

## RESOLUTION NO. 21311

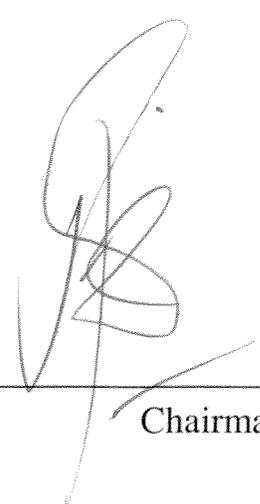
**Background**

The Illinois State Toll Highway Authority (the "Tollway") is interested in procuring Intelligent Transportation System Replacement Parts. Pursuant to the Tollway's Invitation for Bid No. 16-0109, the Tollway has determined that Meade, Inc. is the lowest responsive and responsible bidder for Intelligent Transportation System Replacement Parts for an upper limit of compensation not to exceed \$2,471,164.45.

**Resolution**

The bid from Meade, Inc. for the purchase of Intelligent Transportation System Replacement Parts is accepted. Contract No. 16-0109 is approved in an amount not to exceed \$2,471,164.45. As may be necessary, the Chairman or the Executive Director is authorized to execute the appropriate documents in connection therewith, subject to the approval of the Acting General Counsel, the Chief of Procurement is authorized to issue the necessary purchase orders and contract purchase orders and any other necessary documents in connection therewith, and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

  
Chairman

## RESOLUTION NO. 21312

**Background**

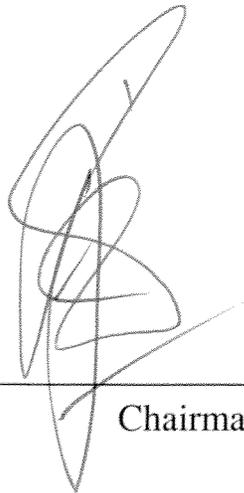
The Illinois State Toll Highway Authority (the "Tollway") is interested in procuring Tripwire Software, Licenses, Support, Maintenance, and Services. Pursuant to the Tollway's Invitation for Bid No. 17-0020, the Tollway has determined that Alert IT Solutions, Inc. is the lowest responsive and responsible bidder for Tripwire Software, Licenses, Support, Maintenance, and Services for an upper limit of compensation not to exceed \$207,191.32.

**Resolution**

The bid from Alert IT Solutions, Inc. for the purchase of Tripwire Software, Licenses, Support, Maintenance, and Services is accepted. Contract No. 17-0020 is approved in an amount not to exceed \$207,191.32. As may be necessary, the Chairman or the Executive Director is authorized to execute the appropriate documents in connection therewith, subject to the approval of the Acting General Counsel, the Chief of Procurement is authorized to issue the necessary purchase orders and contract purchase orders and any other necessary documents in connection therewith, and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

Chairman



## RESOLUTION NO. 21313

**Background**

The Illinois State Toll Highway Authority (the "Tollway") is interested in procuring Electrical Supplies. Pursuant to the Tollway's Invitation for Bid No. 17-0014, the Tollway has determined that J.P. Simons & Co. is the lowest responsive and responsible bidder for Electrical Supplies for an upper limit of compensation not to exceed \$135,443.20.

**Resolution**

The bid from J.P. Simons & Co. for the purchase of Electrical Supplies is accepted. Contract No. 17-0014 is approved in an amount not to exceed \$135,443.20. As may be necessary, the Chairman or the Executive Director is authorized to execute the appropriate documents in connection therewith, subject to the approval of the Acting General Counsel, the Chief of Procurement is authorized to issue the necessary purchase orders and contract purchase orders and any other necessary documents in connection therewith, and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

Chairman

## RESOLUTION NO. 21314

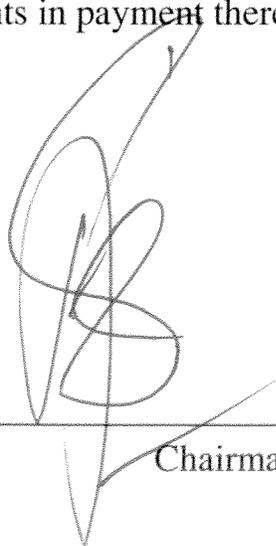
**Background**

The Illinois State Toll Highway Authority (the "Tollway") has previously purchased Payment Card Industry ("PCI") Compliance Analysis Services (Contract No. 13-0112) from RSM US LLP. It is in the best interest of the Tollway, pursuant to the terms and conditions of the contract, to exercise the renewal option and increase the upper limit of compensation of said contract by an amount not to exceed \$239,500.00 for the purchase of additional PCI Compliance Analysis Services.

**Resolution**

The renewal option and associated increase to the upper limit of compensation of Contract No. 13-0112 for the purchase of additional PCI Compliance Analysis Services from RSM US LLP is approved in an amount not to exceed \$239,500.00 (increase from \$212,400.00 to \$451,900.00). As may be necessary, the Chairman or the Executive Director is authorized to execute the appropriate documents in connection therewith, subject to the approval of the Acting General Counsel, the Chief of Procurement is authorized to issue the necessary purchase orders and contract purchase orders and any other necessary documents in connection therewith, and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

  
Chairman

## RESOLUTION NO. 21315

**Background**

The Illinois State Toll Highway Authority (the "Tollway") is interested in procuring continued Building Automation Maintenance and Repair Services as a Sole Source Contract (No. 17-0099) with Precision Control Systems of Chicago, Inc. for an upper limit of compensation not to exceed \$216,320.00. The building automation system enables the Tollway's Building Maintenance Department to monitor, troubleshoot, and facilitate emergency repairs to the heating, ventilation, and air conditioning systems which are located at the Central Administration building, plazas, radio communication sites, and roadway maintenance buildings located through the Tollway system. The Tollway is authorized to procure these goods and services pursuant to Section 30 ILCS 500/20-25 of the Illinois Procurement Code, which requires statutory advance public notice of at least two weeks. The Tollway is currently working with the State's Chief Procurement Officer for General Services on the Sole Source process for this procurement, and a contract would only be entered after upcoming predicate steps are successfully completed.

**Resolution**

The sole source quote from Precision Control Systems of Chicago, Inc. for the purchase of continued Building Automation Maintenance and Repair Services is accepted. Contract No. 17-0099 is approved in an amount not to exceed \$216,320.00, and subject to successful completion of all legal and regulatory requirements to appropriately enter a Sole Source Contract for the procurement. As may be necessary, the Chairman or the Executive Director is authorized to execute the appropriate documents in connection therewith, subject to the approval of the Acting General Counsel, the Chief of Procurement is authorized to issue the necessary purchase orders and contract purchase orders and any other necessary documents in connection therewith, and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

Chairman

## RESOLUTION NO. 21316

**Background**

The Illinois State Toll Highway Authority (the "Tollway") advertised for sealed bids on Contract I-17-4319 for Right of Way Fence and Gate Installation on the Jane Addams Memorial Tollway (I-90) from Milepost 53.8 (Elgin Plaza 9) to Milepost 78.9 (Kennedy Expressway). The lowest responsible bidder on Contract No. I-17-4319 is Fence Masters, Inc. in the amount of \$1,991,195.86.

**Resolution**

Contract No. I-17-4319 is awarded to Fence Masters, Inc. in the amount of \$1,991,195.86, subject to all required approvals, the contractor satisfying applicable DBE, financial, and all other contract award requirements, and execution of all contract documents by the bidder and the Tollway.

The Chairman or the Executive Director is authorized to execute the aforementioned Contract, subject to the approval of the Acting General Counsel and the Chief Financial Officer is authorized to issue warrants in payment thereof.

If the bidder fails to satisfy the contract award requirements, the Executive Director is authorized to approve an award to the next lowest responsible bidder, in accordance with the applicable contract award requirements.

Approved by: \_\_\_\_\_

Chairman

## RESOLUTION NO. 21317

**Background**

The Illinois State Toll Highway Authority (the "Tollway") advertised for sealed bids on Contract I-17-4322 for Fiber Optic Removal on the Jane Addams Memorial Tollway (I-90), from Milepost 53.6 (Elgin Plaza 9) to Milepost 68.2 (IL-53). The lowest responsible bidder on Contract No. I-17-4322 is Elite Fiber Optics LLC in the amount of \$1,233,551.81.

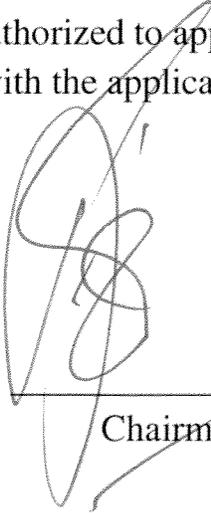
**Resolution**

Contract No. I-17-4322 is awarded to Elite Fiber Optics LLC in the amount of \$1,233,551.81, subject to all required approvals, the contractor satisfying applicable DBE, financial, and all other contract award requirements, and execution of all contract documents by the bidder and the Tollway.

The Chairman or the Executive Director is authorized to execute the aforementioned Contract, subject to the approval of the Acting General Counsel and the Chief Financial Officer is authorized to issue warrants in payment thereof.

If the bidder fails to satisfy the contract award requirements, the Executive Director is authorized to approve an award to the next lowest responsible bidder, in accordance with the applicable contract award requirements.

Approved by: \_\_\_\_\_

  
Chairman

## RESOLUTION NO. 21318

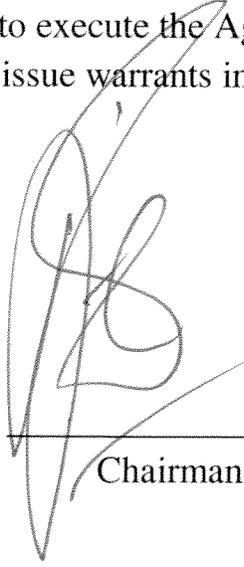
**Background**

It is necessary and in the best interest of the Illinois State Toll Highway Authority (the "Tollway") to obtain Design Services, on the Jane Addams Memorial Tollway System Interchange (Westbound Collector Distributor Road) from Milepost 74.6 (Mt. Prospect Road) to Milepost 73.5 (Elmhurst Road), on Contract No. I-17-4674. Graef-USA Inc. has submitted a proposal to provide the services for an upper limit of compensation not to exceed \$1,725,000.00. The proposal is for professional services and the services were procured pursuant to 30 ILCS 500/30-15 of the Illinois Procurement Code.

**Resolution**

The Chief Engineering Officer is authorized to negotiate an agreement with Graef-USA Inc., to obtain Design Services, for Contract No. I-17-4674 with an upper limit of compensation not to exceed \$1,725,000.00, subject to review and approval of the Acting General Counsel. The Chairman or the Executive Director is authorized to execute the Agreement and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

  
Chairman

RESOLUTION NO. 21319

**Background**

It is necessary and in the best interest of the Illinois State Toll Highway Authority (the "Tollway") to obtain Design Services, on the Jane Addams Memorial Tollway System Interchange (Eastbound Collector Distributor Road) from Milepost 73.5 (Elmhurst Road) to Milepost 74.6 (Mt. Prospect Road), on Contract No. I-17-4675. Infrastructure Engineering, Inc. has submitted a proposal to provide the services for an upper limit of compensation not to exceed \$1,862,000.00. The proposal is for professional services and the services were procured pursuant to 30 ILCS 500/30-15 of the Illinois Procurement Code.

**Resolution**

The Chief Engineering Officer is authorized to negotiate an agreement with Infrastructure Engineering, Inc., to obtain Design Services, for Contract No. I-17-4675 with an upper limit of compensation not to exceed \$1,862,000.00, subject to review and approval of the Acting General Counsel. The Chairman or the Executive Director is authorized to execute the Agreement and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

Chairman

RESOLUTION NO. 21320

**Background**

It is necessary and in the best interest of the Illinois State Toll Highway Authority (the "Tollway") to obtain Design Services, on the Tri-State Tollway (I-94) from Milepost 21.85 (Half Day Road) to Milepost 26.25 (west of the Edens Spur Plaza), on Contract No. RR-16-4277. Wynndalco Enterprises, LLC and Midwest Engineering Associates, Inc. have submitted a proposal to provide the services for an upper limit of compensation not to exceed \$1,489,097.00. The proposal is for professional services and the services were procured pursuant to 30 ILCS 500/30-15 of the Illinois Procurement Code.

**Resolution**

The Chief Engineering Officer is authorized to negotiate an agreement with Wynndalco Enterprises, LLC and Midwest Engineering Associates, Inc., to obtain Design Services, for Contract No. RR-16-4277 with an upper limit of compensation not to exceed \$1,489,097.00, subject to review and approval of the Acting General Counsel. The Chairman or the Executive Director is authorized to execute the Agreement and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

Chairman

RESOLUTION NO. 21321

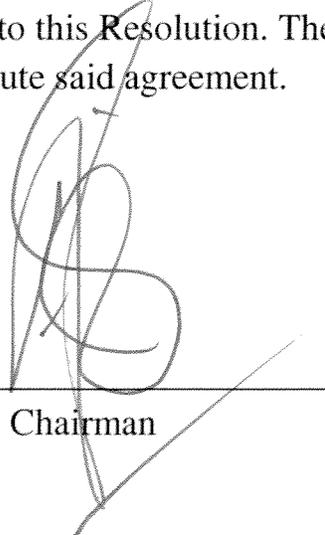
**Background**

It is in the best interest of the Illinois State Toll Highway Authority (the “Tollway”) to enter into an Intergovernmental Agreement with the County of Boone (“County”) in connection with the reconstruction and widening of the roadway and bridges along the Jane Addams Memorial Tollway (“I-90”). Specifically, the Tollway is reconstructing the Stone Quarry Road and Genoa Road bridges that cross over I-90. As part of Project, the County has requested that the Tollway construct underground conduit and hand holes to allow for the future installation of traffic signals. The County will reimburse the Tollway an estimated \$49,278.26 for this work. Finally, this agreement defines the parties’ crossroad bridge maintenance responsibilities.

**Resolution**

The Chief Engineering Officer and the Acting General Counsel are authorized to negotiate and prepare an Intergovernmental Agreement between the Illinois State Tollway Highway Authority and the County of Boone in substantially the form attached to this Resolution. The Chairman or the Executive Director is authorized to execute said agreement.

Approved by: \_\_\_\_\_

  
Chairman

**INTERGOVERNMENTAL AGREEMENT BETWEEN  
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY  
AND  
BOONE COUNTY**

This INTERGOVERNMENTAL AGREEMENT (hereinafter referred to as the "AGREEMENT") is entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2017, by and between THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY, an instrumentality and administrative agency of the State of Illinois, hereinafter called the "ILLINOIS TOLLWAY", and BOONE COUNTY, a corporate and politic of the State of Illinois, hereinafter called the "COUNTY", individually referred to as "PARTY", and collectively referred to as "PARTIES".

**WITNESSETH:**

WHEREAS, the ILLINOIS TOLLWAY to facilitate the free flow of traffic and further the safety to the motoring public, recently approved a 15 year Capital Program, "Move Illinois; *The Illinois Tollway Driving the Future*," which includes improvements to the Jane Addams Memorial Tollway (I-90) (hereinafter sometimes referred to as "Toll Highway"), including reconstructing and widening from the John F. Kennedy Expressway to Interstate Route 39. The contemplated improvements are substantially included in multiple ILLINOIS TOLLWAY construction contract(s) including but not limited to Contracts I-13-4127 and I-13-4128 (hereinafter referred to as the "PROJECT") by making the following improvements:

Contract I-13-4127

The work consists of bridge and roadway reconstruction that will provide for a new bridge to allow two lanes of traffic with 8'-0" wide outside shoulders on Stone Quarry Road. The bridge will be widened by 13'-0" for a total out-to-out structure width of 43'-4". The bridge will be improved with an architectural finish on the outside surface of the parapets and abutment wing walls. The work also includes, but is not limited to bridge demolition, bridge reconstruction, remove and reconstruct pavement, temporary and permanent drainage systems, including pipes and structures, temporary and permanent erosion control measures, roadside safety improvements including guardrail, terminals, and other work, temporary and permanent pavement marking and delineation, Maintenance of Traffic control measures including a detour route, earthwork including topsoil stripping, embankment construction, hauling and disposal of excess material and all other work necessary to complete the PROJECT in accordance with the approved plans and specifications; and

Contract I-13-4128

The work consists of bridge and roadway reconstruction that will provide for a new bridge to allow two lanes of traffic with 10'-0" wide outside shoulders on Genoa Road. The bridge will be widened by 5'-4" for a total out-to-out structure width of 47'-4". The bridge will be improved

with an architectural finish on the outside surface of the parapets and abutment wing walls. The work also includes, but is not limited to bridge demolition, bridge reconstruction, remove and reconstruct pavement, permanent drainage systems, including pipes and structures, underpass lighting removal, temporary and permanent erosion control measures, roadside safety improvements including guardrail, terminals, and other work, temporary and permanent pavement marking and delineation, Maintenance of Traffic control measures including detour route and improvements to detour route, earthwork including topsoil stripping, embankment construction, hauling and disposal of excess material and all other work necessary to complete the PROJECT in accordance with the approved plans and specifications; and

WHEREAS, the COUNTY has requested that the ILLINOIS TOLLWAY include in Contract I-13-4128 the installation of underground conduits, and hand holes, for the future installation of traffic signals; and

WHEREAS, the ILLINOIS TOLLWAY has agreed to the COUNTY's request to install the underground facilities; and

WHEREAS, the ILLINOIS TOLLWAY and the COUNTY by this instrument, desire to determine and establish their respective responsibilities toward engineering, right of way acquisition, utility relocation, construction, funding and maintenance of the PROJECT as proposed; and

WHEREAS, the ILLINOIS TOLLWAY by virtue of its powers as set forth in the "Toll Highway Act," 605 ILCS 10/1 *et seq.* is authorized to enter into this AGREEMENT; and

WHEREAS, the COUNTY by virtue of its powers as set forth in the Counties Code 55 ILCS 5/1-1001 *et seq.* is authorized to enter into this AGREEMENT; and

WHEREAS, this AGREEMENT shall be known, for recording purposes, as #004127

WHEREAS, a cooperative Intergovernmental Agreement is appropriate and such an Agreement is authorized by Article VII, Section 10 of the Illinois Constitution and the "Intergovernmental Cooperation Act", 5 ILCS 220/1 *et seq.*

NOW, THEREFORE, in consideration of the aforementioned recitals and the mutual covenants contained herein, the PARTIES hereto agree as follows:

## **I. ENGINEERING**

- A. The ILLINOIS TOLLWAY agrees to perform preliminary and final design engineering, obtain necessary surveys, and prepare the final plans and specifications for the PROJECT, subject to reimbursement by the COUNTY as hereinafter stipulated.
- B. The COUNTY shall review the plans and specifications which impact the COUNTY's maintained highways within fifteen (15) calendar days of receipt thereof. If the ILLINOIS TOLLWAY does not receive comments or objections from the COUNTY

within this time period, the lack of response shall be deemed approval of the plans and specifications. Approval by the COUNTY shall mean the COUNTY agrees with all specifications in the plans, including alignment and location of the PROJECT improvements which impact the COUNTY's maintained highways. In the event of disapproval, the COUNTY will detail in writing its objections to the proposed plans and specifications for review and consideration by the ILLINOIS TOLLWAY. Notwithstanding, any disapproval by the COUNTY, the ILLINOIS TOLLWAY after considering the COUNTY's objections shall proceed as the Chief Engineering Officer of the ILLINOIS TOLLWAY deems appropriate.

