



## Darrin R. Punchard, AICP, CFM

### Principal

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### Years of Experience

20

### Specializations

- Hazard mitigation planning & implementation
- Risk assessment & communication
- Coastal & floodplain management
- Long-term disaster recovery & redevelopment
- Climate adaptation planning
- Community Rating System (CRS) optimization
- Integration of hazard mitigation, climate adaptation, land use planning, and emergency management

### Education

- MA, Urban and Regional Planning, University of Florida
- BA, Marine Affairs, University of Rhode Island

### License/Registration

- American Institute of Certified Planners (AICP)
- Certified Floodplain Manager (CFM)
- FEMA Hazus Trained Professional

### Memberships

- American Planning Association (APA)
- Association of State Floodplain Managers (ASFPM)
- Natural Hazard Mitigation Association (NHMA)

### Summary

Darrin Punchard is an urban planning and floodplain management consultant focused exclusively on hazard risk and resilience services. He has 20 years of experience in hazard mitigation planning with specialized expertise in risk assessment, benefit-cost analysis, and the development of actionable strategies that include structural and non-structural measures for risk reduction.

Since 2001 Darrin has consulted with federal, state, regional, tribal and local government clients across the United States to assess and reduce their vulnerability to natural and man-made hazards. He prepared some of the nation's first federally-approved hazard mitigation plans following passage of the Disaster Mitigation Act of 2000 (DMA 2000) and to date has assisted more than 500 communities in similar planning efforts. He has also helped communities prepare local floodplain management plans that have achieved among the highest credit scores in the nation under FEMA's Community Rating System (CRS). Darrin has also been involved in the long-term recovery and redevelopment process for some of the nation's most destructive disasters including floods, hurricanes, tornadoes and wildfires.

Darrin's public service career includes serving as the State Hazard Mitigation Officer for North Carolina. In this role he coordinated FEMA's *Project Impact* program and launched the State's Hazard Mitigation Planning Initiative, a statewide effort to promote the voluntary development of local hazard mitigation plans prior to DMA 2000. His career began in Florida where he worked as a local hazard mitigation planner for the Alachua County Office of Emergency Management, and later as a state hazard mitigation planner for the Florida Division of Emergency Management.

Darrin is an active figure in championing innovative methods and practices for disaster risk reduction, often serving as an invited speaker and instructor for the natural hazard profession's foremost national conferences and workshops. He has authored and contributed to a number of prominent publications in the hazard mitigation industry, including FEMA's *Multi-Hazard Mitigation Planning Guidance* series and *Hazard Mitigation: Integrating Best Practices into Planning* as published by the American Planning Association (APA). He has also served as guest lecturer for graduate students at Yale University and the University of North Carolina on the topics of disaster mitigation, climate adaptation, and community resiliency and sustainability.

Darrin is a co-founder and Advisory Board member for APA's Hazard Mitigation & Disaster Recovery Division, and he served six years on the Board of Directors for the Natural Hazard Mitigation Association. He has also served as a subject matter expert in support of the Rockefeller Foundation's global *100 Resilient Cities* initiative and Resilience Academies for the National Disaster Resilience Competition.

## Relevant Project Experience

### Local Hazard Mitigation Plan, Town of Fairhaven, Massachusetts

Lead consultant for the development of a new hazard mitigation plan for the Town of Fairhaven. The plan includes a detailed assessment of all natural hazard threats, including future climate-related vulnerabilities, and identifies a prioritized listing of practical and actionable risk reduction strategies for the Town to pursue. The plan is being prepared in full compliance with current federal standards for local hazard mitigation plans, and it will maximize potential credit points for floodplain management planning under FEMA's Community Rating System (CRS).

### Multi-jurisdictional Hazard Mitigation Plan, City of Pawtucket and Central Falls, Rhode Island

Lead consultant for the development of a new hazard mitigation plan for the cities of Pawtucket and Central Falls. The plan will include a comprehensive assessment of all natural hazards, including future climate-related vulnerabilities, as well as the identification of actionable mitigation or adaptation strategies. The plan is being developed in full compliance with current state and federal requirements under the Disaster Mitigation Act of 2000, and it will be the first multi-jurisdictional plan in the State of Rhode Island.

