

Elizabeth Shay, PhD, AICP

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EDUCATION

PhD	City and Regional Planning, University of North Carolina, Chapel Hill NC, 2007
MLS	School of Information and Library Science, University of North Carolina, Chapel Hill NC
MS	Russian, Jackson School of International Studies, University of Washington, Seattle WA
BS	Biology, Southern Oregon University, Ashland OR
AICP	American Institute of Certified Planners: exam-based professional certification, 2011

PROFESSIONAL EXPERIENCE

2026-	Professor, Geography and Planning, Appalachian State University, Boone NC Director, Planning Program
2020-2026	Associate professor, Geography and Planning, Appalachian State University, Boone NC
2020-2023	Associate director, North Carolina Transportation Center of Excellence in Advanced Technology Safety & Policy (tsap.unc.edu) led by UNC Highway Safety Research Center
2015-2020	Assistant professor, Geography and Planning, Appalachian State University, Boone NC
2014-2015	Community planner, North Carolina Department of Transportation, Raleigh NC
2003-2014	University of North Carolina—Chapel Hill: director, Sustainable Triangle Field Site, Institute for the Environment, UNC-Chapel Hill (2010-2014); research assistant professor (2013-2014); research associate—Institute for the Environment; lecturer—Curriculum for the Environment and Ecology, UNC-Chapel Hill
Pre-2003	Editing, translating, publishing Manuscript office, <i>Environmental Science & Technology</i> , ACS, UNC—Chapel Hill Associated Publishers, St. Paul MN (translating <i>Pravda</i> into English, editing) Centre for Water Research, University of Western Australia, Perth (editing, writing) Current Digest of the Soviet Press, Columbus OH (translating, abstracting)

TEACHING

Appalachian State University, 2015-

Town, city & regional planning	Planning tools & techniques	Land, property, and law
Transportation planning	Inside the sustainable city	Community development
Planning studio	Honors/graduate theses	Independent research

UNC—Chapel Hill, 2007-2014

Taught	Urban transportation planning 2008, 2010
Directed	Environmental Capstones, fall and spring semesters, for on- and off-campus clients
Designed, developed, taught	Principles of sustainability; Sustainable urban planning in Germany, Sweden, Denmark; Seminars: Cross-Atlantic sustainability, Sustainable food systems, Sustainability primer, Sustainable community, Sustainable UNC

