

RONALD B. GIBBONS, PH.D., FIES

PROFESSIONAL EXPERIENCE

Academic Appointments

Associate Professor, School of Architecture, Virginia Tech	2018-present
Director, CIBSS, Virginia Tech Transportation Institute, Virginia Tech	2001-present

Non-Academic Employment

Manager, Corporate Calibration and Standards Laboratory, Research and Development, Philips Lighting Company	1995-2001
Research Assistant, University of Waterloo, School of Optometry	1991 - 1992 1993 - 1995
Lighting Engineering Manager, Vision Unlimited Equipment, Inc., Guelph, Ontario	1992 - 1993

EDUCATION

Ph.D., Systems Design Engineering, University of Waterloo, Waterloo, Ontario, Canada	1994-1998
M.A.Sc., Systems Design Engineering, University of Waterloo	1991-1993
B.A.Sc., Systems Design Engineering, University of Waterloo	1986-1991

DISTINCTIONS

Illuminating Engineering Society Medal	2020
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The IES MEDAL is awarded for the purpose of giving recognition to meritorious technical achievement that has conspicuously furthered the profession, art or knowledge of illuminating engineering. Accomplishments shall be in the field of engineering, design, applied illumination, optics, ophthalmology, lighting, research or education.

Citation: Dr. Gibbons' impact on roadway and outdoor lighting has had significant benefits to the lighting industry. His visibility research and related road safety work has improved pedestrian and driver safety and in reality, has saved lives. From an energy efficiency standpoint his research and work with Adaptive Lighting Controls will save many millions of kW/h of energy while reducing light trespass impacts. Dr. Gibbons' research has been of the highest of system value to the roadway and outdoor lighting industries as it is based on human factors testing. He has undertaken education classes for lighting designers which has had great benefits to the lighting industry. Dr. Gibbons has also developed an innovative measurement which can measure and record lighting levels via a mobile measurements system mounted on a motor-vehicle. This measurement equipment has the potential to revolutionize the roadway lighting industry by allowing validation of system performance. It can also collect road lighting levels and compare collision data as has been undertaken as part of Dr. Gibbons' recent research projects.

Taylor Technical Talent Award	2017
Measure and Report Luminaire Dirt Depreciation (LDD) in LED Luminaires for Street and Roadway Lighting Applications	
Taylor Technical Talent Award	2015
Impact of Roadway Lighting on Crash Safety - This award recognizes outstanding application papers published in LD+A, LEUKOS, or presented at the IES Annual Conference or at a Regional Conference. The Taylor Technical Talent Award improves both the quality and quantity of papers on the practice of lighting by providing recognition of authors for their accomplishments, and raising the awareness of the need for these papers. In addition, it reaffirms the IES's position of leadership as the authoritative body on lighting application by the recognition of outstanding contributions to applications literature by the Society., Illuminating Engineering Society	
Distinguished Service Award of the IES	2013
The Distinguished Service Award shall be presented in recognition of continuous dedicated service to the Society, principally of a non-technical nature, having significantly furthered the purpose for which the Society was founded, and continued over a number of years in various programs and activities at, typically, regional and international levels. The Distinguished Service Award was established in 1967	
Fellow of the Illuminating Engineering Society	2012
The IES Fellow designation shall be awarded to a member of the Society for valuable contribution to the technical activities of the Society; to the art or science of illumination; or to the related scientific or engineering fields	

TEACHING ACTIVITY

Virginia Tech Courses Taught

Arch 5984 - Introduction to Lighting and Architectural Lighting Design	2019-2021
Arch 4984 - Introduction to Light and Architectural Lighting Design	2019-2021

Courses Developed

Introduction to Light and Architectural Lighting Design	2019
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Graduate Student Supervision

Hourani E	2020-present
Research Proposal For Development Of A New Architectural Design Process That Supports Occupants' Well-Being Using Dynamic Led Lighting Technology, Jalali MS	2020-present
Sugati A	2020-present
Zolfaghari Z	2019-present
Ali S	2018-present

