



Paul D. Thompson

Management Systems • Engineering Economics
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Paul D. Thompson is an internationally recognized expert in management systems and engineering economics, including research, design, and development of analytical processes for managing transportation assets. Mr. Thompson is one of the world's leading authorities on life-cycle planning of infrastructure investments, including optimal funding and timing to keep roads and bridges in service at minimum cost. He has served as a consultant in this area to transportation agencies at the local, state, and national levels worldwide since 1980, and has authored many of the major AASHTO and international guidebooks on asset management implementation.

He was a co-author of Florida DOT's comprehensive study of bridge-related risk in asset management, and of Minnesota's Bridge Risk and Improvement Management System. For NCHRP Project 20-07 Task 378 he developed a comprehensive bridge risk analysis able to consider 16 types of potential hazards including earthquake, landslide, storm surge, high wind, flood, scour, wildfire, temperature extremes, permafrost instability, overload, over-height collision, truck collision, vessel collision, sabotage, advanced deterioration, and fatigue. In projects for Alaska, Colorado, Montana, Western Federal Lands, and NCHRP 24-35, he has helped develop the framework for the new field of geotechnical asset management, addressing roadway embankments, unstable slopes, retaining walls, material sites, and rockfall protection systems where risk is a primary concern.

Mr. Thompson was a co-author of the first two editions of the AASHTO Guide for Transportation Asset Management (TAM). He participated in the writing of 11 state risk-based TAM Plans. He is now developing for FHWA a next-generation methodology for implementation of a comprehensive asset management plan, capable of tradeoff analysis across pavements, bridges, and other asset classes.

Mr. Thompson has been Manager and principal architect of the multi-contract implementation program for Pontis (now AASHTOWare Bridge Management – BrM). He has provided customization and implementation support services in connection with Pontis and BrM to more than half of the states and several other countries. He has designed and/or managed development of more than a dozen other bridge, pavement, and transit management systems worldwide. For FHWA and 15 state DOTs, he has developed bridge element deterioration models using element and condition state inspection data. For FHWA, Florida, Montana, Minnesota, Ohio, Nevada, Texas, Alabama, Kentucky, and British Columbia, and in NCHRP-Report 590, he has developed spreadsheet-based life cycle cost models able to evaluate scoping and timing alternatives at the project and network levels. He is also the developer of StruPlan, an open-source spreadsheet program for long-range renewal planning for transportation structures.