- C. Any dispute concerning the plans and specifications shall be resolved in accordance with Section IX of this AGREEMENT.
- D. The ILLINOIS TOLLWAY agrees to assume the overall PROJECT responsibility, including assuring that all permits (U.S. Army Corps of Engineers, Illinois Department of Natural Resources, Metropolitan Water Reclamation District of Greater Chicago, Environmental Protection Agency, etc.) and joint participation and/or force account agreements (County, Township, Municipal, Railroad, Utility, etc.), as may be required by the PROJECT, are secured by the PARTIES hereto in support of general project schedules and deadlines. All PARTIES hereto agree to cooperate, insofar as their individual jurisdictional authorities allow, with the timely acquisition and clearance of said permits and agreements and in complying with all applicable Federal, State, and local regulations and requirements pertaining to work proposed for the PROJECT.
- E. The COUNTY shall grant and consent to any and all permits, rights of access (ingress and egress), temporary use to the ILLINOIS TOLLWAY, without charge to the ILLINOIS TOLLWAY.

## **II. RIGHT OF WAY**

- A. The acquisition or transfer of right of way is not required from the COUNTY for the construction of the PROJECT pursuant to the approved plans and specifications. Therefore, it is understood by the PARTIES hereto that there will be no exchange of any interest in the COUNTY's right of way or of the ILLINOIS TOLLWAY's right of way.
- B. The acquisition or transfer of permanent right of way interests is not required from the COUNTY for the construction of the PROJECT pursuant to the approved plans and specifications, nor is the transfer of any interest in the COUNTY's or the ILLINOIS TOLLWAY's property or rights of way which the COUNTY or the ILLINOIS TOLLWAY deem necessary for the maintenance and operation of their respective highway systems. Therefore, it is understood by the PARTIES hereto that there will be no exchange of any interest in the COUNTY's right of way or of the ILLINOIS TOLLWAY's right of way.
- C. In the event the ILLINOIS TOLLWAY identifies areas of the COUNTY's right of way temporarily needed for the ILLINOIS TOLLWAY to enter, access and use to allow the

ILLINOIS TOLLWAY and/or its contractor(s) to construct the PROJECT, the COUNTY, shall upon the ILLINOIS TOLLWAY's application to the COUNTY's permit form, together with a plan set, issue the ILLINOIS TOLLWAY a permit without charge to the ILLINOIS TOLLWAY; allowing the ILLINOIS TOLLWAY all temporary use necessary in furtherance of this AGREEMENT. In addition, the COUNTY shall waive any surety bonding requirement. The ILLINOIS TOLLWAY agrees that upon completion of the PROJECT, those lands impacted by the ILLINOIS TOLLWAY or this PROJECT be restored to an "as good as – or – better" than pre-construction condition. Approval of any permit shall not be unreasonably withheld by the COUNTY.

### **III. UTILITY RELOCATION**

- A. The ILLINOIS TOLLWAY agrees to provide the COUNTY, as soon as they are identified, the locations (existing and proposed) of public and/or private utility facilities within existing COUNTY rights of way which require adjustment as part of the PROJECT.
- B. The ILLINOIS TOLLWAY agrees to make all reasonable efforts to minimize the number of utility adjustments in the design of improvements: 1) to ILLINOIS TOLLWAY facilities where they cross COUNTY highway rights of way; and 2) to COUNTY facilities improved as part of the PROJECT.
- C. The ILLINOIS TOLLWAY agrees to make arrangements for and issue all permits for the PROJECT required adjustments to utility facilities located on existing ILLINOIS TOLLWAY rights of way, and on proposed ILLINOIS TOLLWAY rights of way which are outside areas of COUNTY jurisdiction, where improvements to ILLINOIS TOLLWAY facilities are proposed to be done as part of the PROJECT, at no expense to the COUNTY.
- D. At all locations where utilities are located on COUNTY rights of way and must be adjusted due to work proposed by the ILLINOIS TOLLWAY, the COUNTY agrees to cooperate with the ILLINOIS TOLLWAY in making arrangements with the applicable utility and issue all permits for the requisite adjustment(s) at no cost to the ILLINOIS TOLLWAY. The ILLINOIS TOLLWAY agrees to reimburse and/or credit the COUNTY for any and all out of pocket costs the COUNTY may incur in causing the aforementioned utility or utilities to be adjusted.
- E. At all locations where the COUNTY's utilities are located on ILLINOIS TOLLWAY rights of way and must be adjusted due to work proposed by the COUNTY, the COUNTY agrees to obtain from the ILLINOIS TOLLWAY an approved permit for the facility, and to abide by all conditions set forth therein. The COUNTY agrees to reimburse the ILLINOIS TOLLWAY for any and all out of pocket costs the ILLINOIS TOLLWAY may incur in causing the aforementioned utility or utilities to be adjusted.

#### IV. CONSTRUCTION

- A. The ILLINOIS TOLLWAY shall advertise and receive bids, obtain COUNTY concurrence as to the amount of bids (for work to be funded wholly or partially by the COUNTY before award), award the contract(s), provide construction engineering inspections and cause the PROJECT to be constructed in accordance with the PROJECT plans and specifications, subject to reimbursement by the COUNTY as hereinafter stipulated.
- B. After award of the construction contract(s), any proposed deviations from the plans and specifications that affect the COUNTY shall be submitted to the COUNTY for approval prior to commencing such work. The COUNTY shall review the proposed deviations and indicate its approval or disapproval thereof in writing. If the proposed deviation to the plans and specifications are not acceptable, the COUNTY shall detail in writing its specific objections. If the ILLINOIS TOLLWAY receives no written response from the COUNTY within fifteen (15) calendar days after delivery to the COUNTY of the proposed deviation, the proposed deviation shall be deemed approved by the COUNTY. Notwithstanding any disapproval by the COUNTY, the ILLINOIS TOLLWAY may, after considering the COUNTY's objections, proceed as the Chief Engineering Officer of the ILLINOIS TOLLWAY deems appropriate.
- C. After award of the construction contract(s), assuming there are no proposed deviations from the plans and specifications that affect the COUNTY, the ILLINOIS TOLLWAY shall provide no less than five (5) calendar days' written notice to the COUNTY prior to commencement of work on the PROJECT.
- D. The COUNTY and its authorized agents shall have all reasonable rights of inspection (including pre-final and final inspection) during the progress of work included in the PROJECT that affects the COUNTY's system. The COUNTY shall assign personnel to perform inspections on behalf of the COUNTY of all work included in the PROJECT that affects the COUNTY's system, and will deliver written notices to the Chief Engineering Officer of the ILLINOIS TOLLWAY advising the ILLINOIS TOLLWAY as to the identity of the individual(s) assigned to perform said inspections.
- E. Notices required to be delivered by either PARTY pursuant to this AGREEMENT shall be delivered as indicated in Section IX of this AGREEMENT.
- F. The ILLINOIS TOLLWAY shall give notice to the COUNTY upon completion of 70% and 100% of all PROJECT construction contracts to be subsequently maintained by the COUNTY, and the COUNTY shall make an inspection thereof not later than seven (7) calendar days after notice thereof. If the COUNTY does not perform a final inspection within seven (7) calendar days after receiving notice of completion of 100% of all PROJECT construction contracts or other inspection arrangements are not agreed to by the PARTIES hereto, the PROJECT shall be deemed accepted by the COUNTY. At the request of the COUNTY, the ILLINOIS TOLLWAY's representative shall join in on such inspection. In the event said inspections disclose work that does not conform to the

approved final plans and specifications, the COUNTY's representative shall give immediate verbal notice to the ILLINOIS TOLLWAY's representative of any deficiency, and shall thereafter deliver within five (5) calendar days a written list identifying such deficiencies to the Chief Engineering Officer of the ILLINOIS TOLLWAY. Deficiencies thus identified shall be subject to joint re-inspection upon completion of the corrective work. The COUNTY shall perform such joint re-inspections within seven (7) calendar days after receiving notice from the ILLINOIS TOLLWAY that the deficiencies have been remedied.

- G. The ILLINOIS TOLLWAY shall have the right, in its sole judgment and discretion, to cancel or alter any or all portions of the work due to circumstances either known or unknown at the time of bidding or arising after the Contract(s) was entered into, in accordance with the Canceled Items Provision 109.06 included in the most current version of the ILLINOIS TOLLWAY Supplemental Specifications to the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction.

## V. FINANCIAL

- A. Except as otherwise identified herein, the ILLINOIS TOLLWAY agrees to pay all PROJECT related engineering, right of way, construction engineering and construction costs subject to reimbursement by the COUNTY as hereinafter stipulated.
- B. It is mutually agreed by the PARTIES hereto that preliminary and design engineering costs shall be computed as 5% of the actual construction costs. It is further agreed that construction engineering shall be computed as 10% of actual construction costs and mobilization shall be 6% of actual final construction costs.
- C. It is mutually agreed by the PARTIES hereto that the estimated cost to the COUNTY is \$40,725.84 for construction costs, \$2,036.29 (5% of construction costs) for preliminary and design engineering, \$4,072.58 (10% of construction costs) for construction engineering and \$2,443.55 (6% of construction costs) for mobilization, for a total estimated cost of \$49,278.26.
- D. It is further agreed that notwithstanding the estimated cost, the COUNTY shall be responsible for the actual costs associated with the requested underground facility work described in the Recital section of this AGREEMENT.
- E. The COUNTY agrees that upon execution of this AGREEMENT for the improvement and receipt of an invoice from the ILLINOIS TOLLWAY, the COUNTY will pay to the ILLINOIS TOLLWAY, an amount equal to 80% of its obligation incurred under this AGREEMENT, based upon actual bid prices, and will pay to said ILLINOIS TOLLWAY the remainder of its obligation in a lump sum, upon completion of the PROJECT, based on final costs.
- F. Either the COUNTY or the ILLINOIS TOLLWAY may request, after the construction contract(s) are let by the ILLINOIS TOLLWAY, that supplemental work that increases

the total costs of the PROJECT or more costly substitute work be added to the construction contract(s). The ILLINOIS TOLLWAY will cause said supplemental work or such substitute work to be added to the construction contract(s), provided that said work will not delay construction of the PROJECT. The PARTY requesting or causing said supplemental work or more costly substitute work shall pay for the cost increases of said work in full.

## **VI. MAINTENANCE - DEFINITIONS**

- A. The term "local" means any PARTY to this AGREEMENT other than the ILLINOIS TOLLWAY. With respect to this AGREEMENT, it means the COUNTY.
- B. The term "local road" refers to any highway, road or street under the jurisdiction of the COUNTY.
- C. As used herein, the terms "maintenance" or "maintain" mean keeping the facility being maintained in good and sufficient repair and appearance. Such maintenance includes the full responsibility for the construction, removal, replacement of the maintained facility when needed, and unless specifically excluded in Section VII, MAINTENANCE - RESPONSIBILITIES, other activities as more specifically set forth in the following subparts of this Section VI. Maintenance includes but is not limited to:
  - 1. "Routine maintenance" refers to the day to day pavement maintenance, pothole repair, anti-icing and de-icing, snow removal, sweeping, pavement marking, mowing, litter and debris removal, and grate and scupper cleaning and repair, including compliance with state laws and local ordinances.
  - 2. "Structural maintenance" refers to the integrity of the grade separation structure, including abutments, bridge deck beams, bridge deck (except wearing surface), expansion joints, parapet walls and drainage structures.
  - 3. "Signal maintenance" refers to all aspects of installation, repair, replacement, timing, and operation of traffic signals, including signal loops, signal supports or bases, interconnects to Ramp Queue Detection Warning Systems and power, but shall not include permanently installed variable message signs or temporary signals or signs relating to construction or repair projects.
  - 4. "Lighting maintenance" refers to all aspects of installation, repair, replacement and operation of roadway lighting including power, but shall not include temporary lighting relating to construction or repair projects.
  - 5. "Emergency maintenance" refers to any maintenance activity which must be performed immediately in order to avoid or to repair a condition on the roadway or right of way which causes or threatens imminent danger or destruction to roadway facilities or rights of way of the PARTIES hereto, to the motoring public, to public health, safety or welfare,

including but not limited to accident restoration, chemical or biological removal or remediation, or response to acts of God or terrorism.

- D. The term "drainage facilities" refers to both open and enclosed systems. The term "drainage structures" refers to enclosed systems only, and includes those elements of the drainage facility affixed to the bridge superstructures downstream from the scupper.
- E. The terms "notify", "give notice" and "notification" refer to written, verbal or digital communication from one PARTY to another concerning a matter covered by this AGREEMENT, for which the PARTY transmitting the communication produces and retains a record which substantiates the content, date, time, manner of communication, identification of sender and recipient, and manner in which the recipient may respond to the sender, as to the communication.
- F. The terms "be responsible for" or "responsibility" refer to the obligation to ensure performance of a duty or provision of a service under this AGREEMENT, provided, that a PARTY may arrange for actual performance of the duty or provision of the service by another competent entity if the other PARTY to this AGREEMENT is notified of such arrangement, but in no case shall the entity with the duty be relieved of ultimate responsibility for performance of the duty or provision of the service.
- G. The terms "consultation" or "consult with" refer to the duty of a PARTY to give notice to the other PARTY of a proposed action, with reasonable time for that PARTY to respond, but the PARTY with the duty to consult may proceed with the proposed action if the other PARTY does not respond within the time frame set forth in the notice provided, or in the case of the ILLINOIS TOLLWAY, it may proceed with the proposed action if deemed necessary by the Chief Engineering Officer.
- H. The term "approve" refers to the duty of a PARTY not only to consult with the other PARTY but also to provide consent for the proposed action and to retain a record which documents such consent.
- I. The term "grade separation structure" refers to all structural elements between the abutments and below the wearing surface of a bridge carrying one roadway over another, unless otherwise specified.
- J. These are three types of bridge structures that intersect the ILLINOIS TOLLWAY rights of way:
  - 1. Type 1. An intersection where a grade separation structure has been constructed to carry the toll highway over the local road.
  - 2. Type 2. An intersection where a grade separation structure has been constructed to carry the local road over the toll highway.

3. Type 3. An intersection where a partial, or complete ramp interchange system, as well as a grade separation structure, has been constructed between the local road and the toll highway.

**VII. MAINTENANCE - RESPONSIBILITIES**

- A. The ILLINOIS TOLLWAY agrees to maintain the I-90 Toll Highway in its entirety.
- B. The COUNTY agrees to maintain, or cause to maintain, Stone Quarry Road and Genoa Road, including all guardrails, and any and all fences, walls or appurtenances built to separate vehicular traffic from pedestrian traffic, lighting, traffic signal underground facilities installed by the ILLINOIS TOLLWAY, roads, etc.), or any work the ILLINOIS TOLLWAY is including in the PROJECT for the COUNTY at their request, in its entirety.
- C. The bridge improvements being constructed under this AGREEMENT are of the following types as described in Section VI, Paragraph O above and involve the following roadway(s):

Type of Bridge Structure	Affected Roadway
Type 2	Stone Quarry Road
Type 2	Genoa Road

Type 2 - COUNTY Roadway over ILLINOIS TOLLWAY Right of Way

- I. The COUNTY has all maintenance responsibility as to the following:
  - i. All COUNTY right of way and COUNTY highway roadway approaches to the grade separation structure, including but not limited to pavement, curb and gutter, shoulders, sidewalks, guardrail, approach embankments outside access control fences, and bituminous repair of approach slabs.
  - ii. The following portions of the grade elevation structure:
    - a. Ice and snow removal accomplished in such a manner as to not block or obstruct I-90;
    - b. Guardrail maintenance and repair;
    - c. Signs;
    - d. Pavement markings;
    - e. Bituminous pothole repair as necessary on the wearing surface
    - f. All drainage facilities carrying exclusively COUNTY drainage.

2. The ILLINOIS TOLLWAY has all maintenance responsibility for all portions thereof not maintained by the COUNTY as set forth herein, including but not limited to the following:

- i. All parts of the grade separation structure, including but not limited to bearings, beams, girders, slope walls, abutments and piers;
- ii. The deck below the wearing surface including expansion joints, parapet walls, railings, etc.
- iii. All fences along ILLINOIS TOLLWAY routes, except overpass fencing installed to separate pedestrians, bicycles and non-vehicular traffic from highway traffic;
- iv. All bridge deck downspouts, from a clean-out installed directly below the scuppers to the outfall;
- v. All remaining drainage facilities installed for the purpose of carrying exclusively Toll Highway drainage;
- vi. All underpass lighting.

D. The PARTIES agree that the ILLINOIS TOLLWAY reserves the exclusive right to review and approve on the following:

1. Any and all signage affixed to the grade separation structure or placed on ILLINOIS TOLLWAY right of way;
2. The permitting of any and all loads traversing a grade separation structure over the ILLINOIS TOLLWAY issued in accordance with 92 Illinois Administrative Code 554, Subchapter f, Subpart F, Section 554.605 (Super load Moves);

E. The ILLINOIS TOLLWAY will perform the periodic inspections required by the guidelines developed and agreed to by the ILLINOIS TOLLWAY and the Illinois Department of Transportation in 1996 and consistent with the National Bridge Inspection Standards (NBIS) to determine the current condition ratings for all jointly maintained bridges. The inspections performed by the ILLINOIS TOLLWAY will provide condition ratings for the entire jointly maintained structure. The ILLINOIS TOLLWAY and the COUNTY will perform the inspections necessary to collect in depth information for determining maintenance and repair needs for the portions of the structure for which they have maintenance responsibility. A copy of the ILLINOIS TOLLWAY's final inspection reports shall be delivered to the COUNTY.

F. In the event the COUNTY must perform maintenance of the superstructure, as required, the ILLINOIS TOLLWAY, after proper notice by the COUNTY, shall assist in the coordination of any required lane closures on I-90 to perform such maintenance work.

- G. Signalization and pavement markings at the interchange, if any, will be under the control of the COUNTY. The PARTIES shall cooperate regarding signal timing and intersection operation such that traffic exiting the Toll Highway is not unnecessarily delayed or allowed to back up to the extent that it would impact Toll Highway mainline traffic. The COUNTY consents when required to the future interconnection of a Ramp Queue Detection/Warning System installed on Toll Highway exit ramps to both the temporary and permanent traffic signal system and will program the traffic signal option to give exit ramps priority to preclude exiting traffic from unnecessarily backing up onto ILLINOIS TOLLWAY mainline pavement.
- H. The PARTIES agree that each PARTY has the duty to perform such regular inspections, surveys and reviews as are reasonably necessary to fulfill their respective obligations under this AGREEMENT.

### **VIII. ADDITIONAL MAINTENANCE PROVISIONS**

- A. It is understood and agreed by the PARTIES hereto that this AGREEMENT shall supersede any and all earlier Agreements entered into by the PARTIES hereto regarding maintenance responsibilities associated with COUNTY highways and Toll Highway facilities within the limits of this PROJECT.
- B. During construction, the COUNTY shall continue to maintain all portions of the PROJECT within the COUNTY's right of way that are not to be improved or maintained by the construction contractor(s) pursuant to the approved plans and specifications, and the ILLINOIS TOLLWAY shall continue to maintain all portions of the Toll Highway that are not required to be maintained by the construction contractor(s).
- C. All items of construction which are stipulated in this AGREEMENT to be maintained by the COUNTY shall, upon completion of construction and final inspection, be the sole maintenance responsibility of the COUNTY, and all items of construction which are stipulated in this AGREEMENT to be maintained by the ILLINOIS TOLLWAY shall, upon completion of construction, be the sole maintenance responsibility of the ILLINOIS TOLLWAY.
- D. The COUNTY and the ILLINOIS TOLLWAY agree to remove all snow and ice from the roadways under their respective jurisdiction, and such removal shall be accomplished in such a manner as not to block or obstruct any roadway of the other party.
- E. Nothing herein is intended to prevent or preclude the COUNTY and the ILLINOIS TOLLWAY from entering into reciprocal agreements in the future for any particular interchange for the efficient removal of snow, ice, and debris or for incident management.

### **IX. GENERAL PROVISIONS**

- A. It is understood and agreed that this is an AGREEMENT between Boone County and the Illinois State Toll Highway Authority.