### State Hazard Mitigation & Climate Adaptation Plan, Commonwealth of Massachusetts

Subconsultant to AECOM in the development of an integrated State Hazard Mitigation and Climate Adaptation Plan for Massachusetts. This plan will address all federally mandated hazard mitigation plan requirements and become the first-of-its-kind statewide climate adaptation plan in accordance with the Governor's Executive Order to establish an integrated climate change strategy for the Commonwealth. While involved in all project tasks, primary role is to lead the development of a state capability and adaptive capacity assessment and support the creation of the new hazard mitigation and adaptation strategy.

### Resilient Redevelopment Planning, State of North Carolina

Subconsultant to ESP Associates to provide disaster recovery and redevelopment planning assistance to the State of North Carolina as it recovers from the devastating flood events caused by Hurricane Matthew in October 2016. Primary role is to provide subject matter expertise and advisory support for the development of "resilient

redevelopment plans" for six of the most heavily impacted counties, and to serve as a project liaison with the University of North Carolina's Coastal Resilience Center.

### Resilience Element for the Comprehensive Plan for the National Capital, Washington DC

Lead consultant for the creation of a new Resilience Element for the District of Columbia's Comprehensive Plan, a legislatively-adopted 20-year general policy document which provides the vision and framework for the future land use planning and development of the nation's capital. This project will result in the development and adoption of policies and actions to help the District become more resilient to natural and man-made hazards, including those related to climate change and extreme weather. Tasks include the development of a new stand-alone, citywide Resilience Element (chapter) as well as recommended amendments to existing elements such as Land Use, Housing, Infrastructure and Economic Development. These amendments will be included in Comprehensive Plan amendment legislation for DC Council and federal approval starting in early 2018. The desired outcome is the integration of resilience into the Comprehensive Plan as a framework that supports and unifies strategies across multiple agencies, sectors, and areas of the District.

### Integrating Climate Change into State Hazard Mitigation Planning, Natural Resources Defense Council

Lead consultant to NRDC to support the development of recommendations for a state emergency management agency to assess and mitigate the projected impacts of climate change on natural hazard risks through its state hazard mitigation plan, mitigation grant programs and other state-level policies or procedures. The goal of this project was to provide specific methods to empower the state to translate climate projections, which are by nature probabilistic and expressed as a range of potential scenarios at different timeframes, into actionable and effective hazard mitigation strategies that account for both current and future conditions. This project resulted in several reports that included specific recommendations for policymaking as well as innovative methods for factoring the long-term benefits of climate resilience into FEMA's standard Benefit-Cost Analysis (BCA) program.

### **Hazard Mitigation & Land Use Planning Resource Guide, Colorado Department of Local Affairs, Colorado**

Project manager and lead technical advisor for the development of a “how to” guidebook and web-based toolkit to enable Colorado communities to prepare for and mitigate multiple hazards by integrating risk reduction and resilience planning principles into existing local plans, codes, and other regulatory standards. This project was built upon existing national research and resources to provide a menu of Colorado-specific policy recommendations, model land use codes and zoning ordinance language, building code and design guidelines, and solutions for overcoming potential implementation barriers that can be tailored by counties or municipalities to their own needs. All this material has been provided in a written resource guide as well as an interactive website ([planningforhazards.com](http://planningforhazards.com)) designed to help users navigate and explain each step or recommended activity with supporting examples and best practices. *Project completed for Hawksley Consulting as a subcontractor to Clarion Associates.*

### **Community Rating System (CRS) and Floodplain Management Services, Town of Barnstable, Massachusetts**

Project manager and lead consultant to provide technical and advisory services to the Town of Barnstable in support of its initial application to join FEMA’s Community Rating System (CRS) – a voluntary, incentive-based program that recognizes and rewards floodplain management activities that exceed the minimum standards of the National Flood Insurance Program (NFIP). Communities participating in CRS receive discounted premium rates for all resident NFIP policyholders. Project tasks included conducting a detailed assessment of all CRS-creditable activities currently in place, developing recommendations on additional floodplain management activities to be implemented for additional credit, preparing the Town’s CRS application, and preparing transferable outreach products and templates to be shared with other Cape Cod municipalities in support of their own CRS efforts. Upon completion of all deliverables, co-hosted a regional workshop with the Cape Cod Cooperative Extension for local government staff on the anticipated effects of sea level rise on coastal flooding, the benefits of the CRS program, and guidance on additional flood hazard mitigation and climate adaptation planning activities. *Project completed for Hawksley Consulting.*

