



AT-THE-READY

Consultant Engineering Services for Municipalities
TECHNICAL PROPOSAL

DESIGN SERVICES



DuBois
& King
inc.

Cover Letter

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623715X
January 6, 2017

Nydia Lugo, Technical Development Engineer
Vermont Agency of Transportation
One National Life Drive
Montpelier, VT 05633-5001

Subject: VTrans At-the-Ready Consultant Engineering Services for Municipalities – Design Services

Dear Ms. Lugo and Members of the Selection Committee,

DuBois & King (D&K) is pleased to submit ten (10) paper copies and one (1) electronic copy of our Technical Proposal in response to your November 28, 2016 Request for Qualifications for At-the-Ready Consultant Engineering Services for Municipalities (ATR). Please consider the following as you review our proposal:

For nearly 100 projects, D&K has provided scoping, design, municipal project management, and/or construction phase services for Municipal Assistance Bureau (formerly Local Transportation Facilities Section) projects since the program's inception in the 1990s.

D&K staff have a clear understanding of the requirements of the MAB program, the needs of municipal governments ranging in size from Rochester to Burlington, and our staff maintain positive, working relationships with Vermont's regional planning commissions and the regulatory community. We are committed to providing qualified, well-equipped, experienced, and responsible professionals who perform high-quality work on a consistent basis.

D&K has dedicated planning, design, and construction professionals that have provided services on hundreds of projects throughout Vermont over our 55-year history. Our design experience spans a wide range of transportation and infrastructure improvement projects including: roadway/highway reconstruction, paving and pavement management, bridges, culverts, dams, water/wastewater, sidewalks/pathways, utilities reconstruction and replacement, stormwater, river and bank stabilization, vertical construction, and site improvements.

D&K's team includes multidisciplined in-house personnel that address the needs of MAB projects. We appreciate your consideration of our qualifications and look forward to continuing to support Vermont municipalities on state and federally funded transportation and infrastructure improvement projects. We would be pleased to answer any questions you may have. Please do not hesitate to give me a call at 802-728-3376 or contact me via email at dbenoit@dubois-king.com.

Sincerely,
DuBois & King, Inc.

Darren Benoit, PE
Vice President
Director, Transportation Division

Darren retired from D&K. See next page for October 7, 2019 update.



623715X
October 7, 2019

Nydia Lugo, Technical Development Engineer
Vermont Agency of Transportation
One National Life Drive
Montpelier, VT 05633-5001

Subject: VTrans At-the-Ready Consultant Engineering Services for Municipalities – Design Services

Dear Ms. Lugo,

DuBois & King (D&K) is pleased to provide a revised organizational chart and professional resumes to reflect the firm's current staff available to provide design services. Please consider the following as you review this submission:

The personnel we are presenting as additional staff under this contract are all seasoned project managers qualified to lead design of projects following the MAB process. D&K staff contained within this submission have a clear understanding of the needs of municipal governments ranging in size from Rochester to Burlington. Our staff maintain positive, working relationships with Vermont's regional planning commissions and the regulatory community.

D&K offers an expanded team of in-house personnel who will address the needs of MAB projects. D&K appreciates your consideration of our qualifications and looks forward to continuing to support Vermont municipalities on state- and federally-funded projects. We would be pleased to answer any questions you may have. Please do not hesitate to give me a call at 802.878.7661 or contact me via email at krobie@dubois-king.com.

Sincerely,
DuBois & King, Inc.

A handwritten signature in blue ink, appearing to read 'Ken Robie', is written over a light blue horizontal line.

Ken Robie, PE
Senior Project Manager

GENERAL FIRM INFORMATION

Introduction to the Consultant Firm

Established in 1962, DuBois & King (D&K) is a Vermont based consulting engineering firm with 94 professional engineers, planners, designers, surveyors, technicians, environmental and permitting specialists, and support personnel. The firm has provided engineering or construction phase services on nearly 100 Municipal Assistance Bureau (MAB), formerly Local Transportation Facilities Section projects. D&K currently provides services to VTrans under 12 on-call contracts. Following is an outline of the firm’s municipal engineering services as they relate to transportation projects:

Transportation Planning and Design

- Roadway Evaluation, Reconstruction, Rehabilitation
- Scoping and Planning
- Signalized Intersections
- Roundabouts
- Unsignalized Intersections
- Right of Way Acquisition
- Landscape Design
- Road Diets
- Complete Streets
- Sidewalks - Concrete, Asphalt, Pavers
- Bike Lanes - Protected, Enhanced
- Multiuse Pathways
- Parking Lots
- Railroad Engineering
- Public Engagement
- Electrical Engineering – Lighting and signals

Transportation Structures

- Bridge and Culvert Evaluation and Design
- Vehicle Bridges
- Rail Bridges
- Pedestrian Bridges
- Culverts – CMP and Concrete
- Covered Bridges
- Steel Truss Bridges
- Retaining Walls

Permitting, Natural Resources and Wetlands

- National Environmental Policy Act (NEPA) Documentation — CEs, EAs, EISs
- Vermont Agency of Natural Resources Permitting
- US Army Corps of Engineers Permitting
- Wetland Science
- Wetland Mitigation Site Design

Water Resources

- Hydraulic Design
- Hydrogeology
- Roadway and River Embankment Protection
- Hydraulic and Hydrologic Analysis
- Flood Resiliency and Floodplain Analysis
- Stormwater – Low Impact Development
- Stormwater – Traditional Closed Drainage
- River Channel Restoration and Water Quality
- Dam Engineering

Survey and Mapping

- Topo and Basemapping
- Horizontal and Vertical Control
- ROW Boundary Survey
- Plats
- Deed Research
- GIS Services

Utilities and Environmental

- Water/Sewer/Stormwater – Piping, Pumping, Process, Treatment, Permitting
- Hazardous Materials Investigation, Assessment, and Mitigation

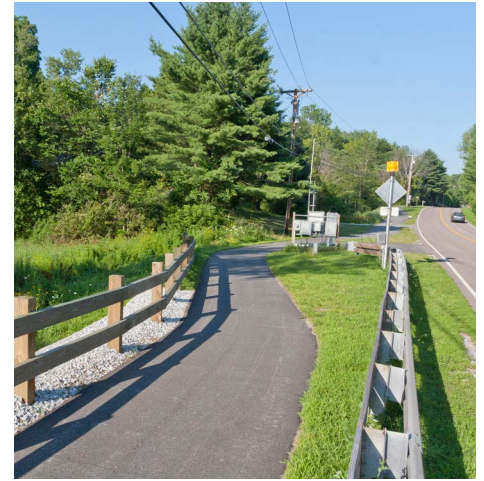
Contact Information:

DuBois & King, Inc., 28 North Main Street, Randolph, VT 05060, 802.728.3376

~~Darren Benoit, PE, 802.728.3376, dbenoit@dubois-king.com~~

Ken Robie, PE, 802.878.7661, krobie@dubois-king.com (October 7, 2019 update)

The following pages detail the firm’s areas of service that pertain the Request for Qualifications (RFQ). **D&K does not anticipate the use of subconsultant resources** for the services described on pages 1 and 2 under the “Design” consultant categories in the RFQ. We have therefore not included a subconsultant section in this document.



TRANSPORTATION PLANNING AND DESIGN



Scoping | Planning | Design | Evaluation | New Roadways | Reconstruction | Rehabilitation | Complete Streets | Traffic Transportation Alternatives Program | Transit | Abutter Coordination | Signing | Striping | Parking | Streetscape | Lighting Right-of-Way | Permitting | Cost Estimates | Construction Documents | Bid Phase Services | Safety Improvements

D&K offers transportation services to guide MAB projects from scoping through to construction. Fully staffed to support transportation projects, our in-house team consists of qualified professionals from survey through design and construction administration/inspection services. Our team offers a comprehensive understanding of state and federal transportation programs and compliance with the Manual on Uniform Traffic Control Devices (MUTCD), the AASHTO Green Book, and NEPA, ACOE, and VT ANR regulations and processes.

Associated in-house services include survey; assistance in right-of-way acquisition; public engagement programming; wetlands science; environmental, railway, and geotechnical engineering; and bid phase services.

UTILITIES AND ENVIRONMENTAL

Wastewater and Stormwater Collection | Water Distribution Mains and Pumping | Wastewater Collection Mains and Pumping | Permitting and Funding Assistance | Hazardous Materials Investigation, Assessment, and Mitigation

Water supply and wastewater treatment are the engineering sciences on which DuBois & King was founded. On an ongoing basis, since 1962, D&K professionals have planned and designed water distribution and wastewater collection systems. D&K engineers provide proactive coordination with regulatory agencies and utilities to obtain permits and approvals.

DuBois & King staff provide services for investigations, assessments, compliance, and monitoring of sites containing hazardous materials and solid waste. D&K environmental professionals have an in-depth knowledge of federal and state regulations to effectively manage and guide clients through the regulatory process.



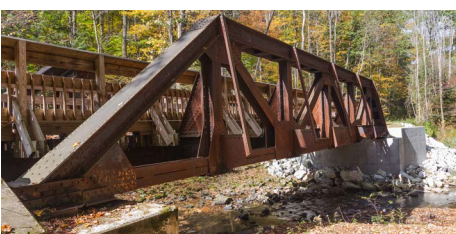
TRANSPORTATION STRUCTURES



Bridge Type Studies | Inspections | Load Ratings | Rehabilitations | Replacements | Steel | Concrete | Timber Covered Bridges | Culverts | Geotechnical Engineering | Retaining Walls | Right-of-Way | Parking Structures | Permitting | Highway Approach Design | Cost Estimates | Construction Documents | Bid and Construction Phase Services

For MAB projects, D&K's bridge engineers prepare condition assessments, calculate load ratings, and make recommendations for rehabilitations and replacements and perform bridge inspections in accordance with the guidelines outlined in the Federal Highway Administration's National Bridge Inspection Program and Bridge Inspectors Training Manual. D&K staff use the latest AASHTO, state design codes and specifications, and principles of Accelerated Bridge Construction.

DuBois & King offers a full range of bridge related services. Bridge engineers prepare condition assessments, calculate load ratings, and make recommendations for rehabilitation and replacement. Bridge inspections are conducted in accordance with the Federal Highway Administration's National Bridge Inspection Program and Bridge Inspectors Training Manual. Firm professionals are thoroughly familiar with the latest AASHTO, state design codes and specifications, and principals of Accelerated Bridge Construction. D&K engineers design single-span and multi-span bridges. Designs include concrete, steel, and timber bridges; spread footings bearing on soil and directly on ledge; pile foundations; and mechanically stabilized earth (MSE) abutments and retaining walls. The firm's expertise includes the assessment and repair of historic structures, including timber covered, steel truss, and suspension bridges.





PERMITTING NATURAL RESOURCES AND WETLANDS



Federal, State, Local Permitting | Environmental Documentation | Wetland Delineation | Wetland Mitigation Site Design | Categorical Exclusion | Environmental Assessment | Environmental Impact Statement | Visual Resource Assessments | Habitat Identification/Mapping | Biomonitoring | National Resource Inventories

DuBois & King’s Environmental Documentation & Permitting Staff are charged with guiding projects through local, state, and federal regulatory documentation, clearances, and permitting. With expertise in documentation, alternative analysis, and resource identification, delineation, and mitigation, D&K staff have provided NEPA, environmental, and permitting services for a variety of assignments including large complex transportation projects. D&K staff have provided NEPA documents where the DOD, FHWA, DOE, FAA, and EPA have been the lead agencies.

When supporting a planning and engineering effort or conducting a natural resources investigation independent of a development project, staff engineers, environmental planners, permit specialists, GIS specialists, wetlands scientists, field naturalists, surveyors, and landscape architects are highly experienced in providing services for compliance with regulatory agencies. D&K staff work to identify and resolve potential conflicts early in the planning phase before they impede progress.

Wetland Delineations | Wetland Restoration Plans | Vegetation/Planting Plans | Erosion Control/Stabilization Plans | Compensatory Mitigation | Invasive Species Control | Preparation of State-Approved Construction Sequence and Methods | Monitoring of Progress Reports | Mapping | Expert Testimony

D&K’s certified wetland scientists provide the technical expertise to assist owners with restoration plans, revegetation plans, invasive species control plans, erosion control, streambank stabilization, monitoring plans, and guidance on compliance with state wetlands regulations.

DuBois & King helps municipalities address wetland issues. We investigate the site, meet with the owner, stakeholders, and/or regulators, and provide a plan to address the issues and monitor the outcomes.

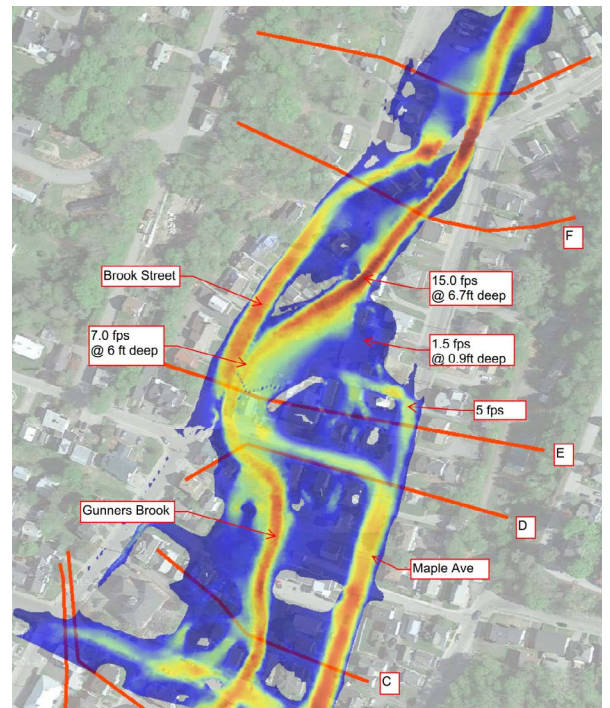
WATER RESOURCES

Hydraulic Studies | Hydrologic Modeling | Hydrogeology | Watershed Management | Stormwater Management | River Restoration | Aquatic Organism Passage | Embankment Stabilization | Natural Channel Design | Dam Engineering | Dam Removal | Ice Jam Analysis Ice Diversion | Flood Control & Mitigation | Drainage | Permitting



D&K has over 50 years of water resources engineering experience. Typical assignments include stormwater management, river restoration, streambank stabilization, flood damage surveys, subsurface investigations, evaluation of alternative solutions, economic evaluations, environmental analysis, and public engagement. Studies include dam break analyses, flood routing, floodplain/floodway delineation, ice jam analyses, flood frequency/low flow evaluations, reservoir routing, environmental impact assessments.

D&K engineers are thoroughly familiar with the hydrologic, hydraulic, and physical characteristics of the northeast United States. In-house staff use HEC-RAS 5.0 and HEC-HMS and related software, as well as other hydrologic and hydraulic software packages to provide 1- and 2- dimensional modeling. Individuals described in this proposal have a solid understanding of state and federal regulations and procedures for related projects and expertise in wetlands, stormwater, dredge and fill, dam safety and discharge and withdrawal permits.





SURVEY AND MAPPING



Horizontal, Vertical Control | Topographic Survey | Boundary Survey | Deed Research | Construction Stakeout | Base Mapping | Plats | Monitoring | Geodetic Leveling | High Accuracy Construction Services | GPS | GIS

D&K uses the latest technology to achieve greater accuracy and efficiency, which is fully compatible with our in-house and MicroStation/AutoCAD systems. D&K's field personnel are equipped with robotic total station and RTK GPS systems. This equipment supports providing one-man survey crews to projects for increased productivity and budget control.

Survey assignments include construction stake-out, hydrographic survey for flood insurance studies, right-of-way survey, and boundary survey in densely populated areas and in remote locations such as mountainous terrain in National and State Forests. D&K's use of geodetic leveling instruments has set published national benchmarks and provides high-accuracy for construction layout services.

D&K's Survey Department is composed of Survey Party Chiefs and technicians who work under the direct supervision of a Licensed Land Surveyor. Survey staff offers expertise in land surveying and mapping projects and topographic, property, and construction survey. They establish horizontal and vertical control, as well as construction baselines and stakeout. Property survey services include deed research and preparation of property plats for filing with local officials.