- B. It is understood and agreed by the PARTIES hereto, that the ILLINOIS TOLLWAY shall have jurisdiction of I-90. The COUNTY shall retain jurisdiction of Stone Quarry Road and Genoa Road traversed or affected by I-90. For the purpose of this AGREEMENT, jurisdiction shall mean the authority and obligation to administer, control, construct, maintain, and operate.
- C. It is understood and agreed that this AGREEMENT constitutes the complete and exclusive statement of the agreement of the PARTIES relative to the subject matter hereof and supersedes all previous oral and written proposals, negotiations, representations or understandings concerning such subject matter.
- D. Wherever in this AGREEMENT approval or review by either the COUNTY or the ILLINOIS TOLLWAY is provided for, said approval or review shall not be unreasonably delayed or withheld.
- E. Not later than fourteen (14) calendar days after execution of this AGREEMENT each PARTY shall designate in writing a representative who shall serve as the full time representative of the said PARTY during the carrying out of the execution of this AGREEMENT. Each representative shall have authority, on behalf of such PARTY, to make decisions relating to the work covered by this AGREEMENT. Representatives may be changed, from time to time, by subsequent written notice. Each representative shall be readily available to the other PARTY.
- F. In the event of a dispute between the COUNTY and the ILLINOIS TOLLWAY in the carrying out of the terms of this AGREEMENT, the Chief Engineering Officer of the ILLINOIS TOLLWAY and the Engineer of the COUNTY shall meet and resolve the issue. In the event that they cannot mutually agree on the resolution of a dispute concerning the plans and specifications or in the carrying out of the terms of this AGREEMENT, the decision of the Chief Engineering Officer of the ILLINOIS TOLLWAY shall be final.
- G. This AGREEMENT may be executed in two (2) or more counterparts, each of which shall be deemed an original and all of which shall be deemed one and the same instrument.
- H. Under penalties of perjury, the COUNTY certifies that its correct Federal Tax Identification number is 36-6006525 and it is doing business as a governmental entity, whose mailing address is Boone County Government, 601 North Main Street, Suite 100, Belvidere, Illinois 61008.
- I. This AGREEMENT may only be modified by written modification executed by duly authorized representatives of the PARTIES hereto.
- J. This AGREEMENT shall be binding upon and inure to the benefit of the PARTIES hereto and their respective successors and approved assigns.



IN WITNESS THEREOF, the PARTIES have executed this AGREEMENT on the dates indicated.

**BOONE COUNTY**

By: \_\_\_\_\_  
Karl Johnson  
Board Chairman

Attest: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
(Please Print Name)

**THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY**

By: \_\_\_\_\_  
Greg M. Bedalov  
Executive Director

Date: \_\_\_\_\_

Approved as to Form and Constitutionality

\_\_\_\_\_  
Robert T. Lane, Senior Assistant Attorney General, State of Illinois

RESOLUTION NO. 21322

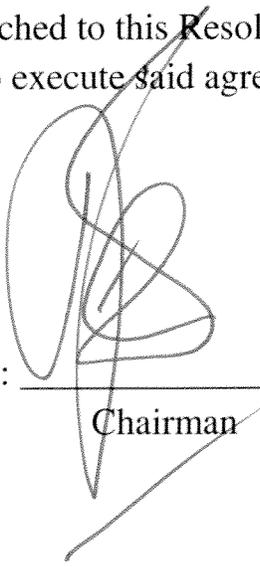
**Background**

It is in the best interest of the Illinois State Toll Highway Authority (the “Tollway”) to enter into an Intergovernmental Agreement with the County of Boone ( “County”) in connection with reconstruction and widening along I-90 including reconstruction of the Garden Prairie Road bridge and the Anthony Road bridge over I-90, as well as construction of temporary access driveways that the parties agree should become permanent. This Agreement establishes County responsibility for portions of the ongoing crossroad bridge maintenance.

**Resolution**

The Chief Engineering Officer and the Acting General Counsel are authorized to negotiate and prepare an Intergovernmental Agreement between the Illinois State Tollway Highway Authority and the County of Boone in substantially the form attached to this Resolution. The Chairman or the Executive Director is authorized to execute said agreement.

Approved by: \_\_\_\_\_



Chairman

**INTERGOVERNMENTAL AGREEMENT BETWEEN  
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY  
AND  
BOONE COUNTY**

This INTERGOVERNMENTAL AGREEMENT (hereinafter referred to as the "AGREEMENT") is entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2017 by and between THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY, an instrumentality and administrative agency of the State of Illinois, hereinafter called the "ILLINOIS TOLLWAY", and BOONE COUNTY, a corporate and politic of the State of Illinois, hereinafter called the "COUNTY", individually referred to as "PARTY", and collectively referred to as "PARTIES".

**WITNESSETH:**

WHEREAS, the ILLINOIS TOLLWAY to facilitate the free flow of traffic and further the safety to the motoring public, recently approved a 15 year Capital Program, "Move Illinois; *The Illinois Tollway Driving the Future*," which includes improvements to the Jane Addams Memorial Tollway (I-90) (hereinafter sometimes referred to as "Toll Highway"), including reconstructing and widening from the John F. Kennedy Expressway to Interstate Route 39. The contemplated improvements are substantially included in multiple ILLINOIS TOLLWAY construction contract(s) including but not limited to Contracts I-12-4073 and I-14-5697 (hereinafter referred to as the "PROJECT") by making the following improvements:

Contract I-12-4073

The improvements constructed under this contract were performed along I-90 between milepost 24.9 and milepost 33.5 in Boone County, Illinois and Mc Henry County, Illinois. The work under this contract includes the reconstruction and widening of the eastbound mainline I-90 between approximate milepost 24.9 and milepost 33.5, the reconstruction of the Genoa Road Exit Ramp A and Entrance Ramp B. The work will also include permanent signing, the construction of a storm drainage system, constructing box culverts, installing guardrail and concrete barriers, landscaping, lighting, ITS elements, and all work necessary to complete the PROJECT in accordance with the approved plans and special provisions; and

Contract I-14-5697

The improvements to be constructed under this contract shall be performed at the Garden Prairie Road and Anthony Road Bridges over the I-90 mainline. The Garden Prairie Bridge is located at I-90 milepost 30.3 in Boone County, Illinois and the Anthony Road Bridge is located at milepost 33.3 in Riley Township in McHenry County, Illinois. The work under this contract includes the removal and reconstruction of the bridges and associated roadway improvements to accommodate the widening proposed for the I-90 mainline improvements and to raise the vertical profile of these bridges over the proposed I-90. The work includes, but is not limited to roadway construction, bridge construction, drainage improvements, pavement marking, signing, earth excavation, grading, erosion and sediment control and maintenance of traffic during

construction; and any other work necessary to complete the PROJECT in accordance with the approved plans and special provisions; and

WHEREAS, during construction of Contract I-12-4073 a temporary access driveway located just west of the Garden Prairie Road bridge over I-90 for westbound I-90 access and another temporary access driveway located just east of the Garden Prairie Road bridge for eastbound I-90 access were constructed by the ILLINOIS TOLLWAY's contractor(s) under permit from the COUNTY as part of the PROJECT; and

WHEREAS, the ILLINOIS TOLLWAY and the COUNTY have determined and agreed that these temporary accesses should remain permanent after construction of Contract I-14-5697 for use by the ILLINOIS TOLLWAY for maintenance purposes and for local emergency responders; and

WHEREAS, the ILLINOIS TOLLWAY has paved the temporary driveways and has installed gates in line with the right of way fencing across the driveways with locks for the gates which have been posted with "DO NOT ENTER, AUTHORITY VEHICLES ONLY" signs, and will distribute the keys to the local emergency responders; and

WHEREAS, the ILLINOIS TOLLWAY and the COUNTY by this instrument, desire to determine and establish their respective responsibilities toward engineering, right of way acquisition, utility relocation, construction, funding and maintenance of the PROJECT as proposed; and

WHEREAS, the ILLINOIS TOLLWAY by virtue of its powers as set forth in the "Toll Highway Act," 605 ILCS 10/1 *et seq.* is authorized to enter into this AGREEMENT; and

WHEREAS, the COUNTY by virtue of its powers as set forth in the Counties Code 55 ILCS 5/1-1001 *et seq.* is authorized to enter into this AGREEMENT; and

WHEREAS, this AGREEMENT shall be known, for recording purposes, as #005697

WHEREAS, a cooperative Intergovernmental Agreement is appropriate and such an Agreement is authorized by Article VII, Section 10 of the Illinois Constitution and the "Intergovernmental Cooperation Act", 5 ILCS 220/1 *et seq.*

NOW, THEREFORE, in consideration of the aforementioned recitals and the mutual covenants contained herein, the PARTIES hereto agree as follows:

## **I. ENGINEERING**

- A. The ILLINOIS TOLLWAY agrees, at its sole expense, to perform preliminary and final design engineering, obtain necessary surveys, and prepare the final plans and specifications for the PROJECT.

- B. The COUNTY shall review the plans and specifications which impact the COUNTY's maintained highways within fifteen (15) calendar days of receipt thereof. If the ILLINOIS TOLLWAY does not receive comments or objections from the COUNTY within this time period, the lack of response shall be deemed approval of the plans and specifications. Approval by the COUNTY shall mean the COUNTY agrees with all specifications in the plans, including alignment and location of the PROJECT improvements which impact the COUNTY's maintained highways. In the event of disapproval, the COUNTY will detail in writing its objections to the proposed plans and specifications for review and consideration by the ILLINOIS TOLLWAY. Notwithstanding, any disapproval by the COUNTY, the ILLINOIS TOLLWAY after considering the COUNTY's objections shall proceed as the Chief Engineering Officer of the ILLINOIS TOLLWAY deems appropriate.
- C. Any dispute concerning the plans and specifications shall be resolved in accordance with Section IX of this AGREEMENT.
- D. The ILLINOIS TOLLWAY agrees to assume the overall PROJECT responsibility, including assuring that all permits (U.S. Army Corps of Engineers, Illinois Department of Natural Resources, Environmental Protection Agency, etc.) and joint participation and/or force account agreements (County, Township, Municipal, Railroad, Utility, etc.), as may be required by the PROJECT, are secured by the PARTIES hereto in support of general project schedules and deadlines. All PARTIES hereto agree to cooperate, insofar as their individual jurisdictional authorities allow, with the timely acquisition and clearance of said permits and agreements and in complying with all applicable Federal, State, and local regulations and requirements pertaining to work proposed for the PROJECT.
- E. The COUNTY shall grant and consent to any and all permits, rights of access (ingress and egress), temporary use to the ILLINOIS TOLLWAY, without charge to the ILLINOIS TOLLWAY.

## **II. RIGHT OF WAY**

- A. It is understood by the PARTIES hereto that there will be no exchange of any interest in the COUNTY's right of way or of the ILLINOIS TOLLWAY's right of way.
- B. In the event, the ILLINOIS TOLLWAY identifies areas of the COUNTY's right of way temporarily needed for the ILLINOIS TOLLWAY to enter, access and use to allow the ILLINOIS TOLLWAY and/or its contractor(s) to construct the PROJECT, the COUNTY shall issue the ILLINOIS TOLLWAY a permit without charge to the ILLINOIS TOLLWAY; allowing the ILLINOIS TOLLWAY all temporary use. In addition, the COUNTY shall waive any surety bonding requirement. The ILLINOIS TOLLWAY agrees upon completion of the PROJECT, that those lands used are to be restored to an "as good as – or – better" than pre-construction condition. Approval of any permit shall not be unreasonably withheld by the COUNTY.

### **III. UTILITY RELOCATION**

- A. The ILLINOIS TOLLWAY agrees to provide the COUNTY, as soon as they are identified, the locations (existing and proposed) of public and/or private utility facilities within existing COUNTY rights of way which require adjustment as part of the PROJECT.
- B. The ILLINOIS TOLLWAY agrees to make all reasonable efforts to minimize the number of utility adjustments in the design of improvements: 1) to ILLINOIS TOLLWAY facilities where they cross COUNTY highway rights of way; and 2) to COUNTY facilities improved as part of the PROJECT.
- C. The ILLINOIS TOLLWAY agrees to make arrangements for and issue all permits for the PROJECT required adjustments to utility facilities located on existing ILLINOIS TOLLWAY rights of way, and on proposed ILLINOIS TOLLWAY rights of way which are outside areas of COUNTY jurisdiction, where improvements to ILLINOIS TOLLWAY facilities are proposed to be done as part of the PROJECT, at no expense to the COUNTY.
- D. At all locations where utilities are located on COUNTY rights of way and must be adjusted due to work proposed by the ILLINOIS TOLLWAY, the COUNTY agrees to cooperate with the ILLINOIS TOLLWAY in making arrangements with the applicable utility and issue all permits for the requisite adjustment(s) at no cost to the ILLINOIS TOLLWAY. The ILLINOIS TOLLWAY agrees to reimburse and/or credit the COUNTY for any and all out of pocket costs the COUNTY may incur in causing the aforementioned utility or utilities to be adjusted.
- E. At all locations where the COUNTY's utilities are located on ILLINOIS TOLLWAY rights of way and must be adjusted due to work proposed by the COUNTY, the COUNTY agrees to obtain from the ILLINOIS TOLLWAY an approved permit for the facility, and to abide by all conditions set forth therein. The COUNTY agrees to reimburse the ILLINOIS TOLLWAY for any and all out of pocket costs the ILLINOIS TOLLWAY may incur in causing the aforementioned utility or utilities to be adjusted.

### **IV. CONSTRUCTION**

- A. The ILLINOIS TOLLWAY shall advertise and receive bids, provide construction engineering inspections for and cause the PROJECT to be constructed in accordance with the PROJECT plans and specifications.
- B. After award of the construction contract(s), any proposed deviations from the plans and specifications that affect the COUNTY shall be submitted to the COUNTY for approval prior to commencing such work. The COUNTY shall review the proposed deviations and indicate its approval or disapproval thereof in writing. If the proposed deviation to the plans and specifications are not acceptable, the COUNTY shall detail in writing its

specific objections. If the ILLINOIS TOLLWAY receives no written response from the COUNTY within fifteen (15) calendar days after delivery to the COUNTY of the proposed deviation, the proposed deviation shall be deemed approved by the COUNTY. Notwithstanding any disapproval by the COUNTY, the ILLINOIS TOLLWAY may, after considering the COUNTY's objections, proceed as the Chief Engineering Officer of the ILLINOIS TOLLWAY deems appropriate.

- C. After award of the construction contract(s), assuming there are no proposed deviations from the plans and specifications that affect the COUNTY, the ILLINOIS TOLLWAY shall provide no less than five (5) calendar days' written notice to the COUNTY prior to commencement of work on the PROJECT.
- D. The COUNTY and its authorized agents shall have all reasonable rights of inspection (including pre-final and final inspection) during the progress of work included in the PROJECT that affects the COUNTY's system. The COUNTY shall assign personnel to perform inspections on behalf of the COUNTY of all work included in the PROJECT that affects the COUNTY's system, and will deliver written notices to the Chief Engineering Officer of the ILLINOIS TOLLWAY advising the ILLINOIS TOLLWAY as to the identity of the individual(s) assigned to perform said inspections.
- E. Notices required to be delivered by either PARTY pursuant to this AGREEMENT shall be delivered as indicated in Section IX of this AGREEMENT.
- F. The ILLINOIS TOLLWAY shall have the right, in its sole judgment and discretion, to cancel or alter any or all portions of the work due to circumstances either known or unknown at the time of bidding or arising after the Contract(s) was entered into, in accordance with the Canceled Items Provision 109.06 included in the ILLINOIS TOLLWAY Supplemental Specifications to the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, adopted January 1, 2012, issued March 2014, or the applicable version of the ILLINOIS TOLLWAY Standard or Supplemental Specifications.

## **V. FINANCIAL**

- A. The ILLINOIS TOLLWAY agrees to pay all PROJECT related engineering, construction engineering and construction costs.
- B. Either the COUNTY or the ILLINOIS TOLLWAY may request, after the construction contract(s) are let by the ILLINOIS TOLLWAY, that supplemental work that increases the total costs of the PROJECT or more costly substitute work be added to the construction contract(s). The ILLINOIS TOLLWAY will cause said supplemental work or such substitute work to be added to the construction contract(s), provided that said work will not delay construction of the PROJECT. The PARTY requesting or causing said supplemental work or more costly substitute work shall pay for the cost increases of said work in full.

## VI. MAINTENANCE - DEFINITIONS

- A. The term "local" means any PARTY to this AGREEMENT other than the ILLINOIS TOLLWAY. With respect to this AGREEMENT, it means the COUNTY.
- B. The term "local road" refers to any highway, road or street under the jurisdiction of the COUNTY.
- C. As used herein, the terms "maintenance" or "maintain" mean keeping the facility being maintained in good and sufficient repair and appearance. Such maintenance includes the full responsibility for the construction, removal, replacement of the maintained facility when needed, and unless specifically excluded in Section VII, MAINTENANCE - RESPONSIBILITIES, other activities as more specifically set forth in the following subparts of this Section VI. Maintenance includes but is not limited to:
  - D. "Routine maintenance" refers to the day to day pavement maintenance, pothole repair, anti-icing and de-icing, snow removal, sweeping, pavement marking, mowing, litter and debris removal, and grate and scupper cleaning and repair, including compliance with state laws and local ordinances.
  - E. "Structural maintenance" refers to the integrity of the grade separation structure, including abutments, bridge deck beams, bridge deck (except wearing surface), expansion joints, parapet walls and drainage structures.
  - F. "Signal maintenance" refers to all aspects of installation, repair, replacement, timing, and operation of traffic signals, including signal loops, signal supports or bases, interconnects to Ramp Queue Detection Warning Systems and power, but shall not include permanently installed variable message signs or temporary signals or signs relating to construction or repair projects.
  - G. "Lighting maintenance" refers to all aspects of installation, repair, replacement and operation of roadway lighting including power, but shall not include temporary lighting relating to construction or repair projects.
  - H. "Emergency maintenance" refers to any maintenance activity which must be performed immediately in order to avoid or to repair a condition on the roadway or right of way which causes or threatens imminent danger or destruction to roadway facilities or rights of way of the PARTIES hereto, to the motoring public, to public health, safety or welfare, including but not limited to accident restoration, chemical or biological removal or remediation, or response to acts of God or terrorism.
- I. The term "drainage facilities" refers to both open and enclosed systems. The term "drainage structures" refers to enclosed systems only, and includes those elements of the drainage facility affixed to the bridge superstructures downstream from the scupper.

- J. The terms "notify", "give notice" and "notification" refer to written, verbal or digital communication from one PARTY to another concerning a matter covered by this AGREEMENT, for which the PARTY transmitting the communication produces and retains a record which substantiates the content, date, time, manner of communication, identification of sender and recipient, and manner in which the recipient may respond to the sender, as to the communication.
- K. The terms "be responsible for" or "responsibility" refer to the obligation to ensure performance of a duty or provision of a service under this AGREEMENT, provided, that a PARTY may arrange for actual performance of the duty or provision of the service by another competent entity if the other PARTY to this AGREEMENT is notified of such arrangement, but in no case shall the entity with the duty be relieved of ultimate responsibility for performance of the duty or provision of the service.
- L. The terms "consultation" or "consult with" refer to the duty of a PARTY to give notice to the other PARTY of a proposed action, with reasonable time for that PARTY to respond, but the PARTY with the duty to consult may proceed with the proposed action if the other PARTY does not respond within the time frame set forth in the notice provided, or in the case of the ILLINOIS TOLLWAY, it may proceed with the proposed action if deemed necessary by the Chief Engineering Officer.
- M. The term "approve" refers to the duty of a PARTY not only to consult with the other PARTY but also to provide consent for the proposed action and to retain a record which documents such consent.
- N. The term "grade separation structure" refers to all structural elements between the abutments and below the wearing surface of a bridge carrying one roadway over another, unless otherwise specified.
- O. These are three types of bridge structures that intersect the ILLINOIS TOLLWAY rights of way:
  - 1. Type 1. An intersection where a grade separation structure has been constructed to carry the toll highway over the local road.
  - 2. Type 2. An intersection where a grade separation structure has been constructed to carry the local road over the toll highway.
  - 3. Type 3. An intersection where a partial or complete ramp interchange system, as well as a grade separation structure, has been constructed between the local road and the toll highway.