Assessment of the Effectiveness of Emergency Lighting, Retroreflective Markings, and Paint Color on Policing and Law Enforcement Safety, Terry TN	2016-2020
Improving Design Decision-Making through a Re-Representation Tool for Visual Comfort Consideration in Dynamic Daylit Spaces, Hafiz D	2015-2016
Credibility of a Person-Centered Design Decision-making Prototype: Spaces for Older Persons with Vision Loss, Gowda V	2015-2016
Effects of Intersection Lighting Design on Driver Visual Performance, Perceived Visibility and Glare, Bhagavathula R	2010-2015

Graduate examinations

Examination chair, Bozorg S, AALTO University, Helsinki Finland	2019
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PROFESSIONAL ACTIVITY

Offices held

Vice president, Without Portfolio, International Commission on Illumination,	2019-2023
Treasurer United States National Committee of the CIE, International Commission on Illumination	2010-present
Vice President, Technical and Research, Illuminating Engineering Society of North America	2001-2005
Vice President, Education, Illuminating Engineering Society of North America	2005-2007
Senior Vice President, Technical and Research, Illuminating Engineering Society of North America	2007-2008
President, Technical and Research, Illuminating Engineering Society of North America	2008-2009
Past President, Technical and Research, Illuminating Engineering Society of North America	2009-2010

Membership

IES Roadway Lighting Committee	1992-present
AASHTO Roadway Lighting Committee	2019-present
Chair, RLC Sign Lighting Committee	2016-present
Chair, Roadway Lighting Research Committee	2013-present
Director Division 4, International Commission on Illumination	2014-2019
IES Roadway Lighting Standard Practice Committee	2001-present

Manuscript reviewing / refereeing

Review for Quadrennial Meeting Abstracts of the CIE 2019	2019
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Event administration

Conference Chair 2019 Quadrennial Meeting of the International Commission on Illumination, Washington, DC	2019
Event Coordinator, FHWA Roadway Lighting Workshop,	2020
Division 4 Conference Chair, International Commission on Illumination,	2015-2019

Non-scholarly presentations / Event participation

Interviewed by "Get a Grip on Lighting Podcast"	2021
Roadway Lighting and Safety, presented to IES Webinar Series, DMD	2020
Health Impacts of Roadway Lighting, presented to Webinar	2020
Translational Research: Applying Naturalistic Research, presented to DOE R and D Solid State Lighting Workshop	2020
Light Sources and the Impact on Health, Safety and Visibility, presented to IES Street and Area Conference	2019
Lighting Controls in Parking Lots, presented to LightFair International	2019
Status of Roadway Lighting Research, presented to Acuity Brands Technical Design Meeting	2019
Adaptive lighting and road safety, presented to 4th International Street Lighting and Smart Controls Conference	2019
Smart Building Lighting, presented to Better Buildings by Design, Burlington VT	2019
Lighting Experimentation in the Real World, presented to Department of Energy R and D Workshop	2019
2021 Virtual Street and Area Lighting Committee	2021
2020 Virtual Street and Area Lighting Committee	2020
DOE Lighting Roundtable, Lighting Research Needs to the Department of Energy	2020
DOE Lighting Roundtable, Establish the vision the scope of the DOE lighting research program	2019
IES Roadway Lighting Spring Meeting, Roadway Lighting in North America	2019
Street and Area Lighting Conference	2019
The Annual Conference of the Illuminating Engineering Society	2019
Lightfair Annual Technical Conference and Trade Show	2019
IES Roadway Lighting Fall Meeting	2019
Lighting and Safety, AARP, Blacksburg	2018
2018 Better Buildings by Design, Lighting in the Connected Transportation Environment, Burlington Vermont	2018
2018 Light and Human Health Conference, The Precious Balance of Roadway Lighting, April 12, Atlanta, GA,	2018
CIE Workshop on Roadway Lighting, Taiwan,	2018
CIE Workshop on Visibility, Impact of Lighting on Safety, Berlin, Germany	2018
CIE Workshop on Visibility, Distribution Analysis of Detection Distances: A New Approach to Analyze Nighttime Roadway Visibility, Berlin, Germany	2018