Organizational Chart

October 7, 2019 Update

Following are key staff available for MAB projects. Years of experience are listed in parentheses following each staff member's name.



Availability Chart

Below is an overview of staff availability based on billing rates and the overall maximum limiting amounts of the At-the-Ready solicitation disciplines as well as other project commitments.

Staff Member Name	Position	Availability %
Darren Benoit, PE, CPESC	Project Manager	25
Bob Durfee, PE, SECB	Project Manager	25
Lucy Gibson, PE	Project Manager	25
Chris Lathrop, PE	Project Manager	25
Dave Conger, PE	Project Manager	25
Martha Evans-Mongeon, PE	Project Manager	25
Brian Breslend, PE	Project Manager	60
John Benson, PE	Permitting Specialist	25
Charles Goodling, PE	Environmental Engineer	25
John Merrifield, PE	Transportation Engineer	60
Andy Hoak, PE, PG, CPESC	Hydrogeologist	60
Jon Ashley, PE	Environmental Engineer	60
Mike Hildenbrand, PE	Permitting Specialist	60
Shawn Patenaude, PE	Civil Engineer	60
C. Joe Kissel, CFM	Hydraulic Engineer	60
Charlotte Brodie, CWS	Wetland Scientist	25
Sophie Sauvé, ASLA, LEED AP	Landscape Designer	25
Randy Otis, LS	Land Surveyor	25

New personnel added on October 7, 2019. See updates in the Resumes Section.

DESIGN SERVICES

Qualifications and Experience of the Firm – MAB/LTF Projects. Below is an overview of the firm’s experience for selected MAB/LTF projects. D&K served as the prime consultant for all of these listed projects. For design projects, D&K staff led and provided civil and transportation engineering, survey, NEPA and applicable state permitting assistance, bid phase assistance, and design engineer services during construction. As further evidence of the firm’s understanding of federal and state regulations and standards, D&K is currently engaged as a prime consultant for the following 12 on-call VTrans contracts: Highway Resurfacing, Roadway and Safety, Aviation, Rail, Policy and Planning, ROW and Boundary, Operations Stormwater, Covered Bridges, Construction Inspection, General Environmental, Civil Engineering Consultant, Construction Management Services.

	Project Name	Location	Study	Design	Construction Phase
SIDEWALKS	US 4 Sidewalks	Woodstock		▲	
	VT 14 Sidewalks	Williamstown		▲	
	Websterville Rd & Graniteville Road Sidewalks	Barre Town		▲	
	Northfield Common Sidewalk	Northfield Village	▲	▲	
	Warners Corner Sidewalks	Colchester		▲	
	Exit 16 Sidewalks	Colchester		▲	
	VT 15 Sidewalk	Essex Town		▲	
	Cross and Railroad Street Sidewalks	Brighton		▲	
	Mt. Philo Sidewalk	Shelburne		▲	
	Maple St & Union St Sidewalks	Brandon		▲	
	Gateway Enhancement Project	Alburgh	▲		
	East Montpelier Safety Improvements	East Montpelier	▲	▲	
	Fairfield Sidewalks	Fairfield		▲	
	Hardwick Village Sidewalks	Hardwick		▲	
	VT 116 Sidewalks	Hinesburg		▲	
	Colchester Avenue Sidepath	Burlington		▲	
	West Pleasant Street Sidewalk Improvements	Bristol		▲	
	West Rutland Sidewalk Study	West Rutland	▲		
	Saxton's River Elementary School Sidewalk	Rockingham		▲	
	Union Street Sidewalk	Bennington			▲
	Main Street Sidewalk	Brattleboro			▲
	VT 100 Sidewalk	Stamford			▲
	Village Core Sidewalks	West Rutland			▲
	4th Street Sidewalk	Fair Haven			▲
	Brooklyn Street Sidewalk	Morristown			▲
	Depot Street Sidewalk	Hyde Park			▲
	Village Sidewalk	Jamaica			▲
	West, Church, and Court Street Sidewalks	Newfane			▲
	Kennedy Pond Safe Routes to School Sidewalk Project	Windsor			▲

	Project Name	Location	Study	Design	Construction Phase
BRIDGES	Chimney Hill Road Culvert Replacement	Wilmington		▲	
	Bridge Street Bridge Rehabilitation	Rockingham		▲	
	Village Covered Bridge Rehabilitation	Waitsfield		▲	
	Warren Covered Bridge	Warren		▲	
	VT 140 Truss Bridge Rehabilitation	Wallingford		▲	
	Hardwick "Swinging Bridge" Rehabilitation	Hardwick		▲	
	Randall Covered Bridge Rehabilitation	Lyndon		▲	
	Pearl Street Bridge Rehabilitation	Johnson		▲	
	Hebard Hill Road Bridge Replacement	Randolph		▲	
	Stone Road Bridge	Ryegate		▲	
	Hillside Drive Bridge	Ryegate		▲	
	Butternut Hill Road Bridge Replacement	Waitsfield		▲	
	Pumpkin Lane Bridge Replacement	Hardwick		▲	
	Hectorville Covered Bridge	Montgomery	▲		
	Bridge Repair, Bethel	Bethel			▲
	Bridge Repair	Enosburg			▲
	Bridge #9 Over Saxtons River	Rockingham			▲
	Portland Street Bridge	St. Johnsbury			▲
	Bridge #17 on Route 144	Benson			▲
	ROADWAY	Center Road TH#3 Repaving	Hardwick		▲
Maple Street Reconstruction		Weathersfield		▲	
US 2/302 Roundabout		Montpelier			▲
Powder Springs Road Paving		Topsham			▲
Paine Turnpike Resurfacing		Berlin		▲	
Bridge Street Stormwater and Roadway		Waitsfield		▲	
Waterbury Roundabout		Waterbury			▲
Crescent Connector Road		Essex Junction		▲	
Farr Road Extension		Waterbury			▲
Whipple Hollow Road and Marble Street Paving		West Rutland			▲

	Project Name	Location	Study	Design	Construction Phase
PATHWAYS AND MULTIMODAL TRANSPORTATION	Three Rivers Path	St. Johnsbury		▲	
	Webster Road Path	Shelburne		▲	
	Montpelier Bike Path	Montpelier	▲		
	Smith Street Path	Barre City		▲	
	Toonerville Trail	Springfield		▲	
	Millstone Hill West Path	Barre Town		▲	
	Killington Walkway	Killington	▲		
	Hardwick Multiuse Path	Hardwick		▲	
	Valley Trail	Dover			▲
	Whetstone Brook Path and Pedestrian Bridge	Brattleboro		▲	▲
	Bicycle and Pedestrian Improvements	West Hartford	▲		
	Bicycle and Pedestrian Improvements	St. Johnsbury	▲		
	Bicycle and Pedestrian Improvements	Rochester	▲		
	Bicycle and Pedestrian Improvements	Wilmington	▲		
	Bicycle and Pedestrian Improvements	Jericho	▲		
	Cabot Village Pedestrian Improvements	Cabot	▲		
	Northfield Common Sidewalks	Northfield		▲	
	Canaan Sidewalk/Path Improvements	Canaan			
	Path Around Lyndon	Lyndon		▲	
	PlanBTV Walk Bike	Burlington	▲		
	Essex Town-Village Bicycle Pedestrian Plan	Essex and Essex Junction	▲		
	Charlotte Ferry Road sidewalk and Crossing	Charlotte	▲		
	Town of Charlotte Park & Ride Feasibility Study	Charlotte	▲		
	Northfield Crosswalks	Northfield		▲	
	Williamstown Radar Feedback Signing	Williamstown		▲	
MISCELLANEOUS	Technical Assistance	Westford	▲		
	Technical Assistance	N. Bennington	▲		
	VT 17 Pathway Planning Study	Bristol	▲		
	Lamoille Valley Rail Trail	Danville			▲
	Hubbardton Salt Shed	Hubbardton		▲	
	Park & Ride Expansion	Weathersfield		▲	
	Park & Ride Expansion	St. Albans			
	Village Green Lighting	Bristol			
	Main Street Bridge Lighting	Plainfield			
	Smugglers' Notch Scenic Highway Corridor	Smugglers Notch			
Village Green Lighting	Bristol				

Roadway Reconstruction

Franklin, Fales, Salisbury, and Summer Streets Reconstruction, Randolph



D&K provided design of water, sewer, and stormwater utility improvements and road reconstruction for 2,500 LF of roadway in a residential neighborhood. The project separated the design, bidding and construction of sewer replacements on School and Park Streets, which were identified as high priorities to address long-term maintenance issues prior to the winter of 2015–16. The design included phased construction over a two-year period. Services included oversight of borings, preliminary through final design, coordination with regulatory agencies, construction administration and observation services.

Roadway Design
 Traffic Design
 Bicycle and Pedestrian
 Facilities Design
 Right of Way Acquisition
 Bid Phase
 Utilities Investigation
 and Coordination
 Municipal Funding
 contact: Mel Adams,
 Town Manager, 728.5433
 manager@randolphvt.gov

Enterprise Aly and Depot Square Reconstruction, Barre City



DuBois & King led civil design and permitting for an urban brownfield redevelopment project that improves traffic circulation, parking, lighting, utilities, stormwater collection, pedestrian facilities, aesthetics, and provided for implementation of the corrective action plan (CAP). This is part of a larger downtown redevelopment effort, which has included additional projects for which D&K has provided services: Main Street Reconstruction Project (“Big Dig”), Merchants Row Parking Master Plan, and construction of Barre City Place. This project was funded by a Vermont Community Development Program Planning Grant.

Roadway Design
 Traffic Design
 Hydraulic Design
 Bicycle and Pedestrian
 Facilities Design
 Right of Way Acquisition
 Bid Phase
 Utilities Investigation
 and Coordination
 Municipal and Local Funding
 contact: Steve Mackenzie, PE
 City Manager, 476.0240
 manager@barrecity.org

West Street Reconstruction, Braintree, Randolph, Brookfield



D&K developed preliminary engineering, final design, and contract documents to reconstruct this a 1.3 mile road on the existing alignment. D&K’s scope of services included field survey; development of line and grade; partial relocation of the adjacent stream; streambank stabilization; permitting; coordination with VTANR and USACOE; culvert design; right-of-way acquisition. The project was cost-shared between the Towns, the State, and FEMA.

Roadway Design
 Hydraulic Design
 Utilities Investigation
 and Coordination
 Bid Phase
 Municipal, State, and Federal
 Funding
 contact: Mel Adams,
 Town Manager, 728.5433
 manager@randolphvt.gov

Roadway Rehabilitation

Chelsea Mountain Road Rehabilitation



Evaluation, design, construction phase, and observation services of 3.6-mile segment of road including repair of flexible pavement, reclaimed and overlay treatments, ditches, underdrains, guardrails, signing, and culverts. Services provided included geotechnical investigation, pavement design, drainage design, bid assistance, and construction observation.

Roadway Design
 Bid Phase
 Municipal Funding
 contact: Mel Adams,
 Town Manager, 728.5433
 manager@randolphvt.gov

VT 12/Main Street Rehabilitation, Randolph and Northfield



D&K provided design for milling and filling 5.5 miles of VT 12, specifically Class I Town Highways. Services included engineering design and plan development, pavement markings, signage, pedestrian crossings, railroad grade crossings, pedestrian ramps, truncated domes, rehabilitation of drainage structures, and cost/quantity estimation.

Traffic Design
 Bicycle and Pedestrian
 Facilities Design
 Roadway Design
 Railroad Design
 Federal and State Funding
 contact: Mike Fowler, VTrans
 Pavement Design Engineer
 828-0160
 mike.fowler@vermont.gov

VT 66 Rehabilitation, Randolph



D&K provided design for reclaiming and repaving 7.192 miles of VT 66. Services included engineering design and plan development, roadway banking improvements, pavement markings, signage, pedestrian ramps, guardrail improvements, truncated domes, rehabilitation of drainage structures, and cost/quantity estimation.

Roadway Design
 Traffic Design
 Federal and State Funding
 contact: Mike Fowler, VTrans
 Pavement Design Engineer,
 828.0160
 mike.fowler@vermont.gov

US 7 Alternate Resurfacing, Signal Upgrades, Bike Lanes, Burlington



D&K designed resurfacing for 3.75 miles of US 7 (Willard Street) in the City. Services included field survey, base mapping, design, pavement markings, signage, pedestrian ramps, truncated domes, rehabilitation of drainage structures, upgrades to 10 traffic signals to include video vehicle detection, permitting, and cost/quantity estimation. The project also incorporated over .5 miles of bicycle lanes incorporating a variety of treatments, including dedicated lane and "share the road" conditions.

Roadway Design
 Traffic Design
 Federal and State Funding
 contact: Mike Fowler, VTrans
 Pavement Design Engineer,
 828.0160
 mike.fowler@vermont.gov

VT 17 Resurfacing, Buels Gore-Starksboro



D&K provided design for milling and filling 6.104 miles of VT 17. Services included engineering design and plan development, roadway banking improvements, pavement markings, signage, pedestrian ramps, guardrail improvements, truncated domes, rehabilitation of drainage structures, and cost/quantity estimation. Design services are in English units and Microstation/InRoads.

Roadway Design
 Traffic Design
 Federal and State Funding
 contact: Mike Fowler, VTrans
 Pavement Design Engineer,
 828.0160
mike.fowler@vermont.gov

Bicycle and Pedestrian Facilities

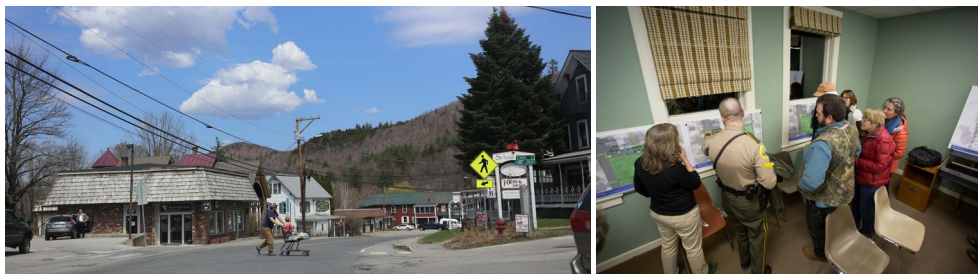
Barre City Pathway



Design for a 1.5 mile long multi-use path through the center of Barre City. D&K initially developed an alternatives Analysis to compare options for potential path alignments; identified cultural and natural resource concerns, property impacts, and utility impacts; and developed conceptual plans and cost estimates for several alignment alternatives. D&K conducted public informational meetings to understand the concerns and goals of residents, and ultimately recommended a preferred alternative alignment.

Roadway Design
 Traffic Design
 Landscape Design
 Bicycle and Pedestrian
 Facilities Design
 Right of Way
 Development of NEPA
 Documents (CE)
 Utilities Investigation
 and Coordination
 contact: Steve Mackenzie,
 PE, City Manager, 476.0240,
manager@barrecity.org

Bicycle and Pedestrian Improvements Study, Rochester



DuBois & King provided engineering and planning for a federally-funded study that identifies options, issues, and costs associated with the construction of pedestrian and bicycle infrastructure and provides design recommendations and an implementation strategy. The study includes sidewalks, crosswalks, multi-use paths, pavement markings, signing, traffic calming, pedestrian lighting, on-street parking, bicycle racks and streetscape enhancements. The project included a significant public participation process to guide the development of alternative improvements.

Traffic Design
 Landscape Design
 Bicycle and Pedestrian
 Facilities Design
 Municipal Assistance Bureau
 contact: Doon Hinderyckx
 Selectboard Chair, 767.3631
cwhitehead@stjvt.com
 second contact: Rita Seto, Sr.
 Transportation Planner, Two
 Rivers-Ottawaquechee Regional
 Commission, 457.3188; rseto@trorc.org

Vermont Complete Streets Guide

Complete Streets

a guide for Vermont communities

Traffic Design
 Bicycle and Pedestrian
 Facilities Design
 Federal and State Funding
 contact: Jon Kaplan, PE
 VTrans Bicycle and Pedestrian
 Program Coordinator, 828.0059

DuBois & King served as the prime author for a guide for communities on how to implement Act 34, Vermont Complete Streets Law, passed in 2011. The guide outlines a street planning and design process that considers the land use/transportation context of the project and provides a number of street design tools and techniques. It also includes numerous Vermont-specific case studies illustrating the wide range of options for achieving Complete Streets in different settings. The guide is intended for town officials, planners, engineers, maintenance personnel, and citizens and includes all aspects of project development. The project is guided by VTrans and the Vermont Departments of Health, and Economic, Housing and Community Development.