## **VII. MAINTENANCE - RESPONSIBILITIES**

- A. The ILLINOIS TOLLWAY agrees to maintain the I-90 Toll Highway including the two access driveways and gates, in their entirety.

- B. The COUNTY agrees to maintain, or cause to maintain, Garden Prairie Road, including all guardrails, and any and all fences, walls or appurtenances built to separate vehicular traffic from pedestrian traffic, lighting, roads, etc.), or any work the ILLINOIS TOLLWAY is including in the PROJECT for the COUNTY at their request, in its entirety.
- C. The bridge improvements being constructed under this AGREEMENT are of the following types as described in Section VI, Paragraph O above and involve the following roadway(s):

Type of Bridge Structure	Affected Roadway
Type 2	Garden Prairie Road

Type 2 - COUNTY Roadway over ILLINOIS TOLLWAY Right of Way

- 1. The COUNTY has all maintenance responsibility as to the following:
  - i. All COUNTY right of way and COUNTY highway roadway approaches to the grade separation structure, including but not limited to pavement, curb and gutter, shoulders, sidewalks, guardrail, approach embankments outside access control fences, and bituminous repair of approach slabs.
  - ii. The following portions of the grade elevation structure:
    - a. Ice and snow removal accomplished in such a manner as to not block or obstruct I-90
    - b. Guardrail maintenance and repair
    - c. Signs
    - d. Pavement markings
    - e. Bituminous pothole repair as necessary on the wearing surface
    - f. All drainage facilities carrying exclusively COUNTY drainage
  
- 2. The ILLINOIS TOLLWAY has all maintenance responsibility for all portions thereof not maintained by the COUNTY as set forth herein, including but not limited to the following:
  - i. All parts of the grade separation structure, including but not limited to bearings, beams, girders, slope walls, abutments and piers;
  - ii. The deck below the wearing surface including expansion joints, parapet walls, railings, etc.

- iii. All fences along ILLINOIS TOLLWAY routes, except overpass fencing installed to separate pedestrians, bicycles and non-vehicular traffic from highway traffic;
  - iv. All bridge deck downspouts, from a clean-out installed directly below the scuppers to the outfall;
  - v. All remaining drainage facilities installed for the purpose of carrying exclusively Toll Highway drainage;
  - vi. All underpass lighting.
- D. The PARTIES agree that the ILLINOIS TOLLWAY reserves the exclusive right to review and approve on the following:
- 1. Any and all signage affixed to the grade separation structure or placed on ILLINOIS TOLLWAY right of way;
  - 2. The permitting of any and all loads traversing a grade separation structure over the ILLINOIS TOLLWAY issued in accordance with 92 Illinois Administration Code 554, Subchapter f, Subpart F, Section 554.605 (Superload Moves).
  - 3. Any intersection modifications that lead to ILLINOIS TOLLWAY owned facilities.
- E. The PARTIES agree that each PARTY has the duty to perform such regular inspections, surveys and reviews as are reasonably necessary to fulfill their respective obligations under this AGREEMENT.

## **VIII. ADDITIONAL MAINTENANCE PROVISIONS**

- A. It is understood and agreed by the PARTIES hereto that this AGREEMENT shall supersede any and all earlier Agreements entered into by the PARTIES hereto regarding maintenance responsibilities associated with COUNTY highways and Toll Highway facilities within the limits of this PROJECT.
- B. During construction, the COUNTY shall continue to maintain all portions of the PROJECT within the COUNTY's right of way that are not to be improved or maintained by the construction contractor(s) pursuant to the approved plans and specifications, and the ILLINOIS TOLLWAY shall continue to maintain all portions of the Toll Highway that are not required to be maintained by the construction contractor(s).
- C. All items of construction which are stipulated in this AGREEMENT to be maintained by the COUNTY shall, upon completion of construction and final inspection, be the sole maintenance responsibility of the COUNTY, and all items of construction which are stipulated in this AGREEMENT to be maintained by the ILLINOIS TOLLWAY shall,

upon completion of construction, be the sole maintenance responsibility of the ILLINOIS TOLLWAY.

- D. Nothing herein is intended to prevent or preclude the COUNTY and the ILLINOIS TOLLWAY from entering into reciprocal agreements in the future.

## **IX. GENERAL PROVISIONS**

- A. It is understood and agreed that this is an AGREEMENT between Boone County and the Illinois State Toll Highway Authority.
- B. It is understood and agreed by the PARTIES hereto, that the ILLINOIS TOLLWAY shall have jurisdiction of I-90. The COUNTY shall retain jurisdiction of Garden Prairie Road traversed or affected by I-90. For the purpose of this AGREEMENT, jurisdiction shall mean the authority and obligation to administer, control, construct, maintain, and operate.
- C. It is understood and agreed that this AGREEMENT constitutes the complete and exclusive statement of the agreement of the PARTIES relative to the subject matter hereof and supersedes all previous oral and written proposals, negotiations, representations or understandings concerning such subject matter.
- D. Wherever in this AGREEMENT approval or review by either the COUNTY or the ILLINOIS TOLLWAY is provided for, said approval or review shall not be unreasonably delayed or withheld.
- E. Not later than fourteen (14) calendar days after execution of this AGREEMENT each PARTY shall designate in writing a representative who shall serve as the full time representative of the said PARTY during the carrying out of the execution of this AGREEMENT. Each representative shall have authority, on behalf of such PARTY, to make decisions relating to the work covered by this AGREEMENT. Representatives may be changed, from time to time, by subsequent written notice. Each representative shall be readily available to the other PARTY.
- F. In the event of a dispute between the COUNTY and the ILLINOIS TOLLWAY in the carrying out of the terms of this AGREEMENT, the Chief Engineering Officer of the ILLINOIS TOLLWAY and the Engineer of the COUNTY shall meet and resolve the issue. In the event that they cannot mutually agree on the resolution of a dispute concerning the plans and specifications or in the carrying out of the terms of this AGREEMENT, the decision of the Chief Engineering Officer of the ILLINOIS TOLLWAY shall be final.
- G. This AGREEMENT may be executed in two (2) or more counterparts, each of which shall be deemed an original and all of which shall be deemed one and the same instrument.

- H. This AGREEMENT may only be modified by written modification executed by duly authorized representatives of the PARTIES hereto.
- I. This AGREEMENT and the covenants contained herein shall become null and void in the event the contract covering the construction work contemplated herein is not awarded within three (3) years subsequent to the date of execution of this AGREEMENT.
- J. This AGREEMENT shall be binding upon and inure to the benefit of the PARTIES hereto and their respective successors and approved assigns.
- K. The failure by the ILLINOIS TOLLWAY or the COUNTY to seek redress for violation of or to insist upon the strict performance of any condition or covenant of this AGREEMENT shall not constitute a waiver of any such breach or subsequent breach of such covenants, terms, conditions, rights and remedies. No provision of this AGREEMENT shall be deemed waived by the ILLINOIS TOLLWAY or the COUNTY unless such provision is waived in writing.
- L. It is agreed that the laws of the State of Illinois shall apply to this AGREEMENT and that, in the event of litigation, venue shall lie in DuPage County, Illinois.
- M. All written reports, notices and other communications related to this AGREEMENT shall be in writing and shall be personally delivered, mailed via certified mail, overnight mail delivery, or electronic mail delivery to the following persons at the following addresses:
- To the ILLINOIS TOLLWAY:      The Illinois Toll Highway Authority  
2700 Ogden Avenue  
Downers Grove, Illinois 60515  
Attn: Chief Engineering Officer
- To the COUNTY:                      Boone County Government  
1212 Logan Ave., Suite #102  
Belvidere, Illinois 61008  
Attn: County Board Chairman
- N. The introductory recitals included at the beginning of this AGREEMENT are agreed to and incorporated into this AGREEMENT.

(This space left blank intentionally)

IN WITNESS THEREOF, the PARTIES have executed this AGREEMENT on the dates indicated.

**BOONE COUNTY**

By: \_\_\_\_\_  
Karl Johnson  
Board Chairman

Attest: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
(Please Print Name)

**THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY**

By: \_\_\_\_\_  
Greg M. Bedalov  
Executive Director

Date: \_\_\_\_\_

Approved as to Form and Constitutionality

\_\_\_\_\_  
Tiffany B. Schafer, Senior Assistant Attorney General, State of Illinois

## RESOLUTION NO. 21323

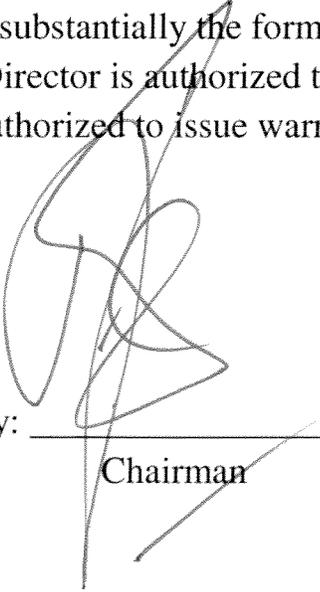
**Background**

It is in the best interest of the Illinois State Toll Highway Authority (the "Tollway") to enter into an Intergovernmental Agreement with the Curators of the University of Missouri ("University"). The Tollway will sponsor the University's research project to identify shortcomings of existing asphalt mix design specifications and help the Tollway utilize better performing asphalt mixtures. The research is expected to be performed over 30 months at a cost to the Tollway not to exceed \$424,757.

**Resolution**

The Chief Engineering Officer and the Acting General Counsel are authorized to negotiate and prepare an Intergovernmental Agreement between the Illinois State Tollway Highway Authority, and the Curators of the University of Missouri in substantially the form attached to this Resolution. The Chairman or the Executive Director is authorized to execute said agreement and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_

  
Chairman

**INTERGOVERNMENTAL AGREEMENT BETWEEN  
THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY  
AND  
THE CURATORS OF THE UNIVERSITY OF MISSOURI**

This INTERGOVERNMENTAL AGREEMENT (“AGREEMENT”) is entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2017, by and between THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY, an instrumentality and administrative agency of the State of Illinois, hereinafter called the "ILLINOIS TOLLWAY", and THE CURATORS OF THE UNIVERSITY OF MISSOURI, a body politic and corporate of the State of Missouri, hereinafter called the "UNIVERSITY", individually referred to as “PARTY” and collectively referred to as “PARTIES”.

**WITNESSETH:**

WHEREAS, the ILLINOIS TOLLWAY in order to facilitate the free flow of traffic and ensure safety to the motoring public, approved a 15 year Capital Program, “Move Illinois: *The Illinois Tollway Driving the Future*,” desires to conduct research for the Development of a Performance Related Asphalt Mix Design Specification (“PROJECT”);; and

WHEREAS, the ILLINOIS TOLLWAY currently uses the Illinois Department of Transportation method-related asphalt mix design process; and

WHEREAS, the ILLINOIS TOLLWAY’s emphasis on constructing and maintaining high volume toll highways necessitates the need to incorporate high performing stone matrix asphalt mixtures and better performing dense graded asphalt mixtures that are durable and long-lasting pavements; and

WHEREAS, the use of Performance–Related Specifications (“PRS”) to develop high performance stone matrix asphalt mix designs and better performing dense graded asphalt mix designs for ILLINOIS TOLLWAY pavements would lead the way to more durable pavements requiring less maintenance; and

WHEREAS, the UNIVERSITY has demonstrated necessary expertise to perform research for the PROJECT; and

WHEREAS, the ILLINOIS TOLLWAY and the UNIVERSITY by this instrument, which for ILLINOIS TOLLWAY recording purposes shall be known as Intergovernmental Agreement #009980, intend to outline their respective responsibilities toward implementation and funding for the research and development of the PROJECT, and copy of the UNIVERSITY’s Proposal is incorporated into this AGREEMENT by reference and attached hereto as “EXHIBIT A”; and

WHEREAS, the ILLINOIS TOLLWAY by virtue of its powers as set forth in the "Toll Highway Act," 605 ILCS 10/1 *et seq.* is authorized to enter into this AGREEMENT; and

WHEREAS, the Curators of the University of Missouri by virtue of its powers as set forth in the Missouri Revised Statutes Chapter 172 to enter into this AGREEMENT; and

WHEREAS, a cooperative Intergovernmental Agreement is appropriate and such an Agreement is authorized by Article VII, Section 10 of the Illinois Constitution and the “Intergovernmental Cooperation Act”, 5 ILCS 220/1 *et seq.*

NOW, THEREFORE, in consideration of the aforementioned recitals and the mutual covenants contained herein, the PARTIES hereto agree as follows:

#### **ARTICLE I – Sponsorship/Scope**

- A. The ILLINOIS TOLLWAY agrees to sponsor the UNIVERSITY in the research effort of developing a performance-related specification for asphalt mix designs.
- B. The UNIVERSITY shall provide the ILLINOIS TOLLWAY with a comprehensive final report documenting laboratory results obtained, initial field performance observations for pavements where mixtures were subjected to the shadow monitoring effort, and a revised performance-related specification for asphalt mix designs based on the data collected as further detailed in EXHIBIT A.

#### **ARTICLE II – Tasks/Objectives**

The tasks and objectives as outlined in this plan are detailed in EXHIBIT A that is included herein and include:

- A. A comprehensive review of literature and relevant project reports including journal papers, conference papers, technical reports, theses, and agency and industry websites.
- B. Development and deployment of a brief, targeted survey to be administered to state highway, toll authorities and other related agencies to provide an updated snapshot of the asphalt tests and specifications being used, developed or considered throughout the U.S.
- C. Development of a draft PRS incorporating specification limits for ILLINOIS TOLLWAY mix designs including review of past experiences and availability of performance test results from previous ILLINOIS TOLLWAY projects, and a narrowly-focused laboratory study designed to identify the number and type of mixture cracking tests needed in the performance-related specifications.
- D. Laboratory testing on samples obtained from ILLINOIS TOLLWAY projects to collect data on actual projects to obtain performance indicators expected, working closely with mixture designer on ILLINOIS TOLLWAY projects to develop several candidate mix designs, conducting laboratory testing on samples collected, documenting designs, field

trials and laboratory tests and analysis of results to determine if what if any adjustments are needed.

- E. Compilation of a final report documenting laboratory results obtained, initial field performance observations, and a revised performance related specification based on data collected.

### **ARTICLE III – Anticipated Research Results**

The following objectives are expected to be achieved as a result of the AGREEMENT:

- A. Provide definitive data that will support the development of an effective performance-related asphalt mixture design specification for the ILLINOIS TOLLWAY.
- B. Development of a performance-related specification, implemented in the field, studied and revised throughout the study.
- C. Produce long-term benefits through documentation of projects that can be revisited at a later date and improve the developed performance-related specification.

### **ARTICLE IV – Deliverables**

The following are items and materials to be delivered by the UNIVERSITY to the ILLINOIS TOLLWAY (hereinafter referred to as “DELIVERABLES”).

- A. Quarterly progress reports, in electronic format, containing a summary of effort performed during the quarter and expected progress for the following quarter.
- B. Compilation of draft and final literature search, and survey synopses for review.
- C. A draft PRS for ILLINOIS TOLLWAY stone matrix asphalt and dense-graded asphalt mixtures and supporting laboratory data.
- D. An interim report documenting data collected during shadow monitoring activities, along with recommended adjustments to the draft performance-related specification.
- E. A draft final report submitted no later than 45 days prior to the end date of the research contract. The ILLINOIS TOLLWAY will review and provide comments and feedback within 15 days of receipt of the final draft report. The UNIVERSITY shall have 30 days to address the comments and questions, make revisions, and resubmit the final report.

- F. A one-page technical briefing document summarizing the results of the research effort.

#### **Article V – Financial Terms**

- A. The ILLINOIS TOLLWAY as sponsor will compensate the UNIVERSITY as outlined in this AGREEMENT and in the UNIVERSITY's PROPOSAL.
- B. The funding for the "Development of a Performance Related Asphalt Mix Design Specification" research project shall be provided directly by the ILLINOIS TOLLWAY to the UNIVERSITY.
- C. The UNIVERSITY shall submit quarterly invoices which shall include a detailed description of the services performed, administration costs of performance, and all other charges as contemplated by this AGREEMENT in substantial conformance with the itemized budget included in the PROPOSAL by the UNIVERSITY.
- D. The UNIVERSITY shall certify in writing, upon presentment of each invoice hereunder, that work as invoiced has been actually performed and that the UNIVERSITY is in fact complying with all other provisions of this AGREEMENT. Invoicing shall be sufficiently itemized to permit the ILLINOIS TOLLWAY or its agents to verify performance of the work so invoiced.
- E. It is mutually agreed that the estimated budget and upper limit of compensation shall not exceed \$424,757.00 for the term of this AGREEMENT, which is 30 months.

#### **ARTICLE VI – Work Product and Documents**

- A. **Confidential Data.** Any data, regardless of its form, received from the ILLINOIS TOLLWAY, shall be considered "Confidential Data". Disclosure of Confidential Data, which shall include, but not limited to written, oral or visual disclosures, shall not be disclosed except as may be required by law, without the advanced written approval of the ILLINOIS TOLLWAY. The UNIVERSITY must return any and all data collected, maintained, or used resulting from the ILLINOIS TOLLWAY's Confidential Data in the course of the performance of the AGREEMENT at the conclusion of this AGREEMENT, or earlier if requested by the ILLINOIS TOLLWAY. In the alternative, the UNIVERSITY may provide written certification of the destruction of the Confidential Data to the ILLINOIS TOLLWAY. The foregoing obligations shall not apply to Confidential Data or information lawfully in the UNIVERSITY's possession prior to its acquisition from the ILLINOIS TOLLWAY if Confidential Data was: 1) received in good faith from a third-party not

subject to any confidentiality obligation to the ILLINOIS TOLLWAY; 2) now is or later becomes publicly known through no breach of confidentiality obligation by the UNIVERSITY; or 3) is independently developed by the UNIVERSITY without the use or benefit of the ILLINOIS TOLLWAY's confidential information.

- B. If the UNIVERSITY receives a request under the Illinois Freedom of Information Act, the Missouri Sunshine Law, or a request by legal process to disclose confidential information, the UNIVERSITY will provide prompt notice of the request to the ILLINOIS TOLLWAY, and will not release any documents until at least three (3) business days after providing the ILLINOIS TOLLWAY with notice and an opportunity to object.
- C. **OWNERSHIP.** DELIVERABLES are defined in Article IV above. The UNIVERSITY grants the ILLINOIS TOLLWAY shared ownership of all such work product identified and detailed in EXHIBIT A as a DELIVERABLE except as detailed within this paragraph. The UNIVERSITY shall retain the rights to all methodologies, technologies, algorithms, source codes, simulation analysis and know-how described and/or incorporated into the DELIVERABLES for the development of a performance related asphalt mix design specification. Each PARTY retains the rights to use, modify, maintain, and create derivative works from the jointly-owned intellectual property of these DELIVERABLES. The ILLINOIS TOLLWAY, and the UNIVERSITY retain the rights to (a) use the DELIVERABLES containing both the UNIVERSITY's Intellectual Property and jointly owned intellectual property for research and academic purposes; (b) continue further development of these specific Deliverables; and (c) share these specific Deliverables with public bodies provided the UNIVERSITY recognizes the contributions of the ILLINOIS TOLLWAY.
- D. **FORMAT.** All research and development of the "Development of a Performance Related Asphalt Mix Design Specification" shall be developed by the UNIVERSITY using a format acceptable to the ILLINOIS TOLLWAY.

