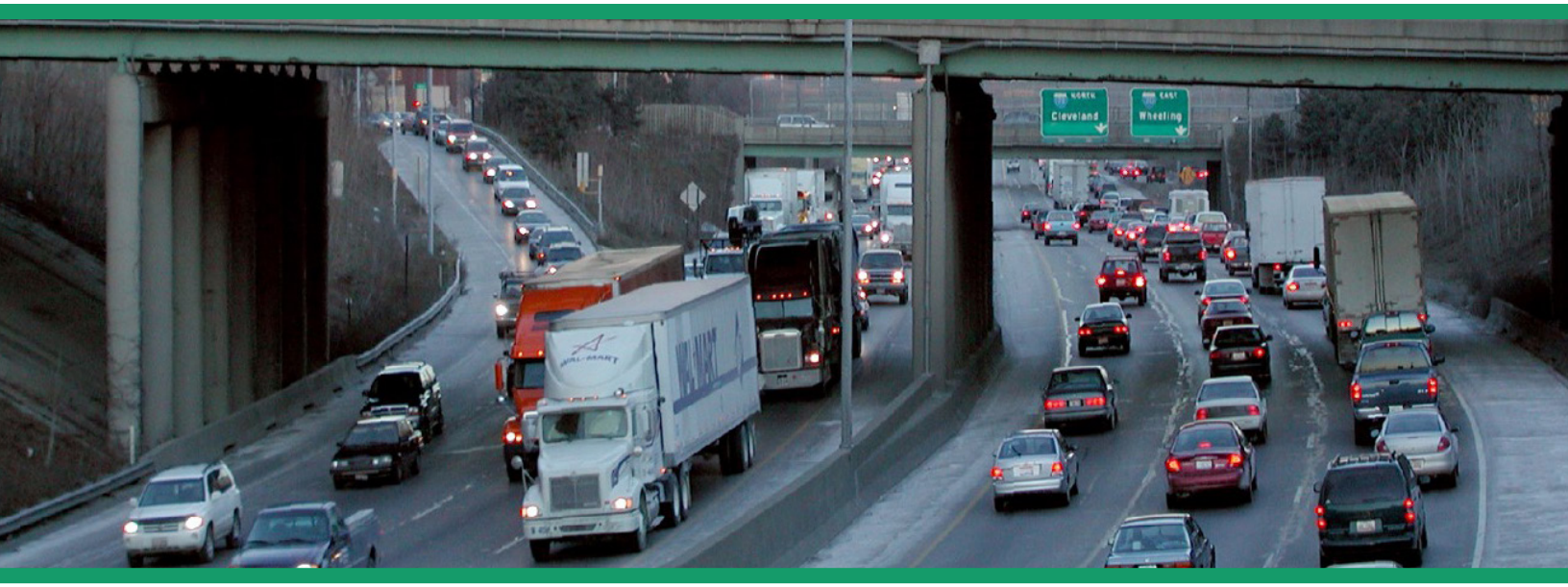

COLUMBUS CROSSROADS

Phase 4 INFRA Application | March 4, 2019

OHIO DEPARTMENT OF TRANSPORTATION

THE CITY OF COLUMBUS
ANDREW J. GINTHER, MAYOR

MID-OHIO REGIONAL PLANNING COMMISSION
MORPC

OHIO DEPARTMENT OF TRANSPORTATION

COLUMBUS CROSSROADS PHASE 4

Basic Project Information:	
What is the Project Name?	Columbus Crossroads Phase 4
Who are the Project Sponsors?	1. Ohio Department of Transportation (Lead Applicant) 2. City of Columbus, OH (Co-applicant)
Was an INFRA application for this project submitted previously? (If Yes, please include title).	No
Project Costs:	
INFRA Request Amount	$40,000,000.00
Estimated federal funding (excl. INFRA)	$116,330,000.00
Estimated non-federal funding	$60,170,000.00
Future Eligible Project Cost (Sum of previous three rows)	$216,500,000.00
Previously incurred project costs (if applicable)	$23,000,000.00
Total Project Cost (Sum of `previous incurred' and `future eligible')	$239,500,000.00
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)?	$151,550,000.00
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)?	$216,500,000.00
Approximately how much of the estimated future eligible project costs will be spent on components constituting railway-highway grade crossing or grade separation projects?	$0.00
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?	$0.00
Project Location:	
State(s) in which project is located.	Ohio
Small or large project	Large project

Urbanized Area in which project is located, if applicable.	Columbus, Ohio Urbanized Area
Population of Urbanized Area.	1,368,035[1]
Is the project currently programmed in the:	Yes/no (*please specify in which plans the project is currently programmed).*
• TIP.	Yes[2]
• STIP.	Yes[3]
• MPO Long Range Transportation Plan.	Yes[4]
• State Long Range Transportation Plan.	No; Ohio's LRTP is a policy based plan that does not list specific projects. This project is not programmed within the document but is consistent with the goals and objectives of the plan.
• State Freight Plan?	Yes[5]

[1] "A national, state-sorted list of all 2010 urbanized areas for the U.S., Puerto Rico, and Island Areas first sorted by state FIPS code, then sorted by UACE code," United States Census Bureau, accessed February 11, 2019, http://www2.census.gov/geo/docs/reference/ua/ua_st_list_ua.xls.

[2] Yes, the Local Transportation Improvement Plan includes Phases 4R, 4B, and 4H. The project IDs are 3295 (4R), 2874 (4B), and 3307 (4H). "Detailed Project Listing Sorted by Agency & MORPC ID for the SFY 2018 to 2021 TIP," Mid-Ohio Regional Planning Commission (MORPC), accessed February 11, 2019, http://www.morpc.org/wp-content/uploads/2017/12/MORPCTIP2018-2021ListingbyAgency.pdf, pages 68, 56, and 74.

[3] Yes, the State Transportation Improvement Plan includes Phases 4R, 4B, and 4H. The project IDs are 105523 (4R), 96053 (4B), and 105596 (4H). "Ohio Department of Transportation 2018-2021 STIP Project Listing (Appendix 6) as of 02/05/19 for District: 6," Ohio Department of Transportation (ODOT), accessed February 11, 2019, http://www.dot.state.oh.us/Divisions/Planning/STIP/Current%20STIP%20Project%20List/Current%20STIP%20District%206.pdf, pages 19, 9-10, and 18.

[4] Yes, MORPC's Long Range Transportation Plan identifies the entire I-70 & I-71 overlap as a single project. The project ID is 270. "Chapter 8: Summary of Strategies and Projects," MORPC, http://www.morpc.org/wp-content/uploads/2017/12/000MTP_Report_Chapter8_merged.pdf, p. 8-10.

[5] Yes, Ohio's State Freight Plan identifies multiple projects that are included in or impacted by Phase 4, including: K-5, Reconstruct/reconfigure I-70/71 from SR-315 to the I-70/71 split east of downtown Columbus; K-6, Reconstruct/reconfigure I-70 from Front St. to Grant Ave.. "Transport Ohio: Statewide Freight Plan" ODOT, accessed February 11, 2019, http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/Documents/ODOT_FreightPlan_Updated%203.21.18.pdf, p. 59.

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OHIO DEPARTMENT OF TRANSPORTATION

COLUMBUS CROSSROADS PHASE 4

I. Project Summary

This application is requesting $40 million from the Infrastructure for Rebuilding America (INFRA) Discretionary Grant program to support Phase 4 of the Columbus Crossroads Project (Phase 4). The Columbus Crossroads Project, illustrated in **Figure 1** is a $1.3 billion, multi-phase project developed by the Ohio Department of Transportation (ODOT) in partnership with the City of Columbus, the Mid-Ohio Regional Planning Commission (MORPC), and multiple local stakeholders. These partners have cast a comprehensive vision for the Columbus Crossroads Project. The project's regional impact and importance goes beyond simply addressing serious safety and congestion issues in one of the most congested and dangerous functionally obsolete interstate crossroads. The partners have leveraged this major infrastructure investment to support continued economic development in Central Ohio, while reconnecting and restoring urban neighborhoods that were isolated and torn apart by the interstates' initial construction.

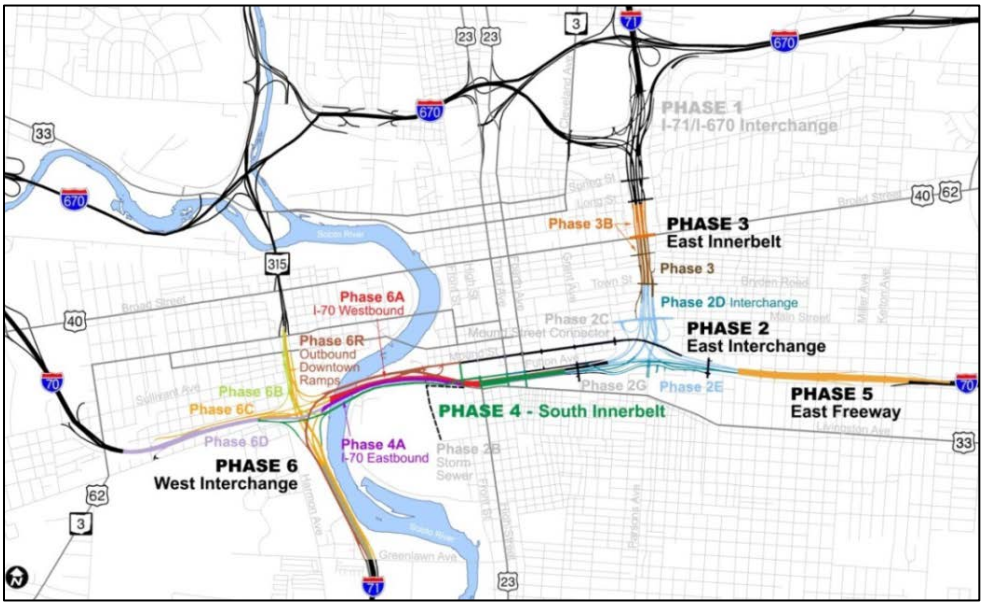

Figure 1 - Phasing for the Columbus Crossroads Project.

A. Concise Project Description

The City of Columbus sits at the intersection of two Primary Interstate Highways: I-70 and I-71. Interstate 70 stretches from Cove Fort, Utah to Baltimore, Maryland; and I-71 reaches from Louisville, Kentucky to Cleveland, Ohio. The Columbus Crossroads is named for this intersection of I-70 and I-71. As shown in **Figure 1 above**, the primary focus of Phase 4's freeway improvements is the 1.25 mile 'overlap' of these nationally significant routes, which is known locally as the "Downtown Split." The I-70/71 Overlap runs through the South Innerbelt Trench, which physically separates Downtown Columbus from neighborhoods immediately south: the Brewery District, historic German Village, Schumacher Place, and Livingston Park.

Phase 4 is necessary to relieve congestion and improve safety along a nationally and regionally important segment of the National Highway Freight Network's Primary Highway Freight System.[1] As shown in **Figure 2**, freight from the South, Mid-Atlantic, and Midwest rely upon I-70/71 to move through Central Ohio.

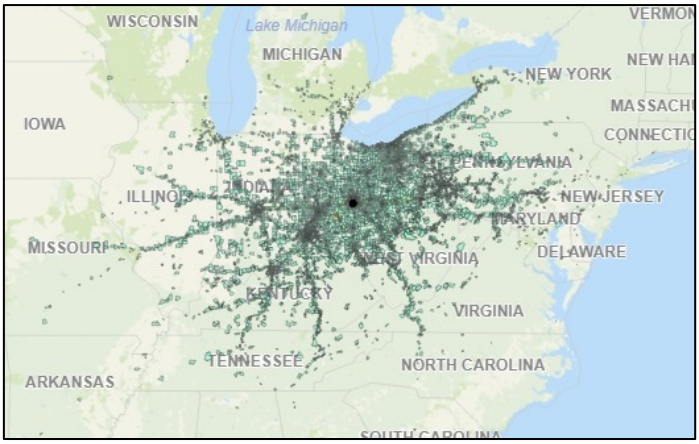

Figure 2 – A StreetLight Data analysis showing the starting and ending census blocks of commercial vehicle movements travelling through the I-70/71 Overlap.

Phase 4 is necessary regionally and locally to improve access to jobs and essential services in Downtown Columbus, and to restore neighborhood

[1] "National Highway Freight Network Map," Federal Highway Administration, U.S. Department of Transportation, last modified February 1, 2017, https://ops.fhwa.dot.gov/freight/infrastructure/nfn/maps/nhfn_map.htm.

connections that had been severed when the interstates and the South Innerbelt Trench were first constructed in the 1960s.

Phase 4 would be executed in a two-step process, due to the need to relocate the westbound ramp out of Downtown Columbus onto the I-70/71 overlap. The western portion would be constructed first, with an anticipated 2020 sale date; and the eastern portion would follow in mid-2022. This staggered approach will allow a separate but related project, Phase 6R, to relocate the existing westbound ramp. Phase 4's improvements include multiple elements impacting freeways and urban avenues within the project area. These improvements include:

- Reconstructing eastbound I-70 and northbound I-71 through the I-70/71/SR 315 West Interchange;
- Rebuilding the I-70/71 overlap section of freeway between High Street and Grant Avenue;
- Replacing four **functionally obsolete** bridges over I-70/71 at: Front Street, High Street, Third Street and Fourth Street;
- Constructing five new bridges, in addition to the bridges being replaced;
- Reconnecting Downtown Columbus and the neighborhoods immediately south through urban avenue improvements, bridge enhancements, and the installation of caps on the Front Street Bridge, High Street Bridge, and Third Street Bridge; and
- Facilitating innovative technology, including traffic signal preemption.