Webster Road Shared Use Path, Shelburne

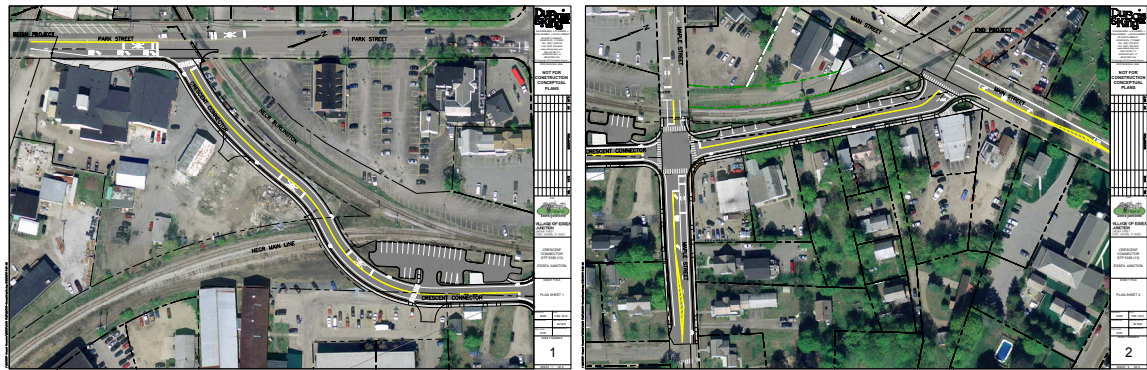


Alternatives analysis and design of a one-mile-long, 10-ft-wide bituminous bicycle and pedestrian path. D&K developed a path and landscape design that satisfied owner concerns and minimized impacts to historic properties. Due to a number of historic properties along the path alignment, this project required extensive coordination with the VTrans Historic Preservation Officer and property owners.

Bicycle and Pedestrian
 Facilities Design
 Landscape Design
 Structures Design
 Right of Way Acquisition
 Development of NEPA
 Documents (CE)
 Bid Phase
 Municipal Assistance Bureau
 contact: Dean Pierce, AICP, Dir.,
 Planning and Zoning, 264.5033,
 dpierce@shelburnevt.org

Intersection Projects

Crescent Connector Road, Essex Junction



Design services for \$6.5 million FHWA funded Crescent Connector roadway, an 1,800 LF bypass around the Five Corners intersection. Design includes coordination of five traffic signals and five railroad crossings. Project includes use of porous pavement in parking areas to promote groundwater recharge. An underground sand filter will be used to treat stormwater runoff due to extremely limited space and flat grades within the project area. The project includes utilities replacements and coordination and Complete Streets elements such as bike lanes and sidewalks. Complex elements include completion of an Environmental Assessment and Right-of-Way acquisition for a new urban roadway where no roadway currently exists.

Roadway Design
 Traffic Design
 Railroad Design
 Hydraulic Design
 Landscape Design
 Bicycle and Pedestrian
 Facilities Design
 Right of Way Acquisition
 Bid Phase
 Utilities Investigation
 and Coordination
 Development of NEPA
 Documents (EA)
 Municipal Assistance Bureau
 contact: Robin Pierce,
 Community Development
 Director/Zoning Administrator,
 878.6950, robin@
 essexjunction.org

Warners Corner Pedestrian Improvements, Shelburne



Design and construction phase services for 4,100 ft of new sidewalk along portions of four roadways intersecting at Warners Corner. The design included the addition of a 1,000-ft multi-use pathway to connect the Visiting Nurse Association with the intersection. Professional services included survey; right of way research; conceptual, preliminary, and final plans (right of way, utilities, and natural resource impacts); horizontal/vertical alignments and layouts; cost estimates; signing/pavement marking; drainage; utility relocation routes; NEPA documentation; permitting; and bid and construction phase services. Traffic signals at the intersection were upgraded to provide pedestrian push buttons with dedicated pedestrian phases. Performed extensive coordination with Town and regulatory agencies.

Roadway Design
 Traffic Design
 Bicycle and Pedestrian Facilities Design
 Right of Way Acquisition
 Utilities Investigation and Coordination
 Bid Phase
 Development of NEPA Documents (CE)
 Municipal Assistance Bureau
 contact: Dean Pierce, AICP, Dir., Planning and Zoning, 264.5033, dpierce@shelburnevt.org

Intersection Improvement Projects in Central Vermont



D&K provided design for three intersection improvement projects as part of an existing Highway Resurfacing on-call contract. At the VT 12/VT 64 intersection in Northfield, staff measured turning movements, analyzed the intersection, and designed the removal of a slip lane from the existing four-way intersection, due to the frequency of side swipe and rear end collisions associated with the existing slip ramp. At the VT 65/West Street intersection in Brookfield, staff evaluated the site and designed re-grading of the intersection to improve sightlines. At the VT66/Hebard Hill Road/Fish Hill Road Intersection in Randolph, staff designed the addition of east and westbound left-turn lanes on VT 66.

Traffic Design
 Federal and State Funding
 contact: Mike Fowler, PE, Project Manager, 828.0160, mike.fowler@vermont.gov

State and Taylor Streets Intersection Study, Montpelier



DuBois & King prepared a study and designed improvements to address transit bus needs and additional traffic generated by a planned multimodal transit center in downtown Montpelier. DuBois & King studied the Taylor Street and State Street/BR US-2 intersection to address significant rush hour queuing and pedestrian safety. The existing intersection is a two-way stop. Staff reviewed the intersection with consideration for existing traffic, queuing and crash data, and the anticipated turning radii associated with coach and mini bus movements. Alternatives were evaluated for their levels of service, queuing, and pedestrian safety, and included a traffic signal, mini-roundabout, and lane reconfiguration. A left turn lane is being added as part of the Taylor Street Reconstruction project.

Traffic Design
 Bicycle and Pedestrian Facilities Design
 Municipal Funding
 contact: Bill Fraser, City Manager, 223.9502, wfraser@montpelier-vt.org

Safety Projects

Roadway Reconstructions and Slope Stabilizations, Sharon, Granville, Ripton (in design), Moretown, and Hancock



Roadway Design
 Traffic Design
 State and Federal Funding
 contact: Ken Upmal, 828.3594,
 ken.upmal@vermont.gov

In the aftermath of Tropical Storm Irene, many roadways throughout the State were severely damaged due to flood waters from adjacent streams and rivers. DuBois & King was tasked with designing permanent fixes to five of these areas. They include areas along VT Route 14 in Sharon, VT Route 100B in Moretown, VT Route 100 in Granville, VT Route 125 in Hancock, and areas of VT Route 125 in Ripton. Emergency repairs were made to these areas following the storm to reopen the roadways to traffic. The current primary focus is to provide permanent designs to stabilize the stream embankments and provide additional protection against future storm events. Project locations received hydrological and geomorphological reviews, and proper stream bank protection measures were individually designed for each site. Roadway drainage at project locations was analyzed and updated to meet current design standards. The Hancock location includes the installation of a new buried, 14' x 7' concrete box culvert to alleviate potential flooding to the roadway and an adjacent residence. All proposed designs received an environmental permitting review from the State of Vermont. Design of new guardrail systems was included, also providing additional shoulder width in many areas to increase safety for pedestrians and bicyclists. The Sharon location included an adjustment to the vertical profile of the roadway to help alleviate a substandard geometric condition. Project locations received new pavement and signage to meet current design standards.

Gilman Road Reconstruction and Relocation, Royalton



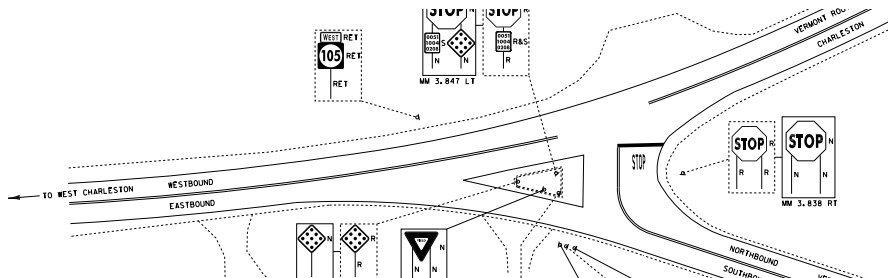
Roadway Design
 Bid Phase
 Municipal and Federal Funding
 contact: Larry Trottier,
 Selectboard Chair 763.8082
 trottier474@myfairpoint.net

400 lf of embankment on Gilman Road failed as a result of flooding. Vertical height of failed embankment is approximately 80 ft. The road embankment was eroded away and the resulting slope was unstable/vulnerable to further damage. Alternatives analysis compared the scope/cost to repair and stabilize existing riverbank with relocation of the roadway. Provided preliminary and final design (hydrology/fluvial geomorphology/geotechnical/roadway) to develop basis of design of required repairs, a new alignment, and cross sections. The project received CDBG funding.

The project was recognized by the National Association of Development Organization's (NADO) 2016 Excellence in Regional Transportation Awards.

Rita Seto, Two Rivers-
 Ottauquechee Regional
 Planning Commission
 457.3188, rseto@trorc.org

Resigning for State Highways, Intersection Evaluation, Northeast Kingdom



Traffic Design
 Federal and State Funding
 contact: Patti Coburn, PE,
 VTrans Project Manager,
 828.6980, patti.coburn@
 vermont.gov

DuBois & King inventoried and provided replacement design for signing throughout Vermont's Northeast Kingdom on 56 miles of highways. The project also included the evaluation of intersection improvements to the intersection of US Route 5, Airport Road, and Covered Bridge Road in Irasburg Vermont. Although VTrans did not identify this intersection as a High Crash location, the intersection experienced a high rate of "near misses" due to limited sight distance, steep grades along US Route 5, and agricultural activities in the area. DuBois & King developed preliminary, final, pre-contract, and contract design drawings for the signing improvements.

Bridges and Culverts

VT 140 Truss Bridge Rehabilitation, Wallingford



Rehabilitation of 131 ft long, 20 ft wide, steel truss bridge. Reviewed existing documentation and current bridge load rating and posting recommendations and performed field observations to assess existing bridge conditions and make recommendations for repair. Design for partial and full depth concrete deck repairs; steel stringer, floorbeam, truss, and concrete abutment repairs; cleaning/painting; deck joint replacement; drainage improvements; guardrail upgrades; utility (water) replacement and relocation; and the addition of approach sidewalks.

Structures Design
 Development of NEPA Documents (CE)
 Right of Way Acquisition
 Utilities Investigation and Coordination
 Municipal Assistance Bureau
 contact: Julie Sharon, Town Clerk and Treasurer, 446.2336
 townclerk@wallingfordvt.com

6 Bridges and Roadway Improvements, Mendon



Project management oversight, FEMA grant submission and coordination, engineering, bid documents, and construction phase services for repairs to transportation infrastructure. Projects include roadways, bridges, and culverts damaged by Tropical Storm Irene.

Roadway Design
 Structures Design
 Federal and Municipal Funding
 contact: Sara Tully, Town Administrator, 775.1662
 mendonadmin@comcast.net

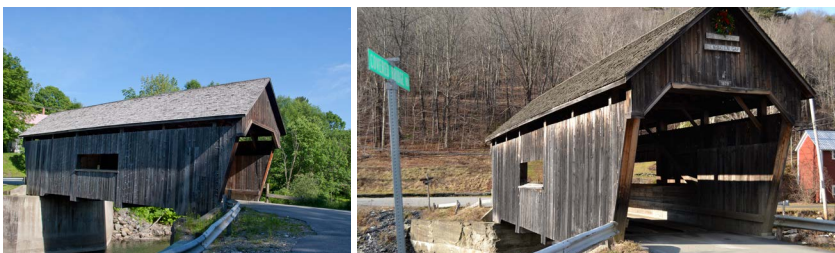
Pearl Street Bridge Replacement, Johnson



Design for replacement of a 2 span 159 ft long bridge. Superstructure was replaced using continuous horizontally curved steel beams with a composite concrete deck, and new sidewalks on both sides. Concrete bridge railings were considered a historic resource and were heavily deteriorated to the point where replacement was the only option. SHPO approved the use of the Texas Classic rail. Maintained traffic with a temporary bridge during construction.

Structures Design
 Bicycle and Pedestrian Facilities Design
 Development of NEPA Documents (CE)
 Right of Way Acquisition
 Utilities Investigation and Coordination
 Municipal Assistance Bureau
 contact: Eric Osgood
 Selectboard Chair, 635-2138
 eosgood@townofjohnson.com

Warren Covered Bridge, Warren



Engineering study and development of restoration details for the historic Warren Covered Bridge #6, a single span structure constructed in 1880 with a clear span between the abutments of approximately 42 ft. The bridge is listed on the National Register of Historic Places. The one-lane bridge spans the Mad River in downtown Warren and utilizes Queenpost trusses spaced approximately 15-ft apart. Completed an inspection of the bridge to identify existing problems and discuss repair options with the Town. Evaluated options to repair or replace the badly deteriorated west abutment and wingwalls, enlarge the channel beneath the bridge for better hydraulics, repair the roof, and repair and armor the east abutment.

Structures Design
 Municipal Assistance Bureau
 contact: Barry Simpson, Public Works Director, 496.2709 x29
 forevermont@hotmail.com

Transportation Alternatives/Enhancement Projects

Knight Lane/VT 2A Sidewalk, Williston



Design and construction phase services for a 242-ft sidewalk in a highly commercial area of Williston. The new 5-ft-wide concrete sidewalk is being designed to match the existing connecting sidewalk while considering the existing roadside drainage swale and bordering stormwater detention basin. The design accommodates steep side slopes on either side of the walkway.

Roadway Design
 Traffic Design
 Landscape Design
 Bicycle and Pedestrian
 Facilities Design
 Federal, State, Local Funding
 contact: Lisa Sheltra, Assistant
 Public Works Director, 878.1239
 lsheltra@willistonvt.org

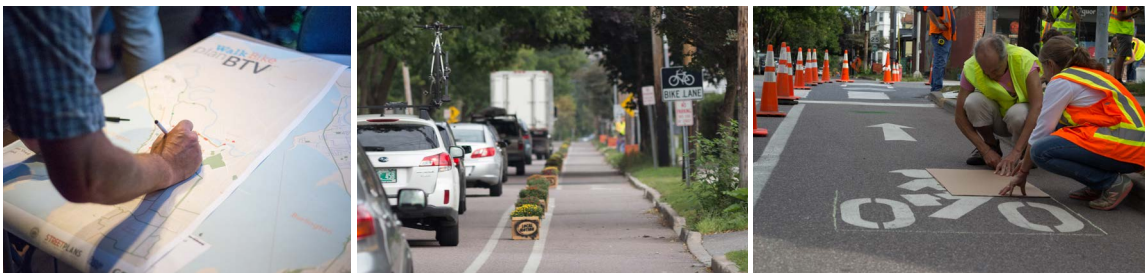
VT 116 SRTS Sidewalks, Hinesburg



D&K provided conceptual through final design of 1,100 ft of sidewalk, on-street parking, and streetscape improvements along the west side of VT 116. The sidewalk connects the downtown area and neighborhoods to the Hinesburg Elementary School.

Roadway Design
 Traffic Design
 Landscape Design
 Bicycle and Pedestrian
 Facilities Design
 Federal, State, Local Funding
 contact: Jon Kaplan, PE
 VTrans Bicycle and Pedestrian
 Program Coordinator, 828.0059
 jon.kaplan@vermont.gov

PlanBTV Walk Bike, Burlington



D&K led a consultant team that developed a bicycle/pedestrian plan that will enhance Burlington's status as a city with an extensive, safe bicycle and pedestrian infrastructure. Recently awarded Silver status by the League of American Bicyclists, the City is interested in "going for Gold" and upgrading existing facilities to welcome additional cycling demographics that may be interested in cycling, but are intimidated by the speed and proximity of existing vehicle traffic. The D&K team led interactive workshops with the public, assessing potential environmental and civil engineering constraints, and providing concepts and cost estimates to the City. Recommendations for improvements to infrastructure and non-infrastructure were prioritized in a matrix based on available resources, ease of implementation, and cost/benefit analyses.