### **Resiliency Workshop for the State of New Hampshire, Governors’ Institute on Community Design**

Provided technical and advisory support to the Governors’ Institute on Community Design (GICD) in the facilitation of a workshop requested by the Governor of New Hampshire to explore and develop innovative strategies to increase the resiliency of the state to all potential hazards. Tasks included coordination with GICD and state government staff on the review of existing data, plans, policies and programs to support enhanced hazard mitigation planning efforts, delivering a presentation to the Governor, state legislators, and state agency leaders on national best practices, and participating as a subject matter expert with workshop participants in the evaluation of proposed activities and solutions. Tasks also included assisting GICD in the development of policy options and recommendations that were later shared with workshop participants and included in a final report to the Governor. *Project completed for Hawksley Consulting.*

### **Flood Hazard Mitigation and Recovery Planning, Lyons, Colorado**

Provided technical advisory assistance to the Town of Lyons in support of long-term recovery and redevelopment decisions following the historic flood event of September 2013, as one of four national subject matter experts assembled by the American Planning Association to serve on a Community Planning Assistance Team (CPAT). Key tasks included the development of actionable hazard mitigation strategies to further operationalize community resilience to current and future flood hazards, in addition to the visual depiction of various mitigation and redevelopment scenarios for the most heavily damaged areas of the river corridor. This quick-turnaround CPAT project involved widespread stakeholder engagement with disaster survivors, representatives from all government levels, and residents and businesses from throughout the community. *Project completed for Hawksley Consulting.*

### **Integrated Water Master Plan, City of Aurora, Colorado**

Provided risk and resiliency consulting services to public water utility that provides drinking water, stormwater and sewer service within the city of Aurora, Colorado’s third largest municipality. Tasks included the acquisition, analysis, and display of hazard data in support of a risk management framework for the Integrated Water

Master Plan (IWMP), and the prioritization of current and future hazard risks and mitigation strategies for four technical areas: source, storage, treatment, and distribution. The approach to the IWMP included a method of quantifying uncertainty and risk management into each technical area acknowledging the wide range of possible future conditions that may impact master planning from the watershed to the point of distribution. *Project completed for Hawksley Consulting.*

### **Flood Risk Assessment and Risk Reduction Tools for Charlotte-Mecklenburg Storm Water Services, North Carolina**

Project manager for design and development of innovative methods and technology to assess flood risk and prioritize mitigation strategies on a parcel and building level for each of the approximately 4,400 flood-prone properties located within Mecklenburg County's Community Floodplain (based on future land use). Using existing GIS databases in combination with new flood hazard model data, this digital plan and software solution automates a process for calculating a flood risk score for each building using a variety of contributing factors that impact life and property, as well as a hazard mitigation score based on various programmatic and funding criteria. The digital, risk-based mitigation plan provides the County with a custom solution for decision making support in the prioritization of capital improvements in 32 watersheds across the county. The results of this plan are also being used to communicate flood risk and recommended mitigation techniques to owners of flood-prone properties. *Project completed for AECOM.*

### **Hazard Mitigation Plan Update for Monterey County, California**

Project manager and lead planner for comprehensive update to Monterey County's 2007 multi-jurisdictional hazard mitigation plan covering 12 municipalities. Tasks included updating all elements of the existing plan as required by FEMA, incorporating sea level rise as a new hazard, assessing the anticipated effects of climate change on all other hazards, and integrating climate adaptation strategies into existing mitigation action plans. This project also served as a national pilot venture with the National Oceanic and Atmospheric Administration (NOAA) and the National Association of Counties (NACo) to showcase the application and value of the web-based *Digital Coast* platform in risk assessment, risk communication, and risk reduction through

local hazard mitigation and climate adaptation planning. *Project completed for AECOM.*

### **Regional Hazard Mitigation Plan for the Unifour Area, North Carolina**

Project manager for development of a regional, multi-jurisdictional hazard mitigation plan covering 28 local communities in North Carolina's "Unifour" area. This included the counties of Alexander, Burke, Caldwell, and Catawba, along with each of their participating municipal jurisdictions. *Project completed for AECOM.*

### **Hazard Mitigation Plan Update for the State of Connecticut**

Project manager in support of a comprehensive update to Connecticut's 2010 State Hazard Mitigation Plan. Led the development of updated risk assessments for natural hazards, including the integration of climate change, and facilitated the development of an updated hazard mitigation and climate adaptation strategy for State agencies. *Project completed for AECOM as a subcontractor to Dewberry.*