AASHTO Summer Meeting. LED Lighting and the AMA,	2017
2017 Street and Area Lighting Conference - Lighting Needs for the Future of Transportation,	2017
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2015
Dirt Depreciation on LED Luminaires – Street and Area Lighting Conference, Savannah, GA	2015
Adaptive lighting Workshop Moderator – CIE Quadrennial Meeting – Manchester	2015
Lessons Learned from the Next Generation Luminaire Competition: LightFair	2015
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2015
The safety effects of road lighting – what international research tells us, Auckland, New Zealand,	2015
FHWA Advanced Roadway Lighting, Chicago, Saratoga Springs, Olympia, Pheonix, Atlanta,	2014 – 2015
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2014
Adaptive Roadway Lighting, Street and Area Lighting Conference, Nashville	2014
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2014
Quantifying the impact of road lighting on safety: Guidance for implementation, Sydney Australia,	2014
Quantifying the impact of road lighting on safety: Guidance for implementation, Auckland, New Zealand	2014
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2013
Guidelines for Crosswalk Lighting, Commision Internationale D’Eclairage Symposium,	2010
Adaptive Roadway Lighting, IES Maritime Conference,	2013
Roadway Lighting Design Approaches: Intermediate and Advanced Courses, Lightfair	2013
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2013
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2012
21 Days in a Bucket Truck – IES Maritime Conference,	2012
Nighttime Lighting Research – Holophane Lighting, Newark, OH,	2012
Nighttime Lighting Research – Cooper Lighting, Peachtree City, GA,	2011
A tale of Three Cities, Applying Led in the Real World, Illuminating Engineering Society of North America	2011
Roadway Lighting Applications Panel, Illuminating Engineering Society of North America	2011
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2011

Spectral Impacts of Solid State Lighting – IES Street and Area Lighting Conference, New Orleans, LA,	2011
A tale of Three Cities, Applying Led in the Real World, Commission Internationale d’Eclairage, 26th Quadrennial Session, Sun City, South Africa,	2011
Applications of LED Lighting – Canadian Regional IES Conference, Moncton, New Brunswick	2011
LED Applications – LightFair International, Philadelphia, PA	2011
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2011
LED Applications – Municipal Solid State Lighting Consortium, Kansas City, KS	2011
Spectral Impacts of Solid State Lighting – CIE United States National Committee Symposium, Toronto, Ontario	2011
Spectral Impacts of Solid State Lighting – CIE United States National Committee Symposium, Philadelphia, PA	2011
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2010
Spectral Impacts of Solid State Lighting – CIE United States National Committee Symposium, Toronto, ON	2010
Spectral Impacts of Solid State Lighting – IES Street and Area Lighting Conference, Huntingdon Beach, CA	2010
LED Applications – Department of Energy Symposium, Philadelphia, PA	2010
Alternative Lighting Systems in Roadway, Commision Internationale D’Eclairage Symposium, Vienna, Austria	2010
Lighting on the Minneapolis I-35 West Bridge, Commision Internationale D’Eclairage Symposium, Vienna, Austria,	2010
Alternative Light Sources in Roadway lighting, IES Maritime Regional Conference, Badek, Nova Scotia	2010
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2010
Alternative Light Sources in Roadway lighting, IES Washington DC Section	2010
Alternative Light Sources in Roadway lighting, IES Grand Rapids Section	2010
Impact of Glare on Driver Performance, Illuminating Engineering Society of North America (IES), Annual Conference, Seattle	2009
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2009
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2009
Daily Planet - Discovery Channel Canada	2009
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2008
Keynote Speaker – East Regional IES Conference	2008
Crosswalk Lighting – East Regional IES Conference	2008

Crosswalk Lighting – Canadian Regional IES Conference, Hamilton, Bermuda	2008
Warning Lights on Maintenance Vehicles, South Eastern Equipment Managers Conference, Asheville, NC	2007
Impact of Weather on Infrared Vision Systems - Intelligent Lighting Systems for the Automotive Industry, Detroit MI	2007
Nighttime Lighting Research – Holophane Lighting, Newark, OH	2007
International Dark Sky Association Meeting – “Roadway lighting and Driver Safety”, Washington, DC	2007
Nighttime Lighting Research – Illuminating Engineering Society of Blue Ridge Section, Roanoke VA	2007
“Human Factors Workshop 145 – Driving at Dusk”, - Transportation Research Board Annual Meeting	2007
Nighttime Lighting Research – Illuminating Engineering Society of North America Golden Gate Section, San Francisco, CA,	2006
Dateline NBC – Getting out alive, Driving in Fog, original air date	2004