Roadway Design
 Traffic Design
 Bicycle and Pedestrian
 Facilities Design
 Federal, State, Local Funding
 contact: Nicole Losch,
 Transportation Planner,
 865.5833,
 nlosch@burlingtonvt.gov

New personnel added on October 7, 2019.
See updates in the Resumes Section.

Key Staff

Staff Member Name	Role	Experience	Expertise/Focus
Darren Benoit, PE, CPESC	Project Manager	27 years	Civil, Traffic, Transportation Engineering, Permitting
Darren is a civil engineer who has provided management for complex, roadway, bridge, and multimodal transportation projects. His experience has been applied to the creation of horizontal and vertical alignments, typical sections, open and closed drainage systems, urban roadway design, traffic engineering, erosion and sediment control plans, permitting, utility relocation, and bicycle paths.			
Bob Durfee, PE, SECB	Project Manager	38 years	Concrete, Steel, Covered, Timber, Pedestrian, Utility Bridge Engineering and Railroad Engineering, Retaining Walls,
Bob is a structural and civil engineer who has managed or designed numerous highway, railway, roadway, and bridge projects for state and municipal agencies, including over 100 bridges. Bob is a noted author of several bridge and structural publications and presentations.			
Lucy Gibson, PE	Project Manager	28 years	Transportation Planning, Traffic Engineering
Lucy is a civil engineer and transportation planner with experience serving municipalities, regional commissions, and private entities. Her specific experience includes multimodal transportation planning, design, and engineering for walkable streets, downtown transportation circulation, and multimodal traffic impact studies for infill "smart growth" development.			
Chris Lathrop, PE	Project Manager	20 years	Civil, Railroad, and Transportation Engineering
Chris is a Civil Engineer with experience ranging from the reconstruction of highways, local roadways, and intersection improvement projects, to pathways and sidewalks. He has led or managed design of signing, striping, interstate highway, bridge, streetscape, bike lane, sidewalk and slope projects.			
Dave Conger, PE	Project Manager	24 years	Civil and Transportation Engineering, Stormwater
David is a Civil Engineer that has managed numerous intersection and corridor scoping studies, as well as major transportation studies related to environmental impact statement evaluations. He is His technical expertise includes stormwater utility, design, MS4 permits, an understanding of TMDLs, and other engineering functions specific to the design of alternatives for stormwater management, drainage, and water quality systems.			
Martha Evans-Mongeon, PE	Project Manager	33 years	Concrete, Steel, Covered, Timber, Pedestrian, Utility Bridge Engineering and Railroad Engineering, Retaining Walls
Martha is a structural engineer experienced in providing management, evaluation, design, inspection, and construction phase services for state and federally-funded transportation structure and highway reconstruction projects.			
Brian Breslend, PE	Project Manager	9 years	Civil, Railroad, and Transportation Engineering
Brian is a civil engineer with experience including the preparation of alternatives analyses; preliminary and final designs; cost estimation; plan development; field survey; and utility coordination for a variety of pathway, sidewalk, and roadway projects.			
John Merrifield, PE	Transportation Engineer	14 years	Civil, Railroad, and Transportation Engineering
John Benson, PE	Permitting Specialist	42 years	NEPA, VT ANR, USACOE, USCG, USEPA Permitting
Charles Goodling, PE	Environmental Engineer	30 years	Civil, Environmental Engineering, Process Engineering
Andy Hoak, PE, PG, CPESC	Hydrogeologist	24 years	Civil, Environmental Engineering, Hazardous Materials
Jon Ashley, PE	Environmental Engineer	24 years	Civil, Environmental Engineering, Hazardous Materials
Mike Hildenbrand, PE	Permitting Specialist	15 years	NEPA, VT ANR, and USACOE Permitting
Shawn Patenaude, PE	Civil Engineer	15 years	Civil Engineering, Embankments, Retaining Walls, Water Resources
C. Joe Kissel, CFM	Hydraulic Engineer	39 years	Water Resources Engineering
Charlotte Brodie, CWS	Wetland Scientist	29 years	Wetland Science, Wetland Mitigation Site Design, Permitting
Sophie Sauvé, ASLA, LEED AP	Landscape Planner	10 years	Landscape Architecture, Planning, GIS
Randy Otis, LS	Land Surveyor	15 years	ROW, Boundary, Topo, Deed Research, Basemapping, GIS

QUALITY CONTROL PLAN

INTRODUCTION

This document is the Quality Control Plan (QCP) applicable to design services for projects receiving funds administered by the VTrans Municipal Assistance Bureau (MAB). The purpose of this QCP is to detail and document the specific steps to be followed regarding the Design Quality Control and Quality Assurance (QC/QA) checks, documentation and certifications. This plan defines the QC/QA roles and responsibilities of the DuBois & King (D&K) Team.

D&K, as the prime consultant, will have primary responsibility and accountability for the implementation and documentation of quality control reviews for engineering documents, including plans, specifications, and cost estimates. D&K is responsible to check that quality documents are developed in accordance with established VTrans design policies, procedures, standards, and guidelines; applicable FHWA standards and sound engineering practices.

OVERVIEW OF THE QCP

This QCP provides the specific framework used in conducting quality control and quality assurance/independent technical review of each submittal developed for project assignments. The QCP outlines: the process and procedures, roles and responsibilities of staff; and how the quality review procedures are to be documented, certified, and submitted.

The primary objective of this QCP is to provide a method for the consistent review of engineering documents developed for a project. The result of utilizing the QCP is the development of quality design and documents. A well-documented process is important to substantiate decisions and document design development.

VTrans MAB has specific means and methods in developing projects, including plan content, format, and consistency. The D&K design quality management team is responsible for clearly understanding these methodologies and getting them incorporated into the development of the project design.

D&K understands that design quality management is part of an overall project development process and is not a stand-alone task. Quality management requires the design team to understand the overall project objectives and the need to adhere to a development process that results in high-quality design products. For example, proper CADD drafting standards, detailing conventions, and consistency all contribute to the delivery of quality engineering documents.

DEFINITIONS

This QCP identifies the key personnel (project management and design team members) responsible for its implementation. The specific roles and responsibilities of key team members are identified below.

Design Quality Control (QC), as defined for the purposes of this QCP, consists of the technical review and associated documentation of the work packages and design submissions. This technical review is conducted at several levels, as follows:

Quality Control Review. Design team staff performs both individual self-checks and discipline team-checks on the work as it is developed. The design team discipline leader is responsible for the team's internal review and

documentation of the review of each submittal. This review includes all technical product developed by the design team including (but not limited to): design calculations and computer models, reports and studies, engineering drawings, technical specifications and special provisions, project item quantities, product and material selection.

Quality Assurance / Independent Technical Reviews (QA/ITR). Design Quality Assurance (QA) consists of the independent verification and certification of the quality control process. The QA process confirms and certifies that experienced professionals have conducted quality control and independent technical reviews and that the QC/ITR reviews have been incorporated into the design documents and documented. Also the Design QA process evaluates and checks that the designer assessed the design problem appropriately, used the appropriate analysis, and reviewed the validity of the results. Once the design team has completed their work and conducted their self-checks and discipline team-checks, an independent technical review will be conducted. This ITR will be overseen and managed by the Design Quality Assurance Manager (DQAM). ITR will be performed by qualified individuals not directly working on the project. The QA procedures for this ITR provide specific steps to be followed in this review and the documentation and certification thereof. Included in the QA are the concurrent constructability and inspectability reviews.

Quality Control Manager (QCM). For projects of the scale anticipated for these assignments, the Project Manager typically also acts as the QCM. If tasks are outside the project manager's expertise, then a discipline specific QCM would be specified. The QCM is responsible for initiating and managing the quality control process used by the design team and ensuring that the design team understands the project requirements.

Quality Assurance Manager (QAM). The Quality Assurance Manager is responsible for monitoring the QC efforts by designated staff and for ensuring that each design team is familiar with the quality control requirements for each work assignment, including a Quality Control Plan and independent technical review and all of the associated documentation. This role is typically assigned to a principal-in-charge, division director or a senior manager of the firm.

QUALITY CONTROL PLAN REQUIREMENTS

A specific QCP is prepared for each project and will be prepared by the Project Manager and submitted to the Quality Assurance Manager for review and approval. As the types of projects can vary from studies to scoping to design to construction, the QCP is tailored to the specific assignment. As a general rule, the plan includes the following areas:

- Identification of project design team members and roles
- Project schedule and milestone of submittals
- Documentation of review comments and follow-up
- Plan sheet and other document check list review
- Quality assurance and control documentation

ORGANIZATION

Two (2) D&K senior staff members are assigned primary responsibility for the performance of the quality assurance and quality control review. These professionals bring an extensive level of experience to projects receiving funds administered by the Municipal Assistance Bureau.

Quality Assurance Manager: The Quality Assurance Manager (QAM) will be designated based upon the assignment, but is typically the principal-In-charge, division manager, or another senior based upon specific skills

and experience required by the project. The QAM will review the QCP and manage the independent technical review of design documents and work along side the Project Manager to assure quality management of the design.

Quality Control Manager: The Quality Control Manager (QCM) has primary management responsibility for quality control of the design and design products and for development and implementation of the QCP. This position will be assigned based upon the assignment, but is typically also the project manager. The QCM is responsible for problem resolution in a timely manner, technical review and approval of project documents, direction of technical staff, and assignments for quality control functions.

Senior Discipline Managers: When a project requires numerous design disciplines working in collaboration, senior discipline managers within the firm will provide quality control reviews of the design. For example, in a project requiring traffic engineering as part of the design, a senior traffic engineer will provide quality control reviews.

Project Engineer: For most projects, an experienced staff engineer working under the supervision of the project manager or senior design manager will be assigned to be responsible for design activities and quality control review activities.

QUALITY CONTROL REVIEWS

General

Each engineering document will have a quality control review. Engineering documents include reports, design plans, specifications, engineering calculations, computer model input/output, item quantities, cost estimates, permit applications, and environmental documents. The review will be either directly conducted or supervised by the Quality Control Manager as described above. Checking procedures for these quality control reviews are discussed in sections below.

Also, when reviewing the project documentation, particularly engineering calculations, drawings and estimates, D&K uses several key tools provided by VTrans. These include (but not limited to):

- The VTrans Standard Drawings
- 2016 Standard Specifications for Construction
- 2012 Complete Streets Guidance
- 2007 Work Zone Safety and Mobility Guidance
- 2014 CADD Standards and Procedures Manual
- Project Development Process Manual
- 2011 AASHTO “Green Book”

Engineering Reports and other Supporting Documents

The preparation of a detailed outline is the first step in the development of an engineering report or document; consistent format and clarity are primary objectives. Where applicable, the outline will be consistent with VTrans MAB, FHWA and other appropriate guidelines. This outline is submitted to the Project Manager for review and approval. This early review allows for efficiency and completeness, as it keeps focus on the major issues and maintains a consistent format. Once the document has been advanced to an appropriate stage of development, a draft is submitted to the reviewer(s), one of which is the Project Manager. The reviewer(s) will be given a specific deadline for completing their reviews.

- As part of the technical review, the reviewers will consider several aspects, such as:
- Is the report clear and likely to be understandable by a reader with an appropriate background and familiarity with the subject?
- Does the document address all the requirements of the submission?

The reviewers will review an Adobe PDF file and will mark their comments on it. Upon completion of the review, the reviewer signs and dates the cover page of the draft and returns the draft to the writer. The writer confirms or revises the corrections and comments, adds his/her own corrections/comments, and consults with the appropriate person(s) to resolve any conflicts. The writer then makes the corrections to the text. The marked-up draft is placed in the project files after the document is finalized.

Drawing Reviews

Drawings are prepared under the direction of the Project Manager or a Discipline Team leader. The drawings are developed progressively following the project development process. Sources of information, such as survey data, reports, record data, preliminary sketches, samples, official maps, etc., will be in conformance with the requirements, design criteria, and standards and guidelines required by VTrans. Before a drawing is considered final, it will be independently checked for:

- Conformance with design criteria and project requirements including CADD standards
- Conformance with VTrans and Federal design standards
- Completeness, clarity, and accuracy relative to the scope of work
- Compatibility with sound engineering and plan development practices
- Coordination with project elements being developed or planned development on adjacent projects

The first formal issue of a drawing is the check print, indicated as such, which is routed to the assigned checker(s). Additional copies of check prints may be routed for internal design review to other design team members.

Checkers will review a drawing to determine if it meets the objectives of the task and is complete, accurate, and suitable for the intended use. Checked items are indicated and recorded on the Adobe PDF drawing file generated for in-house reviews.

The Checker then sits with the Project Engineer and reviews the comments, and a concurrence is reached on which comments are to be addressed. The Project Engineer then directs changes to the plans by the Designer/CADD operator.

The Designer/CADD operator makes corrections from the marked up check print to the original CADD files and indicates that the corrections have been made. When completed, the CADD operator will plot a revised check print. Both the original and revised check prints are then returned to the Checker.

The Checker then back checks the revised check print against the original check print. When the Checker is satisfied that all comments/corrections have been incorporated into the drawing, the Checker initials the check print and forwards the original and revised check prints to the Project Engineer for review. If the Project Engineer has further comments, the drawing is returned to the designer and the process is repeated.

CADD Quality Control (MicroStation/InRoads/VTrans CADD Standards)

QC review of CADD files begins with the collection of raw field data by the D&K surveyors. This data is collected and coded using standards from the VTrans Route Survey Manual. The raw data file is then uploaded into InRoads Survey, which creates a base map and .dgn file. D&K uses the VTrans seed file, which establishes preferences and sets the correct levels, line styles, and symbols in accordance with the VTrans CADD Standards. Then, a QC check of the base map and .dgn file is performed by a qualified individual to confirm the base map is properly configured. The existing ground surface is rendered into a 3-D view and reviewed to confirm that surface continuity is achieved. Once the base map is completed and checked, it is forwarded to the engineering team for use in project development. As part of the QC review prior to each submittal, the MicroStation/InRoads files are checked for conformance to the VTrans CADD standards. The process is to: 1) open each individual file and check for proper naming convention, 2) review the file content for adherence to naming and layering conventions, 3) check that only proper and essential data is contained in the files and deleterious data is not included, 4) confirm the files meet the VTrans CADD standards, (such as checking that the .bdr files contain only the required plot files and no drawing or design information), 5) check that the files are properly geo-referenced.

Checking Calculations

Manual calculations will be prepared on D&K computation paper and will be neat and clear to follow. Calculations may also be prepared using computer programs such as spreadsheets or design software.

Design criteria are included on the front sheet of the calculations, as are the design and code references, such as the AASHTO “Green Book”. Assumptions upon which calculations are based will be stated in the calculations. Assumptions with limited application will immediately precede the calculations to which they apply.

Calculations will be submitted to the Checker for verification. The Checker will be experienced in the discipline being checked and have a level of knowledge and qualifications sufficient to have performed the calculation. A thorough review by the Checker is required.

The Project Engineer determines the point at which design work has progressed sufficiently, so that checking can begin on a completed portion of work. The designer reviews the data and the scope of the work with the assigned Checker. The Project Engineer provides the Checker with design criteria, copies of pertinent information, related drawings, and related calculations.

A design check includes verification of the introductory material on the calculation sheet, as well as the calculation itself. The Checker verifies that all information is appropriate, correct, complete, consistent, legible, and reproducible. To do this, the Checker needs to follow a logical method to make sure that he/she has not missed verifying any data. The standard policy is to check the major items of importance first.

The Checker will mark items to indicate either his/her agreement or disagreement. Following is the color code to be used for marking calculations.

Yellow: Use for agreement

Red: Use for corrections

Reviews of electronic calculations such as those that are computer generated will be checked by marking up a PDF copy of the program outputs. When satisfied, the Checker will place his/her name/initials and date on each original calculation sheet.

