



Fiscal Year  
2019  
Research  
Program

**(July 1, 2018 – June 30, 2019)**

Ohio's Research Initiative for Locals  
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Columbus, Ohio 43223

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In cooperation with the  
Ohio Department of Transportation, Office of Statewide Planning and Research  
Ohio Department of Transportation, Ohio Local Technical Assistance Program and the  
U.S. Department of Transportation, Ohio Division of the Federal Highway Administration

**Ohio's Research Initiative for Locals (ORIL)** is a program designed to provide practice-ready solutions to real-world issues faced on Ohio's local transportation system through research. A collaborative effort between the Ohio Department of Transportation, the Ohio Township Association, the County Engineers Association of Ohio, the Ohio Municipal League, and Ohio's institutions of higher education, ORIL is overseen by a Board consisting of 15 voting members and 3 support members

**ORIL Mission:**

*ORIL develops, funds, and oversees transportation research projects to meet the needs of local agencies for the safety and economic well-being of the traveling public.*

**ORIL Vision:**

*ORIL with self-sustaining funding, identifies, manages, and facilitates strategic research that solves local transportation challenges with implementable and cost-effective solutions.*

**ORIL Board:**

Organization Represented	Members
<b><i>Voting Board Members</i></b>	
County Engineers Association of Ohio	Mark Eicher, Muskingum County Steve Luebbe, Fayette County Warren Schlatter, Defiance County Bart Dennison, Morrow County
Ohio Municipal League	Steven Bergstresser, City of Kettering Brian Thomas, City of Findlay Leo Shanayda, City of Springfield James Young, City of Columbus
Ohio Township Association	Greg Butcher, Violet Township
Ohio Department of Transportation	Jennifer Elston, District 8 Matt Chaney, District 4 Chase Wells, Central Office Brian Olson, District 4
Academia/Researchers	Rui Liu, Kent State University William Schneider, The University of Akron
<b><i>Support Board Members</i></b>	
FHWA Ohio Division Office Ohio LTAP Center ODOT Statewide Planning & Research ODOT Statewide Planning & Research	Frank Burkett Mike Fitch Vicky Fout Michelle Lucas

## **2019 Strategic Research Focus Areas:**

### Safety

Ensuring the safety of those utilizing and maintaining our transportation system is a priority for all transportation agencies. The traveling public expects the system to meet their individual needs in a manner that is safe, convenient, economic, and efficient with minimal disruption to their daily routines. In addition, protection for roadway crews working on-location is a prominent concern. Identifying, developing, and implementing corrective strategies before hazardous events occur is key to advancing a safe and reliable transportation system. For local agencies the identification of cost appropriate, yet effective, safety measures can often be a challenge.

### Renewal/Infrastructure

Without meeting basic maintenance needs, pavements, bridges, signs, guardrail, pavement markings and other roadway features would degrade to the point of being hazardous. The major challenge is to sustain these conditions in a time of declining resources. As our infrastructure ages, it is important to find ways to preserve existing facilities, especially pavements and bridges, while improving design and construction methods which produce reliable, long-lasting facilities.

### Operations & Business Practices

Local transportation agencies face a variety of challenges based on their geography, traffic, population density, funding, equipment, staffing, local expectations, governmental structure and history. The identification and evaluation of best practices can be difficult, given the uniqueness of individual organizations. The ability to be aware of existing research and its local applicability can be a challenge for local agencies.

## **Program Funding:**

Funding for ORIL research projects is provided through the Ohio Department of Transportation's (ODOT's) State Planning and Research Part 2 (SP&R2) program. A total of \$500,000 was initially budgeted in ODOT's SP&R2 program to support ORIL projects during fiscal year (FY) 2019. All FY2019 ORIL funding is at a ratio of 80% federal SP&R2 funds with the mandatory 20% matching funds provided by ODOT utilizing state funds. ODOT's Research Section provides oversight of all federal and state funds utilized by ORIL. In addition, ODOT's Research Section acts as the contracting agent for ORIL and provides administrative support.