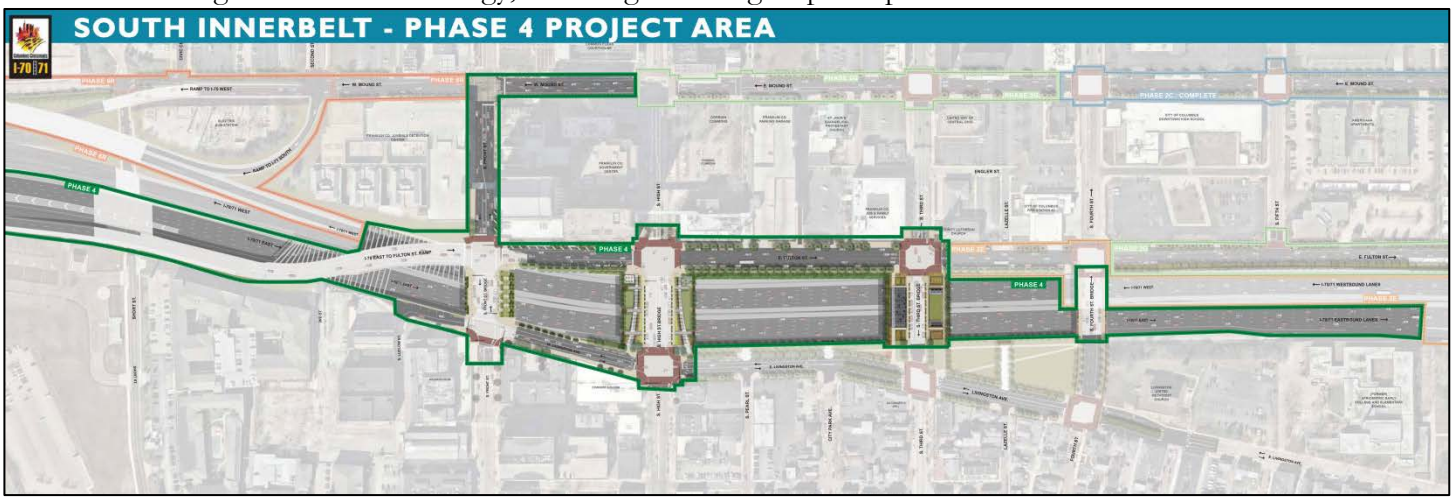

Figure 3 – Phase 4 improvements within the immediate South Innerbelt Trench area. The full exhibit, which includes all trench phases, is available at a larger scale in Appendix A and online at morpc.org/columbuscrossroads.

B. Transportation challenges for Phase 4

Phase 4's transportation challenges arise from the I-70/71 Overlap's location at the heart of both freight and commuter traffic in Central Ohio. The I-70/71 Overlap serves as the southern leg of the Columbus Innerbelt (I-70/71/I-670/SR 315) that encompasses Downtown Columbus, and is one of the busiest and most vital sections of highway for freight and commuters in the region. Congestion and safety are the two most significant challenges confronting commuters and freight on a daily basis in the I-70/71 Overlap.

The I-70/71 Overlap is at the epicenter of national freight movement between the East Coast and Midwest. Columbus has emerged as a logistics nexus because of its strategic location within 500 miles or a one-day truck trip of: **58% of the U.S. population, 50% of the Canadian population, 61% of U.S. manufacturing capacity, and 80% of U.S. corporate headquarters.** The I-70/71 Overlap lies directly between national industrial manufacturing hubs, such as Cleveland and Pittsburgh, and national distribution centers, such as Louisville and Chicago. However, the current congestion and safety issues limit the ability of freight to efficiently move through this section of the National Highway Freight Network.

Moreover, the I-70/71 Overlap is at the center of significant regional and local growth. Central Ohio has grown significantly, and population estimates for the Columbus, Ohio Metropolitan Statistical Area now exceed 2 million. People throughout the region use the I-70/71 Overlap to commute to or through the city center for work, healthcare, or entertainment. The Columbus Innerbelt, which includes Downtown Columbus, is the largest job

center in the region,[2] with more than 100,000 jobs located inside and directly adjacent to the Innerbelt network that encompasses Downtown Columbus.[3] It provides essential medical services to the entire region from OhioHealth's Grant Medical Center, which is a Level 1 Trauma Center, and Nationwide Children's Hospital (NCH), which is Level 1 Pediatric Trauma Center. The Columbus Innerbelt also contains the seats of government for the State of Ohio, Franklin County, and the City of Columbus. However, regional commuter access to and through this area is limited due to current significant congestion and safety issues in the I-70/71 Overlap.

Today, the corridor serves approximately 130,000 vehicles per day. Truck volumes on the freeway are 17,100 per day, which means the highway serves about 12 trucks per minute. But like many highways built during the 1960s, traffic has long surpassed the original design. Today**, the highway exceeds its design capacity by about 50,000 vehicles per day**, making it one of the top congestion locations in Ohio.

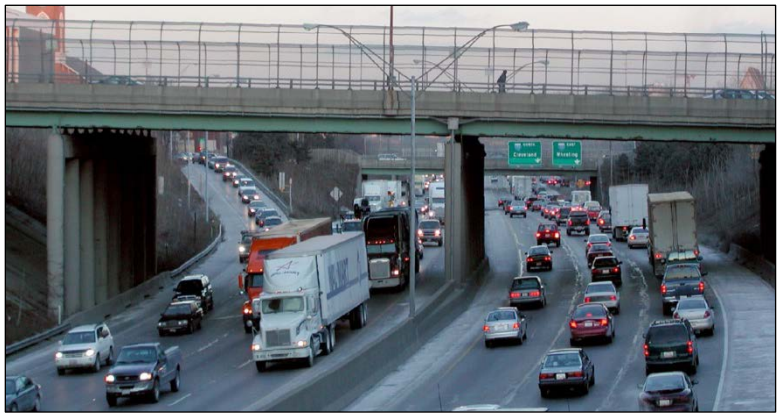

Figure 4 – Freight and commuters vying for lane position during rush hour congestion in the I-70/71 Overlap.

The I-70/71 Overlap freeway area is also one of the most hazardous. Although it makes up only 6% of the Columbus area freeway system, it is the site of 25% of all freeway crashes in the region, resulting in an average of two crashes per day. These crashes are caused by congestion and characteristics of an outdated highway design, which include:

- Intense weaving caused by the overlapping freeways. Motorists on I-71 are forced to cross several lanes of traffic to continue north or south through the downtown.
- Closely spaced interchanges add to the weaving and merging problems. This includes 21 ramps to and from city streets and three system interchanges within the 3.5-mile freeway.
- Insufficient lengths at ramps for acceleration, deceleration, and merging.
- Substandard horizontal curves.

Safety issues are not limited to vehicular traffic in the South Innerbelt Trench. Vehicles that are travelling locally across the bridges must contend with vehicles using lanes on the bridges to enter or exit I-70/71. Pedestrians and bicyclists trying to cross the South Innerbelt Trench bridges must contend not only with vehicles using lanes on the bridges to enter or exit I-70/71, but also with poor pedestrian and bicyclist facilities within the project area. Crossing the South Innerbelt Trench's divide can be particularly difficult and uncomfortable for older adults and individuals with disabilities due to the uncontrolled vehicular turning movements that conflict with pedestrian movements along Fulton Street and Livingston Avenue.

Properly addressing these transportation challenges creates an additional transportation challenge of managing a project of this magnitude while minimizing disruption to primary freight routes and essential commuter connections to the city and through the region.

C. Phase 4's approach to transportation challenges within the project area

This project will improve safety and reduce congestion challenges by adding lanes and consolidating the number of ramps to Downtown Columbus. Reducing congestion will improve the flow of freight through the I-70/71 Overlap, save time and money for commuters, emergency services, and support the emerging on-demand economy of the national logistics industry. Safety will be improved as consolidating the number of eastbound ramps into the downtown will reduce the number of necessary lane changes. Improved safety will also have a positive impact on congestion, as the high number of rear-end collisions that occur along this corridor decrease. In addition,

[2] Major employers such as Nationwide Insurance, Huntington Bank, Nationwide Children's Hospital, PNC Bank, American Electric Power, OhioHealth, and Columbia Gas are all situated in and around the city core. Other major employers including the Ohio State University, JP Morgan Chase, Limited Brands, Defense Logistics Center, and Alliance Data are on the fringe of the city center core.
[3] MORPC calculated the downtown workforce using LEHD (Longitudinal Employer-Household Dynamics); for the selected geography inside and directly adjacent to the Columbus Innerbelt (I-70/71/I-670/SR 315), the estimated population was 107,125.

by including accommodations for pedestrian and bicycle traffic on the reconstructed bridges to connect with similar facilities on adjacent urban avenues, safety for bicycle and pedestrian traffic will improve. Including these accommodations on the reconstructed bridges and adjacent urban avenues will reconnect neighborhoods, as well as improve pedestrian mobility and accessibility.

D. Project history and previously completed components

A good faith effort has been made to construct the Columbus Crossroads Project. The need to fix this congested, high-crash corridor has never been more critical. As one of the fastest growing regions in the Midwest, **MORPC estimates that by 2040 Central Ohio could have: 25% population growth, 20% job growth, and 13% increase in regional vehicle trips.** The proposed improvements – which are documented in the approved Interchange Modification Study (IMS), Environmental Assessment (EA), and Finding of No Significant Impact (FONSI) – are needed to improve safety and reduce congestion of this critical regional corridor.[4] The following project phases, which are mapped in Figure 1 on page 1, have either been completed or are currently underway using funds committed by ODOT, Columbus and MORPC:

- Phase 1 – The I-71/I-670 Interchange reconstruction was completed in 2014.
- Phase 2 –The following phases of the I-70/71 East Interchange have also been completed:
- Phase 2C, The Mound Street Connector – completed in 2015
- Phase 2B, I-70/71 Storm Sewer Outlet and BMP – completed 2017
- Phase 2G, Grant Avenue Bridge Replacement & Fulton Street Reconstruction – under construction, to be completed in 2019
- Phase 2E, Eastbound I-70 Reconstruction – construction to start in 2019
- Phase 3B, Broad Street Bridge Replacement & I-71 Reconstruction. – construction to start in 2020

Funding availability has limited how quickly project phases have been implemented, including Phase 4. Limited funding forced ODOT to further sub-phase the project into Phases 4R, 4H, and 4B, as well as delay construction for Phase 4B and 4H. However, this is not the preferred approach. Phase 4 was initially developed as a single phase. All of its improvements work together as a system to optimize the national, regional, and local benefits. **This optimization is only possible once all the Phase 4 improvements have been constructed.** It is still feasible for Phase 4 as originally planned. A successful INFRA application would allow the partners to leverage the INFRA funds into the full funding necessary to execute Phase 4 in rapid succession, as it was originally envisioned. MORPC and the City of Columbus have provided commitment letters that verify the funds necessary to complete Phase 4 would be available if the project receives INFRA funding, and they are included in **Appendix C**.

E. Additional context and benefit to outlying rural areas

The Columbus Crossroads Project is the result of more than a decade of partnership, planning, and public involvement involving ODOT, the City of Columbus, MORPC, and community stakeholders such as Nationwide Children's Hospital.[5] The public involvement process has also included more than **500 community meetings**, and thousands of public comments. The I-70/71 South Innerbelt Project Design Enhancement Manual was created in 2010.[6] This manual's purpose is to ensure the Columbus Crossroads Project's design enhancements reflect the input and needs of the surrounding neighborhoods and businesses, and also that that its design enhancements are consistently implemented throughout the entire project corridor. The Long Street Bridge and Cultural Wall, which was completed during an earlier Columbus Crossroads Project phase, is an example of what this partnership has already been able to achieve, and it is an example of what the partnership believes it will achieve during Phase 4.[7]

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[4] Please see **Appendix B** for copies of the approved IMS and FONSI documents. The Columbus Crossroads Project's Environmental Assessment can be found here: http://www.dot.state.oh.us/projects/7071/environmental/Documents/EN-02%20Environmental%20Assessment.pdf.

[5] A complete list of Advisory Committee and Stakeholder Group members is available in **Appendix D**.

[6] The Design Enhancement Manuals is available online at http://www.dot.state.oh.us/projects/7071/enhancements/Documents/7071DesignEnhancemetManual.pdf (last visited February 21, 2019).

[7] The Federal Highway Administration has featured this bridge as an example of the type of community connection that it seeks to encourage as part of its Every Day Counts round four (EDC-4) community connections initiative. "Community Connections: Turning aging infrastructure into opportunities to revitalize cities," *Innovator*, Issue 62, last modified August 31, 2017, https://www.fhwa.dot.gov/innovation/innovator/issue62/issue62.pdf.

The partnership's success has enabled the project to have an impact that extends beyond the project's geographic limits within the urbanized area and into the surrounding rural communities in Central Ohio.

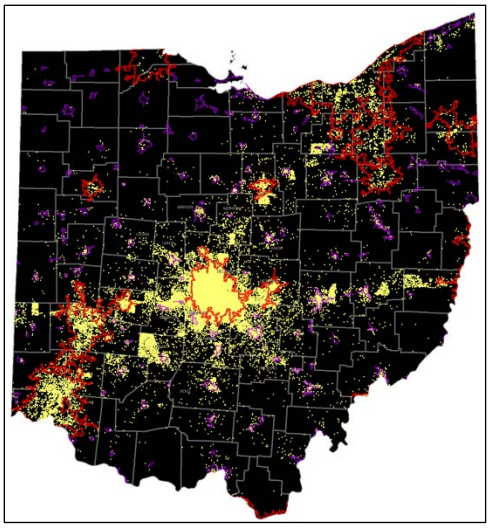

Figure 5 – Yellow dots indicate ends of personal trips passing through the I-70/71 overlap.

Although the Columbus Crossroads Project is situated in an urbanized area, it has a significant impact on that reaches out from the urban core and into the surrounding rural areas around it. As illustrated in Figure 5, a significant number of personal trips through I-70/71 Overlap end in areas outside the urbanized area and urban clusters. See **Appendix E** for additional personal and commercial trip maps. Phase 4 will benefit (1) freight and industry located in the fringe urban and rural areas, (2) commuters living in rural areas, and (3) patients who live in rural areas but require advanced medical care. The first two rural impact areas will be discussed in greater detail in Section V.D.5.a and Section V.D.6.a. The third rural impact area shall be discussed here.