## **ARTICLE VII – Term and Termination**

- A. The tasks set forth in EXHIBIT A shall be performed beginning upon the execution of this AGREEMENT through thirty (30) months.
- B. In the event of any termination prior to completion of scope of services, the ILLINOIS TOLLWAY will pay for all costs incurred through the date of termination including all non-cancelable obligations, even though obligations may extend beyond the termination date. The UNIVERSITY will furnish to the ILLINOIS TOLLWAY a final technical report summarizing the work performed and results thereof, through the date of termination.

## ARTICLE VIII – General Provisions

- A. The UNIVERSITY shall acknowledge the contribution and participation of the ILLINOIS TOLLWAY in the implementation for the development of a performance related asphalt mix design specification. Such acknowledgement shall be made in any project reports or presentations.
- B. The UNIVERSITY agrees to the extent permitted by law to indemnify and hold harmless the ILLINOIS TOLLWAY and its employees, officers, directors and agents from any and all claims, suits, actions, and costs of every kind whatsoever, including but not limited to bodily injury, death, and/or property damage, arising out of or relating to their performance of this AGREEMENT, or as a consequence of any act or omission, negligence, or misconduct of the UNIVERSITY, their employees or agents, or their contractors and subcontractors.
- C. The UNIVERSITY agrees that in the performance of this AGREEMENT and for the development of a performance related asphalt mix design specification, the UNIVERSITY, including its officers, employees and agents will comply with all applicable state, federal and local statutes, ordinances and regulations.
- D. Subcontracting any portion of this AGREEMENT is not permitted except with prior written permission of the ILLINOIS TOLLWAY. The UNIVERSITY shall ensure that any and all subcontractors (if approved) submit bills and invoices in a manner consistent with the terms of this AGREEMENT and UNIVERSITY shall include language in its subcontractor agreements whereby the subcontractors expressly agree to be bound by the terms of this AGREEMENT.
- E. Each PARTY represents that no person or agency has been employed to solicit, secure or facilitate this AGREEMENT for a commission, percentage, brokerage or contingent fee.
- F. This AGREEMENT may not be assigned or transferred by any PARTY without the prior written consent of the others.
- G. It is understood and agreed that this AGREEMENT constitutes the complete and exclusive statement of the agreement of the PARTIES relative to the subject matter hereof and supersedes all previous oral and written proposals, negotiations, representations or understandings concerning such subject matter.
- H. Wherever in this AGREEMENT approval or review by any PARTY is provided for, said approval or review shall not be unreasonably delayed or withheld.
- I. Not later than fourteen (14) calendar days after execution of this AGREEMENT each PARTY shall designate in writing a representative who shall serve as the full time representative of the said PARTY during the carrying out of the execution of this

AGREEMENT. Each representative shall have the authority, on behalf of such PARTY, to make decisions relating to the work covered by this AGREEMENT. Representatives may be changed, from time to time, by subsequent written notice. Each representative shall be readily available to the other PARTIES.

- J. In the event of a dispute between the UNIVERSITY, and the ILLINOIS TOLLWAY in the carrying out of the terms of this AGREEMENT, the Chief Engineering Officer of the ILLINOIS TOLLWAY, and the Project Director of the UNIVERSITY shall meet and resolve the issue. The decision of the Chief Engineering Officer regarding questions of fact will be final only after the Chief Engineering Officer has made “best efforts” to resolve the dispute.
- K. This AGREEMENT may be executed in two (2) or more counterparts, each of which shall be deemed an original and all of which shall be deemed one and the same instrument.
- L. Under penalties of perjury, the UNIVERSITY certifies that its correct Federal Tax Identification number is 12-3456789 and it is doing business as a governmental entity, whose mailing address is University of Missouri, Office of Sponsored Programs Administration, 115 Business Loop 70W, Columbia, Missouri 65211-0001.
- M. This AGREEMENT may only be modified by written modification executed by duly authorized representatives of the PARTIES hereto.
- N. This AGREEMENT shall be binding upon and inure to the benefit of the PARTIES hereto and their respective successors and approved assigns.
- O. The failure by the ILLINOIS TOLLWAY, or the UNIVERSITY to seek redress for violation of or to insist upon the strict performance of any condition or covenant of this AGREEMENT shall not constitute a waiver of any such breach or subsequent breach of such covenants, terms, conditions, rights and remedies. No provision of this AGREEMENT shall be deemed waived by the PARTIES unless such provision is waived in writing.
- P. All written reports, notices and other communications related to this AGREEMENT shall be in writing and shall be personally delivered, mailed via certified mail, overnight mail delivery, or electronic mail delivery to the following persons at the following addresses:

To the ILLINOIS TOLLWAY:

The Illinois Toll Highway Authority  
2700 Ogden Avenue  
Downers Grove, Illinois 60515  
Attn: Chief Engineering Officer

To the UNIVERSITY:

The University of Missouri  
Office of Sponsored Programs  
Administration  
115 Business Loop 70W  
Columbia, Missouri 65211-0001  
Attn: Research Coordinator

- Q. The UNIVERSITY certifies it is not barred from being awarded a contract under 30 ILCS 500/50-10. Section 50-10 prohibits a contractor from entering into a contract with a State agency if the contractor has been convicted of a felony and 5 years have not passed from the completion of the sentence for that felony. The PARTIES further acknowledge that the chief procurement officer may declare the related contract void if this certification is false.
- R. The UNIVERSITY certifies that the UNIVERSITY, nor any substantially owned affiliate is participating or shall participate in an international boycott in violation of the U.S. Export Administration Act of 1979 or the applicable regulations of the U.S. Department of Commerce. This applies to contracts that exceed \$10,000 (30 ILCS 582)
- S. Forced Labor. The UNIVERSITY certifies it complies with the State Prohibition of Goods from Forced Labor Act, and certifies that no foreign-made equipment, materials, or supplies furnished to the ILLINOIS TOLLWAY under this AGREEMENT have been or will be produced in whole or in part by forced labor, or indentured labor under penal sanction (30 ILCS 583)
- T. Procurement of Goods or Services – State Funds. For purchases or services with any State of Illinois funds that cost more than \$10,000.00, (\$5000.00 for professional and artistic services) but less than the small purchase amount set by the Illinois Procurement Code Rules, (currently set at \$50,900.00 for supplies and services and \$20,000.00 for professional and artistic services) the UNIVERSITY shall obtain price or rate quotations from an adequate number (at least three) of qualified sources. Procurement of products or services with any State of Illinois funds for \$50,900.00 or more for goods or services and \$20,000.00 or more for professional and artistic services will require the UNIVERSITY to use the Invitation for Bid process or the Request for Proposal process. In the absence of formal codified procedures of the UNIVERSITY, the procedures of the ILLINOIS TOLLWAY will be used. The UNIVERSITY may only procure products or services from one source with any State of Illinois funds if: (1) the products or services are available only from a single source; or (2) the ILLINOIS TOLLWAY authorizes such a procedure; or (3) after solicitation of a number of sources, competition is determined inadequate.

- U. The UNIVERSITY agrees to maintain books and records relating to the performance of this AGREEMENT necessary to support amounts charged to the ILLINOIS TOLLWAY for a minimum of five (5) years from the last action of the AGREEMENT. Books and records, including information stored in databases or other computer systems, shall be maintained by the UNIVERSITY for a period of five (5) years from the later of the date of final payment under this AGREEMENT or completion of the work performed under this AGREEMENT. The UNIVERSITY further agrees to cooperate fully with any audit and to make its books and records within its custody or control available for review or audit by representatives of the Auditor General, the Executive Inspector General, the Illinois Tollway Inspector General, State of Illinois internal auditors or other governmental entities with monitoring authority, upon reasonable notice and during normal business hours.
  
- V. The introductory recitals included at the beginning of this AGREEMENT are agreed to and incorporated into this AGREEMENT.

(This section intentionally left blank)

IN WITNESS THEREOF, the PARTIES have executed this AGREEMENT on the dates indicated.

**THE CURATORS OF THE UNIVERSITY OF MISSOURI**

By: \_\_\_\_\_  
Please Provide Name  
Please Provide Title

Attest: \_\_\_\_\_

Date: \_\_\_\_\_

**THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY**

By: \_\_\_\_\_  
Greg M. Bedalov  
Executive Director

Date: \_\_\_\_\_

By: \_\_\_\_\_  
Michael Colsch  
Chief Financial Officer

Date: \_\_\_\_\_

By: \_\_\_\_\_  
Elizabeth M.S. Oplawski  
Acting General Counsel

Date: \_\_\_\_\_

Approved as to Form and Constitutionality

\_\_\_\_\_  
Tiffany Schafer, Senior Assistant Attorney General, State of Illinois



**PROPOSAL COVER SHEET FOR  
SOLICITATION #17-01**

**DEVELOPMENT OF A PERFORMANCE-RELATED ASPHALT  
MIX DESIGN SPECIFICATION**

**DUE FEBRUARY 28, 2017  
TO [sgillen@getipass.com](mailto:sgillen@getipass.com)**

<b>Submitted by: (Include Name and Address of Organization)</b>	The Curators of the University of Missouri 115 Business Loop 70W Mizzou North, Room 501 Columbia, Missouri 65211-0001
<b>Proposed Investigator(s):</b>	William G. Buttlar, Ph.D., P.E. Henry Brown, P.E. James Meister
<b>Corresponding Investigator Name:</b>	William G. Buttlar, Ph.D., P.E.
<b>Corresponding Investigator Phone:</b>	(573) 884-9328
<b>Corresponding Investigator Fax:</b>	(573) 882-4784
<b>Corresponding Investigator Email:</b>	buttlarw@missouri.edu
<b>Submission Date:</b>	February 24, 2017

## RESEARCH PLAN

### Introduction and Research Idea Statement

Some eighty years ago, the Marshall stability and flow test and Hveem stabilometer and cohesiometer devices were developed to supplement asphalt binder purchase specifications and volumetrics-based mix design methods with ‘tests on the mix.’ In both cases, tests were developed to provide bookends on high and low temperature asphalt pavement performance, i.e., rutting and durability/cracking, although it was too difficult to test in the low in-service temperature range in that era, or to reliably measure fundamental material properties. In the late 80’s and early 90’s, the Strategic Highway Research Program (SHRP) undertook an ambitious program to radically improve asphalt binder purchase specifications, aggregate requirements, mixture compaction, and performance-based mixture tests with associated models. The SHRP program created ‘Superpave’ products such as the PG Binder specification, new collections of aggregate consensus and source property tests, a new standardized asphalt gyratory compactor, and provided minor changes and national standardization of mixture volumetric design principles and use of the AASHTO T-283 tensile strength ratio test to evaluate moisture damage. After much painstaking debate early in SHRP, it was agreed that fundamental tests were the key to moving forward from the shortcomings of past, empirical, strength-of-materials, and torture test approaches. For instance, one cannot use binder penetration (PEN) values in a finite element model to relate binder properties to low-temperature cracking. However, creep stiffness from the bending beam rheometer is a fundamental measure and has been used in mixture and pavement models to develop Superpave binder specification limits. The advanced mixture tests and models that were developed and used to calibrate and validate the Superpave PG binder specification, on the other hand, were found to be unsuitable to serve as replacements for the Marshall stability and flow test or the Hveem mixture tests. For instance, two of the tests: the Superpave Shear Tester and Superpave IDT, were far too expensive, cumbersome, time consuming and variable to be practically used in mixture design.

More than 20 years has passed since the completion of the SHRP program, and although the asphalt community has produced PG-plus binder tests and has conducted extensive research to investigate simpler mixture performance tests (such as tests developed in NCHRP 1-37A for use with the M-E Pavement Design Guide), a national consensus on mixture performance tests to supplement volumetric mixture design still does not exist. In terms of permanent deformation, a few tests have gradually been adopted by agencies for routine mix design of heavy volume roadways, including the asphalt pavement analyzer, Hamburg wheel tracking test, and flow number test. Advances in applying fracture mechanics principles to asphalt concrete mixtures has led to the development of new, robust fracture tests, which show promise as tools that can accompany volumetric mix design to limit pavement cracking. Adding to this scene are a number

of newly developed or re-vamped empirical mix cracking tests. Thus, there are a number of fundamental and empirical cracking tests being proposed at this time, which include the disk-shaped compact tension test (ASTM D7313), the Texas overlay test, several tests stemming from the semi-circular bend test geometry (fracture toughness, fracture energy, and flexibility index), and several revamped IDT-based tests, such as the NCAT IDT Nflex factor test [48]. A brief review of the current literature is included in Appendix B. But as a recently-completed NCHRP Synthesis 492 states: “some agencies have investigated performance specifications for asphalt mixtures,” but a full performance specification has not been completed by any agency. The Illinois Tollway is among those agencies that has investigated performance-related specifications for asphalt pavements, and has benefitted from their use in initial trials where these tests have supplemented volumetric mixture design. A forthcoming NCHRP study on mixture performance tests has evaluated a number of asphalt mixture cracking performance tests, with an emphasis on evaluating the repeatability, practicality, degree of standardization, and ability to predict various cracking modes (NCHRP 9-57).

While the rutting test debate has settled down with the successful implementation of the Hamburg wheel tracking test in many states, a number of interconnected factors have undoubtedly clouded the national debate on mixture performance tests on the pavement cracking side of the docket. These include: 1) the existence of many cracking forms, including single event low-temperature (thermal) cracking, thermal fatigue cracking, block cracking, top-down cracking, bottom-up (traditional) fatigue cracking, reflective cracking (which is further clouded by the important role of the underlying pavement in the development of this distress), and interface debonding and cracking; 2) the differing mechanisms behind each of these cracking forms; 3) the differing pavement configurations, climatic conditions, and traffic conditions nationwide, leading to differences in cracking types observed and subsequent selection of cracking performance tests; 4) the moving target resulting from constant changes in binder refining, recycled material types and amounts, use of additives such as warm-mix, antistripping, rejuvenators, and REOB, and; 5) adjustments to Superpave mix design volumetrics that have been proposed to address higher recycling amounts, such as lowering the target air voids, use of a binder availability factor for recycled asphalt shingles, and/or raising the required VMA or volume of effective binder for mixtures with higher binder replacement.

The Tollway currently uses the IDOT method-related mix design process (or a special provisions version) which incorporates only a few tests (TSR and Hamburg wheel tracking), which have had mixed success in controlling pavement performance. With the Tollway’s emphasis on constructing and maintaining high volume expressways, high performing asphalt mixtures are needed to ensure that the Tollway is building durable, long-lasting pavements. The use of performance-related specifications (PRS) to develop high performance mix designs for Tollway

pavements would lead the way to more durable pavements, which require less maintenance and less interruption to Tollway users. Any performance-related specification test methods must be repeatable, practical, commercially available and sufficiently standardized in order for the asphalt industry to adopt them, and they must directly relate to the most critical distresses to be deterred by them in order to arrive at the desired performance level versus time for mixes placed on Tollway pavements in various applications (surface mixes, binder course mixes, shoulder mixes). In theory, a benefit arising from adoption of performance-related mixture specifications is the ability to provide additional mix designer flexibility by relaxing or removing any over-constrained method-based requirements (gradation bands, dust-to-asphalt ratio range). This should be simultaneously investigated to shorten the PRS development and implementation cycle, saving time and money.

This study will address these shortcomings through a comprehensive literature review, laboratory and field investigation, consultation with Tollway and area practitioners, a survey of related agencies, analysis and ranking of tests based on numerous metrics, and development of a performance-related mixture testing specification to improve volumetric asphalt mixture design with the inclusion of mechanical tests and improved and streamlined mix volumetric requirements.

The objectives of this research study will include:

1. A comprehensive review of the literature and relevant project reports and a survey to identify the state-of-the-art for asphalt mixture performance-related testing methods, and recent adjustments to Superpave mixture volumetric targets aimed at ensuring sufficient binder content for mixture durability.
2. Evaluating available performance tests used to predict or measure the resistance of asphalt mixtures to distresses such as rutting, low-temperature cracking, fatigue cracking, and moisture damage.
3. Developing a performance-related asphalt mix design specification, incorporating specification limits for Tollway mix designs based on the testing of samples obtained from existing Tollway pavements, and reviewing existing performance and testing data.
4. Updating the Tollway with quarterly briefings of progress-to-date.
5. Summarizing all efforts in a comprehensive final report that will include, as an appendix, a recommended performance-related specification for Tollway asphalt mixtures.

In carrying out the tasks described in the following section, the questions that will be answered by the proposed research will include:

- What are the most critical flexible pavement or asphalt overlay distresses to be controlled by a new performance-related mixture specification to be used by the Tollway?
- Based on the distresses to be controlled, which mixture performance tests and associated limits or ranges can be used to most reliably and effectively control these distresses over the

design life in the a cost-effective and practical manner?

- Has the Hamburg device successfully eliminated the need for AASHTO T-283?
- Which test devices have the versatility to be adapted and used to obtain other fundamental properties and performance measures for research/forensic purposes, and possibly for the development of future performance measures as materials, recycling, and pavement practices evolve?

And within the strong national debate on the relative merits of numerous proposed mixture cracking tests lies several unanswered questions that will need to be addressed, including:

- Can all of the critical cracking forms be controlled by a single test, or are multiple tests needed?
- If only one cracking test can be employed from a practical standpoint, should it be at intermediate temperature or low temperature?
- If a low temperature test is selected, would cracking at intermediate temperatures also be sufficiently controlled by the test, or would changes in mixture volumetrics be needed to fill the gap?
- If an intermediate temperature test is selected, how would low temperature cracking be controlled, such as by testing of the recovered binder for mixtures, particularly when higher recycling levels are used?
- Finally, can any mixture volumetric criteria be eliminated or relaxed in light of the mixture performance tests? In theory, the use of mixture performance tests should open the door for mix design flexibility and innovation, which might mean relaxing dust proportion requirements, VTM target range, and VFA. To be truly performance-based, method-based specification aspects should in theory be eliminated. Practically, method-based specification aspects should be minimized and/or relaxed as appropriate.

### **Research Approach/Work Plan**

In order to address the aforementioned study objectives and research questions, the following four research tasks will be performed.

#### ***Task 1: Literature Review***

A thorough review of the available literature and ongoing project documentation will be carried out by the research team to determine the current state-of-the-practice for asphalt mixtures testing and to identify those asphalt mixture performance tests that may be included in a performance-related specification for asphalt mixtures. Appendix B provides a preview of the available current literature in the area of asphalt mixture performance tests and specifications. Some of the subtasks proposed to be performed within Task 1 include:

- Comprehensive search of journal papers, conference papers, technical reports, theses,

agency and industry websites.

- Development and deployment of a brief, targeted survey to be administered to state highway, toll authorities and other related agencies in the US. The survey will provide an updated snapshot of the asphalt tests and specifications being used, developed or considered by relate agencies, along with information regarding the objectives of the PRS, including: which distresses are being addressed, and how; what test procedures and limits are being used; what recent changes in Superpave mixture volumetric design have been used, and why; how the PRS is being developed and validated, implications of added cost for mixture design and asphalt bid prices and expected life extension and overall life cycle savings, and; lessons learned during PRS development and implementation.
- Compilation of draft and final literature search and survey synopses, after synthesizing, analyzing, interpreting, and organizing the findings.
- Meeting with the Technical Review Panel to review findings and to discuss approach for developing the first draft of the PRS. The desired scope of the study moving forward will also be discussed, for instance, to determine how much relative emphasis to place on SMA surface mixes, and dense-graded mixes for lower lifts and shoulders. A robust PRS should be equally applicable to SMA and dense-graded mixes, although volumetric and performance test limits will differ between these mixes due to the differences in their composition, usage (riding surface vs. structural or shoulder use), the key distresses to be controlled, types and levels of recycled materials to be incorporated, and mixture economics.

Task 1 deliverables: Draft synopsis, final synopsis (incorporating Tollway comments and suggestions for draft document).