Professional development activities

Human Subjects Training (IRB)	2021
Social & Behavioral Research (CITI)	2021
Research Conflict of Interest (COI) Training for Investigators (CITI)	2020
COI CITI Training Online	2020
Bloodborne Pathogens	2019
Human Subjects Training	2006

Community services

Lighting Designer, Blacksburg United Methodist Church Edges	2017-present
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PUBLICATIONS

Bhagavathula R, Gibbons R, Kassing A. Roadway Lighting’s Effect on Pedestrian Safety at Intersection and Midblock Crosswalks Aug 2021. Illinois Center for Transportation (Report)

Li YE, Hao H, Gibbons RB, Medina A. Understanding Gap Acceptance Behavior at Unsignalized Intersections using Naturalistic Driving Study Data
TRANSPORTATION RESEARCH RECORD 2675(9):1345-1358 Article number ARTN 03611981211007140 24 Apr 2021 (Journal article) View record in Web of Science

Li Y, Hao H, Gibbons RB, Medina A. Understanding gap acceptance behavior at unsignalized intersections using naturalistic driving study data In Transportation Research Record. 2675: 1345-1358. 01 Jan 2021 (Book chapter or section)

- Li YE, Hao H, Gibbons RB, Medina A. Implications of Crashes Involving Roadway Objects for Machine Vision-Based Driving Systems 2674: 291-302. SAGE PUBLICATIONS INC 01 Dec 2020 (Book chapter or section) View record in Web of Science
- Palmer M, Gibbons R. Smart Lighting for Smart Cities In Solving Urban Infrastructure Problems Using Smart City Technologies Handbook on Planning, Design, Development, and Regulation. Elsevier 01 Sep 2020 (Book chapter or section)
- Williams B, Gibbons RB. The Assessment of Alternative Overhead Sign Lighting 22 Jul 2020. National Surface Transportation Safety Center for Excellence (Report)
- Bhagavathula R, Gibbons RB, Williams B, Connell C. Bicycle Visibility: Conspicuity of Bicycle Headlamps, Tail Lamps, and Retroreflective Garments in Nighttime Roadway Environments 21 Jul 2020. National Surface Transportation Safety Center for Excellence (Report)
- Terry T, Fitchett V, Gibbons R. Evaluation of traffic behavior in response to alternative police lighting Accident Analysis and Prevention 144 01 Jul 2020 (Refereed journal article)
- Bhagavathula R, Williams B, Owens JM, Gibbons RB. Virtual Reality as a Tool to Evaluate Pedestrian Safety 25 Jun 2020. National Surface Transportation Safety Center for Excellence (Report)
- Li E, Medina A, Gibbons RB. Safety Countermeasures at Unsignalized Intersections – A Toolbox Approach 23 Jun 2020. National Surface Transportation Safety Center for Excellence (Report)
- Gibbons R, Lutkevich P, Bhagavathula R, Mclean D. NCHRP Report 940 - Solid-State Roadway Lighting Design Guide: Volume 1: Guidance (Report)
- Gibbons R, Bhagavathula R. NCHRP Report 940 - Solid-State Roadway Lighting Design Guide: Volume 1: Guidance 08 Jun 2020 (Report)
- Druta C, Kassing A, Gibbons R, Alden VAA. Assessing driver behavior using shrp2 adverse weather data JOURNAL OF SAFETY RESEARCH 73:283-295 01 Jun 2020 (Journal article) View record in Web of Science
- Hao H, Li YE, Medina A, Gibbons RB, Wang L. Understanding crashes involving roadway objects with SHRP 2 naturalistic driving study data JOURNAL OF SAFETY RESEARCH 73:199-209 01 Jun 2020 (Journal article) View record in Web of Science
- Bhagavathula R, Gibbons R, Nussbaum M. Does the Interaction between Vehicle Headlamps and Roadway Lighting Affect Visibility? A Study of Pedestrian and Object Contrast SAE Technical Papers. 2020-April. 14 Apr 2020 (Conference paper or presentation)
- Bhagavathula R, Gibbons RB. Light Levels for Parking Facilities Based on Empirical Evaluation of Visual Performance and User Perceptions LEUKOS 16(2):115-136 02 Apr 2020 (Journal article) View record in Web of Science
- Lutkevich P, Gibbons R, Bhagavathula R, McLean D. NCHRP Report 940 - Solid-State Roadway Lighting Design Guide: Volume 2: Research Overview 12 Dec 2019 (Report)
- Palmer M, Gibbons RB. Weather Camera 18 Nov 2019. National Surface Transportation Safety Center for Excellence (Report)