Design Software Result Verification and Version Confirmation

D&K utilizes a combination of public domain and proprietary software to perform design calculations, with the selection of software being dependent on the element being designed. The software review is treated similar to calculation reviews identified above. Several key reviews are conducted when using software as part of the design.

Result Verification: The Engineer of Record has the ultimate responsibility to confirm the accuracy of the software analysis output results. The first check of software results is conducted by the Project Engineer, or the individual using the software. The engineer is required to print out the results, carefully check the input data against the basis of design for variables such as geometry, load conditions, member sizes, etc.

An independent check of the output results is conducted by a second, experienced engineer through ITR. This can occur through an independent run of the model, by a run of a previously verified, but different software model a manual check of the output.

Version Confirmation: Software is regularly being updated for various reasons, such as design code or standard changes or to fix errors or “bugs” in the software. At the beginning of a project, the Project Manager assigns experienced individuals to confirm and document that the versions of the software being utilized are updated and appropriate for the specific project being designed.

Bidability and Constructability Reviews

Bidability reviews will be conducted on each project as part of the Final Plans submission. This review is done to check that there is a complete and clear set of documents suitable for bidding. The design documents will concurrently be checked for constructability. A senior engineer with experience in construction for similar projects will be assigned to conduct the bidability and constructability reviews following the procedures for QC checking as outlined above.

Correspondence

Any correspondence that is prepared for external distribution will be reviewed by the Quality Control Manager for content completeness, spelling, punctuation, grammar, and sentence structure. The goal is accuracy, clarity, and uniformity. All correspondence will include the project number and contract reference.

Invoicing

D&K’s Accounting office (Accounting) provides the Project Manager with weekly reports on internal time and expense charges to the project, and subconsultant invoices and charges. The Project Manager reviews accounting reports and, as necessary, makes adjustments for accurate charges.

Accounting provides the Project Manager with a draft invoice and subconsultant invoices on a monthly basis for review. The Project Manager develops the appropriate invoice for the amount of work completed and allowed under the Client agreement. The invoice is checked by accounting for consistency, grammar, contract number, etc., before it is sent to the Client.

A Progress Report accompanies invoices. The Progress Report is prepared by the Project Manager and contains project title, work order authorization, invoice period, work completed during the invoice period, work anticipated over the next invoice period, percent of project complete, and budget status.

Dispute Resolution

During the review and checking process, if the Checker does not agree with the results of the design task being checked, he/she will first discuss the matter with the Project Engineer. If the difference cannot be resolved between the Checker and the Project Engineer, the Project Manager will be responsible to provide final resolution of any internal dispute.

Subconsultants

If needed, the Project Manager selects and adds specialty subcontractors to the team. Subconsultants are selected based on the expertise they bring to the project, past performance, ability to meet project requirements and schedules, and current working relationship with D&K. Standard Subconsultant Agreements/Contracts between D&K and subconsultants are used. The firm's attorney and insurance provider periodically review D&K subconsultant agreements. Subconsultants not identified or included in the original agreement will be submitted to VTrans for approval prior to their performance of any work.

All Client Agreements and Subconsultant Agreements are reviewed by a Principal of the firm prior to execution of an agreement. This review is to assure the consistency and completeness of services to be provided in the agreement. All agreements are reviewed by the Project Manager and signed/executed by the Principal. All subconsultants and their scope of work will be provided to the Client for review and comment prior to authorization to proceed with any work.

DOCUMENTATION

Copies of all comments and responses will be kept in a separate file contained within the Project Filing System. The Project Manager will be responsible for maintaining the Quality Control records and will make them available for an unannounced QA review whenever requested by the Quality Assurance Manager.

QUALITY ASSURANCE

General

Quality Assurance/Independent Technical Reviews. Quality Assurance (QA), as defined for the purposes of this QCP, consists of the independent verification and certification of the quality control process. The QA process confirms and documents that experienced professionals have conducted quality control and independent technical reviews and that the QC/ITR reviews have been incorporated into the design documents and documented. Also, the QA process evaluates and checks that the designer assessed the design problem appropriately, used the appropriate analysis, and reviewed the validity of the results.

Once the design team has completed their work and conducted their self-checks and discipline checks, an Independent Technical Review will be conducted. This ITR will be overseen and managed by the Quality Assurance Manager. The QA procedures for the ITR provide specific steps to be followed in this review and the documentation and certification thereof. Independent Technical Review staff members are assigned review responsibilities based on qualifications and experience.

The QAM will be in responsible charge of conducting and overseeing the in-house ITR of the developed work packages. The QAM is independent of the design team. The QAM may elect to conduct the technical review directly or elect to utilize additional people to assist with the ITR review depending on the discipline, complexity, and volume of technical material to be reviewed. All reviewers will be experienced in the discipline of the materials they are reviewing and will be independent of the design team. ITR reviewers, using appropriate aids (such as check lists, design criteria, computer models), will conduct a thorough technical review of the documents.

The ITR objective will be to check the work packages against the design criteria and the technical content relative to appropriate standards, for numerical accuracy, for clarity and quality, for conflicts between disciplines, and for consistency among the drawings and specifications.

ITR personnel will mark up the drawings and prepare formal review comments. The ITR personnel will sign and date the cover of each document (i.e., title sheet of plans, reports or calculations). They will also document that the ITR has been conducted.

Upon completion of the QC/ITR review, the QAM will meet with the Design Manager. They will review the comments together and develop concurrence as to the appropriate response to the comments.

The design team will address the review comments and update the work package. Responses to all review comments will be included on the drawing to document that the comment was addressed and how it was addressed.

The discipline team leader will present the revised work package back to the QAM and review each comment and how they were addressed. The QAM will either accept or reject the revisions. The reviewer will note accepted and rejected revisions on the design document.

This process will be repeated until all comments are addressed to the satisfaction of the QAM and ITR reviewers. Once the QAM is satisfied that all comments have been addressed and accepted, the QAM will certify the review.

Quality Assurance will include not only periodic reviews to check that the project complies with the QCP, but also review of other items. The QAM will ensure that an appropriate level of review has occurred for:

- Constructability
- Bidability
- Engineering Reports
- Drawings
- Calculations
- Correspondence

QA also incorporates a general review of personnel to check that an acceptable level of expertise is maintained for quality design products. All design personnel will be advised of the details of the QCP. Communication is a vital element in all processes and the QAM will review documentation concerning the level and quality of communications accomplished during various processes.

Frequency of QA Reviews and Reports

Each assignment will have a QA review. Projects of short duration may have only one QA review; longer projects will have more than one. QA reviews will occur more frequently for complex projects and for those with aggressive schedules.



Ken Robie, PE

Project Manager (Civil, Transportation)

Education: B.S., Civil Engineering, University of Vermont, 1989

Registrations: Professional Engineer: VT 6524

Mr. Robie has 30 years of experience in transportation engineering. His background includes project management and design for all types of highway projects. He has experience supervising project teams, setting budgets and schedules, reviewing cost proposals and consultant scopes of work, and coordinating all aspects of project development involving VTrans, the Federal Highway Administration, other state and federal agencies, and the general public.

Years of Experience: 30

Years with D&K: <1

Roundabouts and Roadway Reconstruction, US 5 and Sykes Mountain Ave, Town of Hartford, White River Junction, VT. Municipal Project Manager working with the Town of Hartford and design engineer for final construction plans, specifications, and estimate for two roundabouts at the intersection of US 5 and Sykes Mountain Avenue and the intersection of Sykes Mountain Avenue and Lehman Road. The project also includes roadway approach work, utility coordination, and drainage design. The existing condition is a signalized intersection at Sykes Avenue and US 5. This project follows the VTrans MAB process.

Slope Stabilization, Center Road, Brownington, VT. Municipal Project Manager working with the Town of Brownington and design engineer to develop a project to mitigate the large amount of sediment flowing into the Willoughby River at two sites along Center Road. The project will stabilize slope sites, manage erosion, sediment discharge, and stormwater in the project area. This project follows the VTrans MAB process.

US Route 7 Road Reconstruction, Shelburne and South Burlington, VT. VTrans Project Manager during the final two years of construction of these two projects. The projects consisted of full-depth reconstruction and widening of the most heavily traveled portion of US Route 7. The projects included multiple signalized intersections, installation of a raised median, drainage and stormwater management, utility relocation, bicycle and pedestrian facilities, and landscaping.

US Route 7 Road Reconstruction, Pittsford and Brandon, VT. VTrans Project Manager for preliminary design, early right-of-way acquisition of select properties, and Act 250 permitting for the southerly segments for the corridor reconstruction.

US 2 Road Reconstruction and Realignment, Cabot, VT. VTrans Project Manager for final design, final Act 250 permitting and construction of a 1.5-mile segment of US 2 along Marshfield Reservoir. The project included full-depth reconstruction and

minor realignment of US 2, the addition of a long climbing lane, and significant shoulder widening through an environmentally sensitive area. The project also included the design, permitting, property acquisition, and construction of a large wetland mitigation site in a nearby retired gravel quarry.

Highway Division, VTrans, Montpelier, VT. Project Delivery Bureau Director responsible for the management of the bureau, which included structures and highway design, right of way, utilities and survey, and environmental services. The bureau is responsible for the delivery of all transportation projects within the associated Capital Improvement Programs, including project management, design, permitting, property acquisition, and utility coordination necessary to produce contract bid documents (plans, specifications, and estimates) for construction.

Highway Safety and Design Section, VTrans, Montpelier, VT. Highway Safety and Design Program Manager responsible for managing roadway, paving and traffic capital improvement programs. Provided project management and design of all transportation projects in these programs, ranging from small culvert replacements to National Highway System roadway reconstruction projects.

Highway Safety and Design Section, VTrans, Montpelier, VT. Project Manager for roadway design projects utilizing both in-house and consultant staff. He supervised a five-person design squad; determined budgets and schedules for multiple projects of varying scope and difficulty; represented VTrans at public meetings, permit hearings and legal proceedings; reviewed and approved consultant scopes of work, cost proposals and invoices coordinated all aspects of project development involving VTrans, other state agencies, Federal Highway Administration, other federal agencies, interested parties, and the general public.



Dave Conger, PE

Project Manager (Civil, Transportation)

Education: B.S., Civil Engineering, University of Vermont, 1992

Registrations: Civil Engineer: VT 7689

Mr. Conger has 26 years of experience as a Civil Engineer and Project Manager for municipal, private, and federal clients. His experience includes management of multidisciplinary design teams for IDIQ and large-scale projects. His technical expertise includes civil, transportation, stormwater utility, design, MS4 permits, an understanding of Total Maximum Daily Loads, and other engineering functions specific to the design of alternatives for stormwater management, drainage, and water quality systems. David is thoroughly familiar with the FEMA HMGP program, USACE standards, environmental permitting and NPDES stormwater program compliance.

Years of Experience: 26

Years with D&K: 8

US Route 2 Scoping Study, East Montpelier, VT. Senior Transportation Engineer for LTF-administered transportation study to identify options, issues, and costs to develop safety improvements for pedestrians along U.S. Route 2 in the center of East Montpelier. The study considered both traditional pedestrian enhancements and streetscape element improvements in response to recommendations included in the Central Vermont Regional Planning Commission's Village Study Report on East Montpelier. Considerations included sidewalk lighting and landscaping, crosswalks, signing, traffic calming measures, and access control.

Knight Lane Sidewalk, Williston, VT. Project Manager for the design and construction phase services for over 242 LF of sidewalk in a highly commercial area. The new 5-ft-wide concrete sidewalk is being designed to match the existing connecting sidewalk while considering the existing roadside drainage swale and bordering stormwater detention basin. The design accommodates steep side slopes on either side of the walkway. This project includes survey, right of way, conceptual through final plans, bidding assistance, environmental resource impacts, and cultural resource review. This is a MAB project.

Mendon Master Service Agreement, Mendon, VT. Project Manager assisting the Town of Mendon during recovery efforts following Tropical Storm Irene. Under a Master Service Agreement, provided FEMA coordination for submission of grant applications for six damaged roadway, bridge, and culvert projects. Services included FEMA scope of work, Alternate Project Applications and Hazard Mitigation Grant Applications, and engineering design and construction phase services for each project. Typical engineering services incorporated, topographic survey, conceptual planning, hydraulic evaluation, structural design, civil design, bidding support, and construction administration. Damaged infrastructure included Upper Notch Road, Upper Notch Bridge #22, Medway Bridge #25, Wheelerville Double Culvert, Wheelerville Road Bridge #11, Woodward Road Pipe Arch, and Wright Road Culvert.

US 2 Multimodal Path Scoping Study, Chittenden County Regional Planning Commission, Williston, VT. Project Manager for scoping study to develop a Bicycle / Pedestrian facility and improve transit connections along US 2 to connect the Williston Village with the Taft's Corner Area. The 2.3 mile corridor extends from highly developed commercial Taft's Corner through more rural residential areas and through historic Williston Village. The study focus is on improved connections for all users with defining aesthetic elements through these differing land use areas. Incorporated with the path alternatives are CCTA transit improvements and new bus stop locations. Coordination with Town of Williston and Chittenden County Regional Planning Commission through development process to develop corridor alternatives.

Great Streets BTV, Burlington, VT. Senior Engineer for a project to reenvision downtown Burlington into a vibrant, walkable, and sustainable urban center. The project includes establishing new design standards for the downtown and redesigning and reconstructing two blocks of Main Street.

Market Street Improvements, South Burlington, VT. Project Manager for a utility improvements between Dorset Street and Hinesburg Road. Modification of all utilities took into account the increased requirements of the proposed redevelopment of this area with upwards of a million square feet of retail, office and residential space. Specific upgrades include increased size of electrical and communications ductbanks and sewer pump station for future capacity. For the water system, a WaterCAD model was developed for the nearby CWD system. This was evaluated in conjunction with other future planned water systems to determine potential water system modifications necessary to support the development design flows with particular emphasis on fire flow requirements.



Chris Lathrop, PE

Project Manager (Civil, Transportation)

Years of Experience: 25

Years with D&K: 13

Education: B.S., Civil Engineering, Norwich University, 1995
A.S., Civil Engineering, Vermont Technical College, 1992

Registrations: Civil Engineer: VT, NH

Mr. Lathrop is a Senior Transportation Engineer and the Highway Department Manager at D&K with 25 years of experience in transportation improvement projects. His professional experience includes the preliminary and final design of a variety of transportation projects for the Vermont Agency of Transportation, New Hampshire Department of Transportation, and numerous municipalities. Mr. Lathrop's roadway experience includes the reconstruction of local roadways and state highways, resurfacing and safety improvements for interstate highways, intersection improvements, pathways, and sidewalks. He has been involved in all phases of project development from project conception through construction including design, public participation, contract documents, utility coordination, traffic management plans, bidding, and construction administration and inspection.

Railroad Crossing Upgrade, Bridge No. 2, FH 17 Replacement, Brooklyn Road, Mount Tabor, VT.

Transportation Engineer for the replacement of Bridge No. 2 and widening and repaving of 3,900' along Forest Highway 17. Project elements include replacement of the bridge, cold planing, full depth reconstruction, roadway widening, railroad crossing upgrade, temporary bridge, roadway detour, waterline replacement, guardrail, and paving. Coordinated with Vermont Rail System and VTrans Rail to develop details for improvements to the crossing of Brooklyn Road with the Vermont Railway. Crossing upgrades included design for continuously welded rail, ballasts, bituminous paving, and signage.

Alternate US Route 7 Resurfacing Projects STP 2722(1), VTrans, Burlington, VT. Project Manager for plans for the resurfacing of 1.8 miles of Alternate US Route 7 (Winooski Avenue) and 2.6 miles of U.S. Route 7 (Willard Street) in the City of Burlington. These projects, which were developed for VTrans, incorporated bicycle lanes throughout much of their lengths. The design of the bicycle lanes included a variety of treatments, including: providing one dedicated lane in each direction in some areas, and providing a dedicated lane in one direction with a "share the road" condition in the opposite direction in other areas. Additionally, some bike lanes were located adjacent to the curb, while others were located between the vehicular travel lanes and the parking lane.