In support of research projects that incorporate aspects of both the state and local transportation systems, ODOT's Research Section has collaborated with ORIL to initiate more comprehensive studies. In these instances, ODOT's Research Section has provided financial contributions to the projects through its traditional SP&R2 program at a funding ratio of 80% federal funds and 20% state funds. The program overview (page 3) denotes the difference between the ORIL (i.e.: local focused) and ODOT (i.e.: state focused) budgets/programs. A total budget is provided to highlight the overall value of ORIL, the local research program.

All projects listed in this program book are also included in ODOT's FY2019 Research, Development and Technology Transfer program book, which was approved by the Ohio Division of the Federal Highway Administration on June 22, 2018.

**FY2019 Proposed Projects** (Projects anticipated to begin after July 1, 2018)

RFP #	Project Title	Project Duration	FY2019 ORIL Funding	FY2019 ODOT Funding	Total Budget (estimated)
2019-ORIL1	Analysis of Aramid Synthetic Fibers in Asphalt Mixes on Local Roads	24	\$231,995.54		\$231,995.54
2019-ORIL2	Synthesis of Regulations and Laws Pertaining to Roadway/Rail Line Intersections on Ohio's Local Transportation System	10	\$100,000.00		\$100,000.00
2019-ORIL3	Investigating Tools for Evaluating Service and Improvement Opportunities on Bicycle Routes on Ohio's Local System	12	\$99,955.71		\$99,955.71
2019-ORIL4	Evaluation of Partial Depth Pavement Repairs on Routes Heavily Traveled by Amish Horse and Buggies - Phase 2	36	\$79,855.84	\$285,961.37	\$365,817.21
2019-ORIL5	Asphalt Mix Overlay Alternative for Low Volume Roads on the Local Transportation System	24	\$159,908.00		\$159,908.00
<b>Total Estimated Budget for FY2019</b>			<b>\$671,715.09</b>	<b>\$285,951.37</b>	<b>\$957,676.46</b>

**FY2019 Active Projects** (Projects began prior to June 30, 2018. All funds encumbered during previous fiscal years.)

SJN	Project Title	ORIL Funding	ODOT Funding	Total Funding
135536	Best Practices for Chip Sealing Low-Volume Roads in Ohio Agency: Ohio University PI: Roger Green Start Date: April 4, 2017 End Date: October 24, 2018	\$127,753.45		\$127,753.45
135330	Optimizing the Effectives Use of RAP in Local Roadways Agency: Ohio University PI: Munir Nazzal Start Date: October 24, 2016 End Date: May 24, 2019	\$258,379.33		\$258,379.33
135519	Streamlining Local-let Federal-aid Transportation Processes in Ohio Agency: Ohio University PI: Benjamin Sperry Start Date: August 1, 2017 End Date: February 1, 2019	\$169,754.75		\$169,754.75
135520	Best Practices for Pavement Restoration of Open Cut Utility Installations/Repairs on Local Roadways in Northern Ohio Agency: Ohio University PI: Mary Robbins Start Date: September 1, 2017 End Date: March 1, 2019	\$117,431.45		\$117,431.45
<b>Total Budget for FY2019</b>		<b>\$673,318.98</b>		<b>\$673,318.98</b>

**Total Value of ORIL Program: \$1,345,034.07 \$285,951.37 \$1,630,995.44**



**Project Title:** Synthesis of Regulations and Laws Pertaining to Roadway/Rail Line Intersections on Ohio's Local Transportation System