**Task 2: Draft PRS**

A draft performance-related specification for Tollway SMA and dense-graded asphalt mixtures, complete with sampling, testing and mix volumetric target and range recommendations for implementation on near-term Tollway rehabilitation and reconstruction projects will be developed. A number of subtasks will be conducted and factors will be considered in the development of the draft specification, including:

- Review of past experiences and availability of performance test results from previously designed and constructed Tollway asphalt mixture sections, and information garnered from the literature review and survey.
- Key distresses to be controlled in the PRS, possibly including: rutting, single event low-temperature cracking, thermal fatigue cracking, block cracking, fatigue cracking (top-down and traditional bottom up), reflective cracking, raveling, moisture damage, and interface debonding. Obviously, it is not anticipated that a practical, first-generation PRS will be able

to directly address all of these common asphalt distress types. However, the intentional prioritization and strategic selection of a suite of tests and associated limits based on the identified priorities will lead to the most effective and efficient first-generation PRS. Directly or indirectly, the performance tests and mixture volumetric design changes proposed will mitigate or significantly deter many of the listed distresses.

- A narrowly-focused and aggressively-scheduled laboratory study will be performed in the first half of the study, designed to answer some of the critical research questions, namely: the number and type of mixture cracking tests needed in the PRS; if and how adjustments to Superpave mixture volumetrics can be used along with a single selected mixture cracking performance test to effectively control multiple forms of pavement cracking, and; if low temperature binder tests on the recovered binder are needed as part of mix design in light of the selected mixture cracking performance test and adjusted volumetric targets. Anticipated tests to be performed (hereafter referred to as 'Performance Test Suite'), with adjustments as needed from Task 1 and input from the TRP include:
  - Hamburg wheel tracking (AASHTO T324)
  - Disk-shaped compact tension test (ASTM D7313-07)
  - IL-SCB, or 'i-FIT' (ITP-405)
  - Reference/alternate cracking test, to be approved by the TRP, for instance, 4-pt flexural fatigue test (ASTM D7460-10), or Indirect Tension Test (NCAT IDT Nflex factor method)
  - Extraction and recovery and Superpave binder testing, including MSCR testing (AASHTO T350, M320)
  - Mixture volumetrics and TSR (AASHTO T166, T209, T283)
- Results will be reviewed in conjunction with the Technical Review Panel (TRP), and a draft PRS will be developed and fine-tuned by working with the TRP.

Task 2 deliverables: Draft specification for performance-related asphalt mixtures and appendix containing results of supporting laboratory investigation.

### ***Task 3: Project Shadowing with PRS***

Laboratory testing will be performed on samples obtained from Tollway projects to collect data on actual projects to obtain performance indicators that can be expected as part of asphalt mixture production. Sample collection and materials testing will be performed as a shadow-type monitoring activity during asphalt mixture production on Tollway asphalt projects. Parallel tests on lab-produced specimens that relate to the corresponding field mix designs will also be conducted. These activities will include:

- Working closely with the mixture designer on Tollway asphalt projects to develop several candidate mix designs for selected mixtures on selected projects, to generate more

laboratory data to support finalization of the PRS, and to open the door for the construction of long-term monitoring test sections (side-by-side comparisons of mixes designed to meet the candidate PRS, but with significantly different design approaches).

- Conducting laboratory testing on samples collected on these shadowed projects (and corresponding lab-produced specimens), with an eye towards resolving any unanswered research questions, and to develop more data on inter-laboratory repeatability of the proposed performance tests. Testing will follow the Performance Testing Suite shown in Task 2, with some narrowing of performance tests based on the results of Task 2, in consultation with the TRP (for instance, elimination of the reference/alternate mix performance test if further data is deemed unnecessary).
- Documenting designs, field trials and associated laboratory tests to maximize what can be learned from the sections developed with the new PRS as they perform under traffic and environmental loading in the years that follow.
- Analysis of results and in-depth discussions with the Technical Review Panel to determine if any adjustments to the asphalt PRS are needed.

Task 3 deliverables: Report documenting design, construction and field test sections established, along with laboratory results obtained from materials sampled on shadow monitoring projects of ongoing Tollway asphalt projects, along with results from parallel laboratory-prepared mix testing. A revised PRS, which will also be included in the appendix of the final report.

#### ***Task 4: Final Report***

A comprehensive final report will be compiled, documenting the laboratory results obtained, initial field performance observations for pavements where mixtures were subjected to the shadow monitoring effort, and will include a revised performance-related specification based on the data collected.

Task 4 deliverables: Draft Final Report (submitted 45 days prior to the end of the project) and a Final Report (incorporating Tollway comments and suggestions on the Draft Final Report).

Deliverables that will be provided throughout this project will include:

- Quarterly progress reports, in electronic format, containing a summary of effort performed during the quarter and expected progress for the following quarter.
- A comprehensive literature review, resulting from completion of Task 1.
- A draft performance-related specification (PRS) for Tollway SMA and dense-graded asphalt mixtures and supporting lab data, resulting from the completion of Task 2.
- An interim report documenting data collected during the shadow monitoring activities, along with recommended adjustments to the draft PRS (Task 3).
- Final report, in electronic format, summarizing the results and recommendations developed as a result of this research effort (Task 4). A draft final report will be submitted 45 days prior

to the end date of the research contract. After the Tollway reviews and provides comments and feedback (expected within 15 days of submission of the draft final report) the research team will address the comments and questions, make revisions, and resubmit the final report within 30 days.

- Two hard copies and one electronic copy (pdf) of the final report will be provided.
- A one-page technical briefing document summarizing the results of the research effort will be provided.

### **Anticipated Research Results**

Following the proposed testing plan, the research results are expected to provide definitive data that will support the development of an effective performance-related asphalt mixture design specification for the Tollway. This will be accomplished by learning from past experiences and data available on Tollway projects and related agencies, by addressing a number of critical research questions as outlined earlier through a focused and effective experimental design utilizing both field and lab produced mixtures, and through consultation with the Tollway and other experts on the Technical Review Panel. A PRS will be developed, implemented in the field, studied, and revised during the course of the 30-month study. The results are also expected to produce long-term benefits, by carefully documenting projects that can be revisited later to validate and improve the developed PRS.

### **Applicability of Results to Illinois Tollway Practice**

The proposed research is designed to be readily used and implemented by the Tollway, and successful completion of Tasks 1-4 will in fact produce a first-generation PRS, which will be implemented by project shadowing and validated/adjusted as needed to produce a second-generation PRS by the end of the project, along with well-documented field trials. This will place the Tollway well along the path to having a robust, field-validated PRS for modern asphalt mixture SMA and dense-graded mixture design. The proposed approach will allow the Tollway to continue to be a national leader in asphalt mixture recycling and sustainability, by having a PRS that pays particular attention to the volumetric and mixture performance properties that, when met, lead to the design of high performance, high ABR mixes and which allow for the optimized use of other innovative recycled materials, such as ground tire rubber. It has been shown by researchers at TAMU that transportation research can produce a 20-fold or more return on investment (ROI). It is strongly believed that the proposed research would yield an ROI at this level or higher, based on the mix tons placed by the Tollway, ability to increase recycling levels with confidence, and expected life extension resulting from implementing the new PRS.

## QUALIFICATIONS AND ACCOMPLISHMENTS OF THE RESEARCH TEAM

### Principal Investigator

William G. Buttlar, PhD, PE  
Professor and Glen Barton Chair in Flexible Pavements  
Department of Civil and Environmental Engineering  
University of Missouri-Columbia  
Adjunct Professor, University of Illinois at Urbana-Champaign

### *Bio*

Dr. Buttlar earned his Ph.D. in Civil Engineering at Penn State University in the area of Pavements and Materials in 1996. Dr. Buttlar was recently named as the Glen Barton Chair in Flexible Pavement at the University of Missouri-Columbia, where he oversees the new Mizzou Asphalt Pavement and Innovation Lab (MAPIL), funded in part by the Missouri Asphalt Pavement Association (MAPA). His research and professional interests include: analysis, asphalt performance test development, modeling and design of asphalt pavements, thermal and reflective cracking studies, fracture testing and modeling in asphalt materials and composite pavements, smart city infrastructure evaluation and management, and sustainable pavement materials. Dr. Buttlar has been working extensively on asphalt mixture performance tests and models for the past 25 years, starting his career as a research engineer for the Strategic Highway Research Program (SHRP) and responsible for development of the Superpave IDT (AASHTO T-322), and collaborated on development of the BBR, DTT, and TC-Model. Recent work in Dr. Buttlar's group has led to the development of a new fracture test for asphalt concrete at low temperatures, called the disk-shaped compact tension test, or DC(T), which is now specified in ASTM D7313-07. His recent paper on the use of nonlinear ultrasonics to assess asphalt pavement surface damage led to the 2016 Best Paper award by the American Society for Nondestructive Testing. Dr. Buttlar has over 250 publications in the area of asphalt materials and pavements (**including 65 journal papers directly related to this proposal (see Appendix B)**), and over 50 invited presentations and keynote lectures presented throughout the US, Europe and in China. He has been active on a number of national and international committees, including TRB AFK-50, AFK-50(1), AFK-50(2), RILEM SIB, and FHWA Models Expert Task Group. He chairs the RILEM committee, TC-MCD, Mechanisms of Cracking and Debonding in Asphalt and Composite Pavements, and was co-chair of the 8th RILEM International Conference on the Mechanisms of Cracking and Debonding in Asphalt Pavements. He serves on the Board of Directors for AAPT, and is a member of the Council of Trustees for ASCE.

Prior to his endowed faculty appointment at Mizzou, Dr. Buttlar was on the faculty at UIUC for 20 years, and had recently served as the Associate Dean in the Graduate College at the University of Illinois at Urbana-Champaign, and as Associate Dean for Graduate, Professional

and Online programs in the College of Engineering. He retains an adjunct faculty position at UIUC in the department of CEE.

In addition to developing asphalt mixture cracking performance tests and models, Dr. Buttlar has worked with a number of agencies to prototype or develop PRS systems, including: the IHSTA, AASHTO (implemented TC-Model in the ME-PDG), the Federal Highway Administration (National Pooled Fund study on Low-Temperature cracking), the Federal Aviation Administration, IDOT, CDOT, MnDOT, MoDOT, and industry. He assisted Test Quip, Inc. in the development of a mixture performance test device capable of running multiple cracking tests, including the DC(T), SCB, OLT, cyclic DCT, and DCT creep. His work with IDOT on analyzing End-Result asphalt construction specifications led to a TRB Best Paper award (Fred Burggraf award).

#### *Selected Research Projects*

- 2015-2016, Laboratory Investigation of Illinois Tollway Stone Matrix Asphalt Mixtures With Varied Levels of Asphalt Binder Replacement, Illinois Tollway
- 2016-2017, Laboratory and Field Investigation of Tollway Asphalt Mixtures: Phase II – GTR Study on I-88, Illinois Tollway
- Performance of Modern Recycled Asphalt Mixes in Missouri (Ground Tire Rubber, Recycled Roofing Shingles, and Rejuvenators), USDOT MTC/MoDOT
- 2010-2012, GOALI: Hybrid Failure Approach using Digital Image Correlation for Functionally Graded Thin-Bonded Overlays, National Science Foundation
- 2011-2013, Laboratory Support of Warm-Mix Project at Chicago ORD, OMP
- 2009-2012, IDOT R27-79A, Designing, Producing & Constructing Fine-Graded HMA in IL, IDOT-ICT
- 2011-2012, Crack Resistance and Bonding Optimization Methods for UTBWC, Road Science, LLC
- 2012-2015, Testing, Modeling, and Support for FAA Reflective Cracking Study, FAA
- 2014-2017, Performance of Green Approaches in Airfield Pavements: OMP-ORD

#### **Co-Principal Investigator: Henry Brown**

##### *Bio*

Mr. Henry Brown is a Research Engineer in the Department of Civil and Environmental Engineering at the University of Missouri-Columbia. During his four years at MU and prior 14 years working as a Highway Engineer at the Indiana Department of Transportation (INDOT), Mr. Brown has gained significant experience with pavement preservation, project management, handling project coordination with various stakeholders, and preparing and reviewing plans and specifications for road and bridge projects. He is currently active on a project to develop

Pavement Management Plans for the general aviation airports in Missouri and previously led a project aimed at helping the city of Grandview, Missouri to implement a pavement management system utilizing a mix of fixes approach with the right treatment at the right time. He also contributed to a study that investigated the economic benefits of harvesting energy from pavements and led two FHWA pooled fund projects that included both online and phone surveys of state DOTs and other stakeholders regarding their best practices for safety and operations in work zones. During his tenure at INDOT, Mr. Brown was responsible for preparing and reviewing plans, cost estimates, and specifications for various road and bridge projects, including several freeway projects. He obtained his BSCE and MSCE degrees from Purdue University and is a registered Professional Engineer (P.E.) in the states of Indiana and Missouri.

**Co-Principal Investigator: James Meister**

*Bio*

Mr. James Meister is a Research Engineer in the Department of Civil and Environmental Engineering at the University of Missouri-Columbia Having recently joined MU, Mr. Meister has been responsible for purchase and installation of the testing equipment in the new Missouri Asphalt Pavement and Innovation Lab (MAPIL). He is also responsible for training all student researchers on proper equipment usage and applicable test standards. Prior to joining MU, Mr. Meister worked for 10 years as a research engineer and then senior research engineer at the University of Illinois's Advanced Transportation Research Engineering Laboratory (ATREL) at the Illinois Center for Transportation (ICT).

At ATREL, Mr. Meister worked in a number of areas to keep the laboratory operational and physical research projects on schedule. He also assisted on all field site visits required by research at ICT and contributed to the collection of field data. He traveled to Colorado and Alaska to apply ground penetrating radar technology to ballast fouling, visited 9 states and Canada for each of 3 years for a crack sealant evaluation study, and conducted many other field site visits in Illinois and other states. He was responsible for the operation and maintenance of the Accelerated Transportation Loading Assembly (ATLAS), a full scale loading machine used to apply decades of traffic to full scale pavement systems in a few months of operation.

Mr. Meister was a part of the University of Illinois research team prior to the inauguration of the Illinois Center for Transportation. He created and continually updated the lab safety program for ATREL. He was also instrumental in ATREL attaining the rating of an IDOT approved testing laboratory and performed proficiency testing, standards updating, and on-site test evaluations. For instance, Mr. Meister oversaw and performed test evaluations for ATREL's AMRL accreditation.

## OTHER COMMITMENTS OF THE RESEARCH TEAM

The current and proposed commitments of the key members of the research team are summarized in the following table.

Staff	Company	2017-2019 Commitments	Availability
Bill Buttlar	University of Missouri	MTC-MoDOT RAP, RAS, Rubber, Rejuvenator Project O'Hare Research Project MoDOT AFAD Evaluation Teaching CV_ENG4/7104 Advising and service to campus, AAPT, RILEM and ASCE	20%
Henry Brown	University of Missouri	MoDOT Airport Pavements (sub to ARA) NCHRP Bridge Element Inspection USDOT Post Tensioned Bridges FHWA Work Zone Safety Grant MoDOT AFAD Evaluation FHWA SWZDI Safety Assessment Tool FHWA SWZDI Moving Work Zones	30%
James Meister	University of Missouri	MTC-MoDOT RAP, RAS, Rubber, Rejuvenator mix evaluation MAPIL lab operations CV_ENG4/7104 lab sections	40%

## EQUIPMENT AND FACILITIES

### MU Pavement Laboratories

The Principal Investigator, Dr. Bill Buttlar, is also the Director of the new Missouri Asphalt Pavement and Innovation Laboratory (MAPIL), which features cutting-edge research at the interface of pavement materials and intelligent infrastructure. The MAPIL facility, which opened in the December 2016 in the newly renovated Lafferre Engineering Building on the MU campus, features cutting-edge asphalt binder, mixture, and sustainable infrastructure materials labs, alongside an intelligent infrastructure sensor development and computing laboratory. The binder lab features the full suite of Superpave binder tests, along with an advanced Anton Paar dynamic shear rheometer, a fourier transform infrared spectrometer, and an acoustic emission embrittlement analyzer. The mixture performance testing lab features the Superpave mixture design specimen preparation and testing equipment, alongside advanced performance tests such the Superpave Indirect tension test (AASHTO T-322) and Disk-Shaped Compact Tension Test (ASTM D7313), the former two devices having been originally developed by Professor Buttlar and colleagues, Hamburg wheel tracking (AASHTO T324), IL-SCB, or 'i-FIT' (ITP-405), 4-pt flexural fatigue test (ASTM D7460-10), E\* master curve and flow number (ASTM D3497), Indirect Tension Test (NCAT IDT Nflex factor method), extraction and recovery and Superpave binder testing, including MSCR testing (AASHTO T350, M320), and mixture volumetrics and TSR (AASHTO

T166, T209, T283). The intelligent infrastructure laboratory provides a collaboration space where students and faculty researchers can work together to develop new sensing devices, techniques, and computing hardware and software for future roads and cities. Additional laboratory space on and off campus (the Remote Test Facility, or RTF) are also used to receive, store, and process materials, and to conduct routine infrastructure materials tests (aggregate fractionation and sieve analysis, multiple methods for binder content determination, material splitting, etc.).

### **MU NDE Laboratory**

The MU Nondestructive Evaluation (NDE) laboratory is equipped with state-of-the-art NDE equipment for condition assessment of civil structures. The NDE laboratory is housed on the MU campus and is comprised of 1500 sq. ft. of NDE laboratory space and 4000 sq. ft. of high-bay space for structural testing. The NDE laboratory includes cameras for performing Infrared Thermography (IRT), Ground Penetrating Radar (GPR) systems, and Impact Echo (IE) systems for evaluation of corrosion damage in concrete structures.

### **Other Facilities**

- The MU Remote Testing Facility (RTF) is a large, off-campus facility used to conduct large- and full-scale experiments on structures. The facility has been used to conduct state-of-the-art research regarding blast-resistant design and bridge design and will also be used to support the new MAPIL operations.
- The MU laboratories are supported by Engineering Technical Services (ETS), a full-service academic and research technical support facility located in the MU College of Engineering. ETS utilizes a wide variety of equipment to design and fabricate specialized research instrumentation and apparatuses. The unit also installs, configures, maintains, and repairs electronic, computational, and mechanical equipment and systems.

### **COOPERATIVE FEATURES**

We anticipate working closely with Tollway contractors and partners to collect the data and field samples needed to carry out the proposed study. For instance, Dr. Buttler has a proven track record of working with engineers at Applied Research Associates over the span of his 21 years as a faculty member, including close collaboration during his two recent studies with the Tollway as a subcontractor under ARA. In those studies, he has also worked extensively with S.T.A.T.E. Testing LLC to obtain and comparatively test performance test specimens in support of the research. It is expected that senior engineers from ARA and/or S.T.A.T.E. may also be invited to serve on the project Technical Review Panel. Dr. Buttler along with his co-PIs (Brown and Meister) will benefit from their many contacts at agencies throughout the Midwest and US as they conduct the proposed survey in Task 1.