### **Risk MAP Production & Technical Services, Federal Emergency Management Agency**

Task manager under PTS contract with FEMA for risk mapping, assessment and planning (Risk MAP) program support. Served as lead subject matter expert (SME) for risk assessment and mitigation planning support services to FEMA Headquarters and Regional staff, including a variety of research, policy analysis, risk modeling, planning, training, and outreach support tasks. Tasks included authoring and/or contributing to various technical reports and user guidance materials including those listed below. *Project completed for AECOM.*

- Climate Change Toolkit
- Local Mitigation Planning Handbook
- Local Mitigation Plan Review Guide
- Integrating Hazard Mitigation into Local Planning
- Plan Implementation Workshop
- Support for G318 "Hazard Mitigation Planning" Web-based Training Course
- Policy Research and Analysis for Local Mitigation Plan Update Criteria
- Tribal Mitigation Planning Quick Tips Guide
- Implementation Guidance for Mitigation Planning Technical Assistance

### **Multi-jurisdiction Hazard Mitigation Plan for South Central Region Council of Governments, Connecticut**

Project manager in support of developing a regional hazard mitigation plan in compliance with FEMA planning requirements. The plan includes an analysis of the effects of climate change on natural hazards and an assessment of vulnerabilities to projected sea level rise. The planning process included ten participating municipalities in Connecticut's densely populated South Central Region, and was prepared in close coordination with the State's second largest regional planning organization. *Project completed for AECOM.*

### **FEMA Task Order: Integration of Hazard Mitigation into Comprehensive Planning and Regulatory Support, FEMA HQ**

Project manager for FEMA task order to conduct research and identify solutions for enhancing the integration of hazard mitigation into comprehensive land use planning and other local planning processes. Tasks included conducting a comprehensive literature review, interviewing national subject matter experts, and making recommendations on the technical guidance and outreach materials needed for enhancing integration practices, as well as the incentives necessary for FEMA and its Federal agency partners to encourage such enhancements. Tasks also include the development of "how-to" guidance for community planners on the subject of integrating hazard mitigation principles and practices with local land use and general community development planning. *Project completed for AECOM.*

### **Integrated Hazard Risk Management, North Carolina Office of Geospatial and Technology Management, North Carolina**

Led the Mitigation Workgroup in support of the development and demonstration of a strategy to reduce risk through the Integrated Hazard Risk Management (IHRM) approach. IHRM was a multi-year national pilot study funded by FEMA focused on integrating and enhancing processes, data, methodologies and communication tools associated with natural hazard identification, risk assessment, risk communication, and mitigation. *Project completed for AECOM.*

### **Flood Hazard Mitigation Plan for Ray County, Missouri**

Project manager for the assessment of existing flood hazard problems and the development of

recommended mitigation options for Ray County to consider with regard to decisions on land use, community development and floodplain management. *Project completed for AECOM.*

### **FEMA Contract Assistance for Mitigation Plan Reviews (CAMPR), Risk MAP Program, FEMA HQ – Regions IV, VIII, and IX**

Project manager & senior quality control reviewer for contract with FEMA for mitigation planning support in FEMA Regions IV, VIII and IX. The CAMPR task order was first issued by FEMA in October 2009 to secure on-call assistance with the review of state, local and tribal hazard mitigation plans submitted for compliance with Federal regulations, in addition to the delivery of technical assistance and training on hazard mitigation planning as required. *Project completed for AECOM.*

### **Sea Level Rise Risk Management Study, North Carolina Office of Geospatial and Technology Management, North Carolina**

Adaptation Workgroup Member for the State of North Carolina in the study of potential changes in coastal flooding hazards due to sea level rise and changes in storm frequency and intensity on a system-wide basis, considering built and living systems, and inclusive of societal and economic impacts. The Adaptation Workgroup was tasked with the development of hazard risk management strategies to reduce North Carolina's vulnerability to and consequences from the negative effects of sea level rise and anticipated increases in coastal flooding. *Project completed for AECOM.*

