



**Part II - UTC Specific Indicators**

**UTC Name:** National University Rail (NURail) Center  
**Grant #:** DTRT12-G-UTC18  
**Reporting Period:** January 1 - December 31, 2015

Performance Indicators		Consortium Total
<b>Research Capability</b>		
1	Number of papers on NURail sponsored research published in peer-reviewed journals or industry publications:	41
2	Number of publications in academic and industry conference proceedings	57
3	Number of presentations at academic and industry conferences and workshops	103
4	Number of NURail sponsored theses or dissertations at the MS and PhD levels.	
a	<i>Number of MS theses</i>	8
b	<i>Number of PhD dissertations</i>	3
5	Number of NURail final reports issued during the grant year	23
6	Number of citations of each of the above	3
7	Number of research tools (lab equipment, models, software, test processes, etc.) developed as part of NURail sponsored research	8
<b>Leadership</b>		
1	Number of rail-related professional and service organization committees that NURail faculty researchers participate in or lead.	
a	<i>Number participated in</i>	46
b	<i>Number led</i>	8
2	Number of research and educational colloquia and workshops organized	8
3	Number of rail sessions developed and led at major transportation and rail industry conferences	12
4	Number of faculty researchers in leadership positions in:	
a	<i>Professional societies</i>	6
b	<i>Advisory committees</i>	4
c	<i>Conference Organizing Committees</i>	23
5	Number of relevant awards received during the grant year	5
6	Number of NURail professionals participating in short-term and long-range transportation planning	6

Performance Indicators		Consortium Total
7	Number of other activities promoting rail academic research and education	42
<b>Education &amp; Workforce Development</b>		
1	Number of rail courses offered (not necessarily NURail stimulated).	
a	<i>On-Campus</i>	24
b	<i>Distance</i>	10
2	Number of rail related classes developed or modified as a result of NURail funding.	
a	<i>On-Campus</i>	10
b	<i>Distance</i>	2
3	Number of students participating in course offerings (both on-campus and on-line).	
a	<i>On-Campus</i>	379
b	<i>Distance</i>	44
4	Number of internships and full time positions secured in the industry and government during the grant year.	
a	<i>Number of internships</i>	
	Internships w/Class 1 railroads	13
	Internships w/railroads, but not Class 1	3
	Internships with consulting firms	3
	Internships with the government	0
	Internships with other: Cambride Systematics, Volpe Center, NYC MTA, Wabtec, Loram	21
b	<i>Number of full time positions</i>	
	Full time w/Class 1 railroads	6
	Full time w/railroads, but not Class 1	0
	Full time with consulting firms	11
	Full time with the government	0
	Full time with Other: research lab, industry, consulting, transit safety, education	6
5	Number of NURail sponsored students participating in academic or industry conferences, workshops, or symposia.	# of students
	TRB	35
	JRC	26
	NURail Annual Meeting	39
	AREMA	55
	WCRR	0
	INFORMS	9
	Summerail	16
	APTA	3
	AAR Research Review	8
	IAROR	3
	IHHA	4
	Railroad Environmental Conference	20
	Big Data Conference	1
	NARP	16

Performance Indicators		Consortium Total
	ASCE Cold Regions Conference	5
	Midwest Cog Science Conference	5
	Auditory Display Conference	5
	Materials Science and Technology Conference	5
	AEG Conference	5
<b>6</b>	Number of K-12 outreach activities and student participants the grant has helped to support	# of students
	E-Day Railroad Lab	100
	mentoring calls to HS students by Prof. Sussman	6
	Engineering Open House	12000
	Boy Scout NOVAree	250
	Hanson Springfield Minority Visit	35
	STEAM Summer Camp (K-12 Outreach)	12
	STEM Workshop for Teachers	55
<b>7</b>	Number of initiatives / activities related to training / workforce development (live and online).	# of students
	Wabash Valley Railroaders Museum	21
	Hay Seminars (11 total)	1076
	Railroad Engineering Short Course	9
	Passenger Railway Engineering Education Symposium	25
<b>Tech Transfer</b>		
<b>1</b>	Technology transfer focused activities (articles, seminars, posters, workshops, etc.)	41
<b>2</b>	Professional development participation (meetings, briefings, committees)	16
<b>3</b>	New Technologies / Innovation (applications, concepts, technologies, etc. adopted by the rail industry, licenses, cooperative research agreements or creation of new business entities)	1
	University of Illinois at Chicago - Center for Urban Planning and Public Affairs; Environmental GIS model for freight	
<b>Collaboration</b>		
<b>1</b>	Number of joint research proposals	
	<i>Funding opportunity name(s).</i>	Qty - 2
	APTA Passenger Rail Benefits Study	UIUC, MIT
	A Method for Detecting Ballast Support Deterioration through Dynamic Response and Modal Analysis - 2015 FRA BAA	J. Rose, B. Huang, D. Clarke, X. Shu
<b>2</b>	Number of joint papers	
	<i>Paper Title</i>	Qty - 5

<b>Performance Indicators</b>		<b>Consortium Total</b>
	"A Dynamic Model for Quantifying Rail-Highway Grade Crossing Roughness." Journal of Transportation Safety and Security. Online. DOI: 10.1080/19439962.2015.1048016, 05 November 2015.	Wang, T., R.R. Souleyrette, D. Lau, A. Aboubakr and E. Randerson
	"The Use of Matrix Based Tactile Surface Sensors to Assess the Fine Scale Ballast-Tie 1 Interface Pressure Distribution in Railroad Track," Transportation Research Record (TRR), Journal of the Transportation Research Board. No. 2476, 2015, pp. 23-31.	McHenry, M., M. Brown, J. LoPresti, J. Rose, and R. Souleyrette
	Toward Next Generation of Railroad Professionals-Collaboration by NURail and Rail Industry	Lautala, P.T., Dick, C.T., Rizos, D., and Clarke, D.B.
	Sequencing and Scheduling in Railway Classification Yards	H. Li , M. Jin, and S. He
	AREMA Conference Paper on Next Generation of Railroaders	MTU, UIUC, UTK
<b>3</b>	Number of joint presentations	
	<i>Presentation Name</i>	Qty - 2
	"Quantifying Rail-Highway Grade Crossing Roughness: Accelerations and Dynamic Modeling." 92nd Annual Meeting of TRB, Washington, DC, Jan. 2015	Souleyrette, R., T. Wang, D. Lau, A. Aboubakr and E. Randerson
	AREMA Conference Paper on Next Generation of Railroaders	MTU, UIUC, UTK
<b>4</b>	Number of jointly developed or taught courses	
	<i>Course Name</i>	Qty - 1
	University of Tennessee: ECIV 490 - Railroad Operations	Dimitris Rizos
<b>5</b>	Number of jointly organized seminars, workshops, or conferences	
	NURail Annual Meeting	(all NURail partners)
<b>Collaboration With Outside Organizations</b>		
<b>1</b>	Number of organizations collaborated with during the grant year	37
<b>2</b>	Number of joint research proposals	10
<b>3</b>	Number of joint papers	4
<b>4</b>	Number of joint presentations	3
<b>5</b>	Number of jointly developed or taught courses	4
<b>6</b>	Number of jointly organized seminars, workshops, or conferences	7