Sidewalk Design, Mt. Philo Road, Shelburne, VT. Project Manager responsible for the preliminary and final design of a 5-ft-wide concrete sidewalk along Mount Philo Road. The sidewalk, which includes a 5-ft green strip, begins at Wild Ginger road and extends 2,500 ft along the east side of Mount Philo Road to Falls Brook Road. The project included crosswalks, pedestrian ramps, concrete curbing, drainage improvements, environmental permitting, EPSC plan, and utility coordination.

Webster Road Bicycle and Pedestrian Path, Shelburne, VT. Project Manager for conceptual and final design for 1.1-mile-long bicycle and pedestrian path along Webster Road in Shelburne. The project extends the path from the entrance of the Boulder Hill Development at Boulder Hill Drive, to the west along the north side of Webster Road, to its intersection with Route 7.

Three Rivers Transportation Pathway, St. Johnsbury, VT. Senior Engineer for engineering services for a new 1.1-mile transportation path that included design upgrades to the WACR-CRD rail line/Bay Street grade crossing. The project included the retrofitting of a former rail bridge for pedestrian traffic. Responsible to oversee design of pathway alignment and alignment of rail crossing and evaluating alternatives to minimize impacts to adjacent roadways and properties, while meeting VTrans bike and pedestrian criteria.

Roadway and Safety Engineering Services Retainer Contract, VTrans, Statewide, VT. Project Manager for on-call retainer contract with the Vermont Agency of Transportation to assist with the development of roadway, intersection, and other safety related transportation projects throughout the State.

Road Improvements, Route 140, Middletown Springs, VT. Project Manager/Senior Highway Engineer for a 2,000-ft-long roadway improvement project along Vermont Route 140. This stretch of road was experiencing side slope erosion, inadequate drainage, and an inordinate amount of maintenance problems. Project elements included reclaim and paving roadway, slope stabilization, profile and superelevation modifications, and drainage improvements. Responsible for plan development, typical sections, culvert and cut-slope recommendations, and engineering services during construction.



Brian Breslend, PE

Project Manager (Civil, Transportation)

Education: B.S., Civil Engineering, University of Vermont, 2007

Registrations: Civil Engineer: VT, NH, ME

Years of Experience: 12

Years with D&K: 12

Mr. Breslend is a Civil Engineer with 12 years of experience providing engineering services for transportation projects. His experience includes the preparation of alternatives analyses; preliminary and final designs; cost estimation; plan development; field survey; and utility coordination for a variety of pathway, sidewalk, and roadway projects.

Five Slope Stabilizations, VTrans, Various Locations, VT.

Project Manager for the design of permanent repairs to areas impacted by Tropical Storm Irene along VT Route 14 in Sharon, VT Route 100B in Moretown, VT Route 100 in Granville, VT Route 125 in Hancock (box culvert) and areas of VT Route 125 in Ripton. The primary focus for each area is to provide a permanent design to stabilize the stream embankment and provide additional protection against future storm events.

Delaware & Hudson Rail Trail, Railroad Bridges Rehabilitation, VTrans, West Pawlet and Rupert, VT.

Transportation Engineer for the design of repairs to five (5) rail structures on the Delaware and Hudson Rail Trail line. A number of structures on this line suffered scour-related damage due to Tropical Storm Irene and were in need of repair. D&K conducted a field reconnaissance and topographic survey of each site; developed a range of alternatives to repair each bridge, preliminary and final design drawings and specifications, and CE documentation and permit applications; and prepared quantity and cost estimates. Developed plans and prepared quantity and cost estimates for the project.

US Route 2 Scoping Study and Pedestrian Improvements Design, East Montpelier, VT.

Project Manager for design of pedestrian enhancements as recommended in the Town's Scoping Study, also prepared by D&K. Project includes the design of sidewalk and crosswalk improvements, consolidation of driveway openings, property owner coordination to understand and mitigate concerns, and extensive VTrans coordination due to location along a state highway. The project is largely being funded through a TA Grant and administered through the VTrans Municipal Assistance Bureau (MAB), and is being developed in accordance with the 2014 VTrans Municipal Assistance Bureau Local Projects Guidebook.

Warners Corner Sidewalk Project, Colchester, VT.

Project Engineer for design and construction phase services for 4,725 lf of new sidewalks along portions of the four roadways intersecting at Warners Corner. Scope included survey, right-of-way documentation, conceptual plans, utility relocations,

preliminary and final plans, landscaping, cost estimates, and permitting. The project was a municipally managed project developed through the VTrans LTF Section. Responsibilities included preparation of final plans, review and drafting of the storm drain network (catch basins, culverts, and pipes), right-of-way plan preparation, and preparation of quantity and cost estimates.

Brush Hill Road Signing and Pavement Marking Design, Williamstown, VT. Design Engineer for evaluation and design for signing and pavement markings on Brush Hill Road in the vicinity of the Williamstown School. An assessment of the existing school signs and pavement markings was necessary, as well as coordination with the local officials.

Maple Street Reconstruction, Weathersfield PLH

MAPL(1), Weathersfield, VT. Transportation Engineer for design, permitting, and bid phase services for the Maple Street roadway reconstruction. Project includes assessing existing pavement condition and making recommendations regarding reconstruction or reclamation, investigating options to improve sight distance at the intersection of Maple Street and VT Route 106, improving the roadway alignment at a knoll/curve in the road, and drainage improvements. Signage and striping along the project corridor will be updated to meet current State and Federal requirements. Project is funded with a Public Lands Highway Discretionary Program Funds grant, administered through VTrans' Local Transportation Facilities (LTF) Section, and follows the LTF project development process, as set forth in the VTrans LTF Guidebook for Municipally Managed Projects.

Roadway and Safety Engineering Services Retainer

Contract, VTrans, Statewide, VT. Project Manager for on-call retainer contract with the Vermont Agency of Transportation to assist with the development of roadway, intersection, and other safety related transportation projects throughout the State.



Martha Evans-Mongeon, PE
Project Manager (Civil, Bridge, Structural)

Years of Experience: 35

Years with D&K: 3

Education: B.S. Civil Engineering, University of Vermont

Registrations: Civil/Structural Engineering: VT

Mrs. Evans-Mongeon is a senior structural engineer with 35 years of experience providing management, evaluation, design, inspection, and construction phase services for state and federally-funded transportation structure and highway reconstruction projects. She has experience providing design for steel and concrete pedestrian, vehicle, and rail bridges and culverts. She has managed large design teams for a number of projects and served the Vermont Agency of Transportation for more than 30 years as a structural engineer.

River Street Bridge, Rutland, VT. Led all phases of engineering for this \$7M two-span, steel girder bridge project. Project includes a drilled shaft, hammerhead pier, an integral abutment and an abutment with a driven pile foundation. This project was part of a dual project contract. Coordinated with a design consultant, who was completing the design on another bridge under this contract. This project was technically complex, politically significant, and challenging from an environmental standpoint. Completed the plans and bid documents 12 months ahead of schedule.

US Route 2 Pedestrian Improvements (MAB), East Montpelier, VT. Senior Bridge Engineer for design of a 3-ft-high by 3-ft-wide by 53-ft-long precast box culvert replacement associated with a pedestrian safety project. The project is largely being funded through a federal and administered through the VTrans Municipal Assistance Bureau (MAB). Responsible for structural calculations, drafting and design.

VT 116 Bridge, Bristol, VT. Designed and managed the project development of this \$5.5M two-span, steel girder bridge. Expedited environmental permitting. Coordinated with legislators and the local community to complete this difficult project.

Old Town Road Bridge Repair/Replacement Options Study, ACRPC, Ripton, VT. Project Manager for engineering services to complete a study of existing conditions and prepare recommendations for replacement or rehabilitation of the structure. D&K is preparing site mapping, developing a preliminary cost estimate for the recommended alternative bridge location and structure, and will submit a final report to the Town and ACRPC.

VT 107 Post-Irene Reconstruction, Stockbridge-Bethel, VT. Provided agency oversight of consultants working to rebuild VT 107 between Stockbridge and Bethel following the devastation caused by Tropical Storm Irene. Provided technical assistance and plan review, in the field, as plans were developed, to immediately reconstruct the highway.

Project Manager, VTrans Structures Group. Led and supervised a group of seven engineers and technicians. Supervised consultant designed project work. Developed schedules and budgets for all assigned projects. Monitored design effort and updated schedules as necessary. Reviewed and approved invoices for consultant design.

VT 108, Cambridge, VT. Replaced a truss bridge with a three-span, steel curved girder bridge. Included two hammerhead piers on drilled shaft foundations, an integral abutment on steel H-piles and a spread footing abutment on soil and rock. This project was part of a two project contract which also included the construction of a roundabout. Some of this work was done by consultants and some was done in-house (by VTrans).

Bike Path Bridge and Boardwalk, Burlington and Colchester, VT. Designed a multi-span pedestrian facility. Over the Winooski River, the project included installation of an award winning, three-span, prefabricated steel truss bridge. This was constructed on existing substructure which had once been part of the railroad bridge in this location. In Colchester, a forty-three span, pre-cast concrete boardwalk was designed and installed. This structure was supported by concrete filled, driven steel pipe piles. Selected this construction method to minimize disturbance to this environmentally sensitive area. No excavation was required and all of the work was done in the winter to avoid negative impacts to turtles and other wildlife in the area.

Forest Street, Rutland City, VT. This \$1.1 M construction project replaced a two-span concrete slab bridge with a single-span, precast concrete voided slab, on integral abutments. Forest street was closed for a short time to facilitate this accelerated bridge construction project. This project included relocating a waterline on the bridge and relocating a sewer line downstream.



Jim Hall, PE

Project Manager (Civil, Bridge, Structural)

Education: B.S., Civil Engineering, University of Rhode Island, 2002
M.S., Structural Engineering, University of Massachusetts, 2007

Registrations: Professional Engineer VT, NH, MA, CT, ME; NHDOT LPA Certification: 1230; OSHA Confined Spaces; OSHA Fall Protection

Mr. Hall is a senior bridge engineer and the manager of D&K's bridge engineering group. He has 20 years of experience in inspection, evaluation, design, and construction observation of numerous transportation projects throughout New England. Beginning his career at RIDOT in 1999, Jim's expertise includes the design and rating of a wide range of steel, timber, and concrete bridges, including single and multi-span bridges. Jim has served numerous projects involving the analysis and rehabilitation of historic bridges as well as developing accelerated bridge construction projects. His responsibilities include oversight of bridge engineering staff, creating and maintaining project budgets and schedules, and working closely with local, state, federal, and private clients and regulatory officials to support bridge inspection, rehabilitation, and replacement projects.

Years of Experience: 20

Years with D&K: 1

Old Town Road Bridge Repair/Replacement Options Study, ACRPC, Ripton, VT. Senior Bridge Engineer for engineering services to complete a study of existing conditions and prepare recommendations for replacement or rehabilitation of the structure. D&K is preparing site mapping, developing a preliminary cost estimate for the recommended alternative bridge location and structure, and will submit a final report to the Town and ACRPC.

Warren Bridge Replacement Project No. BRF 013-4 (32), (ABC) VTrans, Warren, VT. Bridge Engineer responsible for structural design and plan development for the replacement of a structurally deficient bridge carrying VT Route 100 over the Mad River using the ABC toolkit. The project replaced a rolled steel, multi-stringer bridge spanning 71 feet with a simple span structure founded on precast integral abutments and steel bearing piles located along the current Vermont Route 100 alignment. The project utilized Prefabricated Bridge Units (PBU's) for the superstructure, consisting of a pair of steel plate girders connected by a precast concrete deck. The 105 foot long PBUs required detailed constructability reviews during the design phase to ensure they could be transported to the site and easily erected using readily available construction equipment. The bridge foundation used driven steel H-piles with precast concrete elements, including abutments, wingwalls, and approach slabs. The bridge was constructed using Accelerated Bridge Construction (ABC) methods to minimize the effect that road closures have on the public. The bridge was closed for 12 days to allow for removal of the existing bridge and construction of the new bridge.

Fairfield Bridge Replacement (Bridge in a Backpack), VTrans, Fairfield, VT. Bridge Engineer for replacing a rolled steel, multi-stringer bridge. The existing bridge spanned 28 feet and carried Town Highway 30 over Wanzer Brook. The replacement structure was a hybrid composite-concrete arch bridge founded on a reinforced concrete base, or a "bridge-in-

a-backpack" structure that has been successfully utilized on numerous bridge projects throughout New England. This was the first bridge of its kind constructed in the State of Vermont.

Bridge. No. 150/106 NH Route 113 over Bearcamp River (ABC), Tamworth, NH. Senior Bridge Engineer for a \$2.3M Accelerated Bridge Construction project involving the replacement of a 123-ft, 3-span bridge. The center span is steel girders and a concrete deck, while the end spans are concrete slabs. Replacement structure is a single span bridge with a length of 131 ft, eliminating two existing piers within the Bearcamp River. Responsible for constructability reviews and other construction administration tasks.

Worrall Covered Bridge Rehabilitation, VTrans, Rockingham, VT. Bridge engineer responsible for completing inspection, preparing an analysis, bridge rating and preparing rehabilitation plans for the 83-foot-long town lattice truss. The rural Worrall Covered Bridge was constructed in 1869 and carries a single lane of traffic. The rehabilitation includes the complete replacement of the primary lower chord, strengthening of the end diagonal members and complete replacement of the floor system. The analysis and rating considered multi-directional biaxial bending and axial forces caused by dead, wind, and snow loads.

Taftsville Covered Bridge Rehabilitation, VTrans, Woodstock, VT. Bridge Engineer responsible for inspection, analysis, bridge rating, final design calculations and rehabilitation plans for rehabilitation of a two-span 194-ft-long Modified King Post Truss covered bridge. The analysis used a 3-D model to model laminated arches that were installed within the king post truss to increase the load carrying capacity. The rehabilitation also included the repair of a dry laid stone masonry substructure. The Taftsville Covered Bridge was constructed in 1938 and carries a single lane of traffic over the Ottauquechee River.



Bob Durfee, PE, SECB

Project Manager (Civil, Bridge, Structural)

Years of Experience: 40

Years with D&K: 13

Education: M.S., Engineering, Virginia Polytechnic Institute, 1984
B.S., Civil Engineering, Clarkson University, 1977

Registrations: Professional Engineer: VT, NH, NY, PA, OR, MA, ME, CT; Structural Engineer Certification Board, NHDOT LPA Certification

Mr. Durfee has 40 years of experience in the inspection, analysis, design, and construction observation of new bridges, as well as the field observation and repairs/rehabilitation to existing steel, concrete, precast/prestressed concrete, and timber bridges. He has managed or designed numerous highway, railway, roadway, and bridge projects for state and municipal agencies, including over 100 bridges. Bob is a noted author of several bridge and structural publications and presentations. His experience includes previous employment with the New Hampshire Department of Transportation (NHDOT).

Quechee Covered Bridge (Replacement), Hartford, VT.

Quality Assurance/Quality Control for design and construction services for replacement of covered bridge damaged by Tropical Storm Irene. Alternatives analysis, design, permitting, H&H study, bid phase services, construction administration, and full-time construction observation. New bridge is an 87-ft-long single span bridge with timber roof structure, precast concrete beams, and cast-in-place concrete deck supported on cast-in-place concrete abutments.

Warren STP EH12(4) - Covered Bridge #6 Restoration, Warren, VT.

Senior Bridge Engineer for an engineering study and to develop restoration details for the Warren Covered Bridge #6. The bridge is a 42 ft 6 inch long, single span structure constructed in 1880. The one-lane bridge spans the Mad River in downtown Warren and utilizes Queenpost trusses spaced approximately 15-ft apart and is listed on the National Register of Historic Places. The study is considering replacing the abutment and wing walls and opening up the channel for better hydraulics, while preserving the bridge's appearance. Responsible for leading the inspection of the bridge. Participated in the Historic Covered Bridge Preservation Committee meeting.

Pier and Wright's Covered Bridges, Newport, NH.

Project Manager for the inspection, evaluation, maintenance repairs, and structural repairs to two covered bridges. This former railroad bridge has been converted to a recreational trail bridge. Fire protection and suppression concepts were evaluated, designed, and installed.