Phase 4's impact on central pieces of the region's interstate system will also have an unquestionable, positive impact on improving rural communities' access to essential medical services in and around Downtown Columbus. OhioHealth Grant Medical Center and Nationwide Children's Hospital are major regional healthcare facilities in and around Downtown Columbus. At its primary campus alone, NCH anticipates approximately 90,000 emergency department visits and 300,000 outpatient visits. In addition to local patient care, both facilities offer significant medical care to rural Southeastern Ohio, including many counties in the Appalachian Region of Southern and Eastern Ohio. Grant Medical Center is one of twelve Level 1 Trauma Centers in Ohio, and one of the closest Level 1 Trauma Centers to Southeastern Ohio.[8] NCH is one of only three Level 1 Pediatric Trauma Centers in Ohio,[9] and it is one of only nine Ohio hospitals in the Children's Hospital Association.[10] It is the closest children's hospital for much of southeastern Ohio, and NCH offers a range of important health services to the rural communities. Improving congestion and safety issues in the I-70/71 Overlap will improve access to both medical facilities for patients from rural areas.

II. Project Location

Phase 4 of the Columbus Crossroads Project is located in the City of Columbus, in the federally designated Columbus, Ohio Urbanized Area. The geographical coordinates for the proposed project are: 39°57'10.70"N, 82°59'55.89"W.

Figure 6 - Project location in relation to existing infrastructure.

Phase 4 will extend along northbound I-71 from north of the Greenlawn Avenue interchange to the I-70/71 overlap, and then east along eastbound I-70/71 to west of the Front Street bridge. Both eastbound and westbound of the I-70/71 overlap will be reconstructed from west of Front Street to Third Street. As shown previously in **Figure 3**, the Front Street, High Street, Third Street and Fourth Street bridges will be replaced along with the adjacent intersections along Fulton Street and Livingston Avenue. Front Street will be reconstructed from north of the Fulton Street intersection to Mound Street and Mound Street will be resurfaced

[8] The Ohio State University Medical Center is also a Level 1 Trauma Center in Columbus, Ohio. But the remaining nine Level 1 Trauma Centers are located in Akron, Cincinnati, Cleveland, Dayton, Toledo, and Youngstown. "Trauma Centers," Ohio Department of Public Safety, last modified May 9, 2018, http://www.publicsafety.ohio.gov/links/ems_tc_alphaorder.pdf.

[9] The other two are located in Cincinnati and Cleveland.

[10] The other eight are located in Akron, Cincinnati, Cleveland, Dayton, and Toledo. "Children's Hospital Directory," Children's Hospital Association, https://www.childrenshospitals.org/Directories/Hospital-Directory?state=OH.

from Front Street to High Street. Eastbound exit ramps 100A and 100B will be consolidated and relocated and will empty onto Fulton Street at Front Street.

III. Project Parties

A. The Ohio Department of Transportation, lead applicant and proposed award recipient

ODOT is the administrative department of the state government responsible for developing and maintaining all state and federal roadways in Ohio with the exception of the Ohio Turnpike. It is the lead agency responsible for the Columbus Crossroads Project.

ODOT has broken up the state of Ohio into 12 districts in order to facilitate regional development. Each district is responsible for the planning, design, construction, and maintenance of the state and federal highways in their region. Ohio's Columbus Crossroads Project is located in ODOT District 6. ODOT District 6 is responsible for 4,921 US Route, State Route and Interstate lane miles and 1,557 bridges throughout eight counties in Central Ohio.

ODOT's primary source of transportation funding in Ohio is gas tax revenue, which by statute can be used for highway construction, traffic enforcement and certain other activities. Each year there are more capital needs for passenger and freight improvements than there is funding available. Given the competition for scarce funding resources, the Ohio Revised Code in 1997 established the nine-member Transportation Review Advisory Council (TRAC) to assist in developing a project selection process for ODOT's largest investments and is chaired by ODOT's Director. This project is an ODOT priority, and TRAC has funded earlier phases of the Columbus Crossroads Project. However, there is insufficient TRAC funding for Phase 4. This is why ODOT is pursuing an INFRA award to complete the funding and construct all Phase 4 improvements in the near term.

B. The City of Columbus, co-applicant

The City of Columbus is the municipality in which the Columbus Crossroads Project is located. It is responsible for maintaining the Minor Collectors, Major Collectors, and Arterials within its corporate limits. The City of Columbus has worked closely with ODOT on the Columbus Crossroads Project since the project's inception, and it has committed significant funds to the project, including **$27 million** towards Phase 4. City personnel from multiple departments have coordinated with the Ohio Department of Transportation during the Columbus Crossroads Project, including personnel from the Department of Development, the Department of Public Utilities, the Department of Public Safety, the Department of Building and Zoning Services, and the Department of Public Service.

The City of Columbus is also closely coordinating its Livingston Avenue project with ODOT. This City project is a three-phase, $28.3 million project on Livingston Avenue that ties-in directly with the Columbus Crossroad's Phase 4 work on the Front Street Bridge, High Street Bridge, Third Street Bridge, and Fourth Street Bridge. Portions of the Livingston Avenue project are also dependent upon a new retaining wall that will be constructed during Phase 4. Close coordination with ODOT will ensure a seamless streetscape, regardless of the agency responsible for a particular section.

C. The Mid-Ohio Regional Planning Commission, regional metropolitan planning organization

MORPC serves as the local Metropolitan Planning Organization and has been involved in prior planning for all phases of the Columbus Crossroads Project, including Phase 4. Across all phases, MORPC has committed $20 million in funding to provide design enhancements including Complete Streets facilities to the city streets reconstructed as part of the Columbus Crossroads Project. MORPC also assisted with coordination of project partners and provided data and information for this INFRA application. This project was identified as a regional priority through the Competitive Advantage Projects (CAP) initiative. CAP is an initiative of Columbus 2020 and MORPC that prioritizes and advances strategic infrastructure investments across Central Ohio.

IV. Grant Funds, Sources and Uses of all Project Funding

The Ohio Department of Transportation, the City of Columbus, and the Mid-Ohio Regional Planning Commission have already invested nearly $380 million in the Columbus Crossroads Project, including planning, engineering, right of way acquisition and construction of the phases completed to date. This includes $285 million in Federal Transportation and MPO-Federal Attributable funds, $66 million in State Transportation funds, $22 million in GARVEE monies, and more than $12 million from Columbus.

The project cost for Phase 4 of the Columbus Crossroads Project is estimated to be approximately $216.5 million. The following budget does not include the money already expended on design ($17.8 million) and right of way acquisition ($5.2 million):

Category	Total Cost	INFRA	%	Other Fed.	%	Non-Fed.	%
Land, structures, rights-of-way, appraisals, etc.	$2,500,000	$0.00	0.00%	$2,250,000	90.00%	$250,000	10.00%
Project Inspection fees	$14,000,000	$0.00	0.00%	$10,080,000	72.00%	$3,920,000	28.00%
Construction	$187,000,000	$40,000,000	21.39%	$94,640,000	50.61%	$52,360,000	28.00%
Contingencies	$13,000,000	$0.00	0.00%	$9,360,000	72.00%	$3,640,000	28.00%
Total:	$216,500,000	$40,000,000	18.48%	$116,330,000	53.73%	$60,170,000	27.79%

This INFRA application is seeking to obtain an award of **$40 million** for construction costs for Phase 4. This award would be leveraged to ensure Phase 4 is fully funded. ODOT would commit an additional **$146.3 million** in State and Federal Transportation funds for the design engineering, right of way acquisition, construction and construction engineering for Phase 4, bringing its total commitment to these improvements to $169.3 million. Columbus would commit **$27 million** in local funding along with **$3.2 million** of federal Surface Transportation Block Grant (STBG) funding through MORPC towards the construction of Phase 4. The City of Columbus and MORPC have provided commitment letters that are included in **Appendix C**.

V. Merit Criteria

D. Economic Vitality.

Phase 4 of the Columbus Crossroads sits at the epicenter of significant growth in the City of Columbus and Central Ohio. Between 2016 and 2017, the Columbus, OH Metropolitan Statistical Area's gross domestic product grew by 2.1% to approximately $136.3 billion,[11] and its population grew by 1.6% to approximately 2,078,725.[12] The City of Columbus has experienced the eighth largest numeric population increase (15,429) between July 1, 2016, and July 1, 2017 for cities with a population of 50,000 or more. Its total population is estimated to be 879,170, and it has passed Indianapolis to become the fourteenth largest city in the country.[13] MORPC's 2018 population estimate shows the City of Columbus exceeding 900,000 residents. This growth is significant nationally, regionally, and locally. Phase 4 will (1) improve safety and reduce fatalities and serious injuries in the I-70/71 Overlap and city streets; (2) improve interactions between roadway users by significantly reducing the need for lane changes in the I-70/71 Overlap; (3) finally eliminate the I-70/71 Overlap's long-standing freight bottleneck; (4) restore the good condition of infrastructure that supports freight movement and economic growth; (5) support a vital sector of the Ohio economy, and help sustain and advance economic development in the City of Columbus; and (6) remove congestion related barriers to employment centers.

1. Phase 4 will improve safety and reduce fatalities and serious injuries in the I-70/71 Overlap and city streets.

a. Phase 4's freeway safety concerns and improvements.

The freeway improvements planned for Phase 4 of the Columbus Crossroads Project will have a dramatic impact on an area that consistently experiences a high number of crashes and has ranked within the annual top 10 high crash locations in Ohio for most of the last decade. Between 2015 and 2017 (most recent certified data), 1,023 crashes were reported having occurred along portions of I-70, I-71, and associated ramps identified for improvement in Phase 4 of the Columbus Crossroads Project. The majority of these reported crashes resulted in property damage only (PDO), however at least one person was injured in 27.3% of crashes. This includes six individuals being seriously injured and two individuals suffering fatal injuries. See **Appendix F,** for complete safety data.

[11] "Gross Domestic Product by Metropolitan Area, 2017," Bureau of Economic Analysis, U.S. Department of Commerce, last modified September 18, 2018, https://www.bea.gov/system/files/2018-09/gdp_metro0918_0.pdf.

[12] "Estimates of Resident Population Change and Rankings: July 1, 2016 to July 1, 2017 - United States -- Metropolitan Statistical Area; and for Puerto Rico," American FactFinder, U.S. Census Bureau, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk.

[13] "Census Bureau Reveals Fastest-Growing Large Cities," U.S. Census Bureau, May 24, 2018, https://www.census.gov/newsroom/press-releases/2018/estimates-cities.html.

As shown in **Table A**, rear-end and sideswipe crashes (crash types typically associated with excess congestion) were the two most prevalent crash types along the Phase 4 freeway focus area. Together they accounted for almost 90% of all crashes. Phase 4 will provide additional traffic lanes on northbound I-71 and the I-70/I-71 Overlap, reducing congestion and traffic backups that likely contribute to the high number of rear-end crashes (55.2% of crashes were attributed to either following too closely or failing to leave assured clear distance ahead). Also, by consolidating the eastbound ramps to downtown streets, the project will allow vehicles to exit the freeway with fewer lane changes – a likely action contributing to the high number of sideswipe crashes (18.9% of crashes were attributed to improper lane changes).

Table A: Freeway crash type by severity.

Crash Type	Total Crashes	% Total	Injury Rate
Rear End	601	58.7%	29.6%
Sideswipe - Passing	286	28.0%	21.3%
Fixed Object	82	8.0%	23.2%
Other Non-Collision	13	1.3%	38.5%
Left Turn	9	0.9%	55.6%
Other Object	8	0.8%	12.5%
Right Turn	6	0.6%	50.0%
Head On	5	0.5%	20.0%
Parked Vehicle	3	0.3%	66.7%
Angle	2	0.2%	50.0%
Animal	2	0.2%	0.0%
Backing	2	0.2%	50.0%
Overturning	1	0.1%	100.0%
Pedalcycles	1	0.1%	0.0%
Pedestrian	1	0.1%	100.0%
Unknown	1	0.1%	0.0%
Grand Total	**1,023**	**100.0%**	**38.6%**

The I-70/I-71 corridor provides both north-south and east-west linkages critical to the national logistic network connecting the Midwest and East Coast markets. In addition, Central Ohio is a key freight distribution center, dependent on efficient truck movement into and through the region. Between 2015 and 2017, over 12% of crashes involved at least one commercial vehicle. Commercial vehicles were involved in both of the fatal crashes that occurred during this time period, and 19% of the injury crashes. These crashes involving commercial vehicles, as well as overall crashes along the corridor, delay freight delivery and undermine the reliability of the national freight system.

b. Phase 4's city street safety concerns and improvements.

Phase 4 of the Columbus Crossroads Project will also work to improve safety conditions along several surface streets adjacent to and across the affected freeway segments. Between 2015 and 2017, 325 crashes were reported at intersections and along segments of surface streets identified for improvements in Phase 4. Approximately 17.2% of these crashes resulted in injury, including two serious injuries. See **Appendix F,** for complete safety data.

Table B: City street crash type by severity.

Crash Type	Total Crashes	% Total	Injury Rate
Sideswipe - Passing	80	24.6%	7.5%
Rear End	59	18.2%	20.3%
Angle	57	17.5%	22.8%
Left Turn	32	9.8%	9.4%
Right Turn	26	8.0%	11.5%
Parked Vehicle	18	5.5%	5.6%
Backing	17	5.2%	5.9%
Fixed Object	13	4.0%	0.0%
Pedestrian	13	4.0%	92.3%
Pedalcycles	4	1.2%	75.0%
Other Non-Collision	2	0.6%	50.0%
Animal	1	0.3%	0.0%
Head On	1	0.3%	100.0%
Other Object	1	0.3%	0.0%
Sideswipe - Meeting	1	0.3%	0.0%
Grand Total	325	100%	27%

The project will not just address vehicle-specific safety concerns, however; this project will ultimately increase the ability of all roadway users to navigate to and from Downtown Columbus and neighborhoods to the south. As shown in **Table B**, 17 crashes in the focus area involved non-motorized users. While only accounting for 5.2% of non-freeway crashes, non-motorized crashes made up 26.8% of injury crashes overall and 50% of serious injury crashes.

Risks associated with these non-motorized crashes will be reduced through improvements to bicycle and pedestrian facilities all associated surface streets. Wider bridges will allow ODOT and the City of Columbus to implement Complete Streets principles to make bridge crossings safer and more comfortable for bicyclists and pedestrians, particularly older adults and individuals with disabilities. ODOT is incorporating bike lanes along city streets that are parallel to the Crossroads and connect into other components of the I-70/I-71 project phases that have already been built.