- Palmer M, Tsuda H, Williams B, Gibbons RB. 4U Lighting – Cooperative Headlighting 31 Oct 2019. National Surface Transportation Safety Center for Excellence (Report)
- Gibbons R, Bhagavathula R, Brainard G, Hanafin J, Lutkevich P. IMPLICATIONS OF LIGHT SOURCE SELECTION IN A NIGHT TIME ENVIRONMENT 29th Quadrennial Session of the CIE. 18 Jun 2019 (Poster)
- Gibbons R, Bhagavathula R, Palmer M, Lutkevich P. Evaluating the Lighting Levels, Surround Ratio and Uniformity in an LED Lighted Environment 29th Quadrennial Session of the CIE, Washington DC, 17 Jun 2019 - 19 Jun 2019. 17 Jun 2019 (Conference paper or presentation)
- Bhagavathula R, Gibbons RB. Work Zone Lighting's Effect on Driver Visibility 05 Jun 2019. National Surface Transportation Safety Center for Excellence (Report)
- Bhagavathula R, Williams B, Gibbons RB. Pedestrian Visibility in Roundabouts: Naturalistic Study of Driver Eye-Glance Behavior 16 Apr 2019. National Surface Transportation Safety Center for Excellence (Report)
- Bhagavathula, Rajaram, Gibbons, Ronald B., Light Levels for Parking Facilities Based on Empirical Evaluation of Visual Performance and User Perceptions, LEUKOS, 1, 22, doi: 10.1080/15502724.2018.1551724
- Bhagavathula, Rajaram. Gibbons, Ronald, Nussbaum, Maury A., Effect of Intersection Lighting Design on Drivers' Perceived Visibility and Glare. TRANSPORTATION RESEARCH RECORD, FEB 2019
- Bhagavathula, Rajaram, Gibbons, Ronald B., Effects of Mounting Height, Offset Distance, and Number of Light Towers on Drivers' Visual Performance and Discomfort Glare in Work Zones SO TRANSPORTATION RESEARCH RECORD DEC 2018
- Bhagavathula, Rajaram, Gibbons, Ronald B. Nussbaum, Maury A., Effects of Intersection Lighting Design on Nighttime Visual Performance of Drivers, LEUKOS, 2018, 14, 1
- Fotios, S. Gibbons, R., Road lighting research for drivers and pedestrians: The basis of luminance and illuminance recommendations, LIGHTING RESEARCH & TECHNOLOGY, JAN 2018, 50, 1
- Palmer, Matthew; Gibbons, Ronald; Bhagavathula, Rajaram; Holshouser, David. Roadway Lighting's Impact on Altering Soybean Growth – Volume 2: LED versus HPS Color Spectral Impact. Civil Engineering Studies, Illinois Center for Transportation Series, Virginia Tech Transportation Institute; Illinois Department of Transportation; Federal Highway Administration, Issue 18-011, 2018, 68p
- Gibbons, Ronald; Flintsch, Alejandra Medina; Williams, Brian; Li, Yingfeng Eric; Machiani, Sahar Ghanipoor; Bhagavathula, Rajaram. Evaluation of Innovative Approaches to Curve Delineation for Two-Lane Rural Roads. Virginia Transportation Research Council; Virginia Department of Transportation; Federal Highway Administration, 2018, 74p
- Bhagavathula, Rajaram; Gibbons, Ronald B. Effects of Mounting Height, Offset Distance, and Number of Light Towers on Drivers' Visual Performance and Discomfort Glare in