Woodsville Covered Bridge, Haverhill-Bath, NH.

Project Manager for the rehabilitation of the Haverhill-Bath (Woodsville) Covered Bridge. This two span, 258-foot-long structure is the second oldest covered bridge in the country and has significant historical features that were retained as part of the rehabilitation.

Greenbanks Hollow Covered Bridge, Danville, VT.

Project Director for the inspection and evaluation of the Greenbanks Hollow Covered Bridge, a single span Queen Post Truss covered bridge. Project included rehabilitation design, and bidding and construction observation services.

East Fairfield Covered Bridge, VTrans, Fairfield, VT.

Project Director for the inspection, analysis, and design of repairs/rehabilitations to the East Fairfield Covered Bridge. Services include evaluation of existing Queenpost trusses and preparing estimates of construction costs for repairs to the bridge.

Comstock Covered Bridge, VTrans, Montgomery, VT.

Project Director/Quality Review Engineer for the rehabilitation design of the Comstock Covered Bridge. Project included design, permitting, bid phase, and construction phase engineering services.

Hutchess Covered Bridge, VTrans, Montgomery, VT.

Project Director and Quality Review Engineer for the inspection, analysis, and repair recommendations for the Hutchess Covered Bridge.

Village (Lilac) Pedestrian and Utility Bridge

Replacement, Hooksett, NH. Project Manager for the removal of an existing three-span 490-foot vehicle truss bridge and the design and installation of a pedestrian bridge. The replacement structure accommodates H6 loading and new water and sewer lines. Completed field visits, managed day-to-day development of the project and client communications, and provided senior-level engineering and review of deliverables.



Jon Ashley, PE

Project Manager (Civil, Transportation)

Years of Experience: 27

Years with D&K: 3

Education: B.S. Environmental Engineering, Rensselaer Polytechnic Institute, 1992; M.S. Course, Advanced Hydrology, Kansas State University, 2001; M.S. Course, Physical and Chemical Hydrogeology, University of Massachusetts, Lowell, 1996; M.S. Courses, Wastewater Treatment and Engineering; Open Channel Hydraulics, University of New Haven, Connecticut, 1994-95

Registrations: Professional Engineer: VT, NY, NH; Certified Vermont Class 2 Public Water System Operator 40-hour OSHA HAZWOPER Course; Firefighter I Certification

Mr. Ashley has 27 years of environmental and civil engineering experience including planning, management and design of water/sewer main design, pumping and treatment, hazardous waste and brownfield remediation, and site/civil development projects for state, local and private clients. He has supported environmental documentation and permitting for infrastructure and site projects and maintains positive working relationships with regulatory officials. Jon has also provided engineering and management for roadway and slope projects.

Creek Road Streetscape, Middlebury, VT. Senior Project Manager for Town road reconstruction design, drainage improvements, high school athletic fields and facilities, streambank restoration for repair of a slide, Addison County Transit Resources headquarters planning, and sidewalk projects.

MacDonough Drive Slope Stabilization Study, Vergennes, VT. Completed a slope stabilization study and report for the MacDonough Drive neighborhood where landsliding had been causing damage to roads, private property, utilities, and historic structures. Provided rapid design and construction review services for a critical section of road that slumped approximately one foot due to an adjacent slope failure during the study. Also corrected drainage issues that contributed to the slope failure. *This project received an ACEC Engineering Excellence Award.*

Site Investigation and CAP, Montpelier-Berlin Bike Path, Montpelier, VT. Senior Environmental Engineer for a Phase II ESA on a former automotive maintenance site bisected by two railroad rights of way. Soil sampling the area of a proposed bike path showed evidence of petroleum, polycyclic aromatic hydrocarbons, and low level VOC contamination from the former auto undercoating operations and historic property uses. Designed a capping system to prevent human exposure to contaminated soils on the site.

Municipal Project Manager, Basin Harbor Road Culvert Replacement, Bridport, VT. Municipal Project Manager for the replacement of a deteriorating corrugated metal pipe culvert that carries the West Branch of the Dead Creek and drains to Otter Creek. The culvert is to be replaced with a precast concrete box culvert. Responsibilities included managing the selection of the consultant and the design process through all phases. Assisted the Town and design engineer with strategies to streamline the project schedule to allow the culvert

replacement to be constructed prior to upcoming planned utility poles relocation in this area. Responsibilities also include supporting the Town through the selection of the contractor and construction of the replacement culvert. The project is being developed in accordance with the VTrans Municipal Assistance Bureau process.

Enosburg Salt and Sand Shed, Enosburg, VT. Project Manager for conceptual design and permitting to construct a new municipal salt and sand shed at the Town Highway Garage on VT Route 108. Developed structure alternatives to accommodate the 5,000 yards of sand and 225 tons of salt that the Town uses annually. Services included assessment of structure alternatives and assessment of natural resources features, including wetlands, floodways, and cultural resources for NEPA approval. This project is being funded by a Transportation Alternatives (TA) Grant administered by VTrans through the Municipal Assistance Bureau.

Field Days and Gooseneck Bend Roads, Weybridge, VT. Investigated and designed slope stabilization solutions for two roads that were damaged due to slope failures. Designed drainage improvements and road relocation, assisted the Town with negotiating needed easements, relocating utilities, and procuring needed funding for Field Days Road. *The project was funded by VTrans and won an ACEC Engineering Excellence Award.*

Salisbury Village Lighting and Sidewalk Study, ACRPC, Salisbury, VT. Project Manager in-responsible-charge of D&K's evaluation and planning services. Served as primary contact for Town. Evaluated existing conditions of safety and accessibility for pedestrians, presenting multiple alternatives for separated and attached walkways and lighting options for the village center.



Michael Hildenbrand, PE

Project Manager (Civil)

Years of Experience: 18

Years with D&K: 3

Education: M.A. Public Administration, Norwich University, 2013
B.S. Electromechanical Engineering, Vermont Technical College, 2008

Registrations: Civil Engineer: VT 102409; Nuclear Moisture/Density Equipment; 40-Hour OSHA HAZWOPER Certification; 8-Hour Confined Space Entrant & Attendant Program; Lock-Out/Tag Out Program; Entry Confined Supervisor Program

Mr. Hildenbrand has 18 years of experience in site/civil engineering for recreational, commercial, civil, and governmental facilities. Michael has significant expertise in stormwater management and permitting.

Southeast Vermont Transit Expansion, Rockingham, VT. Senior Civil Engineer for civil/site services for a 54-space park & ride facility with four handicap spaces, and four charging stations, and an expansion of the maintenance building for the newly formed Southeast Vermont Transit. Construction on the park & ride will start this summer; the building addition construction will start in spring 2017.

FEMA Buyout Parks, Rochester, Granville (2), Royalton (2), Bethel (3), and Pittsfield, VT. Project Manager for final design, bid and construction phase services of public parks following the post-Irene buyout of a flood-damaged property. The parks include access from a Town roadway, parking areas, signage, informational kiosks, park benches, picnic shelters, sites for rented toilet facilities, pedestrian trails, river overlooks and river access. The properties are within or partially the floodway and the floodplain of the White River, requiring designs in conformance with Town Flood Hazard Area and River Corridor regulations.

New Bunkhouses, Camp Farnsworth, Girl Scouts of the Green and White Mountains, Thetford, VT. Project Manager for civil/site services for new bunkhouse facilities to house two dozen campers. Services have included site design and permitting (wastewater, potable water, stormwater, Act 250). Design has included selecting building locations, evaluation of and upgrades to existing infrastructure (pump station and piping). Design of stormwater treatment alternatives and ultimate stormwater management system.

Randolph Fire Station, Randolph, VT. Acting as the Town's project manager for construction of a municipal fire station, including five bays and a two-story office/storage area. The fire station will be an approximately 8,400-sf footprint and an approximately 1,000-sf second story at 2 Central Street in Randolph, Vermont. The existing properties consist of the previous fire station and two residential buildings. Design to maximize the quantity of on-site parking.

Crescent Connector, Essex Junction, VT. Permitting Specialist to secure state stormwater permit for a new \$6.5 million, Federal Highway Administration (FHWA)-funded project to create an urban street to serve as a bypass around a congested, five-way intersection.

Fales, Summer, Franklin and Salisbury Street Reconstruction, Randolph, VT. Project Engineer to support project to reconstruct 2,000LF of municipal streets including municipal utilities. Prepared stormwater permitting. Working closely with Town to develop a single stormwater treatment location to handle all future stormwater treatment needs within the municipal stormwater collection system.

Route 5, Vermont Agency of Transportation, Brattleboro, VT. Project Engineer to evaluate stormwater and Act 250 permits and right-of-way impacts caused by redesign of a 1.25-mile section of Route 5 that includes four roundabouts and private property access points. Responsible for securing permits. Evaluating environmental impact reports to incorporate suggested stormwater treatment practices.

Stormwater Permitting and Compliance, Various Communities, VT. Project Engineer to secure stormwater permits for projects including roadway design and reconstruction, Vermont Agency of Transportation railroad crossing and state airport.

Prospect and Elm Streets Reconstruction, Randolph, VT. Project Engineer to support project to reconstruct over 4,000 LF of municipal streets including municipal utilities. Prepared applicable permitting submissions, led design, served as point of contact to the Town.



Chuck Goodling, PE
Environmental Engineer

Years of Experience: 31

Years with D&K: 29

Education: B.S., Civil and Environmental Engineering, Utah State University, 1984; A.A.S., Ecology & Environmental Technology; Paul Smiths College, 1981

Registrations: Civil Engineering: VT

Mr. Goodling is a Senior Engineer with 31 years of evaluation, design, and construction experience for municipal infrastructure projects. Chuck is skilled in project management responsibilities including cost estimating, scheduling, client and community liaison, and quality control. He has extensive project experience with wastewater and water projects and complex road reconstruction projects including utilities, right of way, traffic, signalization, community involvement, funding, and permitting. Chuck has provided cost estimating services for projects ranging in size from water line replacements for small rural communities to multimillion dollar water resource projects for the Army Corps of Engineers.

Road and Utility Reconstruction, Franklin, Fales, Summer, and School Streets, Randolph, VT. Project Manager for design of water/sewer/stormwater utility improvements and road reconstruction for 4,000 LF of roadway in a residential area in the Town of Randolph. The project was modified and extended to breakout the design, bidding and construction of sewer replacements on School and Park Streets, which were identified as high priorities to address long-term maintenance issues prior to the winter of 2015-16. Led design and coordination with the client. Attended a neighborhood meeting to present the project and receive local input.

Road and Utility Reconstruction, Prospect and Elm Neighborhoods, Randolph, VT. Project Manager for design of water/sewer/stormwater utility improvements and road reconstruction for 7,600 LF of roadway in a residential area in the Town of Randolph. The project was modified and extended to breakout the design, bidding and construction of sewer replacements on School and Park Streets, which were identified as high priorities to address long-term maintenance issues. Led design and coordination with the client. Attended a neighborhood meeting to present the project and receive local input. The design is being finalized to provide for phased construction over a two-year period.

Downtown Main Street Revitalization, Randolph, VT. Design and inspection services for improvements to bring aging municipal utilities (water, sewer, and stormwater) into conformance with current design standards, improve water distribution and wastewater collection system integrity, and enhance the hydraulics of the water distribution and fire protection systems. Project included replacement of all service lines within roadway right of way. Project initiated after three major fires destroyed large portion of business district.

Sidewalk Design, Woodstock, VT. Design and construction phase services for sidewalk design project funded through VTrans Local Transportation Facility (LTF) Section. Coordination with utilities was provided to accomplish relocation of several poles and right-of-way requirements were established.

Lower Plain Sewer Line Extension Design, Bradford, VT. Project Director/Construction Phase Manager for design of 10,000 lf gravity sewer extension to serve commercial and industrial area located in lower plain area of Bradford. Project included 7,100 lf of forcemain, pump station, directionally drilled river crossing, railroad crossing, and Vermont State highway crossings. Responsible for oversight of design development process, scheduling, quality control review of contract documents, identifying potential funding agencies, and preparing applications for funding from USDA Rural Development (35% grant).

Water Main Extension (Route 5 South), Windsor, VT. Project Manager for design and permitting of 3,250-lf replacement of water main to improve service. New 8-inch water main alignment followed US Route 5 in State right of way. Included oversight of soil-boring program; performing hydraulic calculations; water main design including a crossing of US Route 5 (jacking/boring required by Agency of Transportation); specifications; and assistance in obtaining a permit from Water Supply Division, VTrans, and Act 250. Southern area of Town was served by 2-inch diameter, privately owned water line. System users frequently complained of low pressure and flow, due to line length, diameter, and age. Additionally, Cedar Hill Health Care Facility, a significant institutional user served by a 2-inch line, was planning an expansion project. DuBois & King assisted Town through construction phase.



John Benson, PE
Permitting Specialist

Years of Experience: 46

Years with D&K: 45

Education: A.S., Architectural and Building Eng, Vermont Technical College, 1973

Registrations: Civil Engineer: VT, ME; Certified Site Technician: VT 169; Subsurface System Disposal Designer: NH 0819; Certified Plumbing Engineer

Mr. Benson has 46 years of experience in the design, management, and budgetary responsibility for projects involving land development, transportation, utility, site engineering, and environmental permitting. His experience encompasses civil/site engineering; architectural; mechanical/electrical design; energy conservation; and federal, state, and local environmental permitting throughout northern New England. John's project experience encompasses feasibility studies, economic analyses, hydraulic capacity studies, site and soil investigations, evaluation of wastewater treatment methods, process design, pump stations, and design and construction inspection/administration. His responsibilities include preparation of permits and compliance with Agency of Natural Resources, Army Corps of Engineers, and the District Environmental Commission Permits/Programs.

Bennington Bypass, VT. Project Manager for environmental permitting for 10-mile bypass including the design and construction oversight of 14-acre wetland mitigation site. Provided management and coordination with state and federal regulatory agencies, public, technical staff, design engineers, Agency of Transportation, Federal Highway Administration, and various special interest groups. Facilitated and resolved major hurdle that developed in Army Corps of Engineers' permit process by bringing together EPA, ACOE, FHA, and Vermont Agency of Natural Resources, and presenting a logical basis upon which decisions could be made. Proposed bypass route will encircle Bennington Central Business District (8.1 miles) and terminate in New York State (1.5 miles). Bypass discussion and evaluation began in late 1950s. VTTrans prepared Bypass Draft Environmental Impact Statement (DEIS) and retained D&K's engineering and environmental assistance to resolve DEIS comments, refine selected build alternative, and develop FEIS according to FHWA guidelines.

US 5 Roundabouts, Brattleboro, VT. Senior Permitting Specialist for a team to design of a full-depth roadway reconstruction project consisting of approximately 1.25 miles of US Route 5 (Putney Road). The project includes elimination and replacement of the existing coordinated signalized traffic systems located at the primary intersections with the construction of four roundabouts connected by a two lane divided highway throughout the connecting roadway sections. Design will include new storm water drainage, revised access control, sidewalks, landscaping, and streetscape amenities.

Three Rivers Transportation Pathway, St. Johnsbury, VT. Permitting Specialist for development of 1.1-mile-long, 10-ft-wide shared use pathway. Project developed through Local Transportation Facilities (LTF) Program. Developed alternatives to avoid wetlands and historic resources and minimize property

owner impacts. The project included the retrofitting of a former rail bridge for pedestrian traffic. The path follows the former Lamoille Valley Rail Corridor.

Crescent Connector Road, Village of Essex Junction, VT. Project Manager/Permitting Specialist for \$6.5 million Federal Highway Administration (FHWA) funded Crescent Connector Road project, a bypass around the east side of the Five Corners intersection for traffic that is travelling between Maple Street, Main Street, and Park Street. Scope of work includes design plans and cost estimates, permitting, right of way acquisition and utility relocation assistance, public outreach, preparation of bid documents, and engineering design services during construction. The project is administered through the VTTrans Municipal Assistance Bureau (MAB).

Montpelier Environmental Assessment, Montpelier, VT. Project Manager for Environmental Assessment services associated with the Montpelier Community Renewable Energy Project. This project will utilize biomass renewable energy and provide Combined Heat and Power (CHP) to State and City facilities.