Construction of wider sidewalks on both sides of the four bridges associated with the project, and the addition of sidewalk bulb-outs and brick crosswalks at intersections will shorten crosswalks and make pedestrians more visible to motorists. Turning movements that currently flow uncontrolled through intersections or in conflict with pedestrian movements along Fulton Street and Livingston Avenue will be redesigned as part of this project to allow for safer pedestrian crossings.

2. Phase 4 will improve interactions between roadway users by significantly reducing the need for lane changes in the I-70/71 Overlap.

Phase 4 will significantly improve interactions between roadway users by eliminating 95% of eastbound lane changes through the I-70/71 Overlap. I-71 Northbound is currently reduced to a single lane as it enters the I-70/71 Overlap. This lane quickly terminates in the Front Street exit ramp into Downtown Columbus. Vehicles that want to continue northbound on I-71 must make two lane changes through eastbound I-70 traffic in order to resume travelling on I-71 at the I-70/71 Overlap's eastern end. As **Figure 7** illustrates, this weaving creates dangerous interactions between roadways users, which contribute significant to the I-70/71 Overlap's safety and congestion problems.

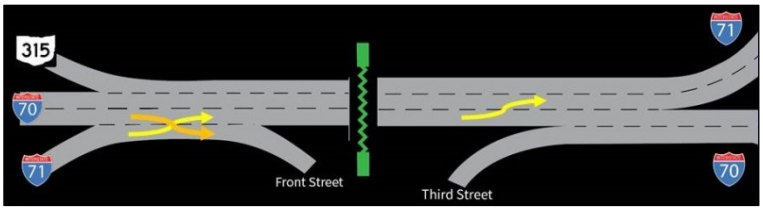

Figure 7 -Lane configuration after Phase 2E.

Phase 4's improvements to roadway user interactions in the I-70/71 Overlap's center and western portion will work with Phase 2E's improvements in the eastern portion to reduce the need for more than 95% of lane changes. Phase 2E begins construction this year. As **Figure 8** demonstrates, I-70 will receive an additional through lane and I-71 will only have to make one lane change once Phase 2E is complete.

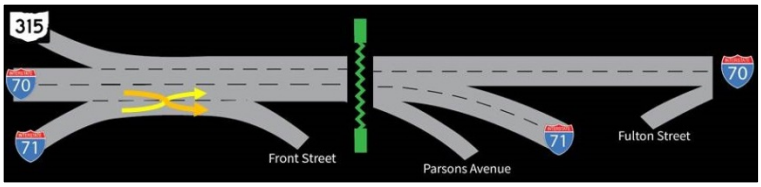

Figure 8 - Current lane configuration.

However, Phase 4's completion will provide the project's full benefit to roadway users. As **Figure 9** demonstrates, I-70 and I-71 will each have two through lanes. Congestion and safety in the I-70/71 Overlap will improve significantly once Phase 4 is complete. Phase 4 will help eliminate one of the top freight bottlenecks in the country. It will also improve commuter access to employment centers in both Downtown Columbus and Central Ohio.

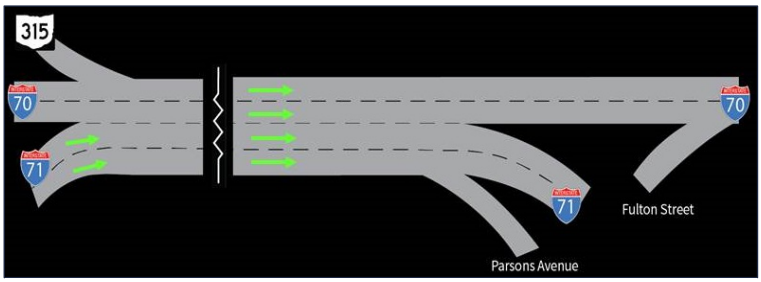

Figure 7 -Lane configuration after Phase 4.

3. Phase 4 will finally eliminate the I-70/71 Overlap's long-standing freight bottleneck.

Phase 4's improvements will eliminate the I-70/71 Overlap's freight bottleneck. Reducing freight congestion on its vital corridors is an economic priority for the Ohio Department of Transportation. ODOT has invested millions of dollars in improvements throughout the state's I-70 corridor, and it is now preparing to construct Phase 4's improvements. The I-70/71 Overlap was measured as the **2nd worst freeway segment for travel time performance in Ohio for 2018**. This bottleneck is a long-standing issue, and one of the original focal points of the Columbus Crossroads project. In 2009, the American Transportation Research Institute (ATRI) ranked the I-70/71 Overlap as the 46th worst truck bottleneck in the nation.[14] In 2019, ATRI ranked the I-70/71 Overlap as the 93rd worst truck bottleneck in the nation.[15] Earlier Columbus Crossroads phases have resulted in some modest congestion improvements. But the ultimate elimination of the bottleneck in the I-70/71 Overlap is only possible with Phase 4's planned improvements, which will eliminate this bottleneck and, according to the attached Benefit Cost Analysis, **reduce travel time delays by 97%**.[16]

4. Phase 4 will restore the good condition of infrastructure that supports freight movement and economic growth.

Phase 4 will replace existing infrastructure that is in need of reconstruction – including four functionally obsolete bridges – and it will restore the good condition of roadways and bridges that support freight movement

[14] "2009 Bottleneck Analysis of 100 Freight Significant Highway Locations," American Transportation Research Institute, last accessed February 21, 2019, https://truckingresearch.org/2010/05/08/944/#.XG7awKJKjRY.
[15] "Columbus, OH: I-71 at I-70," 2019 Top 100 Truck Bottlenecks, American Transportation Research Institute, last accessed February 20, 2019, https://truckingresearch.org/wp-content/uploads/2019/02/bn093-2019.pdf.
[16] Please see Benefit Cost Analysis included in **Appendix G**.

and economic growth. The I-70/71 Overlap was constructed in 1963. Since that time, the pavement has received asphalt overlays every 10-12 years. The pavement within the project area has exceeded its service life and is in need of replacement and reconstruction. Construction will reset the maintenance cycle, saving $5.5 million within the next five to eight years. These costs are included in the "no-build" construction costs of the Benefit-Cost Analysis.

Figure 8 - Fourth Street Bridge current conditions.

There are six existing bridges that will be replaced as part of Phase 4 of the Columbus Crossroads Project: two at-grade structure and four overhead bridges that carry city streets. The current condition of the at-grade bridge structures carrying eastbound I-70/71 is in "good" condition and the overhead bridges range from "fair" to "poor". The four city street structures date back to the original construction in 1963 and are now functionally obsolete; while the bridge over Short Street predates the Interstate construction. As a result, four bridges need substantial maintenance including deck replacement and structural steel painting within the next 5 to 7 years. The Ohio Department of Transportation was forced to make interim repairs to the four overhead bridges including placing debris containment on the superstructure to protect vehicles traveling below on the interstate until the bridges can be replaced. Incorporating the replacement of these structures as part of Phase 4 will save millions of dollars in system preservation costs.

5. Phase 4 will support a vital sector of the Ohio economy, and help sustain and advance economic development in the City of Columbus.

The I-70/71 Overlap is a vital transportation link that supports freight movements across the state and Midwest, while supporting and advancing economic development in Central Ohio and the City of Columbus. Phase 4 will (a) improve movement of freight, and (b) support additional economic development opportunities in and around Central Ohio.

a. Phase 4 will support a vital sector of the Ohio economy and improve an important freight connection in the Primary Highway Freight System.

Truck transportation is a $7 billion industry in the State of Ohio. At 4.8% of the national gross domestic product for truck transportation, Ohio is the fourth largest state for truck transportation.[17] It is the sixth largest freight destination in the United States, with 314 million tons of goods, valued at $193 billion, shipped to Ohio from international and out-of-state markets.[18] **Both I-70 and I-71 are part of the Primary Highway Freight System and important freight corridors.** I-70 is an essential east-west freight corridor across Ohio. I-71 is an essential north-south freight connection between Cincinnati, Columbus, and Cleveland. **Figure 11** shows total truck flows in Ohio, 2012 vs. 2040.

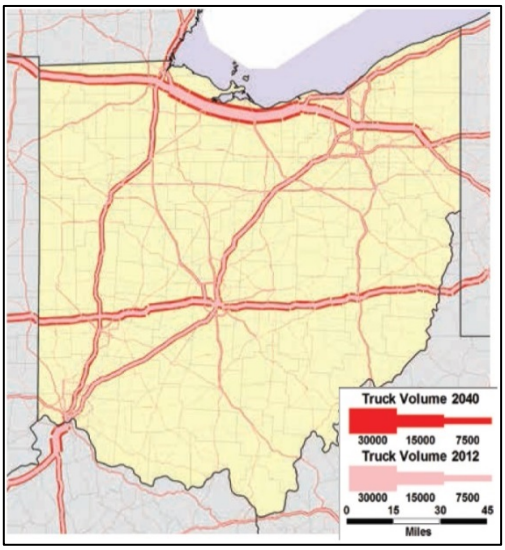

Figure 9 - Total truck flows in Ohio, 2012 vs. 2040.

An analysis of commercial vehicle data available through Streetlight Data shows the geographic scope of vehicles passing through the I-70/71 Overlap. This analysis looked at the start and end points of the specific trip through the I-70/71 Overlap and not necessarily the freight's ultimate origin point or destination. As illustrated in **Figure 12**, the analysis showed commercial trips that started and ended at points across the Midwest, with at least one trip point as far west as Nebraska

[17] "Gross Domestic Product from Ohio, September 2018," Ohio Development Services Agency, last accessed February 19,2018, https://development.ohio.gov/files/research/E1001.pdf.

[18] "Transport Ohio Statewide Freight Plan (updated 2018) http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/Documents/ODOT_FreightPlan_Updated%203.21.18.pdf, p. 8

and another one as far east as Connecticut. As illustrated in **Figure 13**, further analysis of trip length indicates 25.2% of the trips had lengths 100 miles or more, while 34% of the trips had lengths 20 miles or less. This data indicates that improving the intersection of Interstates 70 and 71 will not only benefit freight connecting to points beyond Central Ohio on I-70 or I-71, but also freight connecting to points within Central Ohio and the City of Columbus.

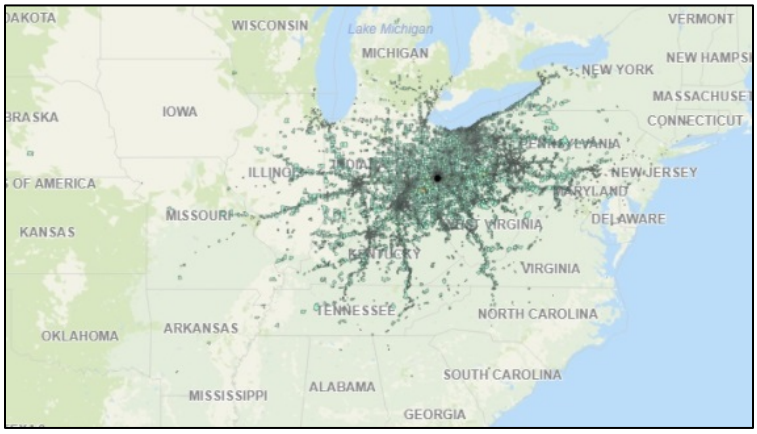

Figure 10 - A StreetLight Data analysis showing the starting and ending census blocks of commercial vehicle movements travelling through the I-70/71 Overlap.

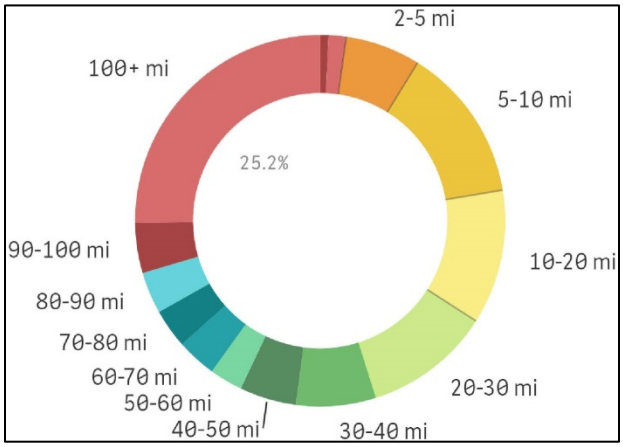

Figure 11 – Trip lengths of commercial vehicles travelling through the I-70/71 Overlap.

Improving I-70 and I-71's connection and overlap in Downtown Columbus will also improve connections to important freight destinations and intermodal facilities in both the City of Columbus and the Central Ohio Region. The City of Columbus and Central Ohio are emerging logistics centers in the Midwest. These facilities are located in urban, rural, and mixed areas. The Streetlight Analysis revealed noticeably higher volume of commercial vehicle traffic within census block groups with important distribution centers. Three census blocks stood out in particular and accounted for 5.5% of the total volume of all commercial vehicle trips that used the I-70/71 Overlap. Improving the flow of freight through the I-70/71 Overlap will benefit freight facilities and distribution centers in both urban and rural areas.

Table C - Major Origin/Destination Distribution Centers

Block Group	Urban /Rural	Location,	Tot. Vol.	Distribution facilities in block group include:
39049008210	Urban	City of Columbus	2.8%	Big Lots & Walmart
39097040400	Mix	West Jefferson	2.0%	Amazon, Target, FedEx Freight
39089757400	Mix	Etna Township	0.7%	Amazon

The Streetlight Analysis also revealed noticeably higher volumes of commercial vehicle traffic within (1) census block groups containing an intermodal facility, and (2) census block groups immediately adjacent to those intermodal facilities. The two largest intermodal facilities in Ohio are situated in Central Ohio: Rickenbacker and Buckeye Yard. During the last statewide freight study in 2012, these two facilities completed 330,000 lifts in 2012, which was more than **37% of all lifts in the entire state**. Lifts have continued to increase at both facilities. According to tracking by MORPC, intermodal lifts exceeded 400,000 in 2015 and have increased each year after capacity expansion at both facilities. The Streetlight Data analysis indicates 2.4% of all commercial trips passing using the I-70/71 Overlap originated or ended at the census block groups containing these intermodal facilities as well as the neighboring census block groups: 1.9% of commercial trips had an origin or destination near the Buckeye Yard intermodal facility; and 0.5% of all commercial trips to Rickenbacker intermodal facility and surrounding census block groups. The Rickenbacker area also contains Rickenbacker International Airport (LCK), which is a major gateway for domestic and international freight shipments, with regular service to destinations such as Hong Kong, Luxembourg, Dubai, and Moscow. International cargo increased 65% in 2017 and is projected to increase by 900% in the latest airport masterplan.

b. Phase 4 will sustain and advance regional economic development in and around Downtown Columbus.