**ORIL RFP#:** 2019-ORIL2 **State Job #:** 135806

**PID:** 108119 **Agreement #:** TBD

**FY 2019 Funding:** \$100,000 (est) **Funding Source:** ORIL – SPR2

**Start Date:** TBD **End Date:** TBD

**Research Agency:** TBD **Researchers:** TBD

**ORIL TAC:** Richard Behrendt, Ohio Rail Development Commission  
 Dave Butsch, City of Fairfield  
 Casey Clark, Ohio Dept. of Transportation  
 Shawn Crawford, Ohio Dept. of Transportation  
 Matt Dietrich, Ohio Rail Development Commission  
 Roger Gates, Butler County Assistant Prosecuting Attorney  
 Patrick Ginnetti, Mahoning County Engineer  
 Ted Hubbard, Hamilton County Engineer  
 Steve Luebbe, Fayette County Engineer  
 Neil Tunison, Warren County Engineer  
 Greg Wilkens, Butler County Engineer

**Project Summary:**

Ensuring that a safe and efficient transportation system is provided to users of the system in a timely and cost-effective manner, regardless of the mode (e.g.: road, rail, bike, pedestrian, air, etc.), is an important goal for both public and private organizations. In pursuit of this goal, the need to repair, maintain or enhance local roadways can occur at locations that intersect with rail lines. When this occurs, the work needs to be coordinated between local transportation officials and private railroad companies. While many local transportation officials concur there is a clear understanding of right-of-way when it comes to roadways and utilities, this application does not seem to extend to rail lines.

Various state laws, federal regulations and legislative acts provide guidance on jurisdiction/authority for right-of-way concerning roadways and rail line intersections. In addition, past court cases have provided decisions that may further refine this guidance. As a home rule state, it can be difficult for local transportation officials to determine, based on the law, where authority for right-of-way lies between the roadway and the rail lines. Research is needed to provide local transportation officials with a better understanding of the legal constraints concerning right-of-way between roads on the local transportation system and rail lines.

The goal of this research is to provide clarification to local officials as to the extent of authority of each entity at all roadway/rail line intersections. The objective is to synthesize and summarize current federal and state regulations/laws pertaining to this issue in a manner that is concise and understandable to local transportation professionals.

**Project Title:** Investigating Tools for Evaluating Service and Improvement Opportunities on Bicycle Routes on Ohio's Local System

**ORIL RFP#:** 2019-ORIL3 **State Job #:** 135807

**PID:** 108120 **Agreement #:** 32396

**FY 2019 Funding:** \$99,955.71 **Funding Source:** ORIL – SPR2

**Start Date:** TBD **End Date:** TBD

**Research Agency:** The Ohio State University **Researchers:** Gulsah Akar

**ORIL TAC:** Kevin Buettner, Omega  
 Greg Butcher, Violet Township Engineer  
 Andrew Cross, City of Cleveland  
 Kjirsten Frank Hoppe, MVRPC  
 Caraline Griffith, Ohio Dept. of Transportation  
 Caitlin Harley, Ohio Dept. of Transportation  
 Darryl Kleinhenz, AMATS  
 Matt Lindsay, MVRPC  
 Malcolm Meyer, OVRDC  
 Nicholas Popa, City of Columbus Public Service  
 Katie Sieb, NOACA  
 Allison Thomas, Sandusky County Health Dept.  
 Scot Ulrich, City of Columbus Public Health  
 Jordan Whisler, Ohio Dept. of Transportation  
 James Young, City of Columbus

**Project Summary:**

The Ohio Department of Transportation (ODOT) is in the process of formalizing the State and US Bicycle Route system throughout Ohio and is working with local governments to designate and sign these routes. This proposed system is made up of off-road and on-road segments with over 80% (2,851 miles) of the on-road segments falling on the locally maintained roadway system. Given this system extends across numerous local jurisdictions (906), there is an inconsistent level-of-service/comfortability provided to cyclists as they travel along the system from jurisdiction to jurisdiction. Factors such as underlying roadway characteristics, presence of dedicated bicycle facilities, amount of vehicular traffic, and others including topography, play a significant role in determining the safety, comfort, and convenience experienced by individual cyclists. Additionally, these factors can affect overall network utilization.