**TIME REQUIREMENTS**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<b>Task 1. Literature Review</b>																															
1a. Literature search	Planned work	Planned work																													
1b. Survey		Planned work	Planned work																												
1c. Draft synopsis		Planned work	Planned work	Deliverable due at end of month																											
1d. Final synopsis				Planned work	Deliverable due at end of month																										
1e. Meet with TRP					Planned work																										
<b>Task 2. Draft PRS</b>																															
2a. Review past results						Planned work	Planned work																								
2b. Identify key distresses						Planned work	Planned work																								
2c. Laboratory study							Planned work	Planned work	Planned work	Planned work																					
2d. Prepare draft PRS								Planned work	Planned work	Planned work	Deliverable due at end of month																				
<b>Task 3. Project Shadowing with PRS</b>																															
3a. Develop mix designs												Planned work	Planned work																		
3b. Laboratory testing													Planned work	Planned work	Planned work	Planned work															
3c. Document designs and tests																			Planned work	Planned work											
3d. Analyze results																					Planned work	Planned work									
3e. Revise PRS																						Planned work	Deliverable due at end of month								
<b>Task 4. Final Report</b>																															
4a. Prepare draft report																									Planned work	Planned work	Planned work	Planned work	Deliverable due at end of month		
4b. Prepare final report			Quarterly report due at end of month			Quarterly report due at end of month			Quarterly report due at end of month			Quarterly report due at end of month			Quarterly report due at end of month			Quarterly report due at end of month			Quarterly report due at end of month			Quarterly report due at end of month			Quarterly report due at end of month			Planned work	Deliverable due at end of month

- Planned work
- Deliverable due at end of month
- Quarterly report due at end of month

**Proposed monthly schedule for the project "Development of a Performance-Related Asphalt Mix Design Specification"**

**ITEMIZED BUDGET**

Proposal Title: Development of a Performance-Related Asphalt Mix Design Specification		9/01/17	9/01/18	9/01/19	
Project Dates: 9/1/2017 – 3/1/2020		8/31/18	8/31/19	8/31/20	
<b>Expense Category</b>	<b>Sh Cr % aka RIF</b>	<b>Year 1 12 months</b>	<b>Year 2 12 months</b>	<b>Year 3 6 months</b>	<b>Total</b>
A. Senior Personnel (indicate # mo AY & # mo SS )					
1. PI - William Buttlar, 1:1:.5 mo/year	90%	21,744	22,396	11,534	55,674
2. Res. Engineer - Henry Brown, 1:1:.5 mo/year	10%	6,763	6,966	3,587	17,316
3. Res. Engineer - Jim Meister, 3:2:1 mo/yr	0%	20,600	14,145	7,285	42,030
<b>Total A</b>	<b>100%</b>	<b>49,107</b>	<b>43,507</b>	<b>22,406</b>	<b>115,020</b>
B. Student Personnel	# each				
1. GRA (M.S.) 0.5 FTE, 12 months	0	-	-	-	-
2. GRA (Ph.D.) 0.5 FTE, 12 months	1	24,036	24,757	12,750	61,543
3. Undergraduate Employees	2	3,000	2,000	-	5,000
<b>Total B</b>		<b>27,036</b>	<b>26,757</b>	<b>12,750</b>	<b>66,543</b>
<b>Total A + B</b>		<b>76,143</b>	<b>70,264</b>	<b>35,156</b>	<b>181,563</b>
C. Fringe Benefits					
1. FRINGE Benefits on Full-time*		17,890	16,324	8,660	42,874
2. Tuition for GRAs (\$469.9/ch +3% ann inc)		10,648	10,967	11,296	32,911
3. Medical Insurance for GRAs (\$2,628/yr +3% ann inc)		2,707	2,788	2,872	8,367
<b>Total C</b>		<b>31,245</b>	<b>30,079</b>	<b>22,828</b>	<b>84,152</b>
<b>TOTAL A + B + C</b>		<b>107,388</b>	<b>100,343</b>	<b>57,984</b>	<b>265,715</b>
E. Travel Domestic		4,000	4,000	2,000	10,000
F. Materials and Supplies		5,000	4,000	1,000	10,000
G. Publications					-
<b>Total Direct Costs</b>		<b>116,388</b>	<b>108,343</b>	<b>60,984</b>	<b>285,715</b>
<b>Modified Total Direct Cost Base</b> (formula, NO subaward)		<b>105,740</b>	<b>97,376</b>	<b>49,688</b>	
Facilities & Administrative (F&A) Costs (55% MTDC)		58,157	53,557	27,328	139,042
<b>Total Project Costs</b>		<b>174,545</b>	<b>161,900</b>	<b>88,312</b>	<b>424,757</b>

## **APPENDIX A: BUDGET JUSTIFICATION**

### **Personnel**

*Senior Personnel:* Salaries for the Principal Investigator and Co-Investigator(s) are based on their current 2016-2017 academic year salaries (Dr. Buttlar is a 9-month appointment while Mr. Brown and Mr. Meister are 12-month appointments). The University of Missouri typically grants salary increases on September 1 of each year. Increase percentages vary from year to year and by employee category and merit based upon guidelines issued by the University of Missouri System. For estimation purposes, salaries are estimated to increase by 3% at the beginning of each year proposed.

*Student Personnel:* Graduate Research Assistant (GRA) salaries range from \$1,530 to \$2,200 per month, depending upon the scholastic level of the student (M.S., Ph.D., or Ph.D., past comprehensive exams). These salaries represent 0.5 FTE for the portion of the time the students are at UMC. Salary rate for GRAs are set by the PI based on skills and qualifications needed for the project work. Support is requested for one GRA, a PhD level student at the 0.5 FTE level, with a salary of \$2003 per month for 12 months per year.

Undergraduate Employees will be hired to work at a rate of \$1,000 per semester. Support requested is for three undergraduate students in the first full year of the project (one semester each), and two undergraduate students in the second full year of the project (one semester each).

### **Fringe Benefits**

*Full-time:* Fringe benefit rates for full-time University employees are subject to change as approved by our federal cognizant agency, DHHS. The approved FY17 fringe benefit for full-time Campus employees is 36.43% on non-federal agreements, including 7.65% FICA. Fringe rates are estimated to be adjusted by the cognizant agency annually. Multiple year proposals show an increase of 3% per subsequent year. Upon award, the actual approved rates will be applied.

*Tuition Charges:* The University of Missouri-Columbia has an educational fee remission program in which tuition for graduate students who are working on grant/contract projects is paid directly from the grant/contract. Estimates are based on 9 credit hours per semester (winter/fall) and 4 hours (summer) for each student. The per-credit hour fee for Fall Semester 2016 is \$469.90 with a 3% increase per subsequent year.

*Medical Insurance:* Coverage at a cost of \$2,628 for academic year 2016-2017 is provided for Graduate Research Assistants with a 3% yearly increase estimated in the budget thereafter.

### **Equipment Costs**

No equipment is proposed for purchase under this project.

## **Travel**

Airfare and ground transportation for trips to conferences, meetings, and site visits, etc. will be at the lowest possible rate available at time of travel. Mileage reimbursement for use of one's personal vehicle is \$0.51/mile, effective Jan 1, 2016. Cost estimates provided are based on previous travel. If meals are included in conference registrations, covered by other University payments, or paid by others, the traveler is responsible for making appropriate deductions to the per diem amount when submitting their reimbursement request.

Travel costs will be minimized for Dr. Buttlar by leveraging his travel to Illinois for his collaborative work with UIUC on other projects (MoDOT, Midwest Transportation Center, O'Hare research), and as an adjunct faculty member at UIUC, where he frequently visits campus to advise graduate students. A number of trips to Chicago for the conduct of meetings and field work for this proposed Tollway project will originate and return to Champaign, IL. Besides in-state travel in Illinois, travel funds have been allocated for the PI, co-PIs, and graduate student to make conference presentations in state and regional asphalt conferences (approximately 3 person-conference trips per year), plus some travel funds have been allocated to facilitate travel to Chicago for picking up field sampled asphalt cores (first and second year of project).

*Foreign and Domestic (outside the state of Missouri) Meal Allowance:* For domestic travel outside the state of Missouri and for foreign travel, reimbursement is allowed at the per diem rate prescribed by the U.S. Department of Defense "Per Diem, Travel and Transportation Allowance Committee." This information can be accessed online at: <http://www.defensetravel.dod.mil/site/perdiemCalc.cfm>

## **Other Direct Costs**

*Materials and Supplies:* Materials and supplies are defined as tangible personal property, other than equipment, costing less than \$5,000. Funds requested for materials and supplies include materials, laboratory supplies and other consumables directly related to the proposed work. These supplies will be used solely to accomplish the aims of this project.

## **Facilities and Administrative Costs**

The University of Missouri-Columbia last negotiated an indirect rate agreement with the U.S. Department of Health and Human Services (DHHS), Region VII on 7/7/2016. The indirect rate for on-campus research is 55% MTDC for the period 7/1/2016-6/30/2020. The DHHS contact is Arif Karim, phone 214-767-3261.

*Modified Total Direct Costs (MTDC):* Equipment valued over \$5,000, participant support, animal per diem costs, and tuition costs are exempt from F&A costs. F&A charges are applied on the first \$25,000 of subcontracts.

## Appendix B: REVIEW OF CURRENT LITERATURE

### Review of Existing Practices for Asphalt Performance Testing

This section presents a summary of the currently prevalent asphalt mixture performance tests incorporated by state DOT's and transportation agencies in their asphalt mixture manufacturing process. The review categorizes the tests according to the parameters and/or the distresses they address.

#### *Complex modulus*

Complex modulus is one of the major inputs in the Pavement ME software. Complex modulus is calculated in accordance with AASHTO TP62-07. The procedure uses asphalt concrete specimens of 150 mm height and 100 mm diameter. The test is performed at temperatures -10, 4.4, 21.1, 37.8, and 58.4 °C, and at frequencies of 0.1, 0.5, 1, 5, 10, and 25 Hz. This is a stress-controlled test and the strains are limited to a range of 50 to 150 microstrains. The Asphalt Mixture Performance Tester (AMPT) has gained immense popularity in recent years as a preferred method to obtain the complex modulus and develop the master curves in accordance with AASHTO PP 61 [1], [2]. Nearly 26% of state DOTs have reported the use of this parameter for mixture acceptance and pay factor assignment [3].

#### *Rutting and moisture sensitivity*

Wheel tracking tests are the most common method used to determine the rutting resistance. The Hamburg Wheel Tracking Test (HWTT) (AASHTO T324) and Asphalt Pavement Analyzer (APA) (AASHTO TP63) are the most commonly used devices for conducting the tests. Both simulate real traffic conditions by passing standardized steel/aluminum wheels on top of asphalt mixture specimens. The tests measure rut depth versus the number of wheel passes. HWTT has been widely used by researchers in determining the rutting susceptibility as well as the moisture sensitivity of asphalt mixtures, with and without modification [4]. The APA test can simulate the effect of tire pressure on rutting and was shown to be well-correlated with the field results [5]. Rutting characterization can also be done by correlation with flow number and complex modulus, both measured by AMPT [6]–[8]. Moisture sensitivity is most commonly measured by the Tensile Strength Ratio test (AASHTO T283). Samples are conditioned in hot water bath to simulate field conditions and the ratio of tensile strength of unconditioned and conditioned samples is reported as the TSR value. Nearly 63% of state DOT's use these tests for mixture acceptance and pay factor assignment [3].

#### *Fatigue cracking*

Fatigue cracking is predominantly associated with repeated traffic loads. Several tests have been used to characterize fatigue cracking. Ghulzan and Carpenter used Indirect Tensile Test (ITT) to evaluate the fatigue characteristics of asphalt mixes. They used the phenomenological or the Stress vs. number of cycles approach [9]. Huang et al. and S. Saadeh used flexural Beam-Fatigue (BF) test (AASHTO T321), which is a four point loading test wherein

small beams (380x50x63 mm) are subjected to repeated loads, to characterize asphalt mixture specimen in terms of fatigue life [10], [11]. The push-pull fatigue test, developed by Richard Kim at NCSU, characterizes the fatigue damage in an asphalt mixture specimen using a simple uniaxial test and Viscoelastic Continuum Damage (VECD) principles [2]. Cong et al. used surface energy concept of asphalt mixture to characterize the fatigue behavior. They used a uniaxial strain-controlled cyclic tensile test to determine the dissipated pseudostrain energy and determined the final number of cycles to failure for different asphalt mixtures [12]. The Texas Overlay Test (OT) (Tex-248-F), applies a cyclic triangular waveform with a constant maximum displacement of 0.64 in. simulating the opening and closing action of joints. This test records the number of cycles to failure and the data obtained is used to determine the crack initiation and propagation potential of the mixture [13], [14]. Approximately 37% of state DOT's use these tests for mixture acceptance and pay factor assignment [3].

#### *Thermal cracking*

Thermal cracking is one of the primary distresses of asphalt pavements in cold climates. The Thermal Stress Restrained Specimen Test (TSRST) (AASHTO TP 10) is a simple test wherein a rectangular asphalt mixture specimen is allowed to cool but is restrained on shorter edges, leading to development of thermal stresses within the specimen and ultimately cracking when the thermal stresses exceed the tensile strength of the specimen. It was used by researchers in various studies with modified asphalt mixture specimen being tested for cracking potential and fatigue life [15], [16]. The Indirect Tensile Strength test (IDT) (AASHTO T322) measures tensile strength and creep properties of asphalt mixture specimen. The fracture energy of the specimen is determined by measuring the vertical strain at the center of a diametrically loaded cylindrical specimen. The relaxation modulus data, obtained by converting the creep compliance data, is used to estimate the thermal stresses and calculate the critical cracking temperature [17].

The Disk-Shaped Compact Tension test (DCT) (ASTM D7313-13) measures the low-temperature cracking potential of the asphalt mixtures. The specimen is pulled through the drilled holes, forcing the crack to propagate in perpendicular direction through a pre-fabricated notch. The test is conducted at a constant Crack Mouth Opening Displacement (CMOD) rate of 1in./min. The area under the Load-CMOD curve, normalized by the fracture area of the specimen, is reported as the fracture energy of the asphalt mixture specimen. Marasteanu et al. conducted various thermal cracking tests in a national pooled fund study funded by FHWA, and reported DCT as the most effective test [18], [19]. Researchers have used DCT tests to capture the effects of modifiers and aging in asphalt specimen [20].

The Semi-Circular Bending (SCB) test utilizes a simple three-point bending mechanism to determine the cracking resistance of the asphalt mixture specimen by calculating the fracture

energy. The test uses a semi-circular specimen, and the load is applied at the center of specimen periphery. In 2016, Ozer et al. introduced the IL-SCB method for cracking resistance characterization. Based on previous experiences, the researchers found that it is difficult to correctly discriminate the asphalt mixtures based only on fracture energies. They observed that the post-peak slope of the load-displacement curve from the SCB test was sensitive to the changes in the composition of asphalt mixture and used this to develop the Flexibility Index (FI). Ozer et al. used IL-SCB method to evaluate and discriminate the mixes with increasing high asphalt binder replacement (30%-60%) through addition of RAP/RAS [2], [21].

The Acoustic Emission-based test (AE) characterizes the low-temperature cracking potential of asphalt mixtures. Upon rapid cooling, the specimen releases strain energy in the form of transient stress waves due to onset of micro-cracks. The waves, beyond a set threshold, indicate an onset of damage due to thermal stresses and can be picked up by short-range AE piezoelectric sensors [22]. Dave et al. used this test for low-temperature fracture characterization of four different mixes and it showed excellent co-relation with the Superpave PG low temperature grade [20].

At present, only 26% of DOT's use these tests for mixture acceptance and pay factor assignment [3].

#### *Tools based on performance tests*

Illi-TC, developed by Dave et al. at the University of Illinois, Urbana Champaign (UIUC), primarily uses DCT fracture energy, IDT tensile strength, and IDT creep compliance results to first predict the number of critical events that would cause thermal cracks in the pavement and then goes on to perform a viscoelastic FE analysis for predicting the amount of thermal cracking (m/500m) [23]. The Thermal Cracking Analysis Package (TCAP) is a newly developed model at University of Nevada, Reno, in 2015 by Alavi et al. The model takes into account more variables of asphalt mixture, like aging, temperature dependent coefficient of thermal expansion and contraction (CTEC), than its predecessors. At this point, the model only predicts the number of critical events for a particular simulation of asphalt pavement at a location [24]. Buttlar et al. developed the Performance-Space diagram, a graphical interactive tool suitable to capture the high- and low-temperature mixture performance test results in a single visual. The DCT fracture energy results are plotted in the X-axis scale versus the Hamburg Wheel Tracking Test results in a reverse Y-axis scale [25]. Al-Qadi et al. developed a similar interaction plot by using the results of Flexibility Index, plotted on Y-axis, and Hamburg Wheel Tracking Test, plotted on X-axis [2].

## **DOT Asphalt Performance Specifications**

DOTs currently use a variety of asphalt performance specifications. A summary of the current state of the practice regarding asphalt performance specifications is provided below.

- New Jersey DOT (NJDOT) uses APA (AASHTO T340), Flexural Beam Fatigue (AASHTO T321), and Overlay tester (TEX 248-F) for its mix design [26]
- Alabama DOT (ALDOT) uses the Asphalt Pavement Analyzer for testing rutting susceptibility of SMA mixes and accepts mixes with rutting less than 4.5mm. The test is done in accordance with ALDOT-401 [27]
- The National Center of Pavement Preservation (NCP) prepared a pilot specification on the AASHTO TSP2 website listing the mixture performance tests required to address the changes in the asphalt paving industry. Agencies from New Hampshire, Vermont, Massachusetts, Rhode Island, New Jersey, Maryland, and Pennsylvania were involved in this study. The study aims at providing specifications to develop pavements with high polymer modification and includes provisions that would address the possible performance issues like thermal cracking, fatigue cracking, reflective cracking, and rutting. The included tests are Texas Overlay tester, Bending Beam fatigue test, and APA test. Additionally, two more tests, the Semi Circular Bend test (SCB) and Hamburg rutting test, were added by three state DOTs (Minnesota, New Hampshire, Vermont) that have already placed test sections for the study to make the specifications more universal [26].
- IDOT has begun implementing the IL-SCB specifications in its 11 newly constructed pilot projects (AASHTO RAC-Sweet 16 High Value Research projects). IDOT has set a specification of FI greater than or equal to 8.0 for acceptance. In addition, IDOT's document for HMA Mixture Design Verification and Production modified for pilot projects only (revised Jan 2016) adopts four performance tests: IL Modified AASHTO 324 (Hamburg Wheel Test), IL Modified AASHTO T283 (TSR), Illinois Test Procedure (ITP) 405 I-FIT (AASHTO TP-124), ASTM D7313 (DCT) [28]
- The Arkansas State Highway and Transportation Department (AHTD) specifies the Wheel Tracking Test according to AHTD 480 with rut depth varying from 8 mm to 5 mm depending on the design gyrations [29].
- Wisconsin DOT (WisDOT) requires Hamburg and DCT test results for acceptance, and SCB (AASHTO TP105-7) results for information only. All the test procedures have been modified by WisDOT [30].
- The DCT spec is being currently implemented by Minnesota DOT (MnDOT) (Minnesota DCT), WisDOT, Iowa DOT, Chicago DOT, and Illinois Tollway [31].
- Several DOTs have made commitments for "Implementation of the Asphalt Mixture Performance Tester for Superpave Validation" [32].

- Oregon DOT (ODOT) includes APA testing (rutting) in their mix designs. ODOT’s pavement design guide also includes IDT as a possible laboratory performance test for existing HMAC [33], [34].
- NCDOT performs rutting tests using APA and TSR testing in accordance with NCDOT-T-283 [35].
- Utah DOT (UDOT) uses Hamburg tests in its mixture design specs [36].
- Virginia DOT (VDOT) performs Rut testing according to its own standard VTM-110. [37].
- Texas DOT (TxDOT) specifies a rutting test according to Tex-242-F, IDT according to Tex-226-F, when required, and an overlay test according to Tex-248-F [38].
- Washington DOT (WSDOT) performs both - rutting test (AASHTO T324) and IDT test (AASHTO D6931) but they do so with slight variations in the test methods to suit their requirements. They also determine the stripping potential using TSR values (AASHTO T283) [39].

Table B.1 shows the various state DOT’s that currently include performance test specifications in their HMA mixture design or are involved in national-level studies for performance test specifications.