Phase 4 will sustain and advance regional economic development in and around Downtown Columbus, which is Central Ohio's largest job center. MORPC predicts jobs in Downtown Columbus to increase by 13% and the residential population to grow by 120% between 2015 and 2040. This growth has resulted in a significant

investment of private and public funds in Downtown Columbus. In 2017 alone, 22 projects ($360 million) were completed; 29 projects ($548 million) were under construction; and 35 projects ($1.9 billion) were proposed.[19] Phase 4 will support economic development in Downtown Columbus and the neighborhoods immediately south of Downtown Columbus – including the Brewery District, historic German Village, Schumacher Place, and Livingston Park by (1) reconnecting Downtown Columbus to the neighborhoods to its south, and (2) improving areas for economic development opportunities.

Figure 12 - High Street Bridge on eastern sidewalk of bridge (proposed).

Figure 13 - High Street Bridge on eastern sidewalk of bridge (existing).

Phase 4 will support continued economic development by reconnecting Downtown Columbus to the neighborhoods south of the I-70/71 Overlap's trench. The current bridges across the South Innerbelt Trench are not inviting to pedestrians – especially older adults and individuals with disabilities – and help to further isolate Downtown Columbus. Sidewalks are narrow, pushed up next to driving lanes, and in poor condition. Visual separation between the pedestrians and the interstate below is non-existent. Crosswalks are limited because of vehicles entering and exiting I-70/71. Phase 4 significantly improves these conditions. Broad sidewalks (at least ten feet wide) would be constructed on both sides of all four bridges. A line of planters or other visual barriers will be installed on both sides of all four bridges. Additional crosswalks will be installed at the intersections as Phase 4 permanently reroutes traffic entering and exiting the interstate. These improvements will encourage additional pedestrian and bicyclist traffic between Downtown Columbus and the neighborhoods immediately around it. These improvements will help bridge the physical barriers that isolate Downtown Columbus and encourage additional economic development in the neighborhoods south of the I-70/71 Overlap. **Appendix H** provides additional pictures and information regarding current conditions and Phase 4's improvements. With Phase 4's bridge and city street improvements, the communities immediately south of Downtown Columbus are reconnected to downtown and a vibrant catalyst for growth and economic development within their own neighborhoods. Without these improvements, the communities south of Downtown Columbus will remain cutoff from downtown and they will continue to remain in limbo on how redevelopment should proceed.

Phase 4 will improve economic development opportunities for areas inside and immediately surrounding the Phase 4 project area. The Phase 4 improvements combined with the City of Columbus's Livingston Avenue improvements will significantly improve general access for sites on both Livingston Avenue and Front Street, while supporting multiple economic development opportunities. **Appendix I** provides maps of multiple economic opportunities, including the following:

- **Nationwide Children's Hospital (NCH) Campus Expansion** - One of the top-ranked children's hospitals in the nation, NCH is in the midst of a **$1.25 billion reconstruction and expansion of its campus**, including the area directly south of the trench. Multiple phases of the Columbus Crossroads Project are providing essential support for NCH's expansion. Phase 4 will improve freeway access and ease congestion for staff and patients at NCH's main campus. It will also tie-in with the freeway improvements planned for Phase 2E of Columbus Crossroads Project. Phase 2E will construct a new ramp directly serving the complex, and it will realign Mooberry Street. **Appendix I** includes the Master Facilities II map. NCH has also acquired the **former Columbus Africentric High School site**, which is a 3.7 acre site just to the east of Phase 4's eastern limit.

[19] "State of Downtown Columbus, Year End 2017," Capital Crossroads & Discovery Special Improvement Districts, last modified February 21, 2018, https://downtowncolumbus.com/wp-content/uploads/2018/02/2017-SOD-Report-EOY-web.pdf.

- **Commercial Cap over I-70/71** – The City of Columbus' High Street Cap over I-670 was one of the very first commercial caps constructed in the country. This cap, which seamlessly reconnected Downtown Columbus to the Short North neighborhood, has become a case study for other cities looking for creative ways to restore and reconnect neighborhoods.[20] The High Street Cap over I-670 also provides the City of Columbus with its own case study on how to develop additional commercial caps across the South Innerbelt Trench, including how to navigate some of the related legal challenges such as obtaining title to the land beneath the commercial cap and leasing the air space to be developed as a commercial cap. While Phase 4 improvements currently include dual sixty foot wide green caps for both the High Street Bridge and Third Street Bridge, both of these bridges will also have the ability to support commercial caps on both sides. The City of Columbus has already completed a feasibility study for a commercial cap on the High Street Bridge over I-70/71. It believes the value of this new economic development opportunity is significant enough that a developer will be quickly identified.

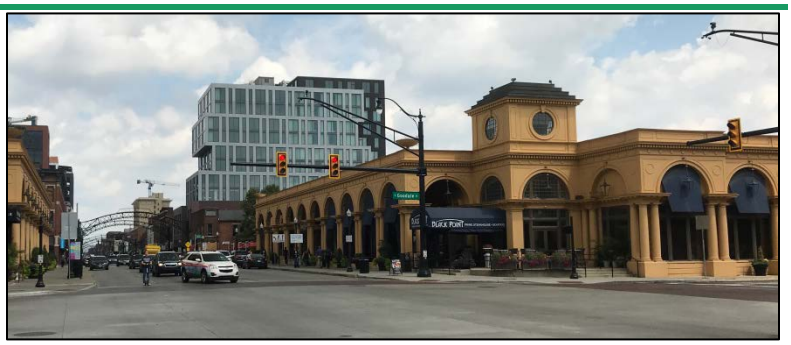

Figure 14 - High Street Cap over I-670.

- **Former Wasserstrom Site** – A former brewery on 1.24 acres, this property has been underutilized since Wasserstrom Co. relocated its corporate headquarters in October 2017. The property recently sold for $6.4 million and is targeted for a major redevelopment. The quality and success of this development will be heavily impacted by Phase 4, which directly abuts the north side of the property at the Front Street Bridge. Dwight McCabe, a developer for the property has told the Brewery District Commission that the planned Phase 4 improvements would "make the property's location a 'front door' to Downtown that could boost his plans for ground-floor retail along with a hotel and offices.[21]
- **Livingston Avenue, between Third Street and Fourth Street** – The construction of a retaining wall on the southern edge of I-70/71 during Phase 4 will create 1.5 acres of newly developable land on Livingston Avenue, shown in **Figure 17**. This property is made accessible by Phase 4's urban avenue improvements to the Third Street Bridge, the Fourth Street Bridge; and the City of Columbus' related Livingston Avenue projects. The site is on the border between German Village and Downtown Columbus, and it is also near Nationwide Children's Hospital and a potential commercial cap on the Third Street Bridge. This location places it in a highly desirable area for development. In fact, the adjacent Africentric School site recently sold for nearly $15 million, roughly $4 million an acre.

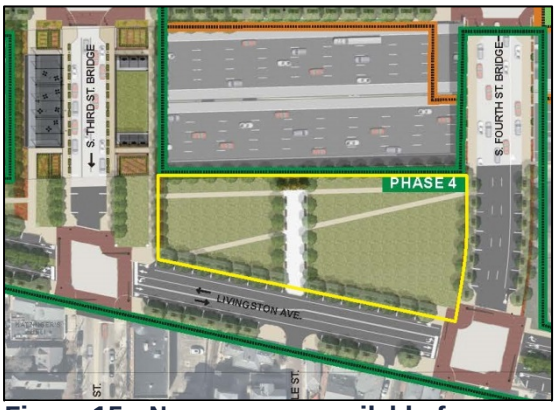

Figure 15 - New acreage available for development.

Phase 4 will also support continued economic development by reconnecting Downtown Columbus to the neighborhoods south of the I-70/71 Overlap's trench and encouraging additional economic development in the neighborhoods south of the I-70/71 Overlap.

6. Phase 4 will remove congestion related barriers to employment centers.

Phase 4 will reduce barriers separating workers from employment centers by removing employment barriers caused by congestion and make it easier for worker to reach employers in and around Downtown Columbus. Congestion creates a significant barrier separating workers from employment centers in Central Ohio. According to INRIX Research, Columbus is the most congested city in Ohio, the 25th most congested city in the United States,

[20] "The Cap at Union Station," ULI Development Case Studies, last modified February 26, 2007, https://casestudies.uli.org/the-cap-at-union-station-5/.

[21] Marla Matzer Rose, "Brewery District attracting more interest from developers," *The Columbus Dispatch*, December 23, 2017, http://www.dispatch.com/news/20171223/brewery-district-attracting-more-interest-from-developers.

and the 135th most congested city in the world.[22] INRIX estimates Columbus drivers lost an average of 71 hours per year in congestion. INRIX estimates the cost of congestion to be $990 per driver and $734.9 million for the city. The I-70/71 Overlap is one of the most significant points of congestion in both the city and state. The I-70/71 Overlap was measured as the 2nd worst freeway segment for travel time performance in Ohio for 2018. This creates a significant barrier for workers who rely upon the I-70/71 Overlap to access either employment centers in the Innerbelt Area or employment centers across the city. Phase 4 will virtually remove this congestion barrier. According to the Benefit Cost Analysis, Phase 4's improvements will reduce travel time delays in the I-70/71 Overlap by 97%. The Build condition is predicted to save over 8,000 person-hours of delay daily in the Opening Year and up to 10,400 daily person-hours of delays by the Design Year. This results in over $38 million in lost time and productivity annually.

Phase 4 will make it physically safer and easier for workers to reach Innerbelt Area employment centers. Replacing the current Front Street exit ramp into Downtown Columbus will provide workers with a safer entrance to regional employment centers in the Innerbelt Area. For example, Phase 4 improvements will also help improve worker and patient access to Nationwide Children's Hospital. The freeway improvements during Phase 4 will tie-in to Phase 2E's new eastbound exit ramp at Mooberry Street. Phase 4's urban avenue improvements will tie in with the City of Columbus' Livingston Avenue projects, which will improve City street access to the NCH's primary campus. This is significant because NCH currently employs approximately 11,909, with an additional 1,500 jobs anticipated as NCH continues to expand its main campus.

a. Removing these barriers will improve the connection between the Columbus, OH MSA's periphery and employment centers in the MSA's core.

Removing these barriers will improve the connection between the Columbus, OH MSA peripheral regions and employment centers in Downtown Columbus and the MSA's core. This is important because a significant percentage of the Columbus, OH MSA lives in rural areas towards the MSA's periphery. During the most recent census, 313,122 people in the MSA of the MSA's total population lived in rural communities, or 16.46% of the MSA's total population. However, the percentage of people living in rural areas increases dramatically upon leaving the MSA's core in Franklin County. In the nine other counties in the Columbus, OH MSA, **40.26% of the population, or 297,369 people, live in rural areas.** The workforce in the City of Columbus and Franklin County is dependent upon commuters from outside the MSA's urban core. Of the 739,541 jobs in Franklin County in 2015, 279,058 are filled by workers from other counties, including 144,309 filled by workers who commute from the other nine counties in the MSA.[23] The number of in-commuting workers to Franklin County is documented in **Appendix J**, along with information regarding the rural percentage of each county.

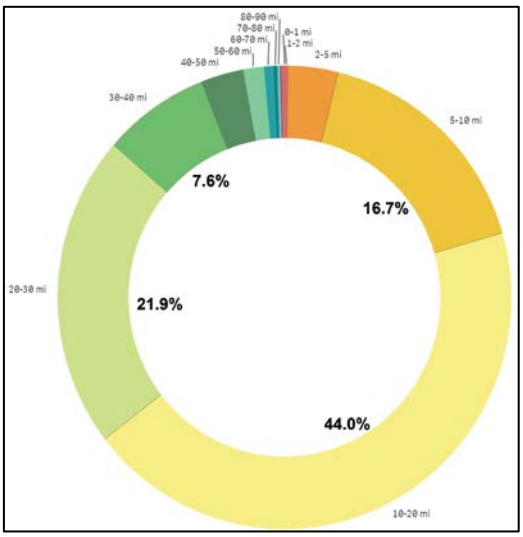

Figure 16 – Trip length for personal vehicles using the I-70/71 Overlap during peak hours.

This movement of workers from peripheral regions through the I-70/71 Overlap is evidenced in personal vehicle movements within the Columbus, OH MSA. A StreetLight Data analysis of personal vehicles travelling through the I-70/71 Overlap during peak AM and PM hours indicates a significant percentage of personal vehicle trips appear to use the I-70/71 Overlap to travel between the MSA's core and points towards the periphery: 21.9% of the total trip volume was 20-30 miles in length; 7.6% of the total trip volume was 30-40 miles in length; 3.1% of the total trip volume was 40-50 miles in length; 1.5% of the total trip volume was 50-60 miles in length; and 1.4% of the total trip volume was 60+ miles in length. Removing congestion barriers will provide a significant benefit to those commuting between the MSA's periphery and core.

[22] INRIX Research, Trevor Reed, Joshua Kidd, "INRIX Global Traffic Scorecard," last accessed February 21, 2019, full report available for download at: http://inrix.com/scorecard/.

[23] "Franklin County 2015 Inflow and Outflow Report," Ohio Labor Market Information, Ohio Department of Job and Family Services, last modified September 27, 2017, http://ohiolmi.com/census/Franklin_InflowOutflow.pdf.