- Work Zones. *Transportation Research Record: Journal of the Transportation Research Board*, Transportation Research Board, 2018, 8p
- Bhagavathula, Rajaram; Gibbons, Ronald; Medina, Alejandra; Terry, Travis. *Examination of the Current Practice of Lighting in Virginia: Nighttime Work Zones and Improving Safety Through the Development of Nighttime Lighting Specifications*. Virginia Transportation Research Council; Virginia Department of Transportation; Federal Highway Administration, 2017, 87p
- Palmer, Matthew; Gibbons, Ronald; Bhagavathula, Rajaram; Holshouser, David; Davidson, Daniel. *Roadway Lighting's Impact on Altering Soybean Growth*. Civil Engineering Studies, Illinois Center for Transportation Series, Virginia Tech Transportation Institute; Illinois Department of Transportation; Federal Highway Administration, Issue 17-014, 2017, 106p
- Palmer, Matthew E; Gibbons, Ronald. *Fog Measurement Using a Traffic Camera in a Real-World Environment*. Transportation Research Board 97th Annual Meeting, 2018, 17p
- Bhagavathula, Rajaram; Gibbons, Ronald B. *Effect of Work Zone Lighting on Drivers' Visual Performance and Perceptions of Glare*. *Transportation Research Record: Journal of the Transportation Research Board*, Issue 2617, 2017, pp 44–51
- Bhagavathula, R, Gibbons, RB, Nussbaum, MA, *Effects of Intersection Lighting Design on Nighttime Visual Performance of Drivers*, LEUKOS Volume 14, Issue 1, pp 25- 43, 2018
- Steve Fotios, Ronald Gibbons, *Road lighting research for drivers and pedestrians: The basis of luminance and illuminance recommendations*, *Lighting Research & Technology*, vol. 50, 1: pp. 154-186. , First Published January 9, 2018
- Gibbons, R. B., Terry, T., Bhagavathula, R., Meyer, J., & Lewis, A. (2015). *Applicability of mesopic factors to the driving task*. *Lighting Research and Technology*.
- Gibbons, Ronald B; Li, Yingfeng "Eric"; Meyer, Jason E. *Assessment of the Performance of Light-Emitting Diode Roadway Lighting Technology*. Virginia Tech Transportation Institute; Virginia Department of Transportation; Federal Highway Administration, 2015, 75p
- Gibbons, Ronald B; Meyer, Jason; Terry, Travis; Bhagavathula, Rajaram; Lewis, Alan; Flanagan, Michael; Connell, Caroline. *Evaluation of the Impact of Spectral Power Distribution on Driver Performance*. Virginia Tech Transportation Institute; Federal Highway Administration, 2015, 240p
- Gibbons, Ronald B; Palmer, Matthew E; Connell, Caroline; Jahangiri, Arash; Lutkevich, Paul; Weaver, Jonathan; Berg, Jeffrey; Karlsson, Joakim; Slocum, Doug. *Airport Parking Garage Lighting Solutions*. ACRP Report, Issue 124, 2015, 76p
- Li, Yingfeng; Gibbons, Ronald; Medina, Alejandra. *Integrating Adaptive Lighting Database with SHRP 2 Naturalistic Driving Study Data*. Transportation Research Board 94th Annual Meeting, Transportation Research Board, 2015, 16p