**Table B.1. DOT's that currently include or plan to include performance-based specifications\***

<b>Asphalt Mixture Performance Tests</b>	<b>States currently including or planning to include test in mix design</b>
Rutting and moisture sensitivity test (Hamburg Wheel Tracking Test, Asphalt Pavement Analyzer, or TSR)	Arkansas, Alabama, Nevada, Oregon, South Carolina, South Dakota, Georgia, New Jersey, Colorado, Louisiana, Illinois, Wisconsin, North Carolina, Utah, Virginia, Washington
Thermal Cracking tests (DCT, SCB, TSRST, IDT)	New Jersey, New Hampshire, Vermont, Minnesota, Iowa, Illinois, Wisconsin, Oregon, Washington, Nebraska, Kansas
Fatigue (OT, push-pull, etc.)	New Jersey, New Hampshire, Vermont, Massachusetts
Complex Modulus (and other parameters through APMT) **	Alabama, Colorado, Connecticut, Florida, Georgia, Illinois, Kansas, Kentucky, Maine, Maryland, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Utah, Virginia, West Virginia, Wisconsin, Wyoming

\*The table is not exhaustive and effort has been made to include as much data as possible

\*\*The DOTs listed are a part of National Pooled Fund study for ‘Implementation of Asphalt Mixture performance Tester for Superpave validation’, with FHWA as the lead agency [3], [26]–[47]

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## **APPENDIX C: INVESTIGATOR RESUMES**



**PROJECT ROLE**

Professor, PI

**YEARS OF EXPERIENCE**

25

**EDUCATION**

B.S., Civil Engineering, Penn State University  
M.S., Civil Engineering, Penn State University  
Ph.D., Civil Engineering, Penn State University

**REGISTRATION**

PE (Civil), Illinois

**SPECIALIZATION**

► Expert in asphalt materials characterization, performance test and specification development, pavement assessment, management, and design  
► 20 years as faculty member at University of Illinois at Urbana-Champaign; teaching and research in asphalt materials and pavements

**RELEVANT PUBLICATIONS**

► Wagoner, M.P., Buttlar, W.G., and G.H. Paulino, "Disk-Shaped Compact Tension Fracture Test: A Practical Specimen Geometry for Obtaining Asphalt Concrete Fracture Properties," *Experimental Mechanics*, Vol. 52, No. 3, pp. 270-277, June 2005.  
► Buttlar, W.G., and J.J. Hausman, "ILLISIM Program for End-Result Specification Development," *Journal of the Transportation Research Board*, No. 1712, National Research Council, National Academy Press, Washington, D. C., pp. 125-138, 2000.

**AFFILIATIONS**

► Editor-in-Chief, *Road Materials and Pavement Design*  
► Director at Large, Association of Asphalt Paving Technologists

Recently, Dr. Buttlar was named the Glen Barton Chair in Civil and Environmental Engineering at the University of Missouri-Columbia (MU), where he oversees the Missouri Asphalt Pavement and Innovation Lab (MAPIL) on the 'Mizzou' campus. For the past 20 years, Dr. Buttlar served as Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign (UIUC) and held the title of Narbey Khachaturian Endowed Faculty Scholar and Associate Dean. He has over 225 publications in the area of asphalt materials and pavements and over 50 invited presentations and keynote lectures. Dr. Buttlar is the chair of RILEM TC-MCD, is an Editor-In-Chief of the *International Journal of Road Materials and Pavement Design*, and serves on the Board of Directors of the Association of Asphalt Paving Technologists (AAPT). He worked on the Strategic Highway Research Program (SHRP), developed the Superpave IDT (AASHTO T-322), implemented a thermal cracking model in the MEPDG during NCHRP 1-37A (TCMODEL), analyzed ERS and PRS for IDOT (developed ILLISIM software), developed the DC(T) test for NSF and NCHRP (ASTM D7313) and led the ILLI-TC thermal cracking software development for an FHWA Pooled fund study on thermal cracking, and has assisted other agencies in PRS development (MnDOT, CDOT, OMP, PennDOT, CoDOT). Dr. Buttlar's research portfolio has included support from the Tollway (cracking, RAS and GTR studies), MoDOT, IDOT, FAA, O'Hare Modernization Program, Air Force/AFCEA/AFCEC, NSF, FHWA, and industry.

**RELATED PROJECT EXPERIENCE**

- PI for asphalt ERS and PRS research projects for IDOT in the ICHRP program (1996-2005), and fine-graded mix study using performance and accelerated testing
- Led NSF-Industry Partnership in GOALI Program on Reflective Cracking
- PI on Tollway research projects on SMA, RAS and GTR mixes involving extensive performance testing of field and lab mixes
- PI on National Pooled Fund Study on Low-Temperature cracking
- Consultant on NCHRP 1-37A, Implemented IDT and TCMODEL in MEPDG
- Green Pavement Initiatives and Reflective Crack Control Research, O'Hare Modernization Program, Chicago, IL, Principal Investigator
- Reflective Crack Research, Federal Aviation Administration National Airport Pavement Test Facility, UIUC COE for Airport Technology, Principal Investigator
- IDOT ICHRP and ICT Reflective Cracking Studies (2), Principal Investigator

**Other Relevant Experience**

- Developed AASHTO T-322 and ASTM D7313 tests (Superpave IDT and DCT)
- Chair of RILEM International Committee on Mechanisms of Cracking and Deboding in Asphalt and Composite Pavements: Developed State-of-the-Art report looking at numerous cracking tests: IDT, DCT, SCB, SENB, SEND, DIC, acoustic emission, overlay testers, shear and interface bond testers, and cracking models
- Led webinar sessions and conference sessions on PRS, including a recent presentation for the NCHRP 9-57 project, symposium session at AAPT, and co-chaired a symposium within an international conference on cracking in pavements for RILEM
- Air Force Pavement Evaluation Consultant, AFCEA, AFCEC

**Administrative and Management Experience**

- Associate Dean, Graduate College, UIUC, 2011-2014
- Associate Dean, College of Engineering, UIUC, 2014-2016
- Director, Illinois Transportation & Highway Engineering Conference, 2002-2016
- Co-Chair, 8<sup>th</sup> RILEM Conference on Cracking in Pavements



**PROJECT ROLE**

Research Engineer

**YEARS OF EXPERIENCE**

18

**EDUCATION**

B.S., Civil Engineering, Purdue University

M.S., Civil Engineering, Purdue University

**REGISTRATION**

PE (Civil), Missouri and Indiana

**SPECIALIZATION**

- ▶ 14 years of DOT experience with preparing and reviewing plans and specifications for road and bridge projects
- ▶ Experience with collecting pavement inventory data and developing pavement preservation plans
- ▶ Project management experience with both design and research projects

**RELEVANT PUBLICATIONS**

- ▶ "Decision Methodology for Temperature Control of Pavements," Transportation Research Record

**AFFILIATIONS**

- ▶ APWA Missouri Chapter, Invited Conference Speaker
- ▶ Missouri Valley ITE, Invited Conference Speaker
- ▶ TRB Committee on Emerging and Design Construction Technologies, Member
- ▶ TRB Committee on Operational Effects of Geometrics, Member
- ▶ TRB Committee on Transportation Planning for Small and Medium Sized Communities, Member and Committee Research Coordinator

Mr. Henry Brown, P.E., is a Research Engineer in the Civil and Environmental Engineering Department at the University of Missouri-Columbia (MU). During his four years at MU and prior 14 years working as a Highway Engineer at the Indiana Department of Transportation (INDOT), he has gained significant experience with pavement preservation, project management, handling project coordination with various stakeholders, and preparing and reviewing plans and specifications for road and bridge projects. He is currently active on a project to develop Pavement Management Plans for the general aviation airports in Missouri and previously led a project aimed at helping the city of Grandview, Missouri to implement a pavement management system utilizing a mix of fixes approach with the right treatment at the right time. Mr. Brown is also active in other projects related to the preservation of infrastructure, including a project to develop a bridge maintenance program for the city of Columbia, Missouri and a NCHRP project to develop guidelines to improve the quality of element level bridge inspections. He also contributed to a study that investigated the economic benefits of harvesting energy from pavements and led two FHWA pooled fund projects that included both online and phone surveys of state DOTs and other stakeholders regarding their best practices for safety and operations in work zones.

During his tenure at INDOT, Mr. Brown was responsible for preparing and reviewing plans, cost estimates, and specifications for various road and bridge projects, including several freeway projects. He also participated in various public hearings, field meetings, and partnering workshops and handled project coordination with many different stakeholders. He obtained his BSCE and MSCE degrees from Purdue University. He is a registered Professional Engineer (P.E.) in the states of Indiana and Missouri. He currently serves as a member of three standing committees of the Transportation Research Board including the Committee on Emerging Design and Construction Technologies.

**RELATED PROJECT EXPERIENCE**

**Asset Management Experience**

- Implementation of Asset Management in Grandview, Principal Investigator
- Runway Condition Index Study for State Funded Airports (sub to ARA), Research Engineer
- Development of Bridge Maintenance Program for Columbia, Missouri, Research Engineer
- NCHRP 12-104: Guidelines to Improve the Quality of Element-Level Bridge Inspection Data, Research Engineer

**Other Research Experience**

- Maintenance of Traffic for Innovative Geometric Designs, Smart Work Zone Deployment Initiative (SWZDI), Principal Investigator
- Safety Assessment Tool for Construction Zone Phasing Plans, SWZDI, Principal Investigator

**Design and Review Experience at INDOT**

- US 24 new alignment, Designer
- SR 641 new alignment, Designer
- SR 56 bridge replacement, Designer
- US 27 added travel lanes, Project Reviewer
- SR 26 partial reconstruction, Project Reviewer
- I-64 interstate rehabilitation, Project Reviewer

# JAMES MEISTER

Research Engineer



## PROJECT ROLE

Research Engineer

## YEARS OF EXPERIENCE

10

## EDUCATION

B.S., Civil Engineering,  
University of Illinois Urbana-  
Champaign

## SPECIALIZATION

► Managed lab operations at the Illinois Center for Transportation: Soil, binder, hot mix, full scale accelerated testing and accompanied many field projects.

► Initiated and maintained ICT's AMRL accreditation for hot mix and aggregates as well as being an Illinois Department of Transportation approved testing lab.

► Created ATREL's lab safety program, and taught the safety training to each researcher at ATREL

Mr. James Meister is a Research Engineer in the Civil and Environmental Engineering Department at the University of Missouri-Columbia (MU). Having recently joined MU, he has been responsible for purchase and installation of the testing equipment in the new Missouri Asphalt Pavement and Innovation Lab (MAPIL). He is also responsible for training all student researchers on proper equipment usage and applicable test standards. Prior to joining the MU, James worked for 10 years as a research engineer and then senior research engineer at the University of Illinois's Advanced Transportation Research Engineering Laboratory (ATREL) at the Illinois Center for Transportation (ICT).

At ATREL, Mr. Meister worked in a number of areas to keep the laboratory operational and physical research projects on schedule. He also assisted on all field site visits required by research at ICT, using many years of experience to keep student researchers safe in dangerous work zones as well as contributing to collecting on site data. He traveled to Colorado and Alaska to apply ground penetrating radar technology to ballast fouling, visited 9 states and Canada for each of 3 years for a crack sealant evaluation study, and conducted many other field site visits in Illinois and other states. He was responsible for the operation and maintenance of the Accelerated Transportation Loading Assembly (ATLAS), a full scale loading machine used to apply decades of traffic to full scale pavement systems in a few months of operation.

Mr. Meister was a part of the University of Illinois research team prior to the inauguration of the Illinois Center for Transportation. He created and continually updated the lab safety program for ATREL. Upon completion of the safety program he then instructed those students whose research required use of test equipment on the proper standards guiding their testing and the proper use of the equipment to perform the tests.

Mr. Meister was also instrumental in ATREL attaining the rating of an IDOT approved testing laboratory, participating in IDOT's annual round robin testing program as well as biannual inspections. ICT's lab accreditation by AMRL was achieved under Mr. Meister's guidance. He also performed proficiency testing, standards updating, and on-site test evaluations.

## RELATED PROJECT EXPERIENCE

### Transportation Materials Lab Management Experience

AASHTO Materials Reference Laboratory accreditation experience

- Familiar with operations and maintenance of a wide variety of transportation materials testing equipment: servo-hydraulic, servo-pneumatic, electro-mechanical
- Familiar with AASHTO test methods for asphalt mixture, asphalt binder, aggregates.
- Sampled from field locations cores, loose mix, liquid binder, aggregates and soils on a large number of projects.

## RESOLUTION NO. 21324

**Background**

The Illinois State Toll Highway Authority (the "Tollway"), pursuant to the Toll Highway Act, 605 ILCS 10/1 et seq. (the "Act"), is granted all powers necessary to carry out its legislative purposes as to the construction, operation, regulation and maintenance of its system of toll highways; and

The Tollway, pursuant to Section 10.8(e) of the Act, shall have the power to retain special counsel, subject to the approval of the Attorney General, as needed from time to time, and fix their compensation, provided however; such special counsel shall be subject to the control, direction and supervision of the Attorney General and shall serve at his pleasure.

In an effort to ensure no conflict exists between the individual preparing the Tollway's investigation into charges of discrimination filed by a former employee and any witness to the investigation, it is in the best interest of the Tollway to retain outside counsel to conduct the investigation. Attorneys from Pugh Jones may also be called upon to serve as a witness in subsequent federal litigation filed by Ms. Wright.

This appointment represents circumstances where outside counsel can provide appropriate assistance. Pugh Jones has successfully represented the Tollway in other matters and is familiar with the processes utilized at the Tollway.

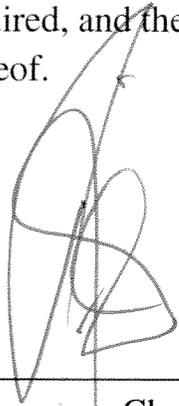
**Resolution**

The Acting General Counsel is authorized to finalize the contracts with the above-referenced law firm and to ensure that their professional representation is consistent with the terms presented to the Board. The Chairman or the Executive Director or the Acting General Counsel is authorized to execute any documents necessary to ensure the law firm identified is prepared to provide counsel as

RESOLUTION NO. 21324

**Resolution - Continued**

required, and the Chief Financial Officer is authorized to issue warrants in payment thereof.



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Chairman

## RESOLUTION NO. 21325

**Background**

The Illinois State Toll Highway Authority (the "Tollway"), pursuant to the Toll Highway Act, 605 ILCS 10/1 et seq. (the "Act"), is granted all powers necessary to carry out its legislative purposes as to the construction, operation, regulation and maintenance of its system of toll highways; and

The Tollway, pursuant to Section 10.8(e) of the Act, shall have the power to retain special counsel, subject to the approval of the Attorney General, as needed from time to time, and fix their compensation, provided however; such special counsel shall be subject to the control, direction and supervision of the Attorney General and shall serve at his pleasure.

In an effort to ensure no conflict exists between the individual preparing the Tollway's investigation and any witness to the investigation, it is in the best interest of the Tollway to retain outside counsel to conduct the investigation into allegations of discrimination. Attorneys from Franczek Radelet may also be called upon to serve as a witness in the event civil litigation is filed. This appointment represents circumstances where outside counsel can provide appropriate assistance. Franczek Radelet has successfully represented the Tollway in other matters and is familiar with the processes utilized at the Tollway.

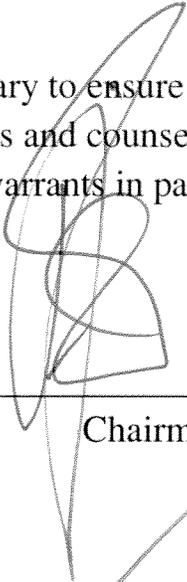
**Resolution**

The Acting General Counsel is authorized to finalize the contracts with the above-referenced law firm and to ensure that their professional representation is consistent with the terms presented to the Board. The Chairman or the Executive Director or the Acting General Counsel is authorized to execute any documents

RESOLUTION NO. 21325

**Resolution - Continued**

necessary to ensure the law firm identified is prepared to provide investigation services and counsel as required, and the Chief Financial Officer is authorized to issue warrants in payment thereof.



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Chairman

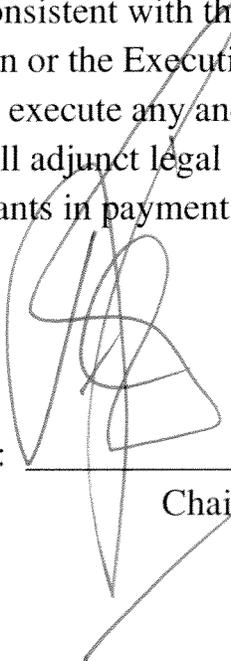
## RESOLUTION NO. 21326

**Background**

The Illinois State Toll Highway Authority (the "Tollway") has negotiated a proposed settlement regarding worker's compensation claims with Eugene Jacoby as recommended by defense counsel Ganan & Shapiro. It is in the best interest of the Tollway to go forward with the settlement.

**Resolution**

The settlement of Eugene Jacoby's workers compensation claims is approved. The Acting General Counsel is authorized to finalize the settlement agreement consistent with the terms presented to the Board in Executive Session. The Chairman or the Executive Director and the Acting General Counsel are authorized to execute any and all necessary documents to effectuate this settlement and resolve all adjunct legal matters, and the Chief Financial Officer is authorized to issue warrants in payment thereof.

Approved by: \_\_\_\_\_  
Chairman

**DEFERRED**

RESOLUTION NO. 21327

**Background**

It is in the best interest of the Illinois State Toll Highway Authority (the “Tollway”) to settle an eminent domain matter concerning Tollway parcel EO-1A-12-048 and titled ISTHA v. CBS Radio East, Inc. f/k/a Infinity Broadcasting East, Inc., as Successor by Merger to Infinity Broadcasting Operations, Inc., 13 ED 17.

**Resolution**

The proposed litigation settlement is approved consistent with the terms and conditions as presented to the Board of Directors in Executive Session. The Acting General Counsel is authorized to prepare an agreement consistent with such terms, and the Chairman or the Executive Director is authorized to execute said agreement(s).

Approved by: \_\_\_\_\_

Chairman

## RESOLUTION NO. 21328

**Background**

It is in the best interest of the Illinois State Toll Highway (the "Tollway") to change its speed limits when warranted. See 625 ILCS 5/11-603. CDM Smith, the Tollway's Traffic Engineering Consultant, subsequent to the reconstruction of I-90 conducted formal speed limit studies. The studies concluded that speed limit increases are justified and warranted on I-90. Subject to the approval of the Joint Committee on Administrative Rules, the following speed limit changes are recommended:

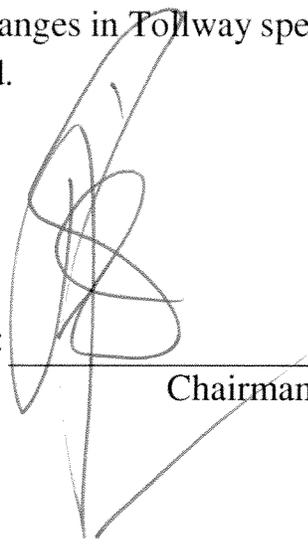
- An increase to the speed limits for passenger cars on I-90 to 70 miles per hour west of M.P. 74.4 near the current Des Plaines Oasis to M.P. 51.8 west of Randall Road;
- An increase to the speed limits for passenger cars on I-90 to 60 miles per hour east of M.P. 74.4 near the current Des Plaines Oasis to the eastern terminus;
- An increase to the speed limits for buses on I-90 to 65 miles per hour west of M.P. 74.4 near the current Des Plaines Oasis to M.P. 51.8 west of Randall Road;
- An increase to the speed limits for buses on I-90 to 60 miles per hour east of M.P. 74.4 near the current Des Plaines Oasis to the eastern terminus;
- And an increase to the speed limits for trucks on I-90 to 60 miles per hour east of M.P. 51.8 west of Randall Road to the eastern terminus.

RESOLUTION NO. 21328

**Resolution**

The Chief Engineering Officer and the Acting General Counsel are authorized to direct necessary engineering studies, request necessary approvals, and take appropriate steps, including amending its current administrative rules, to provide for changes in Tollway speed limits in substantially the form outlined above and as attached.

Approved by:



A large, stylized handwritten signature in black ink, consisting of several overlapping loops and a long vertical stroke extending downwards. The signature is positioned above a horizontal line that spans across the page.

Chairman