RESEARCH

- 2016-26 Appalachian State University, GRAM (Graduate Research Assistant Mentoring). Three cycles (2024-26, co-PI Quattro; 2019-21, 2016-18 co-PIs Dempsey, Sugg)
- 2024-26 NC Dept Transportation, Understanding drivers of change in vehicle availability and ownership in North Carolina. Subcontract with UNC-Chapel Hill (PI Combs)
- 2023-24 Appalachian State, University Research Council and Undergraduate Research Assistantship. Planning in High Places: NW North Carolina and Scottish Highlands
- 2020-23 NC Department of Transportation Center of Excellence in Advanced Technology Safety and Policy. Five-university consortium (led by UNC-Chapel Hill)
- 2022 GEAR-UP Teaching for Community Resilience, Legos activity for middle school & university students; Education, Planning, Social Work (MacNamara, Shay, Smith)
- 2020-21 Appalachian State University, Campus COVID-19 grant. Trail cameras to monitor greenway use, social distancing (Christiana, Battista, Broce, Hege, Shay, Venrick)
- 2020-21 Chancellors Innovation Scholars, Appalachian State U, Collaborative client-service curriculum to develop sustainable communities (Kowalczyk, MacNamara, Shay)
- 2019-20 Appalachian State University, Research Institute for Environment, Energy & Economics. CONCERT grant—social work/planning (MacNamara, Shay)
- 2018 Appalachian State University, Research Institute for Environment, Energy & Economics. Communication grant—public health messaging (Hege, Shay, Sugg)
- 2018 Appalachian State University, Research Institute for Environment, Energy & Economics. SCORE grant—trans-disciplinary teaching (MacNamara, Shay)
- 2017-18 Collaborative Sciences Center for Road Safety, University of Tennessee (sub-contract). Connected and automated vehicles, safety, and walkability (PI Khattak)
- 2017-19 Appalachian State University, University Research Council Grant. Student travel behavior at an off-campus private apartment complex (Combs, Shay)
- 2016 Appalachian State University, summer faculty grant. Development of new applied-learning course on aging-in-place and elder-friendly built environment (Shay)
- 2016-18 Appalachian State University, Research Institute for Environment, Energy & Economics. CONCERT grant—mountain resilience (Dempsey, Shay, Sugg)
- 2012-14 NC Dept of Transportation. *Defining North Carolina's Transportation-Disadvantaged Populations*. UNC-Chapel Hill subcontract, NC State Uni (PI Lane)
- 2012-13 National Inst Health. *System for Observing Play and Recreation in Communities*. Review of park/recreation plans; physical activity in dog parks. (PI Evenson)
- 2012 Preparedness & Emergency Response Research Ctr, UNC-Chapel Hill, Public Health. *Emergency planning and response for vulnerable populations*. (PIs Berke, Horney)
- 2010-11 Lincoln Institute of Land Policy. *Built environment and transport-related greenhouse gas emissions in Charlotte NC metro: An integrated model*. (PI Rodriguez)
- 2009-10 US EPA Region 4. *Sustainable small and medium enterprises*. UNC-CH Institute for the Environment and Duke University (Gallagher, Shay)
- 2007-11 National Heart, Lung, Blood Inst/RAND. *Away from home and out of school: Adolescent PA & BMI, Trial of Activity in Adolescent Girls 2*. UNC (PI Evenson Rodriguez)
- 2005-09 EPA STAR. *Regional development, population trend and technology change impacts on future air pollution emissions*. UNC-CH CURS (PIs Rodriguez, Song)
- 2007-08 Robert Wood Johnson Foundation. *Testing associations between physical activity and the built environment*. Built environment, walking behavior. UNC-CH (PI Rodriguez)
- 2007 Robert Wood Johnson Foundation, Active Living Research. *Collaborative intergovernmental school planning and active travel to school*. UNC-Chapel Hill Center for Urban & Regional Studies (Salvesen, Shay)

