b>Total I270North</b>	\$ 23,759,098	\$ 7,920,000	\$ 7,920,000	\$ 39,599,098	
1.16	<b>Total Project Cost</b>	\$ 23,760,000	\$ 7,920,000	\$ 7,920,000	\$ 39,600,000	100%

## 5.0 Merit Criteria

### Criterion #1: Support for National or Regional Economic Vitality

**Outcomes and Benefits of the Project.** At a broader level, the project improves and strengthens a heavily traveled, urban freight corridor of regional and national significance, deploys innovative technologies and supports the interests of the surrounding disadvantaged communities. The project will have a number of benefits including:

**1. Advance National and Regional Economic Development by Improving Connections to the Nation’s Transportation Network.** More than 1.1 million jobs nationwide, and \$113 billion of the nation’s GDP, depend on Missouri’s interstate system. The benefit-cost analysis identified the **total benefit of this project, which improves a critical link in the national freight network, as approximately \$39.1 million (when discounted at 7 percent).** The project segment carries 12,700 commercial motor vehicles daily – including through traffic vehicles seeking the most direct east/west route and seeking to avoid St. Louis’ urban core. The I-270 outer belt is the most traveled freight corridor in the St. Louis region and is part of the direct route of travel for I-70 through traffic, stretching from Maryland to Utah. I-270 is the designated freight route through St. Louis. Companies looking to serve 80 percent of America’s population in two days’ transit time call Missouri home or are located within the Midwest region and depend on the reliability of I-270 in Missouri.

Each year, more than **\$700 billion worth of freight** (almost 4 percent of all freight transported throughout the United States) travels through, to, from or within Missouri using an interconnected transportation system that includes:



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- **Highway:** I-270 and other interstate highways traversing the state (59 percent of \$700 billion);
- **Rail:** The nation's second and third largest rail hubs – Kansas City and St. Louis (38.5 percent);
- **Water:** St. Louis is home to the nation's third largest inland port and both the Missouri and Mississippi Rivers (1 percent); and
- **Air:** Three of the nation's top cargo airports – Kansas City, St. Louis and Springfield (1 percent); and Pipelines: 0.5 percent.

Missouri's transportation network carries *double the national average of freight per square mile*,<sup>7</sup> and its roads link to *the nation's second largest east-west interstate connection hub* just east of St. Louis. Missouri's strategic location puts it within 500 miles of 43 percent of the U.S. population and 44 percent of all U.S. manufacturing plants. The American Transportation Research Institute (ATRI) analyzed the I-270 North corridor data in St. Louis for this application and found that the corridor supports commercial truck traffic (pick up, delivery, and pass-through) that radiates in all directions across the U.S. within 48 hours (see **Figure 2**). This corridor is also closely aligned with the heaviest density and highest activity of trucks in the St. Louis area (**Figure 2**). In 2018, *Supply Chain Digest* and Ball State University's Center for Business and Economic Research, released their *2018 Manufacturing and Logistics Report Card*, which rated Missouri as one of the top-five states for manufacturing.

The project will also support national efforts to retain and grow automobile manufacturing in the United States, a high priority for the Federal Administration. Missouri is the 7<sup>th</sup> largest auto manufacturing state in the nation, with 225 auto manufacturing establishments (15 motor vehicle manufacturing, 74 body and trailer and 136 parts).<sup>8</sup> Missouri builds more than 776,000 trucks and vans each year,<sup>9</sup> and production facilities are strategically located on the North American Automotive Alley that stretches from Toronto to Mexico City. A major American automaker, General Motors, operates an assembly plant in the St. Louis Area. In December 2019, General Motors committed to investing \$1.5 billion and retaining over 4,000 jobs at its Wentzville, Missouri Assembly Plant, located just 35 miles due west of the project area. The agreement marks one of the largest single project investments from the private sector in Missouri. On the other side of the State, the Ford Motor Company's Kansas City Assembly Plant is the largest car manufacturing plant in the United States (based on units



<sup>7</sup> Freight within Missouri makes up 3.65% of the national freight value, while the State comprises only 1.85% of the United States (69,715 square miles in Missouri compared to 3,797,000 square miles in the United States); per square mile, Missouri averages \$10 million of freight annually, compared to \$5 million of freight in the United States.