- Terry, Travis N; Gibbons, Ronald B. Road-Surface Contrast and Adaptation of Visibility of Low-Contrast Targets. Transportation Research Board 94th Annual Meeting, Transportation Research Board, 2015, 14p
- Gibbons, Ronald; Guo, Feng; Du, Jianhe; Medina, Alejandra; Lutkevich, Paul; Terry, Travis; Li, Qing. Linking Roadway Lighting and Crash Safety. Transportation Research Board 94th Annual Meeting, Transportation Research Board, 2015, 15p
- Palmer, Matthew E; Gibbons, Ronald; Jahangiri, Arash. An Experimental On-Demand Roadway-Lighting System. Transportation Research Board 94th Annual Meeting, Transportation Research Board, 2015, 13p
- Saraji, R., Younis, D., Madi, M. T., & Gibbons, R. B. (2015). Pedestrian visibility at night: The effect of solid state streetlights. *Lighting Research and Technology*
- Gibbons, Ronald B; Guo, Feng; Medina, Alejandra; Du, Jianhe; Terry, Travis; Lutkevich, Paul; Li, Qing. Approaches to Adaptive Lighting on Roadways. *Transportation Research Record: Journal of the Transportation Research Board*, Issue 2485, 2015, pp 26-32
- Medina, Alejandra; Gibbons, Ronald; Du, Jianhe; Guo, Feng; Terry, Travis. Moving Towards MAP-21 and Beyond: Creating a GIS Multistate Database to Support Safety Analyses. Transportation Research Board 94th Annual Meeting, Transportation Research Board, 2015, 18p
- Williams, Brian; Gibbons, Ronald; Medina, Alejandra; Connell, Caroline. Visibility of a Color Variable Message Sign in the Fog. Transportation Research Board 94th Annual Meeting, Transportation Research Board, 2015, 14p
- Bhagavathula, Rajaram; Gibbons, Ronald B; Edwards, Christopher J. Relationship Between Roadway Illuminance Level and Nighttime Rural Intersection Safety. *Transportation Research Record: Journal of the Transportation Research Board*, Issue 2485, 2015, pp 8-15
- Gibbons, Ronald; Guo, Feng; Medina, Alejandra; Terry, Travis; Du, Jianhe; Lutkevich, Paul; Li, Qing. Design Criteria for Adaptive Roadway Lighting. Virginia Polytechnic Institute and State University, Blacksburg; Federal Highway Administration, 2014, Report no. FHWA HRT 14 051, 72p
- Gibbons, Ronald; Guo, Feng; Medina, Alejandra; Terry, Travis; Du, Jianhe; Lutkevich, Paul; Corkum, David; Vetere, Peter. Guidelines for the Implementation of Reduced Lighting on Roadways. Virginia Polytechnic Institute and State University, Blacksburg; Federal Highway Administration, 2014, Report no. FHWA HRT 14 050, 46p
- Terry, Travis; Gibbons, Ronald B. Evaluation of Guardrail Embedded Lighting System in Trinidad, Colorado. Virginia Polytechnic Institute and State University, Blacksburg; Colorado Department of Transportation; Federal Highway Administration, 2014, 59p
- Gibbons, Ronald B; Edwards, Christopher J; Bhagavathula, Rajaram; Owens, D Alfred. Development of Visual Model for Exploring Relationship Between Nighttime Driving Behavior and Roadway Visibility Features. *Accident Reconstruction Journal*, Volume 23, Issue 6, 2013, pp 11-16

- Gibbons, Ronald B; Meyer, Jason; Rau, Paul S; Price, Markus L. Impact of Correlated Color Temperature of Headlamps on Visibility. 23rd International Technical Conference on the Enhanced Safety of Vehicles (ESV), National Highway Traffic Safety Administration, 2013, 11p
- Gibbons, Ronald B; Williams, Brian; Cottrell, Benjamin. Assessment of Durability of Wet Night Visible Pavement Markings: Visibility Experiment. Transportation Research Record: Journal of the Transportation Research Board, Issue 2337, 2013, pp 67-73
- Gibbons, Ronald B; Meyer, Jason. Exploratory Evaluation of the Impact of Spectral Power Distributions on Driver Performance. Transportation Research Board 92nd Annual Meeting, Transportation Research Board, 2013, 18p
- Gibbons, Ronald B; Flintsch, Alejandra Medina; Williams, Brian; Du, Jianhe; Rakha, Hesham. Evaluation of Impact of Modern Headlamp Technology on Design Criteria for Sag Vertical Curves. Transportation Research Record: Journal of the Transportation Research Board, Issue 2384, 2013, pp 65-73
- Saraji, R., Younis, D., Madi, M., Gibbons, R. B., & Cie. (2013b). The effect of oncoming car headlights on pedestrian visibility. Proceedings of the Cie Centenary Conference Towards a New Century of Light, 1044-1050.
- Terry, Travis; Gibbons, Ronald B. Comparison of LED Luminaires for Roadway Lighting Using Object Detection and Color Recognition Distances. Transportation Research Board 92nd Annual Meeting, Transportation Research Board, 2013, 19p
- Gibbons, Ronald B; Williams, Brian; Cottrell Jr., Benjamin H. Assessment of the Durability of Wet Night Visible Pavement Markings: Retroreflectivity Experiment. Transportation Research Board 92nd Annual Meeting, Transportation Research Board, 2013, 20p
- Gibbons, Ronald B; Medina, Alejandra; Williams, Brian; Du, Jianhe; Rakha, Hesham. Sag Vertical Curve Design Criteria for Headlight Sight Distance. NCHRP Web Document, Issue 198, 2012, 112p
- Gibbons, Ronald B; Williams, Brian M. Assessment of the Durability of Wet Night Visible Pavement Markings: Wet Visibility Project Phase IV. Virginia Polytechnic Institute and State University, Blacksburg; Virginia Department of Transportation; Virginia Center for Transportation Innovation and Research, 2012, 52p
- Flintsch, Gerardo W; Williams, Brian; Gibbons, Ronald; Viner, Helen. Assessment of Impact of Splash and Spray on Road Users: Results of Controlled Experiment. Transportation Research Record: Journal of the Transportation Research Board, Issue 2306, 2012, pp 151-160
- Gibbons, Ronald B; Edwards, Christopher J; Bhagavathula, Rajaram; Carlson, Paul; Owens, D Alfred. Development of Visual Model for Exploring Relationship Between Nighttime Driving Behavior and Roadway Visibility Features. Transportation Research Record: Journal of the Transportation Research Board, Issue 2298, 2012, pp 96-103
- Gibbons, Ronald B; Williams, Brian; Cottrell, Benjamin. Refinement of Drivers Visibility Needs During Wet Night Conditions. Transportation Research Record: Journal of the Transportation Research Board, Issue 2272, 2012, pp 113-120