### **Multi-jurisdictional Hazard Mitigation Plan Update for City of Charlotte and Mecklenburg County, North Carolina**

Project manager for the comprehensive update to the City of Charlotte and Mecklenburg County's multi-jurisdictional hazard mitigation plan. The plan was updated to maintain FEMA compliance for the City, County and six participating towns under the federal Stafford Act. The plan update process was specifically designed to maximize potential credit points for participating local jurisdictions under the National Flood Insurance Program's (NFIP) Community Rating System (CRS), which in turn results in lower flood insurance premiums for owners of property located in identified flood hazard areas. *Project completed for AECOM.*

### **Middle Rio Grande Risk Assessment, Rio Grande Institute, Texas**

Project manager for the development of nine

countywide, multi-jurisdictional risk assessments in the Middle Rio Grande Region in compliance with FEMA planning requirements. These GIS-based assessments included the identification and analysis of natural and technological hazards in the counties of Dimmit, Edwards, Kinney, La Salle, Maverick, Real, Uvalde, Val Verde, and Zavala. *Project completed for AECOM.*

#### **Multi-jurisdictional Hazard Mitigation Plan Update, Catawba County, North Carolina**

Project manager for the comprehensive update to Catawba County's Multi-jurisdictional Hazard Mitigation Plan. The plan was updated to maintain FEMA compliance for Catawba County and its eight municipalities under the federal Stafford Act. The plan update also sought to address the long-term implications of climate change through community mitigation and adaptation strategies, as well as maximize potential credit points for Catawba County and its participating local jurisdictions under the NFIP's CRS. *Project completed for AECOM.*

#### **Multi-jurisdictional Hazard Mitigation Plan for Grayson County, Texas**

Senior technical advisor for the development of an approved multi-jurisdictional hazard mitigation plan for Grayson County and 17 incorporated municipalities. Upon completion the plan was approved by the Texas Governor's Division of Emergency Management and FEMA to ensure each participating jurisdiction remains eligible for federal and state hazard mitigation and disaster recovery funding assistance. *Project completed for AECOM.*

#### **Hazard Mitigation Planning – Nationwide**

Project manager responsible for the design, management, and final completion of all tasks required in the preparation of FEMA-approved hazard mitigation plans according to Stafford Act requirements (44 CFR Part 201). Tasks included guiding the overall planning process, conducting GIS-based risk assessments, performing local capability assessments, facilitating public outreach, designing and evaluating mitigation strategies, and preparing plan maintenance and implementation procedures. Sample project experience includes the following (*all completed for PBS&J/Atkins*):

##### **Local Hazard Mitigation Plans**

- Broward County, Florida
- City of Charlotte/Mecklenburg County, North Carolina

- City of Franklin, Virginia
- City of Wilmington, Delaware
- City of Wilmington/New Hanover County, North Carolina
- Cities of Aguada, Moca and Vieques, Puerto Rico
- Counties of Catawba, Gates, Hoke, Hyde, Macon, Stanly and Union, North Carolina
- Counties of Kent, New Castle and Sussex, Delaware
- Florida International University, Florida
- Galveston County, Texas
- Harrison County, Mississippi
- Mohave County, Arizona
- Monmouth County, New Jersey
- Southampton County, Virginia

##### **Regional Hazard Mitigation Plans**

- Alamo Area Council of Governments, Texas (San Antonio Region)
- Houston-Galveston Area Council, Texas
- Northern Virginia Regional Commission, Virginia
- Southside Hampton Roads Region, Virginia (Norfolk / Virginia Beach Region)
- Texas Colorado River Floodplain Coalition, Texas

##### **State Hazard Mitigation Plans**

- State Hazard Mitigation Plan, State of Delaware
- State Hazard Mitigation Plan, State of South Carolina
- State Hazard Mitigation Plan, State of North Carolina
- Enhanced Statewide Risk Assessment, State of North Carolina
- Statewide Vulnerability and Risk Assessment, State of Florida

#### **CRS Flood Hazard Mitigation Plan, City of Savannah, Georgia**

Served as the technical lead for the development of a GIS-based flood hazard vulnerability assessment for the City of Savannah, Georgia for purposes of updating the City's existing Community Rating System (CRS) Flood Mitigation Plan. Tasks included the assessment of riverine and coastal flood hazards using new digital flood data in combination with local GIS data, as well as conducting Level 2 loss estimation analysis with FEMA's Hazus-MH software. Additional tasks included facilitating public outreach, risk communication, and development of recommendations for the City and participating

stakeholders to consider in reducing future flood losses based on study findings. The completed plan resulted in one of the highest CRS credit scores for floodplain management planning ever issued by FEMA and the Insurance Services Office, Inc. *Project completed for PBS&J/Atkins as a subcontractor to URS.*