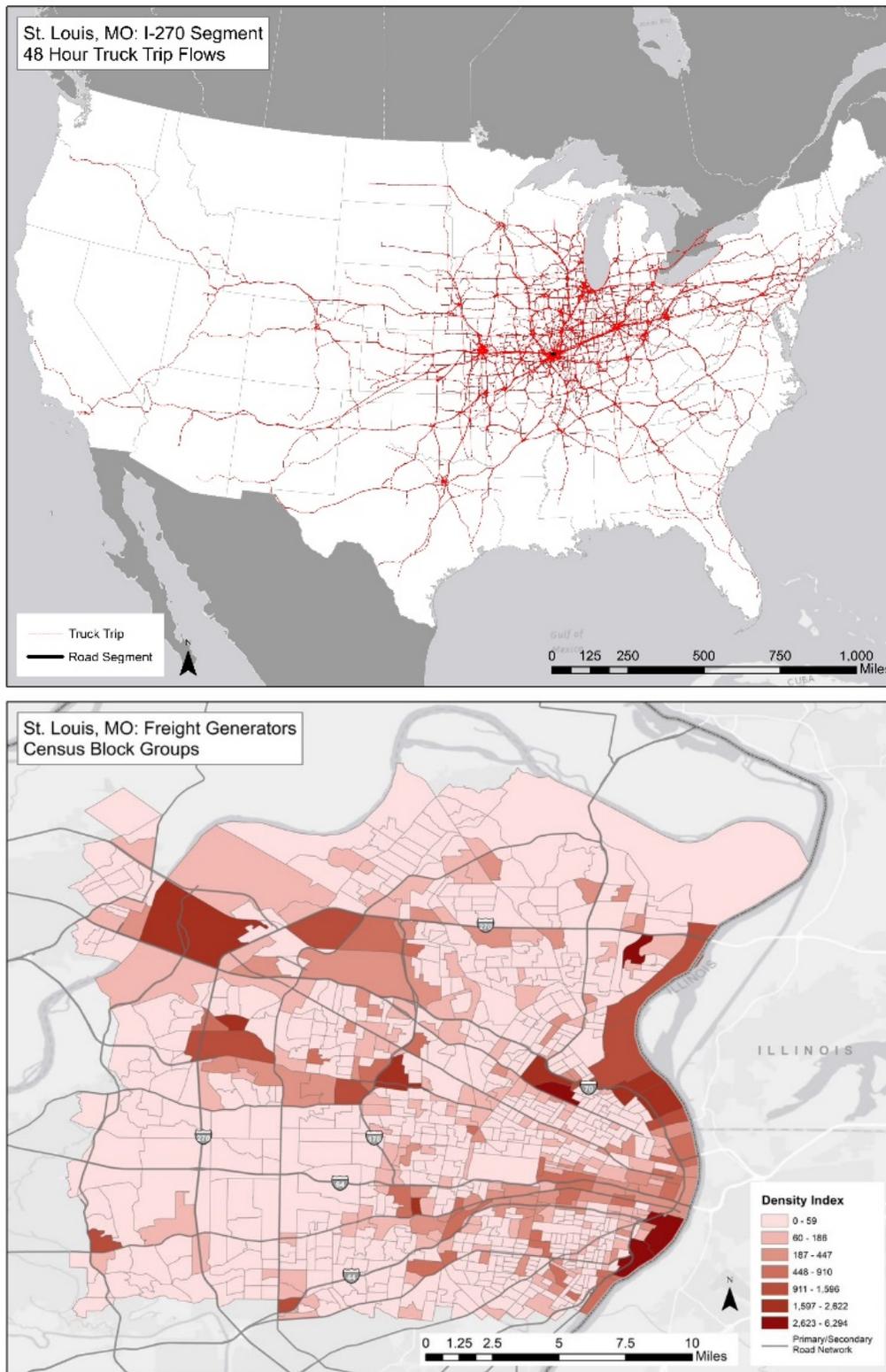
<sup>8</sup> <https://www.mlive.com/auto/index.ssf/2015/03/these-are-the-top-10-states-fo.html>. March 24, 2015.

<sup>9</sup> MO Partnership (<https://www.missouripartnership.com/missouri-best-state-for-automotive-manufacturing/>)



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

Figure 2: Freight Flows and Freight Generator Densities



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

produced), employing 7,000 workers. In the last decade, Ford made a \$1.1 billion investment in the facility, adding a second manufacturing line.

Critical to ensuring continued operation of these facilities is the flow of parts from Mexico delivered just in time to assembly lines. Those parts use I-270 to get to Kansas City and St. Louis. Not only does I-270 bring the materials required to assemble Ford trucks and GM's full-size vans, the Chevrolet Express and GMC Savana, and countless other types of equipment, it also helps bring assembled products and agricultural goods from other manufacturers and producers to retailers and distribution hubs. Missouri is poised for additional growth in automotive manufacturing. In 2019, Missouri Senate Bill 68 was signed which establishes significant investment into the manufacturing workforce, and \$25 million in new tax credits to automotive manufacturers. The proposed I-270 North project will help provide long-term reliability and resiliency for a growing freight network that reaches all corners of the United States with both regional and national impact.

**2. Significant Reduction in Traffic Fatalities/Serious Injuries.** Between 2015 and 2019, the number of crashes in the project area grew by 56 percent, including three fatalities. *The proposed project is anticipated to prevent 674 collisions, 130 of those injury or fatal collisions, and generate \$24.6 million in savings related to safety costs.* The critical capacity enhancements, operational improvements and active transportation amenities will improve safety which will help eliminate conflicts with OTR freight haulers. The improvements will create additional space for emergency vehicles to attend to crashes, allow a free lane to remain open when a crash does occur, and construct designated spaces for bicyclists and pedestrians. Implementation of these improvements is the first step in making significant gains in safety and reliability on the corridor.