- Bhagavathula, Rajaram; Gibbons, Ronald B; Edwards, Christopher J. Effect of Static and Moving Objects on Driver Eye Movements and Detection Distances. Transportation Research Board 91st Annual Meeting, Transportation Research Board, 2012, 15p
- Gibbons, Ronald B; Williams, Brian M. The Refinement of Driver's Visibility Needs During Wet Night Conditions: Wet Visibility Project Phase III. Virginia Polytechnic Institute and State University, Blacksburg; Virginia Center for Transportation Innovation and Research; Virginia Department of Transportation; Federal Highway Administration, 2011, 66p
- Meyer, J., Gibbons R. (2011), "Luminance Metrics for Roadway Lighting", National Surface Transportation Safety Center of Excellence, Blacksburg, VA
- Gibbons, Ronald B; Edwards, Christopher J; Trani, Antonio A. Approach Lighting System Safety. International Airport Review, Volume 14, Issue 1, 2010, pp 34-38
- Gibbons, Ronald B; Edwards, Christopher J; Clanton, Nancy; Mutmansky, Michael. Alternative Lighting Evaluations in Municipality of Anchorage. Transportation Research Board 89th Annual Meeting, Transportation Research Board, 2010
- Gibbons, R., Clanton, N., Edwards, C., and Mutmansky, M. (2009). Alternative Lighting Evaluations: Municipality of Anchorage. Poster Presentation at the Illuminating Engineering Society of North America Annual Conference. Seattle:WA.
- Owens, D Alfred; Hunter, Megan; Zhang, Xiaoyu; Gibbons, Ronald B; Edwards, Christopher J; Viita, Derek. Assessment of Nighttime Visibility of Realistic Targets Using a Video-Based Simulation of Virginia Smart Road. Transportation Research Board 89th Annual Meeting, Transportation Research Board, 2010, 19p
- Gibbons, R.B., Edwards, C.J., and Meyer, J.E. (2009). Municipality of Anchorage: Alternative Lighting Evaluations. Final Report.
- Gibbons, R.B. and Edwards, C.J. (2009). Emerging Broad-Spectrum Lighting Technology Survey for Sixth Avenue in the City of San Diego. Final Report.
- Gibbons, R.B., Edwards, C.J., Viita, D., and Meyer, J.E. (2009). Marine Corps Base Hawaii: Alternative Lighting Evaluation. Final Report. Magnaray International.
- Gibbons, Ronald B; Edwards, Christopher J; Trani, Antonio A. Guidance for Identifying and Mitigating Approach Lighting System Hazards. ACRP Research Results Digest, Issue 6, 2009, 14p
- Pike, Adam M; Carlson, Paul J; Meyer, Jason E; Gibbons, Ronald B. Florida's Wet Weather Demonstration Project. Texas Transportation Institute; Florida Department of Transportation, 2009, 112p
- Gibbons, Ronald B; Edwards, Christopher J; Trani, Antonio A. Guidance for Identifying and Mitigating Approach Lighting System Hazards. ACRP Web-Only Document, Issue 4, 2008, 88p
- Gibbons, Ronald B; Edwards, Christopher J; Williams, Brian; Andersen, Carl K. Informational Report on Lighting Design for Midblock Crosswalks. Virginia Polytechnic Institute

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