#### **Multi-hazard, Multi-jurisdictional Risk Assessment, Monmouth County, New Jersey**

Served as the technical lead for the development of a multi-hazard, multi-jurisdictional risk assessment for Monmouth County, New Jersey. This included the preparation of hazard identification studies, hazard analyses and vulnerability assessments for the full range of natural hazards facing Monmouth County and each of its 52 incorporated municipalities. The risk assessment included the development of hazard profiles that included information on the location, extent, notable historical occurrences and the probability of future occurrences for each possible natural hazard event in Monmouth County. The risk assessment also involved a GIS-based assessment that resulted in the calculation of current exposure and potential loss estimates to each natural hazard, according to each jurisdiction, in order to help identify and prioritize possible hazard mitigation actions. Upon completion, the risk assessment was incorporated into the County's Multi-jurisdictional Natural Hazards Mitigation Plan that was approved by FEMA in 2009. *Project completed for PBS&J/Atkins as a subcontractor to URS.*

#### **Severe Repetitive Loss Validation Study, Technical Assistance Research Contract, FEMA HQ**

Project manager under FEMA's Hazard Mitigation Technical Assistance and Research Contract (TARC), responsible for leading the investigation and validation of severe repetitive loss properties as recorded by the National Flood Insurance Program. The project was a component of FEMA's Severe Repetitive Loss Pilot Program aimed at reducing or eliminating the long-term flood risks to repetitive loss properties to reduce outlays by the National Flood Insurance Fund. *Project completed for PBS&J/Atkins.*

#### **Flood Hazard Mitigation Plan – City of Del Mar, California**

Project manager for the development of a GIS-based flood hazard vulnerability assessment and mitigation action plan for Del Mar, California. Tasks included the identification and analysis of

riverine and coastal flooding, dam failure and tsunami hazards. Field work included the evaluation of existing flood protection measures as well as identified repetitive loss properties using FEMA's National Flood Mitigation Data Collection Tool (NT). Upon completion the flood hazard mitigation plan, included a prioritized listing of mitigation measures for the City to undertake in reducing its long-term risk to potential flood hazards. *Project completed for PBS&J/Atkins.*

#### **Delaware Hazard Mitigation Planning, Delaware Emergency Management Agency, Delaware**

Lead planner for the development of Delaware's first State Hazard Mitigation Plan approved under the Disaster Mitigation Act of 2000 (DMA 2000). The plan assessed all natural hazard risks facing the state, examined state-level capabilities to mitigate those hazard risks, established goals and objectives for the various participating state agencies to pursue, and identified specific hazard mitigation actions to implement upon the Governor's adoption of the final State Hazard Mitigation Plan. In a concurrent effort, Mr. Punchard also served as lead planner for the development of four (4) local, multi-jurisdictional hazard mitigation plans for the City of Wilmington and the counties of Kent, New Castle and Sussex. These local planning efforts required the completion of multi-hazard risk assessment, local capability assessments, and close coordination with representatives from 60 local government jurisdictions throughout Delaware in the selection and adoption of their own local hazard mitigation strategies. Following adoption of the plans by local jurisdictions, each was reviewed and approved by FEMA to be in full compliance with DMA 2000. *Project completed for PBS&J/Atkins.*

#### **FEMA Hazard Mitigation Technical Assistance Program (HMTAP), Nationwide**

Provided assistance to the North Carolina Division of Emergency Management in revising and updating the State Hazard Mitigation Plan to gain FEMA compliance and approval under DMA 2000. Managed team of three planners. *Project completed for PBS&J/Atkins.*

#### **All-Hazards Mitigation Plan for Florida International University, Miami, Florida**

Project manager and technical lead for the development of an all-hazards risk assessment for FIU in compliance with DMA 2000 and FEMA standards for building a "Disaster Resistant University." Tasks included the identification and analysis of all natural, manmade and technological

hazards posing a threat to the university community and its day-to-day business functions; a detailed vulnerability assessment of all critical facilities on four university campuses; and the identification, evaluation and prioritization of cost-effective hazard mitigation strategies to eliminate or reduce targeted vulnerabilities. Upon completion, the plan served as a FEMA-recommended model for other institutions of higher education to use in the completion of their own hazard mitigation plans. *Project completed for PBS&J/Atkins as a subcontractor to URS.*