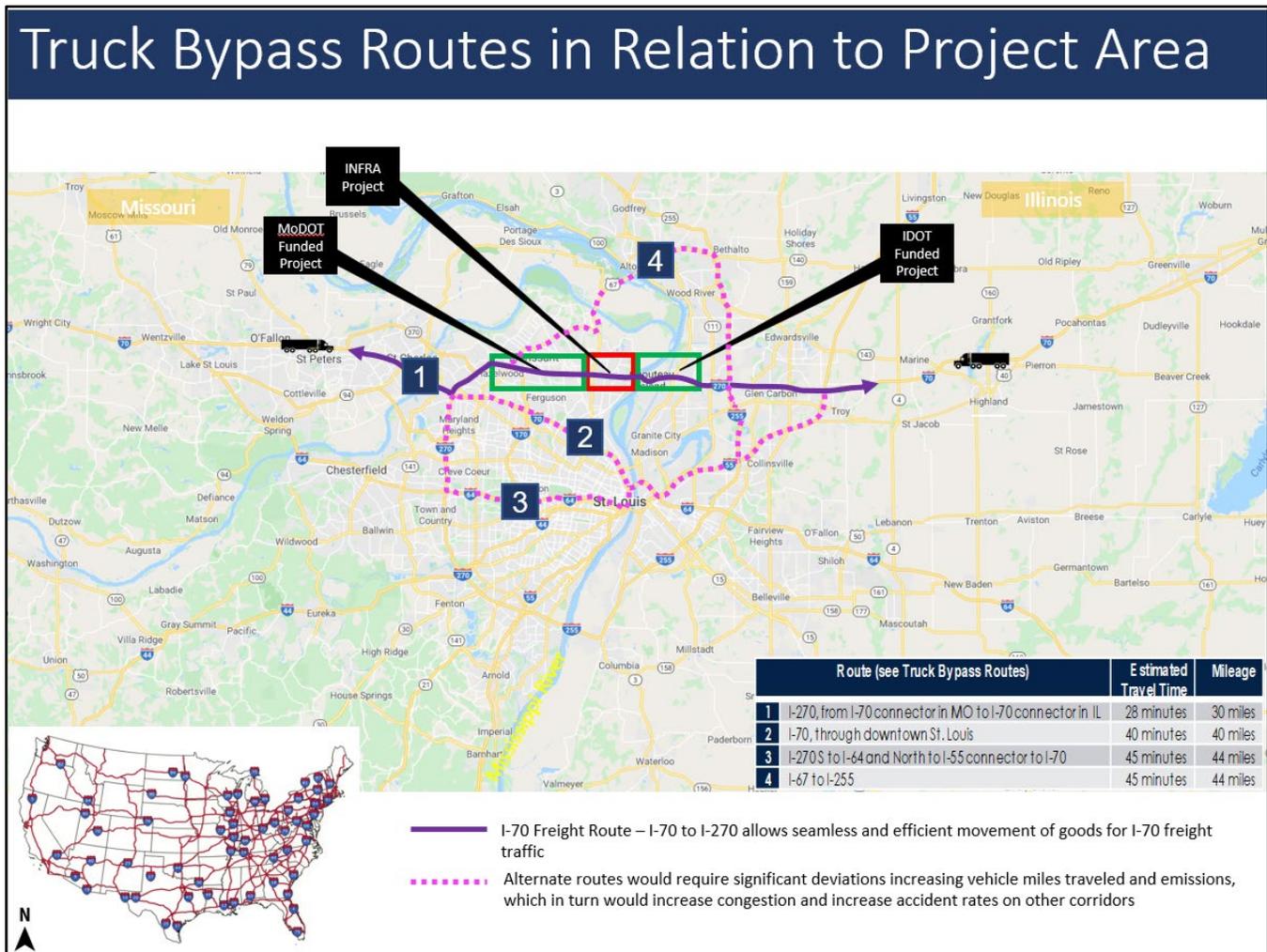
**3. Eliminate Bottlenecks in the Freight Supply Chain.** The project will expedite freight movement through the St. Louis metropolitan area. I-270 provides the quickest and most direct path for through-traveling drivers, with alternatives adding between another 10 to 15 minutes of travel time, and an additional 10 to 15 miles to routes, when traffic conditions are clear. Without the proposed project, upon completion of the funded segments to the east and west, this 3+ mile stretch of I-270 will be the area's bottleneck, forcing drivers to either extend their drive time on the most direct route, or seek alternative routes and add vehicle miles traveled. *The project will generate more than \$8.2 million savings in travel time and reliability costs through 2045 (discounted by 7 percent).*

**4. Restore to Good Condition the Infrastructure that Supports Commerce and Economic Growth.** Completed in 1964, the I-270 North corridor is one of the oldest segments of the interstate system in the metropolitan St. Louis region. Within the last 20 years, MoDOT has made several improvements to the corridor, including widening sections, rehabilitating bridges and making safety improvements to the two-way outer road system. However, the combination of age and the growth in traffic (particularly from increased freight movement), have resulted in safety and congestion problems that require large-scale investments if the corridor is to safely and efficiently meet the region's future travel patterns and demands. The improvements will modernize and bring to current design standards the existing infrastructure to enable safer operation overall for today's drivers and future generations, an especially important feature in a region where growth tied to its designation as an Opportunity Zone has already started.



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

Figure 3: Truck Bypass Routes



### 5. Reduce Barriers Separating Workers/Students from Employment/Education Centers.

The proposed project will improve access for workers reaching employment centers within and beyond the project area, by reducing traffic congestion and travel time. Within Missouri, the poverty rate remains above the national average. Despite improvements, the 2018 Missouri Poverty report stated that more than 825,000 residents (or 14 percent of the population) live below the federal poverty level (compared to 12.7 percent nationwide). The proposed project will ensure that residents along the I-270 corridor can reach employment centers without lengthy and costly delays. The project’s savings in travel time costs, vehicle operating costs and other costs **totaling \$32.5 million** (discounted by 7 percent over 23 years) will be most felt by low-income, blue-collar and minimum wage workers, for whom commuting costs are a greater proportion of their overall income. In addition, the project calls for the addition of active transportation, non-motorized pathways that will connect residents – and particularly the large segment of zero vehicle households to employment and education centers located within or adjacent to the project site. There are many retail and



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

manufacturing-related employment destinations located directly along the corridor, including large big box stores and strip mall centers.

### Benefit-Cost Analysis Summary

Overall, the project’s **net present value is estimated to be \$14.5 million** over 23 years, when discounted by seven percent, with a **benefit-cost ratio of 1.59**.

The largest benefits of this project are safety related. In fact, the monetized benefits of avoided crashes during the first 20 years after project opening are high enough alone to generate a benefit-cost ratio of 1.0, even without including the other expected benefits (both accident cost savings and total project costs are estimated to total \$24.6 million by 2045 when discounted by 7 percent). A key factor behind these benefits is the avoidance of four fatal crashes during the first 20 years of operations.

Other notable benefits include travel time savings of \$8.2 million and operations and maintenance cost savings of \$5.7 million on roadways and bridges, both discounted at 7 percent and through 2045. Both these benefits improve local and regional efficiency – for businesses, residents, and the public sector. The substantial O&M savings are also a strong representation of the positive impact this project will have in terms of the state of good repair of the regional transportation infrastructure.