PUBLICATIONS**Peer-reviewed research**

- Shay, E**, “Views from up high: Perspectives on community planning and local governance in the Scottish Highlands and NC High Country,” under review at *Rural and Regional Development*
- Shay, E, M MacNamara**, “Social workers and community planners in the U.S.: Connecting in the academy and in the field,” *Social Work and Social Welfare*, 5 (1), 2024
- Schado, T, **E Shay, B Thapa, T Combs**, “Preparing for connected and automated vehicles: Insights from North Carolina transportation professionals,” *Sustainability*, 16 (20), 2024
- Miller, T, K Schroeder, B Thapa, **E Shay**, “Barriers to access to local produce in an early childhood setting in rural Appalachia,” *J. Agric. Food Syst. Community Dev.* 14 (1), 2024
- Sugg, M, S Ryan, T Spurlock, S Duncan, A Hege, M Ogwu, J Tyson, **E Shay, K Renwick, C Hendren, M Roy, J Runkle**, “Climate change and health in rural mountain environments: Summary of a workshop on knowledge gaps, barriers, and opportunities for action,” *GeoJournal*, 88, 5397-5409, 2023
- Shay, E, M MacNamara**, “Planning and social work: Teaching pre-professional university students across colleges.” *Journal of Community Practice*, 31: 1, 11-23, 2023
- Christiana, R, S Daily, T Bias, V Haas, A Dwyer, **E Shay, A Hege, R Broce, H Venrick, C Abildso**, “Effectiveness of a point-of-decision prompt to encourage physical distancing on greenways and rail-trails during Covid19 pandemic,” *Environment & Behavior*, 54:6, 2022
- Bagli, H, **E Shay, T Combs**, “AVs—Use, share, own? Young adults’ perceptions of connected and automated vehicles,” *Transportation Research Record*, 2676: 11, 2022
- Bonevac, A, **E Shay, T Combs**, “Key informant perceptions of flooding and landslides in Western NC following 2018 floods and landslides,” *Southeastern Geographer*, 62: 2, 2022
- Mitchell, J, J Runkle, L Andersen, **E Shay, M Sugg**, “Inequalities in life expectancy across North Carolina: A spatial analysis of the social determinants of health and the Index Concentration at Extremes,” *Family and Community Health*, 45:2, 77-90, 2022
- Bias, T, S Daily, C Abildso, H Venrick, **E Shay, S Moyers, A Hege, V Haas, A Dyer, R Broce, R Christiana**, “Systematic observation of physical distancing behaviors of trail users during the COVID-19 pandemic,” *Journal of Healthy Eating and Active Living*, 1:3, 2021
- Sugg, MM, L Andersen, **E Shay, J Tyson, J Runkle**, “Climate, environment, and public health in Western North Carolina,” *Sustainable Health—Journal of the BCBSNC Institute for Health and Human Services*, Appalachian State University, Volume 1, March 2021
- Shay, E, M MacNamara**, “Rural community development as a teaching environment for cross-professional training in macro social work and community and regional planning,” *Contemporary Rural Social Work*, 11, No. 1, 2019
- Andersen, LM, A Bonevac, L Thompson, K Dempsey, **E Shay, M Sugg**, “Understanding key informant experiences and perceptions of the 2016 drought and wildfires in western North Carolina,” *Weather, Climate and Society*, 11, 2019
- Shay, E, AJ Khatkhat, B Wali**, “Walkability in the connected and automated vehicle era: A U.S. perspective on research needs,” *Transportation Research Record* 2672, Washington DC, 2018
- Shay, E, T Combs, D Findley, C Kolosna, M Madeley, D Salvesen**, “Identifying transportation disadvantage: Mixed-methods analysis.” *Transport Policy*, 48, 2016
- Combs, T, **E Shay, D Salvesen, C Kolosna, M Madeley**, “Understanding the multiple dimensions of transportation disadvantage: The case of rural North Carolina.” *Case Studies on Transport Policy*, 4, 2016
- Evenson, KR, **E Shay, S Williamson, DA Cohen**, “Use of dog parks and the contribution to physical activity by their owners,” *Research Quarterly for Exercise and Sport*, April, 2016

- Shay, E, S Caplow**, “Integrated traditional and applied education in a public US university—Exploring sustainable cities and regions in classrooms and communities.” *Journal of Environmental Studies and Sciences*, 4 (4), 2014
- Shay, E, T Combs, DA Salvesen, D DeTrizio, J Horney**, “Closing the gap: Assessing disaster preparedness of officials and residents in two North Carolina counties,” *Journal of Geography and Natural Disaster*, 4 (2), 2014
- Shay, E**, “Sustainability capstones: Data-driven, policy-relevant projects to enhance learning,” *Journal of Sustainability Education*, June, 2013
- Rodriguez, DA, G-H Cho, JP Elder, TL Conway, KR Evenson, B Ghosh-Dastidar, E **Shay**, D Cohen, S Veblen-Mortenson, J Pickrell, L Lytle, “Identifying walking trips from GPS and accelerometer data in adolescent females,” *J Physical Activity & Health*, 9 (3), 2012
- Shay, E, AJ Khattak**. “Travel decision chains: Residential environment, automobile ownership, trips, and mode choice,” *International Journal of Sustainable Transportation*, 6 (2), 2011
- Shay, E, DA Rodriguez, G Cho, KJ Clifton, KR Evenson**, “Comparing objective measures of environmental supports for pedestrian travel in adults,” *Inter J Health Geographics*, 8(62), 2009
- Shay, E, AJ Khattak**, “Toward sustainable transport: conventional and disruptive approaches.” *International Journal of Sustainable Transportation*, 4 (1), 14-40, 2009
- Lees, E, DA Salvesen, E **Shay**, “Collaborative school planning and active schools: A case study of Lee County, Florida.” *Journal of Health Politics, Policy and Law*, 33 (3), June, 2008
- Shay, E, AJ Khattak**, “Automobiles, trips, and neighborhood type: Comparing environmental measures.” *Transportation Research Record*, #2010, 73-82, Washington DC, 2007
- Fan, Y-L, AJ Khattak, and E **Shay**, “Intelligent Transportation Systems: What do patents and publications tell us?” *Journal of Intelligent Transportation Systems*, 11 (2), 91-103, 2007
- Shay, E, Y Fan, DA Rodriguez, AJ Khattak**, “Drive or walk? Utilitarian trips within a neo-traditional neighborhood.” *Transportation Research Record*, #1985, Washington DC, 2006
- Shay, E, and AJ Khattak**, “Auto ownership and use in neo-traditional and conventional neighborhoods.” *Transportation Research Record*, #1902, 18-25, Washington DC, 2005

