Development of Critical Knowledge Gaps and Research Efforts

in Support of the Safety R & T Partnership Agenda

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16. Abstract

This report presents a set of five independent white papers on topics selected by the National Highway R&T Partnership, plus an introductory chapter that gives background information, and a final chapter that compares results across the white papers. All papers fall within the general topic of Highway Infrastructure and Operations, one of eight safety research themes in the National Highway Safety Research Agenda. Sets of potential research projects were produced for each of the following topics: run-off-road accidents, intersection safety, human factors, work zone safety, and advanced projects that cut across the preceding topics. Each potential project was rated for likelihood of success and estimates were given for cost and duration. The most important element of this report is the formal distinction between Applied and Advanced projects. Applied projects represent the standard highway safety topics historically supported by the Federal Highway Administration (FHWA). Advanced projects represent high-risk high-reward topics that have not been supported in the past; these projects include basic research that will provide a firm foundation for future applied research efforts. Examples of recommended Advanced projects include Development of a Computational Driver Model, Development and Application of a Roadside Inventory Database, and Safety Impacts of Alternative Intersection Controls. Examples of recommended Applied projects include Optimizing the Net Benefits of Delineation, Safety Effects of Alternative Left Turn Phasing, and Driving Simulator Validity.

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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
	LENGTH			
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
	AREA			
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yards	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
	VOLUME			
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
NOTE: Volumes greater than 1000 l shall be shown in m^3.				
	MASS			
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5(F-32)/9 or (F-32)/1.8	Celcius temperature	°C
	ILLUMINATION			
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m^2	cd/m^2
	FORCE and PRESSURE or STRESS			
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
	LENGTH			
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
	AREA			
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
	VOLUME			
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.71	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
	MASS			
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
	TEMPERATURE (exact)			
°C	Celcius temperature	1.8C + 32	Fahrenheit temperature	°F
	ILLUMINATION			
lx	lux	0.0929	foot-candles	fc
cd/m^2	candela/m^2	0.2919	foot-Lamberts	fl
	FORCE and PRESSURE or STRESS			
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

* SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.

(Revised September 1993)

Table of Contents

1.0 EXECUTIVE SUMMARY 6

1.1 Development of the White Papers 6

1.2 Results 7

1.3 Appendix A: Statement of Work 13

2.0 RUN-OFF-ROAD RESEARCH NEEDS 19

2.1 Introduction 19

2.2 Run-Off-Road Research Topics 21

2.3 Knowledge Strongholds and Gaps 21

2.4 Critical Future Highway Issues 24

2.5 Research Recommendations 27

2.6 Summary 43

2.7 Appendix A: Compiled Lists of Run-Off-Road Research Needs 45

3.0 INTERSECTION SAFETY 53

3.1 Introduction 53

3.2 Potential Research Needs 55

3.3 Summary 72

3.4 Appendix A 73

3.5 Appendix B 76

3.6 Appendix C 77

4.0 HUMAN FACTORS 78

4.1 Introduction 78

4.2 Critical Future Highway Issues 78

4.3 Human Factors Research Topics 79

4.4 Knowledge Strongholds 80

4.5 Knowledge Gaps 82

4.6 Research Topics 86

4.7 Relationship Between These Proposal Projects and the F-SHRP Research Plan 102

4.8 Summary 103

5.0 WORK ZONES 104

5.1 Introduction 104

5.2 Specific Research Topics 106

5.3 Knowledge Strongholds 107

5.4 Knowledge Gaps 107

5.5 Specific Research Projects 110

5.6 Summary 125

6.0 FUNDAMENTAL ADVANCED RESEARCH 126

6.1 Introduction 126

6.2 Specific Research Topics 129

6.3 Knowledge Strongholds 132

6.4 Knowledge Gaps 132

6.5 Research Recommendations 133

6.6 Summary 143

7.0 SYNTHESIS 145

7.1 Advanced Projects 146

7.2 Applied Projects 149

8.0 REFERENCES 152