**Table 3: Benefit-Cost Analysis Summary, I-270 North**

Monetized Benefits	Un-discounted	7% Discount Rate
<b>Total Benefits</b>	<b>\$112.3 M</b>	<b>\$39.1 M</b>
Travel Time Savings	\$26.5 M	\$8.2 M
Vehicle Operating Costs Savings	-\$3.1 M	-\$0.3 M
Emission Cost Savings	-\$0.3 M	-\$0.1 M
Accident Cost Savings	\$74.1 M	\$24.6 M
Residual Value	\$5.8 M	\$0.9 M
O&M Cost Savings	\$9.2 M	\$5.7 M
Total Capital Costs	\$38.9 M	\$24.6 M
Net Present Value	\$73.4 M	\$14.5 M
Benefit-Cost Ratio	2.89	1.59

*Note: Details may not sum to total due to rounding.*



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

## Criterion #2: Leveraging of Federal Funding

**Private Funding Evaluations.** As standard practice, MoDOT evaluates all transportation projects to ensure that private-sector funding is maximized. The following summarizes these efforts and outcomes for the project, and all but one are considered project constraints:

- **Tolls.** There are currently no toll-roads in Missouri, and no legislative authority to implement tolls. Historically, Missouri has funded transportation projects on a "pay-as-you-go" basis, paying for construction, maintenance and administration as money became available from user fees such as gas tax revenues and registration fees, and important grants like INFRA.
- **Partnership Development.** MoDOT has a sophisticated and organized "Partnership Development" program that coordinates a variety of private-sector participation options including Transportation Development Districts, Transportation Corporations, Statewide Transportation Assistance Revolving Fund, Community Improvement Districts, Tax Increment Financing and Economic Development Sales Tax. These options were explored and deemed not viable or appropriate for the proposed project.
- **Private-Sector Development.** The project area is located in an Opportunity Zone where 45 percent of the households in the designated Census Tracts live in poverty. All, or portions, of the project area also have the following designations: Promise Zone, Targeted Employment Area, Community Improvement District and Chapter 353 Development District. The area has clearly been identified as a region ripe for economic development opportunity and eligibility. However, opportunities for private-sector development funding are just now emerging. Candidates to support "signature" projects are not yet invested in the project area, and as a result, this source of funding is not an option.
- **P3 Opportunities.** MoDOT will explore P3 options with the successful vendor(s) for the TSMO component (e.g., hardware, software, equipment); however, given the necessity to ensure that all non-federal match sources are stable and dependable at the time of application, vendor discounts or P3 participation cannot be included at this time but will be considered during the competitive procurement process. Design-build is proposed for this project, see next Innovation #3 for more details.

**Broader Fiscal Constraints.** Many of the constraints listed above apply to any transportation project in Missouri and severely limit completing large-scale infrastructure projects. The FHWA has recognized this and selected Missouri as one of seven states to receive a Surface Transportation System Funding Alternatives (STSFA) grant to explore innovative ways to help pay for infrastructure and maintenance. If any new funding strategy was implemented today, it would take several years to raise sufficient funds to complete the proposed project. **Today, INFRA funding represents the most viable and immediate solution.**



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

**Table 4: Leveraging INFRA Grant**

Source	Total	% of Total	Federal vs. Non-Federal	Total	% of Total
State	\$ 6,920,000	17%	Total Federal Share	\$ 31,680,000	80%
Local	\$ 1,000,000	3%	Total Non-Federal Share	\$ 7,920,000	20%
INFRA Grant	\$ 23,760,000	60%			
Other Federal	\$ 7,920,000	20%			
<b>Total</b>	<b>\$ 39,600,000</b>	<b>100%</b>	<b>Total</b>	<b>\$ 39,600,000</b>	<b>100%</b>

Description	Non-Federal Funds		Federal Funds		% of Total Cost
	State	Local	INFRA Grant	Non-INFRA	
<b>I-270 North</b>					
State of Missouri Funding	\$ 6,920,000				17%
St. Louis County		\$ 1,000,000			3%
INFRA Grant			\$ 23,760,000		60%
Federal Highway Gas Tax				\$ 7,920,000	20%
<b>TOTALS:</b>	<b>\$6,920,000</b>	<b>\$1,000,000</b>	<b>\$23,760,000</b>	<b>\$7,920,000</b>	
<b>% of Total</b>	<b>17%</b>	<b>3%</b>	<b>60%</b>	<b>20%</b>	<b>100%</b>

## Criterion #3: Potential for Innovation

### Innovation Area #1: Technology

MoDOT’s St. Louis District has a long-standing commitment to TSMO and Intelligent Transportation System (ITS) regional connectivity. The St. Louis District led efforts to create a Transportation Management Center (TMC) in 1999, in cooperation with its regional partners, including the Illinois Department of Transportation, St. Louis Metropolitan Transit Agency (METRO) and East-West Gateway Council of Governments (St. Louis’s federally designated metropolitan planning organization). Significant improvements to the TMC were made in 2002, bringing the TMC up to a state-of-the-art facility. Customer service has also been a primary focus of MoDOT and the St. Louis TMC. Since 2003, MoDOT has implemented a 24/7/365 operation. Anyone from the public can contact the TMC and speak with a live customer service representative.

MoDOT has installed a number of TSMO and ITS features throughout its system. Starting in 2002, MoDOT began utilizing dynamic message signs (DMS). MoDOT’s St. Louis District has also installed full closed-circuit television (CCTV) coverage along its freeways and arterials in both urban and rural areas. The District also utilizes various types of traffic detectors for volumes and travel times. In addition, every single one of the more than 1,000 traffic signals in the district is connected to the TMC and operated through centralized software. In order to operate the ITS system, the District has installed approximately 1,100 miles of fiber optic cable.