Results from ODOT's 2016 Transportation Preference Survey indicate that the interest in bicycling as a reliable mode of transportation has been steadily increasing in Ohio and is expected to continue to grow. Various national efforts have occurred to develop methodologies and tools designed specifically to analyze bicycle routes. To assist local transportation officials and planners, research is needed to develop a customized methodology for assessing the level-of-service/comfortability for people biking in Ohio and to explore ways to utilize this information when prioritizing facility improvements at both the local and state levels. This research is expected to build upon existing research and apply analytical tools, such as Level-of-Traffic Stress (LTS) or Bicycle Level-of-Service (BLOS), to assess the current performance of individual network segments and overall network safety, rider comfort, and performance.

This research is expected to be the first step towards developing a comprehensive evaluation tool for Ohio bicycle routes that can be applied at both the state and local levels. The goal of this research is to produce a method for local transportation officials and planners to use for evaluating bicycle route and network performance based on factors such as roadway attributes, bicycle and vehicular volumes, adjacent land use and safety. The objective is to identify an existing method/model that can be customized for Ohio specific application.

**Project Title:** Evaluation of Partial Depth Pavement Repairs on Routes Heavily Traveled by Amish Horse and Buggies - Phase 2 {Addendum A}

**ORIL RFP#:** 2019-ORIL4 / 2017-27                      **State Job #:** 135526

**PID:** 105440    **Agreement #:** 30409

**FY 2019 Funding:** \$79,855.84                      **Funding Source:** ORIL – SPR2

**Start Date:** April 4, 2017                              **End Date:** April 4, 2020

**Research Agency:** Ohio University                      **Researchers** Munir Nazzal

**ORIL TAC:** Mark Eicher, Muskingum County Engineer  
 Darrell Hood, Ohio Dept. of Transportation  
 Jill Martindale, Ohio Dept. of Transportation  
 Ryan Marthey, Wayne County Engineer  
 Melissa Miller, Jackson County Engineer  
 Scott Miller, Wayne County Engineer  
 Warren Schlatter, Defiance County Engineer  
 Mark Spademan, Wayne County Engineer  
 Charles Sweeny, Ohio Dept. of Transportation  
 Chris Young, Holmes County Engineer

**Project Summary:**

As part of preserving pavement infrastructure and providing safe roads to the traveling public, the Ohio Department of Transportation (ODOT) performs pavement maintenance. Areas in the state with heavy horse and buggy traffic see frequent partial depth repairs because of the pavement distress. The frequent repairs are believed to be caused by the impact of the horse shoes on the pavement. In Holmes County the problem is compounded by an estimated additional four million tourists that visit the area each year.

This research has documented current practices for partial depth repairs performed on roadways with and without Amish buggy traffic, identified and evaluate the cost-effectiveness of alternative repair mixtures and methods, and identified all possible changes that could be made to the Amish horse and buggies to mitigate their damage to pavement structures. Preliminary findings are indicating that the service life of partial repairs for non-Amish routes ranges between 5 to 7 years. However, partial depth repairs lasted about two years on routes with heavy Amish buggy traffic. The main distress in repairs on Amish buggy routes was found to be rutting in the surface layer(s), which was caused by the high stress intensity due to the Amish buggy traffic. The life cycle cost analyses (LCCA) results conducted to date, show that partial depth repairs performed on routes with heavy Amish buggy traffic were about three times more expensive than those of routes without Amish buggy traffic. Based on these results, the project is now focused on evaluating the performance and cost effectiveness of all alternative mixtures/ method that were identified in previous tasks of the research to improve the service life of partial depth repairs performed on Amish buggy routes in Ohio. In addition, the study is examining the effectiveness of using screw-in studs and horse boots to reduce the Amish buggy damage. The main outcome of this project will be to develop a long-term and cost-effective solution for construction and maintenance of routes with heavy horse and buggy traffic. Thus, this project will help in extending the service life of pavements in Ohio and reducing their costs.