### **Integration of Hazard Mitigation Planning into Local Government Comprehensive Plans, Florida Department of Community Affairs, Florida**

Provided technical guidance and task support for a detailed study on how effectively hazard mitigation principles and practices are integrated into Florida's local comprehensive land use plans. Tasks included the development of locally-specific vulnerability analyses for hurricanes, storm surge, flood, sinkholes and wildfire; the evaluation of existing local plans and mitigation policies; and the preparation of customized county profiles with recommendations for how each local government can better integrate mitigation strategies into their local comprehensive plans, development regulations and post-disaster redevelopment plans. *Project completed for PBS&J/Atkins.*

### **Post-Disaster Redevelopment Planning Initiative, Florida Department of Community Affairs, Florida**

Project manager of contractor team assigned with preparation of Post-Disaster Redevelopment Plans (PDRPs) for two pilot communities in Florida (Manatee and Nassau counties) as part of a statewide planning initiative sponsored by FDCA. Assisted in the design of approaches and methods for developing local plans that can result in effective post-disaster redevelopment policies for pilot communities and be incorporated into planning guidelines and a best practices guide for the State of Florida. *Project completed for PBS&J/Atkins.*

### **Select Publications & Presentations**

*Principles for Preparing a Community's Disaster Recovery Plan.* Presented via webinar for the American Planning Association, Hazard Mitigation & Disaster Recovery Planning Division. November 2016.

*Issues in Emergency Management: Politics, Disaster Assistance, and Inter-Agency Preparedness.* Presented at the Annual Natural Hazards Research and Applications Workshop. Broomfield, CO. July 2016.

*Building Bridges: CRS Planning & Outreach on Cape Cod.* Presented at the Association of State Floodplain Managers National Conference. Grand Rapids, MI. June 2016.

*Incorporating Disaster Risk Reduction into Planning.* Presented at the American Planning Association National Planning Conference. Phoenix, AZ. April 2016.

*Planning for Hazards: Land Use Solutions for Colorado.* Presented at the Annual Conference of the Rocky Mountain Land Use Institute. Denver, CO. March 2016.

*Stemming the Rising Tide of Flood Insurance Costs.* Published by Hawksley Consulting. March 2016.

*Three Steps to Help Communities Battle Flood Risks.* Published by MWH Economics of Water Report. December 2015.

*Panel Discussion on the Community Rating System (CRS).* Presented at the Connecticut Association of Flood Managers. Westbrook, CT. October 2015.

*Planning for Flood Resilience in Charlotte-Mecklenburg, North Carolina.* Presented at the American Water Works Association Water Infrastructure Conference. Bethesda, MD. October 2015.

*Adaptive Planning, Climate Change, and Disasters.* Moderator for the Annual Natural Hazards Research and Applications Workshop. Broomfield, CO. June 2015.

*A Climate of Change in Flood Risk Management.* Presented at the American Water Works Association Annual Conference & Exposition. Anaheim, CA. June 2015.

*Living with the River in Lyons, Colorado.* Presented at the Association of State Floodplain Managers National Conference. Atlanta, GA. June 2015.

*Flood Resiliency Planning: CPAT Field Notes.* Presented at the American Planning Association



National Planning Conference. Seattle, WA. April 2015.

*Planning for Natural Hazards.* Presented at the Annual Conference of the Rocky Mountain Land Use Institute. Denver, CO. March 2015.

*Flood Mitigation: A Sure Bet Investment.* Published by Hawksley Consulting. February 2015.

*Living with the Saint Vrain: A Report from the Lyons CPAT.* Published by the Colorado Chapter of the American Planning Association. February 2015.

*A Climate of Change in Flood Risk Management.* Published by Civil and Structural Engineer Magazine. November 2014.

*Navigating FEMA's Community Rating System (CRS) to Reduce Flood Insurance Premiums and Build Coastal Resilience.* Presented at the Southern New England APA Conference. Providence, RI. October 2014.

*Integrating Risk and Resiliency into Local Planning.* Presented at the Southern New England APA Conference. Providence, RI. October 2014.

*Operationalizing Resiliency through Integrated Risk Management Planning.* Published by MWH Global's Thought Leadership Website. August 2014.