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

As part of the proposed project, MoDOT will expand and upgrade systems that have proven successful throughout its highway system, and explore new solutions as follows:

- A. **Implement V2X (Vehicle to Everything) Technology and Intelligent Transportation System (ITS)** features to prevent wrong way driving, increase pedestrian safety and produce predictive analytics. The project will deploy a predictive analytics platform that will provide traffic engineers with data-driven recommendations for improving enforcement, maintenance and incident response times while also reducing costs. Video analytics is operated through either a centralized system or by software built into cameras. The I-270 North corridor has 23 CCTV cameras available for live viewing of video streams. As a result of this, MoDOT will procure a video analytics system which can utilize existing camera infrastructure in order to minimize hardware costs. The video analytics system will be set up to allow not just TMC staff, but also internal and external project staff, to receive notifications of potential issues. The system will be used to identify incidents and dangerous conditions more quickly than is possible with current staffing and technology levels. The project will also implement Waycare's platform to harness *in-vehicle* and city data, combined with predictive analytics, to dynamically identify areas of roads at high risk for an incident, and to allocate preventative measures to those areas accordingly. The system provides traffic engineers with real-time information on road conditions. Waycare will alert traffic agencies when it identifies an area at high-risk for an incident, and where preventive action may be required. Shorter times between when an incident occurs and when responders are dispatched can reduce the impact of the incident on congestion and queue lengths. This should lead to a reduction in secondary incidents as well as make travel on the system more reliable. A similar project in Tennessee resulted in a decrease in traffic crashes to 20 percent below the average. Based on these results and factoring in the presence of active work zones, MoDOT predicts the number of incidents along I-270 North will decrease by similar percentages.
- B. **Utilize Automated Traffic Signal Performance Measures (ATSPM)** to show real-time functionality of signalized intersections and allow traffic engineers to make data-based management decisions. Using real-time data, while also capturing historical trends, the system will allow traffic engineers insight to improve road efficiencies and travel time, while also increasing safety (particularly for pedestrians and bicyclists).
- C. **Install Dynamic Trailblazer assembly systems and Dynamic Message Signs** to guide motorists along alternate routes during major incidents and ramp closures, and deliver warnings regarding oncoming traffic, speed or caution. This system will assist during construction, as well as for the useful life of the project.
- D. **Implement Transit and Emergency vehicle signal priorities**, as well as pedestrian detection/priority to improve safety and increase transit efficiency and response time for first responders. Transit priority systems will reduce transit time and improve safety and efficiency by prioritizing transit vehicles as they travel through intersections. Emergency vehicle preemption will allow for the safer and more efficient passage of emergency vehicles through signalized intersections and improve the safety of other drivers. Video detection will also be used to identify pedestrians on the roadway more quickly. In addition, tracking trends of where pedestrians are attempting to cross, the data can help the project team identify where improvements to the temporary pedestrian facilities are required. Both of these strategies should help reduce the number of pedestrian fatalities.



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

- E. **Install technology in new signage** to allow communication with Connected Automated Vehicles (CAVs) and other mapping devices in preparation for future developments.
- F. **Improved security for the region's ITS system**, as well as the physical ITS cabinets. In addition, MoDOT has multiple redundancies for its ITS/Computer/Signal systems to ensure that the system remains reliable and operational, **even during emergency situations**.

## Innovation Area #2: Project Delivery

Innovative *Project Delivery* components include:

- **Design-Build** – The project segment will be implemented using design-build.
- **No Excuse Bonuses** – MoDOT will motivate efficient construction by offering a No Excuse Bonus to contractors.
- **Lump-Sum Bidding** – By definition, lump-sum bidding, but itemized with a cost-loaded schedule and work elements, will be part of the design-build procurement method for the project area.
- **Best Value Procurement** – MoDOT will follow a Best Value Procurement process. Seeking quality and expertise will ensure successful and timely completion of the project.

MoDOT has had great success with design-build projects. Since 2005, MoDOT has completed 15 projects using the design-build approach and three others are under construction. As recent experience has shown, design-build opens the door for innovation and promotes accelerated construction and added value on projects. Collectively, MoDOT's design-build projects have been completed \$280 million under budget and 77 months ahead of schedule. Nationally, design-build projects are completed 33 percent faster and 6 percent cheaper than conventional design-bid-build projects.

- **Every Day Counts (EDC) Initiative** – MoDOT takes great pride in the EDC program in Missouri. From EDC-1 through the current EDC-5 program, MoDOT has enthusiastically researched and adopted all but one of the proposed innovations. Most recently, MoDOT is using crowdsourcing to inform operations using third-party data gathered from apps such as Waze™ to alert travelers about delays, active field crews, assist with traffic incident management, and to identify issues such as potholes help set road maintenance priorities. MoDOT will strive to incorporate applicable EDC initiatives into every INFRA component.
- **Practical Design** – MoDOT is the birthplace of Practical Design,<sup>10</sup> a concept aimed at focusing on core traveler needs and controlling costs during project development. *Tracker* is a public document that not only measures and drives organizational performance, but also provides transparency and accountability to the citizens of Missouri. These processes have produced measurable results and will be used to ensure the proposed INFRA project remains on-schedule and on-budget, and meets the intended purpose and need.
- **Data-driven Safety Analysis** – MoDOT has incorporated data-driven safety analysis into four out of its last five design-build procurements. Leveraging industry ideas on how to save lives is a fundamental driver in the design-build process at MoDOT and will be incorporated into the INFRA projects, as applicable.

<sup>10</sup> [http://epg.modot.org/index.php/Category:143\\_Practical\\_Design](http://epg.modot.org/index.php/Category:143_Practical_Design)



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

## Innovation Area #3, Innovative Financing

A design-build approach is proposed for the project. The successful contractor(s) will accept most or all of the risk of any increase in costs associated with a project's design, eliminating "change orders" that add to the cost of traditional design.

## Criterion #4: Performance and Accountability

### Credible Plan to Address Full Lifecycle Costs

- **Lifecycle Cost Estimate:** The estimated lifecycle cost (discounted by 7 percent) is \$24.6 million. Overall operations and maintenance costs on the corridor will be reduced over the first 20 years of operations. These costs were estimated during the BCA process and verified.
- **Operations and Maintenance (O&M) Funding:** Road and Bridge Maintenance is a line item in MoDOT's annual budget. The 2019 budget included \$466 million dedicated to O&M. The state constitution guarantees funding to operate and maintain state roads and bridges as promulgated in Article IV Sections 30(a)<sup>11</sup> and 30(b).<sup>12</sup>

### Accountability

MoDOT agrees to commit to an obligation of construction funds by April 1, 2023 (assuming grant awards are announced in July 2020) and a construction completion date of December 2024. MoDOT has a successful history of completing construction projects on time and typically 8-10 percent under budget. MoDOT's design-build delivery approach has delivered over \$1.5 billion in projects, saving taxpayers \$280 million. Collectively, MoDOT's design-build projects have been completed 77 months (6+ years) ahead of schedule. MoDOT is also the birthplace of *Practical Design*, a concept aimed at focusing on core traveler needs and controlling costs during project development.