During their solicitation for FY2019 research ideas, the ORIL program received an idea from the Jackson County Engineer’s office focused on addressing damage to local roadways due to Amish horse and buggies. Upon reviewing the request and the above referenced study, the ORIL Board determined there was a direct correlation between the idea and ODOT’s active research project. ODOT’s technical staff involved in the active project concurred with the ORIL Board’s assessment and agreed that joining the two studies together would be beneficial. This will allow ODOT to collaborate with County Engineers to address the shared issue and enable ORIL to take advantage of lessons learned to date.



**Project Title:** Asphalt Mix Overlay Alternative for Low Volume Roads on the Local Transportation System

**ORIL RFP#:** 2019-ORIL5 **State Job #:** 135808

**PID:** 108121 **Agreement #:** 32411

**FY 2019 Funding:** \$159,908.00 **Funding Source:** ORIL – SPR2

**Start Date:** TBD **End Date:** TBD

**Research Agency:** The University of Akron **Researchers:** Ala Abbas

**ORIL TAC:** Steven Bergstresser, City of Kettering  
 Eric Biehl, Ohio Dept. of Transportation  
 Greg Butcher, Violet Township Engineer  
 Andy Conrad, Medina County Engineer  
 Mark Eicher, Muskingum County Engineer  
 William Fair, Flexible Pavements of Ohio  
 Jacob Lautanen, Ohio Dept. of Transportation  
 Perry Ricciardi, Ohio Dept. of Transportation  
 Warren Schlatter, Defiance County Engineer  
 Larry Shively, Shelly Company  
 Brian Strong, Kokosing Materials Inc.  
 Jamie Tickle, Franklin County Engineer  
 Cliff Ursich, Flexible Pavements of Ohio

**Project Summary:**

Many local governments are faced with low volume roads in need of repairs due to fatigue cracking. Currently, there are relatively few known economical solutions from which to choose. Options range from costly full-depth reclamation to chip sealing. Some county engineers have tried other techniques to address this issue with varying degrees of success. Some local agencies, such as Medina and Muskingum County, have used a cold-laid, motor paver mix followed by a chip seal surface. While these counties have seen some positive results to this technique, the motor paver equipment is not widely available in Ohio and, for some local public agencies, can be expensive. An option of a hot-mix that matches the performance of the motor paver mix that can be placed by hot mix paving contractors could make this treatment option more widely available to local agencies throughout Ohio.

While some transportation professionals believe the solution to this issue is in the application method, others question if the mix being used is more of a contributing factor. ODOT has a supplemental specification (#823) that provides guidance for producing a light traffic asphalt mixture. However, its direct application to local roads may not be appropriate. Factors such as variations in traffic volume, traffic type and traffic patterns may influence the performance of this asphalt mixture resulting in the ODOT specification being over designed for the needs of the local road. For example, SS 823 indicates that it is designed for locations with less than 50 trucks per day. In some rural Ohio counties, it is highly possible to have less than 50 trucks per year. Given that high traffic volume for some county and township roads can be significantly less than what ODOT considers to be a low volume road, the impact weather has on the pavement can be more damaging to the road surface than the traffic. Some county engineers have tried in-house developed mixes and have had varying degrees of success.

This research will be conducted in two phases. The goal of Phase 1 is to conduct an in depth practice analysis aimed at identifying existing research, best practices of Ohio's local government agencies, and opportunities from other states and based on state of practices, develop a laboratory testing protocol of mix design procedures. Phase 2 will perform in-field evaluation of the mix design procedures identified in Phase 1 and is contingent upon the successful completion of Phase 1 and the written authorization of the ODOT Research Section.