Enterprise Aly and Depot Square Redevelopment, Barre City, VT. Project Manager for an urban brownfield redevelopment project that includes improvements to traffic circulation, parking, pedestrian facilities, aesthetics, and implementation of a corrective action plan. The project is part of a larger downtown redevelopment effort, which has included additional projects for which D&K has provided services: Main Street Reconstruction Project ("Big Dig"), Merchants Row Parking Master Plan, and construction of Barre City Place. This project is funded by a Vermont Community Development Program Planning Grant.



Randy Otis, LS

Land Surveyor

Years of Experience: 17

Years with D&K: 13

Education: A.S., Survey and Applied Science, Paul Smith's College of Arts and Sciences, 2002

Registrations: Land Surveyor: VT; OSHA 40-Hour HAZWOPER Certification

Mr. Otis is a licensed land surveyor and senior party chief with 17 years of experience in boundary and topographic surveying. He has performed survey services for municipal, state, private, and public clients throughout New England and New York. His specific experience includes performing topographic and boundary surveys, right of way determination, monumentation, stakeout, boundary research and plats, and deed preparation and research.

Crescent Connector Road Survey Services, Village of Essex Junction, VT. Survey Party Crew Chief for \$6.5 million Federal Highway Administration-funded Crescent Connector Road project, a bypass around the east side of the Five Corners intersection for traffic that is traveling between Maple Street, Main Street, and Park Street. Project consisted of deed research on 15 parcels and 3 State Highways. Field survey required location of existing conditions of 3 highways, 1 active railway, and all private lands abutting the 1,800 ft proposed route. Record documents were compared with existing monuments to establish both private and public boundaries. Plans were drafted identifying all existing and proposed boundaries. Project is administered through the VTrans Local Transportation Facilities Section.

Right-Of-Way and Boundary Services, Vermont Agency of Transportation, Various Locations, VT. Retainer contract to provide a range of right-of-way and boundary survey services for the inventory of VTrans real property throughout the State. Delivery of services conform to VTrans standards and guidelines and rules of the Vermont Board of Land Surveyors. Task orders include:

- **Resurvey of Route 17, Addison, VT.** Survey Party Crew Chief responsible for acquisition of all relevant survey and historical documents in regards to Route 17 location and width. Assembly of the information in an archivable and reviewable manner. Evaluation of the information in conjunction with the actual location of the highway and its respective moments. Report the conclusions and final plans to VAOT for review and representation at public hearings.
- **Interstate I-89 Right of Way Adjustment, Highgate, VT.** Survey Party Crew Chief for the conveyance of a portion of Interstate 89 from the United States of America to the State of Vermont. Project required deed research of state and federal lands along I-89. A field survey was prepared showing the existing conditions of the border facility along with all monuments located along the right of way and the international boundary line between Canada and the United States. Draft plans were created with a new division line, which was approved by the State of Vermont and

United States, and the project was closed with the filing of plats and setting of new right of way corners.

Survey Services, Vermont Agency of Transportation, Various Locations, VT. Survey services on project-by-project basis to conduct wide range of survey operations in support of Route Survey Unit mission on assignments throughout State. Specific assignments include:

- **Pittsford, VT.** Survey Party Chief for historic right-of-way determination for US 7 segments 1 and 2 and side streets in village. Performed review of Town record research for road survey before and after 1850 and compiled and analyzed VTrans data, parcel abstracts, and Secretary of State and other State and county records. Produced right-of-way plans, Town Road Report of surveys before 1850, and a Project Report to explain and defend historic right-of-way determination. Set monumentation on Route 7 and adjoining side street right-of-way limits.

Market Street, South Burlington, VT. Survey Party Chief for reconstruction of Market Street. Responsible for data collection, traverses, deed preparation and research, and topographic survey.

Chelsea Village Flood Study, Two Rivers Ottauquechee Regional Commission, Chelsea, VT. Survey Party Chief for the evaluation of multiple structures spanning the First Branch of the White River in Chelsea's village center. Provided Quality Assurance and Quality Control of work, oversaw the survey of cross sections and finding benchmarks onsite. Set up static GPS to get horizontal locations of cross section, collected vertical points from existing USGS published benchmarks.

One Taylor Street Retaining Wall, Montpelier, VT. Survey Party Chief to oversee the survey of river cross sections to support repairs to a retaining wall supporting the development of a new transit center, parking lot, and bike path. The stone retaining wall runs along the Winooski River.



Andy Hoak, PE, PG, CPESC

Hydrogeologist

Years of Experience: 26

Years with D&K: 4

Education: M.S., Hydrogeology, Clemson University, 1994
B.A., Geology, Environmental Studies, Alfred University, 1993

Registrations: Civil Engineer: VT; Professional Geologist: NH 388; Certified Professional in Erosion and Sediment Control; Certified Wastewater Site Technician Type B: VT 487; Class IV Public Water System Operator: VT #2644; Grade 2 Domestic Wastewater Operator: VT #1421; OSHA 40-Hour HAZWOPER Certificate
OSHA 8-Hour Supervisor Certificate

Mr. Hoak has 26 years of experience in environmental engineering, site development, land use planning and hydrogeologic consulting. He has implemented environmental investigations and designing and operating groundwater and soil remediation systems. Andy has conducted water quality evaluations at landfills, performed remedial pilot tests, prepared Corrective Action Plans, supervised brownfield redevelopment projects and operated groundwater and vapor recovery systems. He has extensive experience in the design and permitting of stormwater management controls. He has modeled sediment and nutrient loading to receiving streams and calculated resulting reductions due to engineering controls.

Gilman Road Reconstruction Project, Royalton, VT.

Senior Engineer/Quality Control Review for the realignment of Gilman Road and flood resilient channel protection on the White River. Tropical Storm Irene caused significant erosion at the toe of the 80-ft-tall road embankment, which forms the south bank of the river. Identified road alignment and river stabilization alternatives, and developed design. The selected alternative involved armoring the lower portion of the river bank and moving the road away from the river. Responsible for quality control review of final design and construction drawings, and construction phase assistance.

Groundwater Mounding Analysis, Taylor Street, Montpelier, VT. Completed a groundwater mounding analysis for a proposed infiltration system collecting stormwater flows from approximately 12,000 ft² of impervious surface. The analysis included an evaluation of the effects from the infiltration system in relation to nearby soil and groundwater contamination. The analysis determined that groundwater elevations would increase approximately 0.5 to 2 inches in the vicinity of the plume and would have minimal impact on contaminant fate and transport. VT DEC agreed with the findings of the analysis and determined that infiltrating chambers would be an acceptable stormwater treatment practice in this area.

Highway Sub-base Permeability Study, Vermont Agency of Transportation, Berlin, VT. In an effort to minimize washout and frost heave action on newly installed highways, the Vermont Agency of Transportation contracted to evaluate the hydraulic conductivity of highway base and sub-base materials. As Project Manager, designed a large-scale lysimeter to accommodate a representative soil profile of highway sub-base materials, including appropriately sized and

compacted layers. Prepared representative soil samples and performed sieve analysis on approved sub-base materials to determine compliance with existing specification. Experimented with alternative materials, including shredded tires and varying soil grain distributions. Provided recommendations on material design and application. Researched and incorporated large and small-scale permeability testing techniques to develop correlation factors.

4 Central Street Oil Spill Investigation and Remediation, Randolph, VT. Project Manager to provide emergency response environmental services for a release of approximately 450 gallons of heating oil at a multi-unit residential property. Advanced multiple soil boils to determine the limits of contamination and presence of free-phase product. Six product recovery wells and an automated recovery pump were installed near the source location.

Hydrogeologic Evaluation and Wellhead Protection Study, Howrigan Farm Gravel Pit, East Fairfield, VT. Project Manager to complete a hydrogeologic investigation to evaluate potential impacts of reopening a gravel pit located in close proximity to the town's water supply well. Assisted client in meeting Vermont's Act 250 requirement of no unreasonable adverse impact to water quality and quantity. Supervised the installation of 10 monitoring wells and collected average depth to groundwater and direction of flow data. Completed slug tests to determine hydraulic conductivities. Conducted a file review and used data from an existing pump test to determine the town well's area of influence. Determined that the proposed extraction was a small percent of the well's total recharge area. Recommended development and implementation a site management plan with BMP to protect the town's wellhead.



Charlotte Brodie, CWS

Wetland Scientist

Years of Experience: 32

Years with D&K: 32

Education: M.S., Botany, Field Naturalist Program, University of Vermont, 1988
B.S., Biology, Smith College, 1978

Registrations: Certified Wetlands Scientist: NH 244

Ms. Brodie is an interdisciplinary field scientist trained in environmental evaluation, interpretation, and monitoring. As a naturalist, she integrates information on the biotic and abiotic components of ecosystems for site descriptions, inventories, criterion-based evaluations, and impact evaluations. Her training and experience incorporate geology and geomorphology, soils chemistry, botany, vertebrate and invertebrate zoology, and hydrology. She specializes in wetlands analysis and has a thorough knowledge of state and federal regulations pertaining to wetlands and other waters of the United States. The quality of her work has been recognized by the US Environmental Protection Agency, which requested her services for a northwestern Vermont project aimed at early identification and protection of wetlands in areas subject to heavy development pressure.

Construction Observation Services at 9 Wetland Mitigation Sites, South Burlington, Bennington, Wilmington, East Montpelier, Swanton, and Essex, VT. Observations during construction, coordination with Resident Engineer in regard to quantities, grading, quality of materials, approval of substitutions, erosion prevention and sediment control. Documentation of permit compliance, reporting to U.S. Army Corps of Engineers and Vermont Agency of Natural Resources, amendments to permits as required by actual field conditions, coordination of site inspections by regulatory agencies.

Ryegate Culvert Replacement Design Build, VTrans, Ryegate, VT. Wetland Scientist/Field Naturalist for a \$15 million design-build project to replace undersized/flood-prone culverts beneath US Route 5 and the WACR railroad. The new culverts will markedly reduce flooding potential and greatly improve aquatic organism passage. Delineated wetlands, obtained COE wetlands permit. Identified a State Threatened plant species within the project area, coordinated with the Vermont Wildlife Diversity Program, and transplanted the plants to a suitable and protected habitat.

Mendon Master Service Agreement, Mendon, VT. Wetland Scientist/Field Naturalist assisting the Town of Mendon during recovery efforts following Tropical Storm Irene. Under a Master Service Agreement, provided FEMA coordination for submission of grant applications for six damaged roadway, bridge, and culvert projects. Provided wetland delineation/natural resource review for transportation structures included in this contract.

Delaware and Hudson Rail Trail, Railroad Bridges Rehabilitation, VTrans, West Pawlet and Rupert, VT. Wetlands Scientist for the design of repairs to five rail structures on the Delaware and Hudson Rail Trail line. Structures suffered

scour-related damage due to Tropical Storm Irene. D&K conducted a field reconnaissance and topographic survey of each site and developed a range of alternatives to repair each bridge, preliminary and final design drawings and specifications, and CE documentation and permit applications.

Lower Plain Sewer Line Extension Design, Bradford, VT. Wetland Scientist for permitting of a 10,000 lf gravity sewer extension to serve commercial and industrial area located in lower plain area of Bradford. Project included 7,100 lf of forcemain, pump station, directionally drilled river crossing, railroad crossing, and Vermont State highway crossings. Responsible for wetland delineation and desktop of review of natural resources.

Wetlands Permitting, Town of Fairfield Beach Parking Lot, VT. Completed wetlands permitting application for a new 0.5-acre parking lot for an existing town recreation facility adjacent to Fairfield Pond.

Allen Brook Impaired Watershed Flow Restoration Plan, VTrans, Williston, VT. Wetlands Scientist for the first Flow Restoration Plan (FRP) in Vermont. Firm services included the development of an FRP to meet Total Maximum Daily Load (TMDL) targets for this impaired watershed. Requirement is being set to meet NEPA stormwater discharges from Small Municipal Separate Storm Sewer Systems (MS4). Developed Best Management Practices (BMPs) on expired general storm discharge sites, Town parcels, and VTrans Interstate 89 that were incorporated into the Vermont Department of Environmental Conservation watershed-wide rainfall-runoff model to compute the reduction in peak flows and confirm achievement of TMDL targets. *This project was an American Council of Engineering Companies-Vermont Engineering Excellence Grand Award winner.*

Jenny Austin, PE

Civil, Transportation

Years of Experience: 19

Years with D&K: 7

Education: B.S., Civil Engineering, University of Vermont, 1999

Registrations: Professional Engineer: VT 8551

Ms. Austin has 19 years of experience providing management and design for civil engineering projects. Her experience focuses on traffic engineering to support future growth for public and private entities, as well as transportation planning and design for municipal, regional, and state projects. Jenny has worked on a range of projects, including serving as Assistant Municipal Project Manager overseeing a 1.2-mile roadway reconstruction project and project engineer for a pilot project to support the monitoring and performance evaluation of a road diet. She provides transportation master planning and has provided peer reviews of traffic impact studies. Jenny has experience with all phases of transportation design from scoping through contract plans and bid documents. Jenny was the recipient of the Vermont Young Engineer of the Year for 2009.

Beaver Pond Shared Use Path Project, MPM Services, Proctor, VT. Municipal Project Manager (MPM) to assist the Town with the design phase of the shared use path project. Responsibilities include preparation of a design engineering services RFP, served on the selection committee meeting, coordinated meetings with the Path Committee including engaging Doodle Polls for collecting input from meeting attendees and attended meetings; review of design engineers' invoices; and has been a project liaison between VTrans and the design engineer.

Planning Study for the Intersection of States Prison Hollow Road and Monkton Ridge Road, Monkton, VT. Project Manager for a planning study and conceptual plan development for improvements to the States Prison Hollow Road and Monkton Ridge Road intersection. This is an ACRPC project which follows the VTrans MAB process. Project responsibilities include attending committee meetings, reviewing and evaluating the intersection, preparation of conceptual plans, and general project management tasks. The project goal will be to have a conceptual design for this intersection, which includes straightening the States Prison Hollow Road approach of the intersection, associated grading needed to tie into existing conditions, and the adjacent side street, and other incidentals for the project.

East Darling Hill Road Bicycle and Pedestrian Scoping Study, Town of Burke, VT. Project Engineer for a scoping study to develop alternatives to make East Darling Hill Road more bicycle and pedestrian-friendly. The study developed and evaluated various alternatives including variations of bike lanes and sharrow markings and two different multi-use path options. Responsibilities included review of development and evaluation of alternatives, evaluation matrix preparation, attending and presenting at local meetings, and preparation of the Scoping Study report.

Highgate Rte 78 Bicycle and Pedestrian Scoping Study, Town of Highgate, VT. Project engineer for a scoping study to evaluate bicycle and pedestrian improvement alternatives along Route 78 in the village of Highgate. This project was funded by VTrans and followed the MAB process. The study developed and evaluated sidewalk and bike lane alternatives beginning at the intersection with VT 207 and continuing east approximately 0.4 miles. Responsibilities included review of development and evaluation of alternatives, evaluation matrix preparation, attending and presenting at local meetings, and preparation of the Scoping Study report.

Barre-Montpelier Road Diet, VTrans, Berlin, VT. Project Engineer on a pilot project for VTrans to support the monitoring and performance evaluation of the Barre-Montpelier Road Diet project. Responsible for public outreach process and reviewing summarizing hundreds of survey responses, development of a Road Diet Evaluation Matrix with scoring criteria, preparation of a Road Diet Assessment Report, traffic analyses, before and after evaluations, and project management coordination with VTrans. This project was featured in FHWA's Innovator newsletter.

Brandon Route 7 Segment 6 Reconstruction Project Local Project Management Services, Brandon, VT. Assistant with all aspects of the Local Project Manager role overseeing a 1.2-mile roadway reconstruction project. Responsibilities included being a liaison between the design engineer, municipality, and VTrans; attended and prepared notes at public meetings; review of plans; assist the Town through the right of way phase, including assistance with waiver valuation forms; compiling, reviewing, and submitting invoices to VTrans from the engineering consultant and subconsultants for project design; and performed other general project management LPM tasks including project coordination, scheduling meetings, providing design-related information to new Town staff, and other necessary tasks.