7. Benefit Cost Analysis Summary

a. Introduction

A Benefit-Cost Analysis (BCA) has been performed to determine the value of quantifiable benefits that would be generated by Phase 4 of the Columbus Crossroads Project. It is contained in **Appendix G**. The benefits looked at as part of this BCA include travel time benefits from reduction in delay and a portion of the safety benefits. Other benefits will be generated from completion of Phase 4, however those are not quantifiable at this time. Other benefits, including safety benefits, emissions reduction benefits, and quality-of-life are just a few benefits that may result from this project, but are not quantified in this document. Therefore, the documented benefits are conservative and are likely higher than quantified in this report. A copy of the spreadsheet used to calculate the benefits is attached and titled "ColumbusCrossroadsBenefit-CostAnalysis".

Including initial construction and maintenance, Phase 4 will cost $238 million in real (2017) dollars over the life of the project (2044). The project will cost $140 million using a 7% discount over the life of the project (2044). The benefits are estimated to be $411 million at 7% discount over the life of the project. A summary of the annual costs and benefits can be found below.

b. Benefits

(1) Travel Time Delay Reduction Benefits

Delay reduction benefits for Phase 4 of the Columbus Crossroads Project were estimated using traffic volumes and microsimulation models. The traffic modeling software VISSIM was utilized to model the No-Build and Build conditions to determine the reduction of delay within the network. This breakdown in traffic flow occurs during morning and afternoon weekday peak periods. This impedes local residents trying to access downtown, but also impedes the large volume of through freight, commercial and regional traffic passing through the corridor. Phase 4's improvements are expected to eliminate 97% of these delays, making I-70 and I-71 a much more reliable route for through freight traffic and other regional trips. The project eliminates the existing I-70 eastbound loop ramp to SR 315 northbound. This will reduce traffic volumes feeding the adjacent section of SR 315, which is ODOT's #1 ranked location on their 2016 Congestion Priority list for freeways. The Build condition is predicted to save over 8,000 person-hours of delay daily in the Opening Year and up to 10,400 daily person-hours of delays by the Design Year. This results in over $38 million in lost time and productivity annually.

(2) Safety Benefits

Safety benefits for Phase 4 were calculated via the ODOT Economic Crash Analysis Tool (ECAT), which uses methodology from the AASHTO Highway Safety Manual (HSM) for calculating the expected crash reduction associated with roadway improvements. Crash reductions associated with the increase of I-70/71 eastbound through lanes from 3 to 4 lanes was calculated in ECAT. Using FHWA values for crash severity types, the ECAT program calculates over $800,000 in annual safety benefits. Other safety elements of this project, such as greatly reducing weaving traffic and stopped traffic, are not countermeasures that HSM/ECAT can calculate crash reductions for.

(3) Maintenance Costs Savings Benefits

The Phase 4 improvements will create nearly a $2 million savings in maintenance costs over its 20-year design life. These changes in maintenance costs are discussed in the sections below:

The existing bridges in the corridor are reaching the end of their lifespan. If they are not replaced, it is assumed that bridge redecking will be required to keep the bridges functional over the next 20 years. Phase 4 will replace 6 aging bridges – two that carry I-70/I-71, and four that carry downtown streets over I-70/I-71. Using a unit cost of $75 per square foot for bridge redecking, the project will result in a savings of nearly $7 million in bridge maintenance work that will no longer be required in the next 20 years. Additionally, the project will remove the Whittier Street Bridge over I-70/I-71, which has been closed to traffic for over 15 years. Without the project, it is assumed this bridge will need to be demolished during the next 20 years at a cost of approximately $0.5 million. The project will add 5 new bridges and remove 1 existing bridge, resulting in additional annual inspection costs. This has been estimated at a total of $8,000 annually.

It is assumed that pavement resurfacing of the new roadway will be required after 10 years. Based on historic costs for similar "mill-and-fill" projects, a unit cost of $9 per square yard ($1 per square foot) was assumed for the resurfacing. This unit cost was applied to the nearly 700,000 square feet of new pavement associated with

Phase 4. Approximately 140,000 square feet of removed roadway was debited out from the cost, as it will no longer need to be maintained. Costs for maintenance-of-traffic, inspection, and contingency were also included. The cost, in 2017 dollars, of the mill-and-fill pavement resurfacing is expected to be just under $800,000.

Annual maintenance savings for removed pavements and annual costs for new pavements, such as pavement markings and snow/ice removal, were also calculated. Based on ODOT data, the annual maintenance cost for a lane-mile of pavement is $100,000. This was applied to the net new 4.5 lane-miles projected, for an annual maintenance cost of approximately $450,000.

(4) Non-Quantifiable Benefits

In addition to the quantifiable benefits, Phase 4 will also have numerous non-quantifiable benefits:

- Improved Regional Connectivity – Regionally, the Build condition will add a second lane of I-71 northbound through the project area. The current interchange configuration only provides a single-lane ramp connection for I-71 northbound through traffic – the only single-lane portion of I-71 northbound between Louisville, Kentucky and Cleveland. The existing I-71 northbound also contains a 40 mile-per-hour curve. The proposed Phase 4 improvements will provide a new two-lane I-71 northbound connection designed for freeway speeds. This meets driver expectations that through freeway movements will have multiple lanes, and provide enhanced regional connectivity along the I-71 corridor.
- Improved Neighborhood Connectivity – On a neighborhood level, the Phase 4 improvements will provide improved connectivity across the I-70/I-71 freeway. The project will allow for the conversion of Front Street to two-way operations between Livingston Avenue and Mound Street, the final segment in the City of Columbus's long-term plan to convert Front Street from one-way to two-way. The Phase 4 improvements will also provide better pedestrian connectivity over the freeway. A new sidewalk connection will be constructed on the west side of Front Street. Existing sidewalks on High Street and Front Street will be upgraded, providing a better connection between downtown and the adjacent Brewery District and German Village neighborhoods to the south.
- Safety – In addition to the quantified safety improvements documented above, the Phase 4 improvements will have many other positive impacts on safety. The project will eliminate a major weaving section of traffic on I-70/I-71 between SR 315 and Front Street. Several segments of the project freeway have ranked among the highest on ODOT's Safety Priority list for excess crashes along urban freeway locations over the last decade, including the #26 and #33 locations on the 2016 list. As recently as the 2015 Safety Priority list, 3 of the top 10 urban freeway segments were within the project limits. Eliminating the congestion and weaving movements in the I-70/I-71 eastbound freeway will help to reduce crashes. Also, the existing I-70/I-71 eastbound ramp to Front Street is observed to back up onto the freeway during peak hours. The Phase 4 improvements will replace this relatively short ramp with a new, much longer connection that will keep stopped traffic from spilling out onto the mainline freeway system.

c. Costs

The project costs consist of two components: (1) cost of initial construction, and (2) maintenance costs. The methodology of estimating these project costs are explained in the sections below:

(1) Initial Construction Costs

Preliminary construction costs have been developed for Phase 4. Costs for roadway and pavement quantities were determined using Ohio Department of Transportation's Estimator software with unit prices generated by ODOT's interactive Bid History Catalog. Costs for erosion control, traffic control, maintenance of traffic, and utility work were established using ODOT's Procedure for Construction Budget Estimating spreadsheet and/or input from specific manufacturers. The preliminary cost estimates do not include costs for utility relocation. A 15% contingency was applied to the construction costs. The costs were converted to from current year dollars to forecast construction year (2021) dollars using the ODOT Office of Estimating Construction Cost Inflation Spreadsheet tool.

The remaining engineering design for Phase 4 is estimated to be 10% of the construction cost. Construction management and inspection is estimated to be 7% of the construction cost. Right-of-way costs were estimated based on property values of the affected parcels.

E. Leveraging of Federal Funding

This application requests a **$40 million** INFRA program grant award for Phase 4 of the Columbus Crossroads Project. The total request is less than 20% of Phase 4's estimated cost, and less than 3.1% of the combined cost (**$1.3 billion**) of all phases of the Columbus Crossroads project. ODOT would leverage the INFRA award to complete Phase 4's funding package. Phase 4's balance of federal and non-federal funds would be approximately **71.21% federal and 27.79% non-federal**. Other federal sources include State-designated Federal program funds, MPO delegated funds, and GARVEE Bonds. Non-federal funding sources include State Surface Transportation Preservation funding and City of Columbus local funding.

ODOT has used local partnerships to inject non-federal funding into Phase 4 of the Columbus Crossroads projects. The Columbus Crossroads project has leveraged a necessary maintenance and reconstruction project into a transformational project for the city and region. For Phase 4, ODOT and the City of Columbus have partnered to design and construct the improvements (better ramps, wider bridges, sidewalks, bicycle and pedestrian facilities, freeway caps, etc.) necessary to improve access to the Columbus Innerbelt Area, expand economic development opportunities, and reconnect Downtown Columbus to neighborhoods across the South Innerbelt Trench. The City of Columbus is contributing $27 million towards Phase 4, which is 12.47% of Phase 4's total cost. This amount of local contribution is quite significant for an interstate-freeway focused project, reflecting the strong partnership between state and local officials to complete the project as it has been envisioned.

F. Potential for Innovation

1. The accelerated deployment of innovative technology

ODOT and the City of Columbus look for ways to incorporate new and innovative technologies in their roadways. ODOT has previously installed Truck Parking Information and Management System (TPIMS) on I-70 beyond the limits of this project. TPIMS allows drivers find safe and convenient parking areas to rest and stage their freight just outside the city, and then utilize this project corridor for urban delivery. The parking information is displayed on ODOT's OHGO.com app, and on digital signs along the highway. Inside the city limits, ODOT has installed a Queue Warning System (QWS) that informs drivers of the presence of downstream stop-and-go traffic so that drivers can anticipate emergency braking or slow down, avoid erratic behavior, and reduce queuing-related collisions. For drivers headed east on I-70 towards the I-70/71 Overlap, the QWS is able to provide congestion warnings on overhead dynamic message signs based on real-time traffic detection, as ODOT has three radar detection sites between the QWS sign on I-70 EB and the conflict area at the I-70/71 Overlap. Phase 4 of the Columbus Crossroads Project will support the delivery of two additional innovative technologies in Downtown Columbus: (a) signal preemption technology; and (b) DC Fast Chargers for Electric Vehicles.

a. Signal preemption technology

The installation of signal preemption technology on Fulton Street and Mound Street is part of the improvements planned for the Columbus Crossroads Project as a whole. This technology is being installed for the benefit of Columbus Fire Division units responding from Columbus Fire Station 2, which is situated at the northwest corner of the intersection of Fourth Street and Fulton Street directly north of the highway trench, and transporting patients to OhioHealth Grant Medical, which is a Level 1 Trauma Center in Downtown Columbus. Opticom GPS priority emergency signal preemption for traffic signals will be installed at signals on both Mound Street, from Front Street to Fourth Street, and Fulton Street from Third Street to Washington Avenue. The overall phasing of the Columbus Crossroads Project means this aspect of the project will be completed over multiple phases, including Phases 4, 2C, 2D, Phase 2E, and Phase 2G. The City of Columbus has already installed fiber optic infrastructure for the signals on Fulton Street and Mound Street, and it is in the process of integrating signal preemption technology into its central traffic control system in other areas of the city.

b. DC Fast Chargers for Electric Vehicles

The City of Columbus is planning to install the infrastructure necessary for electric vehicle DC fast chargers on Fulton Street. The infrastructure will be situated just outside of Phase 4's project area on Fulton Street as part of Phase 2G. The DC fast chargers will be privately installed and maintained after the infrastructure is in place. However, installing and maintaining the DC fast chargers will not be economically viable unless there is a critical mass of users who can easily reach these stations. Phase 4's improvements to the exit for eastbound traffic entering Downtown Columbus on Fulton Street help ensure a critical mass of users are able to easily access the DC fast chargers while travelling eastbound through the Downtown.

2. Use of innovative permitting, contracting, and other project delivery practices

ODOT has incorporated two innovative aspects regarding Phase 4's project delivery: (a) ODOT's Performance Based Project Development (PBPD) process, and (b) ODOT's NEPA Assignment.

a. Performance Based Project Development (PBPD)

ODOT has adopted PBPD as a planning and design philosophy that proposes targeted, right sized improvements based on a project's specific needs. This philosophy places less emphasis on strict adherence to design standards and more significance on safety and operational performance. PBPD techniques were used in the development of phases for the Columbus Crossroads Project. Phase 4 proposes a deviation from standard shoulder widths in order to allow space for an additional northbound lane for I-71 through the west interchange, which will advance improvements to safety and reduce congestion as part of this project phase. A future phase of the project will reconstruct the I-70/71 bridge over the Scioto River, which will include the standard shoulder width.

b. NEPA Assignment

The Environmental Assessment for the Columbus Crossroads Project was approved and a **Finding of No Significant Impact (FONSI) was issued on July 8, 2009**. A reevaluation is currently being prepared for Phase 4 of the Columbus Crossroads Project to address construction access and the multi-year construction schedule along the Lower Scioto Bikeway that crosses the project area. ODOT is one of a handful of states nationwide that has, under NEPA Assignment, the authority to assume the FHWA's NEPA responsibilities. ODOT's NEPA Assignment ensures a single point of contact that understands both project details and the regulatory process. As ODOT is best suited to ensure compliance with all local agreements and partner commitments, as well as Federal NEPA requirements, coordination inefficiencies have been dramatically lessened using this approach, eliminating extra steps in the review/approval process which can adversely affect the overall project schedule. This innovative delivery method allows ODOT to streamline the environmental approval process for this reevaluation. When ODOT entered into the NEPA Assignment Program, it estimated the reduction would equate to approximately 20% time savings for our overall program. Since implementation of NEPA Assignment in Ohio, ODOT has saved approximately 2,970 days of review time and approximately $17.7 million dollars.