<b>Project Title:</b>	Best Practices for Chip Sealing Low-Volume Roads in Ohio		
<b>ORIL RFP#:</b>	2017-ORIL1	<b>State Job #:</b>	135536
<b>PID:</b>	105738	<b>Agreement #:</b>	30418
<b>FY 2017 Funding:</b>	\$127,753.45	<b>Funding Source:</b>	ORIL - SP&R2
<b>Start Date:</b>	April 24, 2017	<b>End Date:</b>	October 24, 2018
<b>Research Agency:</b>	Ohio University	<b>Researchers</b>	Roger Green
<b>ORIL TAC:</b>	Greg Butcher, Violet Township Paul Schmelzer, City of Findlay James Young, City of Columbus Anna Kuzmich, ODOT District 11 Aric Morse, ODOT Office of Pavement Engineering Doug Davis, Muskingum County Stevan Hook, Morgan County Brett Boothe, Gallia County		

**Project Summary:**

Chip seal is widely used as an effective, low-cost preventative maintenance treatment for low-volume roads across Ohio and around the country. In some instances, states have used chip seal on select high-volume roads. In Ohio, local entities who do not utilize the ODOT specification for chip seal (Item 422), tend to rely on previous in-house experience or contractors to determine materials and construction processes for chip seal. As a result, a variety of different methods have been utilized throughout the state. While some of these have resulted in acceptable and even excellent results, others may have not been as successful. As constraints on local budgets continue to tighten, the need to identify the best chip seal techniques and methods increases.

The goal of this research is to assess the current state of practice for chip sealing on county, township, and municipal-maintained roads. The objective is to develop a matrix of best practices for chip sealing low-volume roads in Ohio and design a study to aid in the future assessment of long-term performance creating protocols for data collection.

The results of this research will provide local officials with enhanced knowledge and understanding of chip sealing practices on local roadways in Ohio. This will enable local transportation engineers to confidently apply chip seal in methods that strive to maximize longevity while being cost effective. Ultimately, this research will provide the foundation for the development of scientifically-based guidance on chip seal practices that will aid locals in managing budgets and ensuring the fiscal integrity of local pavement preservation programs.

<b>Project Title:</b>	Optimizing the Effective Use of RAP in Local Roadways		
<b>ORIL RFP#:</b>	2017-ORIL2	<b>State Job #:</b>	135330
<b>PID:</b>	102221	<b>Agreement #:</b>	27939
<b>FY 2017 Funding:</b>	\$246,280.21	<b>Funding Source:</b>	ORIL - SP&R2
<b>Start Date:</b>	October 24, 2018	<b>End Date:</b>	May 24, 2019
<b>Research Agency:</b>	Ohio University	<b>Researchers</b>	Munir Nazzal
<b>ORIL TAC:</b>	Rui Liu, Kent State University A. Abdulshafi, City of Columbus James Young, City of Columbus Michael (Mick) Green, ODOT District 6 Perry Ricciardi, ODOT District 3 Clifford Ursich, Flexible Pavements Dan Johnson, City of Columbus Richie Dimerling, City of Columbus		

**Project Summary:**

The practice of utilizing reclaimed asphalt pavement (RAP) in new asphalt mixtures has increased in recent years due to their economic and environmental benefits. Although the potential benefits are high, the majority of local public agencies (LPAs) in Ohio allow using only small percentages of RAP (i.e.: less than 10%) in their roadways, if any. There has been numerous studies on the use of RAP in asphalt mixtures; however, these studies focus on interstates and highways systems only. Because local roads have different traffic types, volumes and patterns requiring the use of different types of mixtures than those typically utilized for interstates and highways, the RAP may influence the performance of local roadways in a different manner. Bus routes, tighter lane width, roadway diet, underground utilities, ADA curb ramps, are some factors that are generally not considered for interstate and highway systems, but contribute to local road design and mixture utilization.

The goal of this research is to assess the feasibility of RAP (including rejuvenators) in the surface course of municipal and local roadways. The objective is to develop cost effective mix design and quality control recommendations for RAP use on local roadways in Ohio that does not adversely affect the performance or durability of the asphalt mixtures.