### Opportunity Zones

Portions of the project limits are located in a federally recognized Opportunity Zones (OZ) as illustrated in **Figure 4**. All, or portions, of the project area also have the following designations: Promise Zone, Targeted Employment Area, Community Improvement District and Chapter 353 Development District. The area has clearly been identified as a region ripe for economic development opportunity and eligibility. Infusing INFRA funding to complete the I-270 North project is critical to enabling future growth and private investment.

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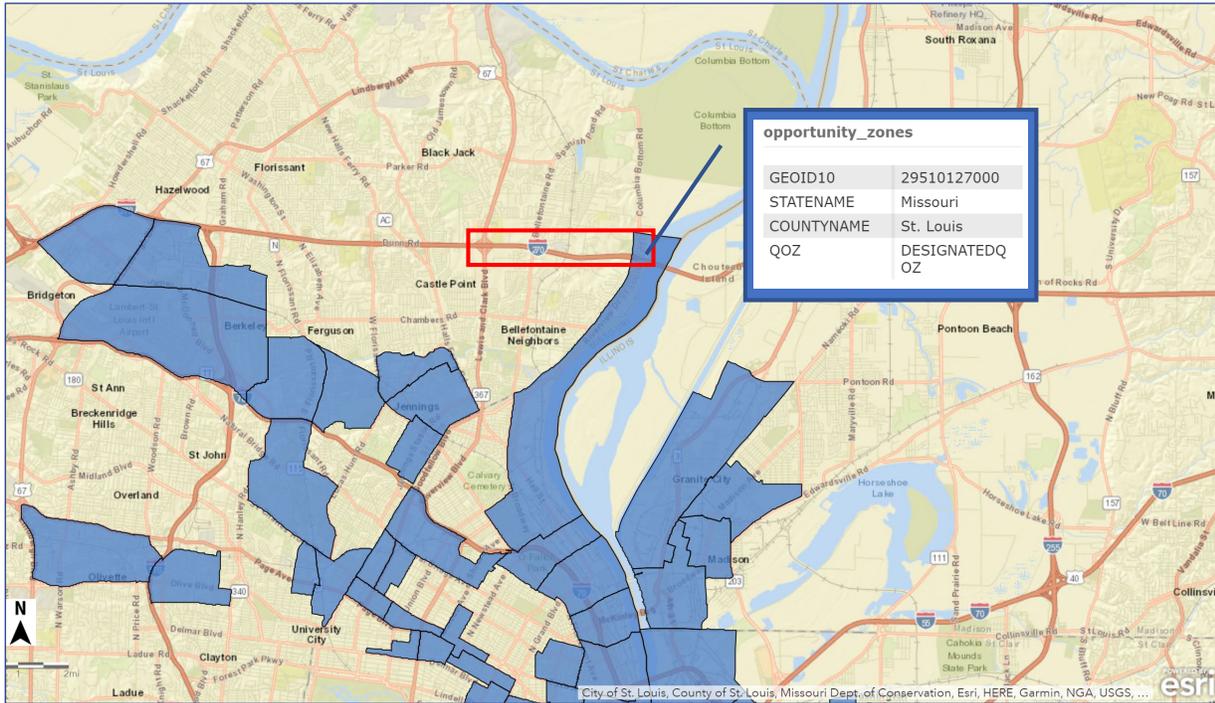
<sup>11</sup> <http://www.moga.mo.gov/mostatutes/Consthtml/A04030a1.html>

<sup>12</sup> <http://www.moga.mo.gov/mostatutes/Consthtml/A04030b1.html>



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

Figure 4: Opportunity Zones



## 6.0 Project Readiness

The readiness of the project is reflected in the implementation schedule. As the State of Missouri owns and operates all affected facilities that comprise the project network, MoDOT can immediately amend the STIP and move ahead with implementation upon securing INFRA funding. MoDOT is the administering agency for the STIP and no hierarchy of approvals is necessary to process amendments. Costing has been completed according to stringent MoDOT costing standards; all project elements are ready to let for design-build.

MoDOT has significant experience in the development and implementation of large and complex transportation capital projects. In addition, MoDOT plans, designs, constructs, and maintains 33,838 miles of highways and 10,384 state highway bridges (24,385 bridges statewide)– the nation’s seventh largest state highway system, with more miles than Iowa, Nebraska and Kansas’ systems combined. Between 2010 and 2019, MoDOT delivered over 4,362 projects collectively, 8 percent under budget and 94 percent on-time.

In addition, MoDOT has an excellent track record of quickly delivering projects once authorized. In fact, MoDOT has regularly accelerated the delivery of projects when additional funding opportunities have been presented. For example, when Congress passed the FAST Act, MoDOT proactively responded by increasing the state’s construction program because of the stability in federal funding provided by the legislation. Likewise, when a TIGER grant was awarded for the US 54 Champ Clark Bridge over the Mississippi River in Louisiana, MO, MoDOT moved quickly to procure delivery of the project through the design-build process. Similarly, MoDOT stands ready to deliver the proposed INFRA project upon award.