3. Innovative financing

There are significant efforts to develop innovative funding and financing for future projects, including (a) proposed gas tax increases at the state level, (b) additional vehicle registration fees at the county level, and (c) tax increment financing at the local level. However, none of these sources are ready for Phase 4.

a. Innovative financing – state efforts

The State of Ohio has prioritized raising additional non-federal revenue for transportation infrastructure investment. Governor DeWine created the Governor's Advisory Committee on Transportation Infrastructure in January 2019. The Governor instructed the committee to "study the current conditions of Ohio's roadways and recommend options for maintaining and enhancing the state's transportation infrastructure."[24] The Advisory Committee recently recommended increasing the gas tax.[25] Governor DeWine has adopted the committee's recommendation, and recently submitted his transportation budget which proposed an immediate 18-cent gas tax increase, with the tax to automatically increase with inflation. ***If approved*** by the General Assembly, the full increase would take effect July 1, 2019 and generate an estimated **$1.2 billion** in additional gas tax revenue, with 60% of the funds going to the state and 40% going to local government entities.[26]

It remains to be seen whether the increase will be approved, and, if approved, in what amount. However, increasing the gas tax enjoys significant support. Fix Our Roads Ohio (FOR Ohio) is one coalition of stakeholders advocating for the increase. Its membership includes MORPC, the Columbus Chamber of Commerce, the Central Ohio Mayors and Managers Association, Ohio Municipal League, the Ohio Mayors Alliance, the Ohio Council of County Officials, the County Engineers Association of Ohio, the Ohio Association of Regional Councils, and the

[24] "Governor DeWine Announces Creation of Governor's Advisory Committee on Transportation Infrastructure," Office of the Governor, State of Ohio, January 28, 2019, https://governor.ohio.gov/wps/portal/gov/governor/media/news-and-media/012819b.
[25] Marty Schladen, "Governor's panel recommends Ohio gas tax hike, but no amount given," *The Columbus Dispatch*, February 15, 2019, https://www.dispatch.com/news/20190215/governors-panel-recommends-ohio-gas-tax-hike-but-no-amount-given.
[26] Jim Siegel, "Lawmakers must now decide whether to back major gas tax increase," *The Columbus Dispatch*, last updated February 21, 2019, https://www.dispatch.com/news/20190221/lawmakers-now-must-decide-whether-to-back-major-gas-tax-increase

Ohio Rural Development Alliance.[27] FOR Ohio is also advocating for levying an Alternative Fuel Vehicle Fee, studying alternatives to the motor fuel vehicle user fee, and identifying a dedicated funding source for public transit.[28]

b. Innovative financing – regional efforts

Efforts to create new non-federal revenue for transportation infrastructure investment are not limited to the City of Columbus' corporate limits. Regional efforts have involved (1) expanding the local permissive tax, and (2) discussing the creation of a Transportation Improvement District.

Local government stakeholders worked with the Ohio General Assembly in 2017 to craft and pass legislation that allows county governments to add an additional $5 fee to the cost of vehicle registrations to generate funding for road and highway improvements. Franklin County, where the Columbus Crossroads Project is located, opted to enact the fee in 2018 and generating more than $5.5 million annually, in addition to existing permissive taxes collected from vehicle registrations. These funds will be leveraged with existing transportation funding to advance major roadway projects throughout the county.

Regional discussions are underway to create a Transportation Improvement District (TID) in Franklin County. A TID is authorized by Ohio Revised Code 5540, and it is an innovative and collaborative government body that could potentially provide funds to be leveraged with city, state, and federal resources in order to complete larger, more impactful projects on a shorter timeframe. TIDs have authority to collect revenues over multi-year agreements with project funders and can issue their own bonds, outside of the bonding authority of local government partners, to accelerate project construction. This funding source and structure could potentially benefit subsequent Columbus Crossroads Project phases as a result.

c. Innovative financing – local efforts

The City of Columbus' actively seeks to identify and create new non-federal revenue for Transportation Infrastructure Investment. Local efforts include (1) tax increment financing, (2) private contributions, (3) public-private partnerships, and (3) lease revenue.

The City of Columbus uses Tax Increment Financing (TIF) as one of its primary mechanisms for creating new, non-federal revenue to support infrastructure improvements. TIFs allow the city to redirect new property tax revenues to invest in infrastructure that supports ongoing development. Since January 1, 2015, the City of Columbus has created seven TIFs, which are expected to generate significant non-federal revenue for transportation infrastructure investment by December 31, 2027.[29]

The City of Columbus also works regularly with developers and other private entities that benefit from transportation infrastructure projects to identify ways for these entities to contribute to these projects. For example, Nationwide Children's Hospital will benefit significantly from the City of Columbus' Livingston Avenue Phase C project, which directly connects to the Phase 4 improvements. NCH has agreed to contribute $1,000,000 towards design costs, and it has also agreed to donate land for right of way valued at $320,000. The City of Columbus has also used public-private partnerships to create non-federal revenue for local infrastructure projects.

Finally, the City of Columbus believes it will be possible to use lease revenue generated by any future commercial cap on the Third Street Bridge and place the revenue in a fund for transportation improvements. The precise timeframe for this funding would depend upon whether a developer is found for the commercial cap and a lease agreement approved by the Columbus City Council prior to designs being completed. The fund would be created at the same time the commercial lease agreement is approved by the Columbus City Council.

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[27] "Fix Our Roads Ohio Coalition," FOR Ohio, last accessed February 17, 2019, https://fixourroadsohio.com/meet-the-coalition/. FOR Ohio is also advocating for levying an Alternative Fuel Vehicle Fee, studying alternatives to the motor fuel vehicle user fee, and identifying a dedicated funding source for public transit.

[28] "Case Statement," FOR Ohio, last accessed February 17, 2019, https://fixourroadsohio.com/wp-content/uploads/2019/02/16469-OCIA-FIX-OUR-ROADS-Case-Statement-Brochure-2.11.19.pdf, pp. 6-7.

[29] The following seven TIFs have been created since January 1, 2015: Polaris II TIF, Dublin Granville West TIF, Milo-Grogan TIF, Jaeger Site TIF, Buggyworks TIF, Brice Road TIF, and West Goodale TIF.

G. Performance and Accountability

ODOT commits to start construction for Phase 4's western portion in 2020. This is well in advance of the required March 2024 construction start deadline. Once construction is complete, ODOT commits to measuring project success by comparing the following two factors at regular intervals before and after construction: (1) travel time performance, and (2) bottlenecks. Travel Time Performance is the percent of time motorists can travel at or near (90%) of the reference speed (free-flow/ uncongested speed defined by data provider). The 70/71 Overlap was measured as the 2nd worst freeway segment for travel time performance in Ohio for 2018. A potential bottleneck is detected when speeds on a segment drop to 65% of reference speeds and cause at least a two-minute delay. The segment of I-71 approaching the overlap is expected to improve most in this measure. These metrics are already part of ODOT's Traffic Operation Assessment Systems Tool (TOAST), which it uses to make data-driven decisions and determine operationally sensitive corridors.[30]

Once construction is complete, the facilities will be maintained by both ODOT and the City of Columbus. Maintenance agreements will be executed to clearly establish each entity's roles and responsibilities. These agreements will ensure that neither party diverts funds or services that they are obligated to provide. In addition to these formal protections, both entities have significant experience coordinating maintenance and preservation tasks, individually and jointly. Both entities have established processes and guidelines for maintaining assets, and ODOT has developed a Transportation Asset Management Decision Support Tool (TAM_DST)[31] to aid in its preservation and maintenance efforts statewide. Finally, parties have the funding sufficient for the maintenance and preservation needs. ODOT can draw funds from multiple sources, including its State Surface Transportation Preservation funds. The City of Columbus can also draw funds from multiple sources, including its Street and Highways Bond Fund. According to the BCA, the total maintenance expenditures over the project lifecycle are expected to be $10.5 million.

VI. Project Readiness

A. Technical Feasibility

The Columbus Crossroads Project is proposed to improve safety and reduce congestion at the crossroads of I-70 and I-71. The proposed improvements were recommended based on operational efficiency, local accessibility, mobility, safety, environmental and community issues, constructability, cost effectiveness and cost. The Columbus Crossroads Project will reconfigure the freeway system interchanges and add lanes for improved route continuity, reducing the amount of lane changes in the I-70/71 Overlap. Additionally, the project will consolidate ramps serving the downtown area through the use of one-way urban avenues. This will reduce the number of freeway access points and minimize the amount of weaving traffic on the freeway. Even though the number of access points will decrease, the urban avenues will allow easy access to all city streets that cross the freeways.

Phase 4 will consolidate two eastbound ramps to one location in order to reduce the weaving traffic along I-70/71. It will connect this new ramp to the downtown street network by reconstructing Fulton Street for one-way eastbound traffic between Front Street and High Street, connecting with the portion of Fulton Street that was reconstructed as part of previous phases of the Columbus Crossroads Project. Additionally, Phase 4 will add a continuous lane for northbound I-71 from SR 315 to the I-70/71 East Interchange, reducing the amount of lanes changes and increasing the freeway capacity. These improvements will improve safety and reduce congestion along eastbound I-70/71. The South Innerbelt Trench renderings in **Appendix A** and the project schematics in **Appendix K** help illustrate Phase 4's planned improvements.

The need to relocate the westbound ramp out of Downtown Columbus onto I-70/71 requires staggering Phase 4's construction, and likely selling the project as two separate contracts. The western portion of Phase 4 (west of and including the Front Street bridge) – currently designated as Phase 4R – has an anticipated March 2020 sale

[30] "TOAST: Traffic Operation Assessment Systems Tool," ODOT, last visited March 1, 2019, http://www.dot.state.oh.us/Divisions/Operations/Traffic-Management/Documents/TOAST%20One-Pager.pdf.

[31] TAM_DST is a web based application that lets users extract relevant information on ODOT assets, roads, bridges, culverts, etc. for display in reports and on maps. The application is broken down into 5 areas of reports: Inventory, Performance, Planning, Asset Expenditures, and Maintenance. The application also works in companion to TIMS (Transportation Information Mapping System) allowing the user to run a report and render the results into the TIMS application with full utilization of the mapping tool. This is a one of kind Business Intelligence (BI) application that will further enhance the decision making and return efficiencies to ODOT's investment portfolio.

date, with construction to begin shortly after its sale. The eastern portion of Phase 4 will commence once the westbound ramp has been relocated. The eastern portion of Phase 4 is planned to sell July 1, 2022, with construction to begin shortly after its sale.

Based on the August 10, 2010 Revised Interchange Modification Study, the project is expected to obtain a Level of Service (LOS) of D or better for all freeways and ramps within the Columbus Crossroads Project area in the 2035 design year. Additionally, an LOS of D or better will be obtained at all the urban avenue intersections with city streets.

While some additional design exceptions have been approved on an interim basis, Phase 4 will require interim design exceptions at isolated locations for a reduced shoulder width, vertical clearance and a vertical curve until a future phase of the Columbus Crossroads is constructed. These design exceptions are similar to ones that were approved by ODOT and FHWA for previous phases of the Columbus Crossroads.

Improvements proposed in Phase 4 for Fulton Street and the Front Street, High Street, Third Street, and Fourth Street bridges over I-70/71 are necessary to improve mobility along the corridor. As shown in **Figure 3** and **Appendix A**, Fulton Street will be reconstructed with sidewalks that have bulb-outs at intersections for shorter pedestrian crossings, enhanced crosswalks that will be more visible to drivers, and new traffic signals that will control vehicle traffic to allow for pedestrian crossings at intersections. A new bike lane is proposed along Fulton Street and bus pads will be constructed for new Central Ohio Transit Authority bus stops. The city street bridges over the freeway will be rebuilt with wider, 10 foot sidewalks, along with adjacent greenspace, to encourage pedestrians crossing the freeway corridor between downtown and the adjacent neighborhoods. These proposed features of the project will improve safety for pedestrians and bicyclists, along with encouraging the use of alternative modes of transportation through the corridor. These features will also tie-in with the urban avenue improvements that the City of Columbus is completing during related projects.

Phase 4 includes the construction of new retaining walls along both sides of the freeway in order to minimize the environmental impact and right of way acquisition needed. These walls will reduce the effect on the Brewery District and German Village, which are both listed on the National Register of Historic Places.

B. Cost Estimate

Final Design cost estimates are available for Phase 4R and 4H. Preliminary 50% design complete cost estimates were developed for Phase 4B and will be updated as the project planning and design is further developed. Costs for roadway and pavement quantities were determined using ODOT's Estimator software with unit prices generated by ODOT's interactive Bid History Catalog. Costs for erosion control, traffic control, maintenance of traffic, and utility work were established using ODOT's Procedure for Construction Budget Estimating spreadsheet and/or input from specific manufacturers. The preliminary cost estimates include costs for the relocation of public utilities that will be included with the project, but do not include costs for private utility relocations that will be necessary. A 20% contingency was applied to the construction costs for non-itemized pay items and for the uncertainty associated with the preliminary plans available at this time. Design engineering was estimated as 10% of the proposed construction cost and construction engineering was estimated as 7%, based on ODOT's historical average for this type of work. Right of way acquisition costs are estimated to be $6.1 million. The costs were converted from current year dollars to forecast construction year (2020) dollars using the ODOT Office of Estimating Construction Cost Inflation Spreadsheet tool. The total project cost for Phase 4 is estimated $213 million.

C. Risk Mitigation

As part of the planning and preliminary engineering process, alignments, profiles and preliminary cross sections have been prepared for all of Phase 4, along with type studies for bridges and retaining walls. These were used to develop project construction limits for the NEPA documentation, which determined environmental commitments for the project.-The western portion of Phase 4 has been further developed with final design plans submitted in January 2019. Right of way acquisition has started for this portion of the project and is anticipated to be completed by July 2019. This accounts for more than 95% of the right of way required for Phase 4. A significant amount of the work has already been completed for the project, making delays going forward less likely. This project is ideally suited for quick progression to construction. The known risks to scope, schedule and budget are

minimal, and it is the applicants' understanding that the project was determined to be low risk during evaluation of the 2018 BUILD application for the same scope.

D. Environmental Risk Mitigation

The NEPA Environmental Assessment (EA) has been completed and a FONSI has been obtained for the project. Petroleum contaminated soils and other buried regulated materials are present at some locations along the project corridor and will need to be disposed of according to ODOT standard procedures. The necessary provisions are being included in the project construction plans for this work. Freshwater mussels were found in the Scioto River and, in order to avoid harming these species, ODOT will relocate the all mussels prior to project construction. The minimal impacts to the Scioto River are known as they were identified in the EA. Stream mitigation will be developed as part of the Army Corps of Engineers' (ACE) Section 404 permitting process. A 408 permit required for construction impacts to flood control infrastructure has been submitted and will have a 4 month review by the ACE. The approval is expected by the end of June 2019. An environmental reevaluation is currently being prepared to address potential Section 4(f) and 6(f) park impacts during construction. This is scheduled to be completed by July 2019.