Asset Management	Multi-objective cross-asset TAM Plan implementation methodology for FHWA Project prioritization methodology for California Department of Transportation Asset management analytical support for New Hampshire DOT Minnesota, Nevada, Ohio, Texas, Louisiana, Alabama, Kansas, Georgia, Arizona, North Dakota, Kentucky TAM Plans Alaska Geotechnical Asset Management Plan – retaining walls, slopes, material sites Montana DOT asset management concepts for rock slopes Benefit/cost framework for Federal Land Management Agencies for unstable slopes Alaska DOT&PF Asset Management Gap Analysis, Synthesis, and Work Plan NCHRP 24-35, Asset Management for Flexible Rockfall Protection Systems Colorado DOT retaining wall asset management plan TAM long-term bridge preservation needs analysis process for the Washington State Legislature NCHRP 20-24(11), Asset Management Guidelines for Transportation Agencies NCHRP 08-69, Asset Management Volume 2: Focus on Implementation NCHRP 20-74A, Service Levels for the Interstate Highway System NCHRP 20-74, Asset Management Plan for the Interstate Highway System NCHRP 08-71, Life Expectancies of Highway Assets Final report author, FHWA Management System Integration Committee Colorado DOT inspection system for sign, signal, and high-mast light pole structures Asset Management Guidelines, Transport Association of Canada FHWA peer review panels for national infrastructure needs analysis for the US Congress Technical consultant, NCHRP 20-64 - TransXML NCHRP 363, Role of Highway Maintenance in Integrated Management Systems Finland integrated bridge, pavement, and maintenance management systems
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	Statewide asset management framework for Michigan
	Michigan, Delaware, Puerto Rico, Nova Scotia integrated management systems
	Asset costing and performance measures for NJ Transit and Massachusetts Bay Transp Authority
Bridge Management	FHWA research on non-destructive evaluation in bridge management systems
	NCHRP Project 20-07(378) – Assessing risk in bridge management systems
	Integration of element inspection data in decision making, Minnesota and New York State DOT
	Pooled-fund study of bridge deterioration for Midwest consortium of state DOTs, led by Wisconsin
	Management methodology for Big Bridges – pooled fund study led by Michigan DOT
	Design and modeling for FHWA’s National Bridge Investment Analysis System (NBIAS)
	Transit bridge deterioration and cost modeling for the Massachusetts Bay Transportation Authority
	Bridge deterioration models for Florida, Virginia, Alabama, Kansas, FHWA, and British Columbia
	Updating of the NCHRP Report 483 Bridge Life Cycle Cost Analysis model for FHWA
	Pontis Bridge Management System for AASHTO and the US Federal Highway Administration
	Design of risk-based bridge management tools for Minnesota and Pennsylvania DOTs
	Development of risk, deterioration, cost models, user cost, and life cycle cost tools for Florida DOT
	Design of the Québec and Ontario bridge management systems
	Technical consultant for the Triborough Bridge & Tunnel Authority (NY) Bridge Management System
	Design of the Massachusetts Bay Transportation Authority (Boston) Bridge Management System
	BMS Design and Development assistance, Switzerland, Sweden, Finland, Manitoba, Ohio, Alabama
	Advisor, FHWA Bridge Management Systems Laboratory and Long-Term Bridge Program
	Customization of the Florida Project Level Analysis Tool for Maine DOT
	Development of Pontis implementation plan for New Jersey DOT
	FHWA-sponsored Pontis workshops for the states of ME, NH, VT, MA, RI, CT, NY, NJ, DE, MD, LA, AR, MO, IA, MN, NE, KS, OK, TX, CO, WY, MT, ID, UT, AZ, CA, OR, WA, HI
	Locally-sponsored Pontis workshops and training courses for Rhode Island, Illinois, Ohio, Puerto Rico, Switzerland, Hungary, United Kingdom, Spain, Australia, Kuwait
	Course designer and lead instructor for NHI Bridge Management Training Courses for South Carolina, Arizona, Washington, Louisiana, Oklahoma, Florida, Texas, Tennessee, and Michigan
	Technical support of Pontis implementation for the City of Denver and the States of Maine, Florida, Tennessee, Ohio, Illinois, Michigan, Louisiana, Iowa, and Colorado
	Technical support of Stantec Bridge Management System implementation for the Provinces of Ontario, British Columbia, Saskatchewan, Québec, and Nova Scotia and the City of Hamilton
	NCHRP 14-15, Development of a national maintenance database for bridges
	NCHRP 12-67, Multi-Objective Optimization for BMS
	Co-author, AASHTO Guidelines for Bridge Management Systems
	NCHRP Synthesis 227, Collecting and Managing Cost Data for BMS
	NCHRP 20-07, Bridge Performance Measures
	NCHRP 12-50, Bridge Software Validation Guidelines and Examples
	NCHRP 12-51, Effect of Truck Weight on Bridge Network Costs
Committees	Central Puget Sound Regional Transit Authority (Sound Transit) Community Oversight Panel
	Transportation Research Board Committee on Asset Management
	Emeritus Member, Transportation Research Board Committee on Bridge Management
	Chair, Transportation Research Board Subcommittee on Bridge Life Cycle Cost Analysis
	SHRP2 Reliability Technical Expert Task Group on Statistics, Models and Methods
	Editorial Board, Structures and Infrastructure Engineering Journal
	International Association for Bridge Maintenance and Safety, Bridge Management Committee
Education	C.S.S., Administration and Management, Harvard University Extension (1987)
	M.S., Transportation, Massachusetts Institute of Technology (1982)
	B.S., Civil Engineering, University of Washington (1980)
Formerly	Principal, Cambridge Systematics, Inc.
	Research Assistant, Massachusetts Institute of Technology
	Planning and Finance Depts., Tri-County Metropolitan Transportation District of Oregon (Tri-Met)
	Assistant Surveyor, City of Longview, Washington
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