The results of this research will provide local officials with enhanced knowledge and a field validated assessment of RAP. The findings of this research will either validate or disprove the perception that utilizing RAP in the asphalt surface course can lead to cost savings while either improving or maintaining performance. It is anticipated that the results of this research may be beneficial in terms of sustainability of local roadways as it maximizes the use of recyclable materials. This information will be of assistance to local decision makers in managing budgets and the proper utilization of RAP on their respective projects.



**Project Title:** Streamlining Local-let Federal-aid Transportation Processes in Ohio

**ORIL RFP#:** 2018-ORIL1 **State Job #:** 135519

**PID:** 105342 **Agreement #:** 30720

**FY 2018 Funding:** \$169,754.75 **Funding Source:** ORIL – SPR2

**Start Date:** August 1, 2017 **End Date:** February 1, 2019

**Research Agency:** Ohio Akron **Researchers** Benjamin Sperry

**ORIL TAC:** Andrea Stevenson, Ohio Dept. of Transportation  
Chase Wells, Ohio Dept. of Transportation  
Greg Butcher, Violet Township  
James Wiechart, Mercer County Engineer  
Jeff Linkous, Clinton County Engineer  
Michele Risko, County Engineers Association of Ohio  
Robert Guey, Shelby County Engineer  
Victoria, Beale, Ohio Dept. of Transportation  
Jim Desanto, FHWA

**Project Summary:**

The Ohio Department of Transportation administers Ohio's Local Public Agency (LPA) Program. A considerable portion of this program is the local-let process which provides LPAs with funding to perform work on Federal-aid transportation projects. Being federal funds, there are specific requirements and procedures that must be followed in order to maintain compliance and ensure eligibility. Over the years, Ohio's process governing the LPA Program has changed. Whether the changes were in response to modifications in federal regulations or state rules dictating oversight of federal programs, concerns have been expressed by some LPAs that the program has become cumbersome. Research is needed to address this perception and ensure Ohio's LPA Program is consistent with current federal regulations.

The goal of this research is to assess ODOT's LPA process as it relates to cost reimbursement, real estate/right-of-way, and construction management. The objective is to develop recommendations for streamlining the process while maintaining compliance with federal regulations.

**Project Title:** Best Practices for Pavement Restoration of Open Cut Utility Installations/Repairs on Local Roadways in Northern Ohio

<b>ORIL RFP#:</b>	2018-ORIL3	<b>State Job #:</b>	135520
<b>PID:</b>	105344	<b>Agreement #:</b>	30725
<b>FY 2018 Funding:</b>	\$117,431.45	<b>Funding Source:</b>	ORIL – SPR2
<b>Start Date:</b>	September 1, 2017	<b>End Date:</b>	March 1, 2019
<b>Research Agency:</b>	Ohio University	<b>Researchers</b>	Mary Robbins
<b>ORIL TAC:</b>	Frank Williams, City of Columbus James Young, City of Columbus Jennifer Elston, Ohio Dept. of Transportation Khalil Ewais, City of Cleveland Laura Wright, Ohio Dept. of Transportation Paul Barnett, City of Brunswick Randall Scott, City of Cleveland Richard Switalski, City of Cleveland		

**Project Summary:**

Transportation agencies frequently encounter the need to repair pavement surfaces that have been cut for the installation or repair of utility services. In municipalities, this is a continuous situation that is magnified when those cuts occur on recently resurfaced pavements. While local public agencies strive to restore the roadway back to its original condition, often the repaired section appears to degrade at a quicker rate than the rest of the pavement. A contributing factor to this could be that the technique utilized to repair the cut was not the most advantageous method. Research is needed to provide local public agencies with the information to apply the best pavement repairs possible.

The goal of this research is to identify the best practices for the restoration of open cut utility installations on local roads. The objective is to lay the foundation for determining degradation rates for various pavement repair methods used on local roads. This research is expected to be the first step towards developing a comprehensive matrix for selecting the optimal open cut pavement restoration technique based on specific site parameters, repair performance and longevity, and cost.