1. Utility Relocation Risk Mitigation

The location of existing utilities and ownership has already been identified using Level B subsurface utility location techniques throughout the project corridor. Public water, and sewer, electric and telecommunication utilities are proposed to be relocated as part of the construction contract and have been planned to the level of detail matching the rest of the project improvements. In addition, there have been regular coordination meetings held with private utility owners with facilities along the corridor regarding their facilities, including AEP overhead and underground electric lines, AT&T overhead and underground telecommunication lines, Columbia Gas lines. Columbia Gas has already relocated its facilities and is clear of the proposed project. AEP has also relocated their overhead transmission line near Short Street. AEP will be relocating another portion of the overhead facilities later this year. Coordination has occurred with AEP regarding the relocation of an underground 138kV line that lies under the freeway between Third and Fourth Streets. If INFRA grant funds are obtained, then final planning and relocation will occur prior to the sale date in mid-2022. AT&T is currently preparing relocation plans for their facilities.

2. Construction Cost Mitigation

Inflation is an important element of risk to account for within the estimate of cost. Annual construction cost inflation in the past 15 years has been as high as 12% in FY 2006 and as low as -3% in FY 2010. For ODOT, inflation over the past 15 years has averaged over 3.6%. ODOT has developed a process of updating an inflation forecast in January and July to stay on top of any inflationary developments.

Inflation is not a discount rate. Inflation is applied to an estimate of cost because we expect the price of inputs into a construction project to change over time. Federal Highway Administration guidance suggests calculating year of expenditure costs for all the major elements of a project, accounting for differing inflation rates for each. ODOT's construction cost mitigation process, which incorporates applicable FHWA guidance, is being followed for Phase 4 to minimize the risk of escalating construction costs.

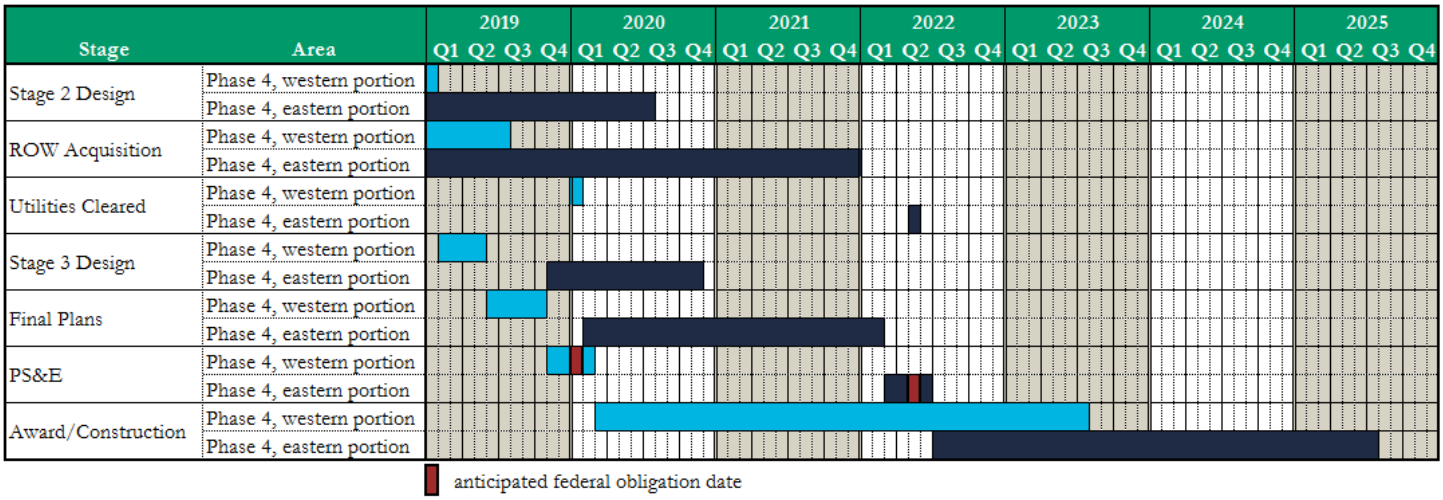
3. Right of Way Risk Management

Phase 4 will require the acquisition of permanent right of way and temporary construction easements. Most of the right of way acquisition is necessary for the portion of the project west of Front Street. Acquisition for this part of the project was authorized in November 2015, is underway and is planned to be acquired by July 2019. The remaining right of way acquisition will be authorized in October 2019 and acquired by January 1, 2022.

E. Project Schedule

The project has completed the NEPA process and has received the Finding for No Significant Impact (FONSI) on July 8, 2009. It also received IMS approval by the Federal Highway Administration on July 10, 2009. The first part of Phase 4 can begin construction quickly upon obligation of the INFRA funds and the grant funds will be spent expeditiously one construction starts. The right of way plans are complete and acquisition has begun for the western portion of the project (west of and including the Front Street bridge), which includes over 95% percent of the right of way required for Phase 4. ODOT anticipates acquisition to be completed by the end of July

2019. The design plans for the western portion of the project have been completed up to Stage 3, in accordance with ODOT's project development process.



As shown in the schedule **above**, the Stage 2 Design and Final Right of Way Plans would only need to be completed for the relatively short portion of the project east of Front Street in order for the final plans to be completed with the rest of the project to meet the September 2022 obligation date. The project is included in local and state transportation plans as noted in the following **Required Approvals** section. The project is moving forward with the design, right of way acquisition and construction per the detailed project schedule.

All necessary activities to complete Phase 4 will allow the INFRA funds to be obligated in advance of the September 30, 2022 obligation deadline, and for construction to commence well before the March 30, 2024 construction start deadline.

F. Required Approvals

The Columbus Crossroads Project has completed the NEPA process and gained approval of the following documents on the dates noted:

- On July 8, 2009, the Federal Highway Administration issued a Finding of No Significant Impact (FONSI) for the I-70/71 South Innerbelt Project, FRA-70-8.93 PID 77369. The FONSI was based upon an Environmental Assessment (EA) from December 2008 and a Final Section 4(f) Evaluation from June 2009.
- On September 22, 2010, the FHWA approved the Environmental Reevaluation prepared to confirm the 2009 FONSI was applicable to the first of the six smaller projects: Phase 1 – I-71/I-670 Interchange (FRA-71-17.76 PID 77369).
- On May 20, 2015, the FHWA approved the Environmental Reevaluation prepared to confirm the 2009 FONSI was applicable to Phase 2 – I-70/71 East Interchange, Phase 3 – I-71 East Trench, and Phase 6 – I-70/71/SR 315 West Interchange. At that time, Phase 6 included construction of new eastbound and westbound bridges over the Scioto River, CSX Railroad, and Short Street. It also involves reconstruction of the Mound Street and High Street bridges over I-70/71, a new off-ramp bridge to Fulton Street, and work on portions of Fulton and Front Streets.
- IMS was approved by FHWA on July 10, 2009.

All of the NEPA documents associated with the project can be found at the following link: http://www.dot.state.oh.us/projects/7071/environmental/Pages/default.aspx.

The EA, which can be found at the link above, includes discussions with the appropriate agencies and the link contains the approval showing compliance with NEPA and the applicable Federal environmental reviews and approvals. Chapter 4 of the EA includes a summary of the agency coordination and a description of public engagement about the project that has occurred and the commitments made.

The project is included:

- As part of #270 on the MORPC 2016-2040 Metropolitan Long Range Plan, which can be found at the following link: http://www.morpc.org/mtp2040/.
- On the MORPC 2018-2021 Transportation Improvement Plan (TIP) as #2874 and #3295.
- I-70 and I-71 are part of the Interstate System and are included in the Ohio 2040 Long Range Transportation Plan, which can be found at the following link: http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/access.ohio/AO40_library/ODOT AccessOhio2014.pdf
- I-70 and I-71 are part of the Primary Highway Freight System (PHFS) per the February 2018 Transport Ohio Statewide Freight Plan, which can be found at the below link: http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/Documents/ODOT_FreightPlan_Updated%203.21.18.pdf

G. Assessment of Project Risks and Mitigation Strategies

With the completion of the NEPA document, FONSI approval and IMS approval, risks moving forward with the Phase 4 of the Columbus Crossroads Project have been minimized. As previously detailed in ***Section V*** under ***Technical Feasibility, Risk Mitigation***, the potential for encountering petroleum contaminated soils and other regulated materials during construction are known as they were identified in the NEPA document and will be addressed as part of construction contract provisions. The relocation of freshwater mussels will be completed prior to the project construction and stream mitigation will be developed as part of the COE Section 404 permitting process. Preparation of a COE 408 permit is currently underway and is expected to be obtained well in advance of the project construction start. The relocation of utilities has already started for Phase 4 and the planning and coordination necessary for relocating the remaining utilities is also underway. Project costs have included a contingency percentage and have been escalated for inflation using ODOT's process, which has been developed to stay on top of fluctuations in construction pricing. Right of way acquisition for most of Phase 4, west of Front Street, has been authorized and is to be acquired by July 2019, minimizing the impact of future land value increases. If the requested INFRA funds are committed to Phase 4, the acquisition of the remaining 5% of the parcels will start in July 2020, more than 3 years before the construction deadline of March 30, 2024.

Commitments from MORPC Attributable Funds and the City of Columbus are included in **Appendix C**. These demonstrate the commitments to funding the balance of the Phase 4's costs as well as to the legislative approval if the INFRA funds are made available.

VII. Large/Small Project Requirements

1. Does the project generate national or regional economic, mobility, or safety benefits?

Yes. The project generates economic, mobility, and safety benefits on both a regional scale and a national scale.

2. Is the project cost effective?

Yes. Including initial construction and maintenance, Phase 4 will cost $238 million in real (2017) dollars over the life of the project (2044). The project will cost $140 million using a 7% discount over the life of the project (2044). The benefits are estimated to be $411 million at 7% discount over the life of the project.

3. Does the project contribute to one or more of the Goals listed under 23 U.S.C. 150 (and shown below)?

(1) Safety. Yes. In 2015, three of the top ten freeway crash locations in Ohio were segments situated in the I-70/71 overlap. Phase 4, in conjunction with Phase 2E's, is projected to **eliminate 95% of the weaving has made this public road so dangerous.**

(2) Infrastructure condition. Yes. The pavement within the project area has exceeded its service life and is in need of replacement and reconstruction. The current condition of the at-grade bridge structures carrying eastbound I-70/71 is in "good" condition and the four overhead bridges range from "fair" to "poor". Phase 4 will restore the good condition of roadways and bridges that supports freight movement and economic growth, and will reset the maintenance cycle, saving $5.5 million within the next five to eight years.

(3) Congestion reduction. Yes. Phase 4 will eliminate one of the top truck bottlenecks in the country and, in conjunction with Phase 2E, reduce travel time delays in the I-70/71 Overlap by 97%.

(4) System reliability. Yes. Addressing significant congestion and safety issues will improve the overall efficiency of the surface transportation system by reducing the trip duration and trip speed differentials between peak and non-peak hours.

(5) Freight movement and economic vitality. Yes. This project will improve national, regional, and local freight movement by removing one of the top truck bottlenecks in the county; it will support economic growth in Central Ohio; and it will make it easier for workers to use I-70/71 to commute to employment centers in Downtown Columbus and across the region, especially workers commuting from surrounding counties who are unable to use local surface roads in Downtown Columbus to avoid congestion.

(6) Environmental sustainability. Yes. The NEPA Environmental Assessment (EA) has been completed and a FONSI has been obtained for the project. The inclusion of pedestrian and bicycle facilities on the bridges spanning the I-70/71 trench will increase the viability of bike and pedestrian modes. The planting of street trees on Phase 4's bridge caps and urban avenues will improve air quality in and around the trench.

(7) Reduced project delivery delays. Yes. As mentioned in the Potential for Innovation section, Ohio is already a leader in reducing project delivery time. In addition to further refining existing NEPA models on this project, ODOT will consider new innovations or partnerships with USDOT, FHWA, or local partners to deliver the improvements as quickly as possible.

4. Is the project based on the results of preliminary engineering?

Yes. Preliminary Engineering has already been completed for all project components; The NEPA EA has been completed; and a FONSI has been obtained for the project.

5a. With respect to non-Federal financial commitments, does the project have one or more stable and dependable funding or financing sources to construct, maintain, and operate the project?

Yes. This project has multiple stable and dependable sources to construct, maintain, and operate the infrastructure, as detailed in the Leveraging of Federal Funding merit criteria section. Construction of the project is backed by significant non-federal funds committed by both the State of Ohio ($33.2 million) and the City of Columbus ($27 million). ODOT and the City of Columbus will maintain and operate the infrastructure once it is constructed. Both entities have the technical expertise, financial resources, and program experience necessary to operate the infrastructure and maintain it in a state of good repair.

5b. Are contingency amounts available to cover unanticipated cost increases?

Yes, the current project cost estimates include a $20,675,980 contingency. This contingency has been developed based on the amount of preliminary engineering and design development that has already been completed. Additionally, ODOT and the City of Columbus will absorb any additional cost overruns that exceed the contingency.

6. 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?

Yes, the Columbus Crossroads Phase 4 cannot be easily and efficiently completed without other Federal funding or financial assistance. Limited funding forced ODOT to further divide Phase 4 the project into Phases 4R, 4H, and 4B. However, this is not the preferred approach. Subdividing Phase 4 is financially inefficient because it increases the costs for each sub-phase. Subdividing Phase 4 is operationally inefficient because Phase 4 was developed as a single phase. All of its improvements work together as a system to optimize the national, regional, and local benefits. This optimization is only realized once all the Phase 4 improvements have been constructed. While executing a single Phase 4 is financially and operationally efficient, it is financially impossible without the additional influx of INFRA Grants program funding.

7. Is the project reasonably expected to begin construction not later than 18 months after the date of obligation of funds for the project?

Yes. The western portion of Phase 4 will be ready to sell March 2020, and construction is expected to begin as soon as Summer 2020. The remaining components will be ready for obligation in advance of September 30, 2022, as detailed in the Project Readiness Section.