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

## (A) Technical Feasibility

The proposed project was developed, scoped and costed using MoDOT's policies, which are articulated in a comprehensive Engineering Policy Guide (EPG).<sup>13</sup> Because the project will be delivered using design-build, design plans will be finalized during that process. However, MoDOT is still responsible for conducting extensive planning to advance a project to design-build; **these activities have been conducted and are the basis of design, costs and contingency levels presented herein.** All cost estimates are based on MoDOT's stringent engineer's estimating procedures, which do not allow for project scoping based on cost per mile. The cost estimate utilized cost base analysis, including historic-based estimates using quantities calculated from the preliminary plans as well as historical data from previous bid openings. The costing also utilized the EPG's Engineering Factors Report (EFR) to calculate future engineering costs, construction engineering and right-of-way incidentals. Engineering costs are based on actual construction costs for projects completed within the last three years.

The alignment for the project area has been evaluated with a preferred alternative identified to be adjacent to the existing facility. The additional lanes will be constructed within existing MoDOT right-of-way. The TSMO components will be bid as a P3 initiative, with the goal of having the successful vendor provide discounts and incentives for new technology and ongoing operation and maintenance contracts (e.g., wireless service, video analytics, etc.).

## (B) Project Schedule and Statement of Work

Assuming grant awards are announced by July 1, 2020, MoDOT estimates an obligation of construction funds date of April 1, 2023 (five months ahead of the mandatory September 30, 2023, requirement), and starting construction by June 1, 2023 (which satisfies FHWA's construction start date rules). The project is estimated to be completed by December 2024. See **Table 5**.

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<sup>13</sup> ([http://epg.modot.org/index.php/Main\\_Page](http://epg.modot.org/index.php/Main_Page)).



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

Table 5: Project Schedule

Project Schedule I-270 North										
#	Tasks	# of Months	Date Started	Date Completed	2020	2021	2022	2023	2024	2025
1	Submit INFRA grant proposal	N/A	N/A	2/25/2020						
2	INFRA Grant Awards Announced	N/A	N/A	7/1/2020						
3	Project and Grant Management	54	7/1/2020	12/31/2024						
4	NEPA (EA Complete)	N/A	N/A	April 2017						
5	Programming into STIP	6	7/1/2020	12/31/2020						
<b>6. I-270 North as Design Build</b>		<b>48</b>								
6a	Develop RFP/Q - Design, Permitting (Owner's Consultant developing sufficient level of detail to release Design-Build RFP/Q)	18	1/1/2021	6/30/2022						
6b	Advertise Project for Design-Build Contractor	2	7/1/2022	8/31/2022						
6c	RFQ and Industry Meetings for Design-Build	6	9/1/2022	2/29/2023						
6d	Final RFP	1	3/1/2023	3/31/2023						
6e	Award Design-Build Contract (obligation date, 4/1/2023)	2	4/1/2023	5/31/2023						
6f	Construction	19	6/1/2023	12/31/2024						
6g	Notice of Completion/Ribbon Cutting	N/A	N/A	12/31/2024						



# I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

## (C) Required Approvals

**Permits and Approvals.** Because all facilities are owned by MoDOT, the permitting process and need to obtain reviews and approvals from other agencies is minimal. Permits and coordination that may be required include: U.S. Army Corps of Engineers 404 Permit; EPA 401 and 402 Permits; No-rise Certification Permit from the Missouri State Emergency Management Agency; coordination with U.S. Fish and Wildlife, Missouri Department of Conservation and U.S. Coast Guard for seasonal patterns of pallid sturgeon habitat use; Missouri Department of Natural Resources; Missouri State Highway Patrol; and Missouri State Historical Preservation Office.

**Award-winning NEPA study.** The project's EA was signed by the FHWA on November 21, 2016,<sup>14</sup> and a Finding of No Significant Impact (FONSI) was signed by the FHWA on April 12, 2017.<sup>15</sup> The EA introduced innovative approaches to conducting NEPA and won the American Council of Engineering Companies of Missouri's "Engineering Excellence Award" in 2018.

## Public Engagement.

**I-270 North Environmental Assessment – I-70 to the Chain of Rocks Bridge – Saint Louis County, Missouri.** The 2016 Environmental Assessment included a robust community engagement plan that engaged four populations: stakeholders, the low-income/minority community, and commuters. Multiple stakeholder briefings from May 2013 to July 2013 that included community leaders, subdivision trustees, business owners, developers and elected officials within the study corridor. The most pressing concern reported by stakeholders was congestion and perceived dangerous traffic flow patterns at interchanges and at on- and off-ramps. The EA made a concerted effort to engage influential spokespeople for the low income/minority populations that live near the corridor. This resulted in a series of six in-person interviews in 2016; interviewees primary concerns included the importance of access to I-270 and its effect on neighboring communities, active transportation access and accommodations for pedestrians along and across I-270, and business impacts as a result of access alterations. Commuter surveys were implemented in 2013 and 150 respondents noted that congestion delays (65 percent) and safety at on- and off-ramps (83 percent) were their primary concerns. In 2013, small-group presentations were made to 20 different audiences including businesses such as Boeing, multiple land developers and gas stations; four different cities including neighborhood groups; Lambert-St. Louis International Airport; and more. Collectively, there were over 30 outreach/community engagement efforts in multiple formats including short questionnaires, workshops, virtual public meetings, real-time live chat sessions and one-on-one meetings.

**St. Louis Regional Freight Study.** This 2013 study was led by the East-West Gateway Council of Governments in cooperation with MoDOT, Illinois Department of Transportation and the regional freight community. Interviews were conducted with 75 trucking industry representatives and a focus group was conducted involving another 40 local trucking representatives. This engagement identified the I-270 corridor as a location where congestion causes problems for trucks moving through the region, and significantly, that they strongly rely on ITS systems to understand congestion levels and to make informed decisions on how to traverse the St. Louis area. This study also

<sup>14</sup> Link to EA: <https://blaisassoc.egnyte.com/dl/wCNiDW2jUW>

<sup>15</sup> Link to FONSI: <https://blaisassoc.egnyte.com/dl/lt9tzppfDP>



## I-270 NORTH GAP PROJECT: GREATER ACCESS TO PROSPERITY

recommended the formation of the [St. Louis Regional Freightway \(Freightway\)](#), which is a seven county, bi-state regional coordinating agency for all freight activity, including assistance to manufacturing, logistics and multimodal transportation companies and their service providers.