*Hazard Mitigation Policy Guide.* Published by the American Planning Association. July 2014. (Technical Contributor)

*Integrating Climate Adaptation into Local Planning.* Presented at the Annual Natural Hazards Research and Applications Workshop. Broomfield, CO. June 2014.

*Charlotte-Mecklenburg: A Case Study in Resilience.* Presented at the American Planning Association's Planners Training Service workshop titled "Creating Climate-Adaptive and Hazard-Resilient Communities." Boston, MA. June 2014.

*Pitfalls and Dilemmas of Local Hazard Mitigation Plans.* Presented at the American Planning Association's Planners Training Service workshop titled "Creating Climate-Adaptive and Hazard-Resilient Communities." Boston, MA. June 2014.

*The Safe Growth Audit.* Presented at the American Planning Association's Planners Training Service workshop titled "Creating Climate-Adaptive and Hazard-Resilient Communities." Boston, MA. June 2014.

*Using NOAA's Digital Coast for Community Hazard Mitigation Planning in Monterey County, CA.* Presented at the American Planning Association National Planning Conference. Atlanta, GA. April 2014.

*Hurricane Sandy Elevates the Importance of Mitigation Planning.* Published by the American Planning Association in The Commissioner, Vol. 19, No. 1. Winter 2013.

*Assessing the Quality of State and Local Hazard Mitigation Plans in the United States.* Presented at the Annual Natural Hazards Research and Applications Workshop. Broomfield, CO. July 2013.

*Addressing Climate Change in Multi-Hazard Mitigation Planning.* Presented at the New England Water and Environment Association Spring Meeting. Brewster, MA. June 2013.

*Regional Hazard Mitigation Planning in South Central Connecticut.* Presented at the Association of State Floodplain Managers National Conference. Hartford, CT. June 2013.

*Using NOAA's Digital Coast for Community Hazard Mitigation Planning.* Presented at the Association of State Floodplain Managers National Conference. Hartford, CT. June 2013.

*Using NOAA's Digital Coast for Community Hazard Mitigation Planning.* Presented at the NOAA Virtual Coastal GeoTools Conference. Webinar. June 2013.

*Integrating Hazard Mitigation into Local Planning & Community Development.* Presented at the American Planning Association National Planning Conference. Chicago, IL. April 2013.

*Resilient Neighbors Network: Peer-to-peer sharing to create safe, secure, and sustainable communities.* Presented at the American Planning Association National Planning Conference. Chicago, IL. April 2013.

*Integrating Hazard Mitigation into Local Planning.* Published by the Federal Emergency

Management Agency. March 2013. (Contractor Lead)

*Local Mitigation Planning Handbook*. Published by the Federal Emergency Management Agency. March 2013. (Contractor Lead)

*Integrating Hazard Mitigation into Land Use Planning*. Presented to the Board of Directors for the South Central Regional Council of Governments. New Haven, CT. January 2013.

*Fostering Resilient Communities: From National Initiatives to the Grassroots and Back*. Presented to Annual Natural Hazards Research and Applications Workshop. Broomfield, CO. July 2012.

*Charlotte-Mecklenburg Flood Risk Assessment and Risk Reduction Plan*. Presented at the Association of State Floodplain Managers National Conference. San Antonio, TX. May 2012.

*Using Hazus for CRS Flood Mitigation Planning*. Presented at the Northeast Hazus User Group Conference. Boston, MA. March 2012.

*Evaluating the Impacts of the Disaster Mitigation Act of 2000*. Presented at the Annual Natural Hazards Research and Applications Workshop. Broomfield, CO. July 2011.

*Charlotte-Mecklenburg Flood Risk Assessment and Risk Reduction Plan*. Presented at the Association of State Floodplain Managers National Conference. Louisville, KY. May 2011.

*Wildfire Planning and Climate Change: Case Study in Catawba County, North Carolina*. Presented at the American Planning Association National Planning Conference. Boston, MA. April 2011.

*Integrating Hazard Mitigation and Comprehensive Planning for a Resilient Community*. Presented at the National Hurricane Conference. Atlanta, GA. April 2011.

*Going Beyond the Crosswalk: Unified Local Hazard Mitigation Planning*. Presented at the Association of Montana Floodplain Managers Annual Conference. Lewiston, MT. March 2011.

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