**St. Louis Regional Freightway Regional Needs Assessment.** The Freightway (described above) conducted a regional needs analysis to identify network constraints. Projects were evaluated based on four primary criteria: economic impact, multimodal impact, efficiency impact and safety and security in travel. Based on the criteria, the project addresses regional freight needs and is considered one of the highest priorities for the region.

**Missouri State Freight Plan.** The [Missouri State Freight Plan](#) identifies I-270 as a key corridor due to bottlenecks and high commercial vehicle crash rates at multiple locations and TSMO components as top priority projects to improve freight movement in Missouri. The Freight Plan pairs freight stakeholder input, obtained from November of 2013 to November of 2014, with detailed analysis. These stakeholders included Metropolitan Planning Organizations (MPO), Regional Planning Commissions (RPC), economic developers, modal operators, business organizations, freight operators/owners, and residents. Over 100 stakeholders at three regional forums developed project evaluation criteria and weightings that focused on the safe, efficient movement of goods supporting economic benefits for Missouri. In 2017, MoDOT updated the Freight Plan to comply with FAST Act requirements. The proposed project is a direct result of the planning process and aligns with several public input recommendations, including: 1) maintain and improve the designated Missouri Freight Network; 2) enhance Missouri's ability to export goods, 3) use technology to improve freight movement, and 4) focus on maintaining a state of good repair.

**"On the Move" Long Range Transportation Plan (LRTP).** During both the 2014 and 2018 [LRTP](#) public engagement processes, approximately 18,700 Missourians strongly articulated the need to preserve the existing system, reduce project costs by minimizing delays, eliminate freight bottlenecks, and use the latest technology to monitor and improve traffic congestion.<sup>16</sup> The prioritization and selection of projects for this INFRA proposal is a direct result of this public input.

**21st Century Missouri Transportation System Task Force.** In 2017 the state's General Assembly adopted HCR 47 to establish the [21st Century Missouri Transportation System Task Force](#), a bi-partisan panel comprised of representation of the state government and the private sector. The Task Force held seven public hearings and three working sessions hearing presentations from national and local participants, learning about the condition and performance of area highways and bridges from MoDOT, and receiving public testimony from concerned Missourians. The Task Force concluded that improvements on Missouri's interstates is long-overdue, and that the entire system needs capacity improvements. The report states that if diversions/delays/shut-downs become so great for such an extended period—that the manufacturers, distributors and others who generate the truck traffic will move to other corridors to eliminate delay, distance, and inconvenience. Those losses—in jobs, local investments and tax revenues—would become permanent, putting Missouri at a competitive disadvantage sustained over years or decades.

<sup>16</sup> 2018 Long Range Transportation Plan Update: Technical Memorandums, pp. 10-11.



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## (D) Assessment of Project Risks and Mitigation Strategies

The following strategies to mitigate or avoid any crises, were evaluated:

1. **Weather** (rain, snow, severe wind delays): The project schedule will anticipate bad weather days;
2. **Higher costs than originally anticipated:** Value Engineering is a part of the design process and will reduce budget risk. Also, MoDOT has a history of estimating extremely accurately and typically delivers 8-10 percent under budget. The project will be bid as a fixed price variable scope, which means the budget will be what the contract is executed for with no possibility for additional cost. In addition, the I-270 North Project FHWA Cost Estimate Review document (dated August 2017) provides an extensive Risk Analysis (Chapter 3) for the project including evaluating the cost estimates based on the level of detail design completed. The analysis included evaluating cost threats and opportunities, base variability, market conditions and inflation. This information informed the project's budget and schedule proposed herein.
3. **Bid protests:** Mitigation will include using procurement best practices and assigning qualified staff to the project during the bidding process; and
4. **Contractor default/bankruptcy:** Mitigation will be achieved by selecting contractors with extensive experience and track records, and both construction and performance bonding will be required, along with all other federal procurement requirements protecting the project owner.



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## 7.0 Large and Small Projects

### Project Determination:

<ul style="list-style-type: none"> <li>• Generate national or regional economic, mobility, or safety benefits?</li> </ul>	Yes, pp. 6, 8-12
<ul style="list-style-type: none"> <li>• Is the project cost effective?</li> </ul>	Yes, pp. 13, and Appendix C
<ul style="list-style-type: none"> <li>• Contribute to one or more of the goals listed under 23 U.S.C 150                             <ol style="list-style-type: none"> <li>1. National</li> <li>2. Safety</li> <li>3. Infrastructure Condition</li> <li>4. Congestion Reduction</li> <li>5. System Reliability</li> <li>6. Freight Movement and Economic Vitality</li> <li>7. Environmental Sustainability</li> <li>8. Reduced Project Delivery Costs</li> </ol> </li> </ul>	Yes, pp. 8-12, 15-18
<ul style="list-style-type: none"> <li>• Is the project based on the results of preliminary engineering?</li> </ul>	PE will be completed as part of the Design-Build approach, pp. 7, 14, 17, 18
<ul style="list-style-type: none"> <li>• Does the project have one or more stable and dependable funding or financing sources to construct, maintain, and operate the project?</li> </ul>	Yes, pp. 8, 14, and Appendix A
<ul style="list-style-type: none"> <li>• Are contingency amounts available to cover unanticipated cost increases?</li> </ul>	Yes, pp. 7, 8
<ul style="list-style-type: none"> <li>• Is it the case that the project cannot be easily and efficiently completed without other Federal funding or financial assistance available to the project sponsor?</li> </ul>	Yes, pp. 7, 14
<ul style="list-style-type: none"> <li>• Is the project reasonably expected to begin construction no later than 18 months after the date of obligation of funds for the project?</li> </ul>	Yes, p. 21, Table 5. Estimated date of obligation is April 1, 2023. Construction is estimated to begin two months thereafter on June 1, 2023.