Book chapters

- Riggs, W, M Schlossberg, E **Shay**, A Millard-Ball, “Transforming street design: Approaches to reengineering our neighborhood streets,” Ch 5 in: *Disruptive Transport: Driverless Car, Transport Innovation and the Sustainable City of Tomorrow*, W Riggs ed, Routledge, 2019
- Rodriguez, DA, E **Shay**, P Winn, “Comparative review of Portable GPS units,” *Global Positioning Systems: Signal Structure, Applications, Sources of Error and Biases*, Nova, 2013

White papers and essays

- Shay, E**, “Second homes,” *As the Crow Flies*, Appalachian State University, June 2026
- Schlossberg, M, W Riggs, A Millard-Ball, E **Shay**, “Rethinking the street in an era of driverless cars,” UrbanismNext, 2018: https://urbanismnext.uoregon.edu/files/2018/01/Rethinking_Streets_AVs_012618-27hcvr6.pdf
- Salvesen, D, E **Shay**, L Ringaert, E Smith, “Going visitable.” *Urban Land*, ULI, May 2008
- Salvesen, D, E Lees, E **Shay**. “Can mega-schools be tamed?” *Planning Magazine*, Feb 2007

Reports

- Pulugurtha, SS, N Gore, DS Diba, C Akbari, E **Shay**, R Crepeau, T Schado, “Plan for advanced technology data readiness,” NCDOT TCE 2020-01, 2023
- Combs, TS, E **Shay**, “Impacts of CAV-ready infrastructure on vulnerable road users: Guidance for North Carolina’s local and state transportation agencies,” NCDOT TCE 2020-01, 2023
- McDonald, NC, TS Combs, AJ Khattak, E **Shay**, “Connected and automated vehicles and safety of vulnerable road users: A systems approach,” Collaborative Sciences Center for Road Safety, CSCRS-R6, 2018

Rodriguez, DA, BJ Morton, Y Song, E **Shay**, J Huh, “Built environment and transport-related greenhouse gas emissions in the Charlotte NC metropolitan area: An integrated transportation-land development model,” working paper, Lincoln Institute of Land Policy, 2011

Shay, E, AJ Khattak, SC Spoon, “Walkable Environments and Walking Activity.” Southeastern Transportation Center, Knoxville TN, 2003

Shay, E, et al. “A sustainable future for North Carolina,” *CEP Environmental Policy Papers*, December, 2003, http://www.cep.unc.edu/level_3/outreach/policy_papers.html

PROFESSIONAL MEMBERSHIPS; SERVICE; AWARDS

University of North Carolina System, Board of Governors Excellence in Teaching Award, 2026
Appalachian State University, College of Arts and Sciences, Academy of Outstanding Teachers and Teacher of the Year, 2023

American Institute of Certified Planners, certified since 2011

American Planning Association

Appalachian State University Faculty Senate; Committees: Planning, Parking, Non-Tenure Track

Appalachian State University, Teaching for Community Resilience design fellow, 2022

Appalachian State University, Service-Learning faculty fellows, 2016

NOAA Regional Integrated Sciences and Assessment program, peer review panel, March 2022

Town of Boone NC, Planning Commission, member 2016 – 2018; chair, 2018 – 2023

Transportation Research Board/National Academies: National Cooperative Highway Research Program project panel #20-101, 2014-2016

PRESENTATIONS AND PANELS

Shay, “Parking Management on North Carolina College and University Campuses”; Combs, Palmer, and **Shay**, “Pathways Through Disaster: Car Access, Mobility, and Transportation Disadvantage in Post-Hurricane Western North Carolina,” Assoc. of Collegiate Schools of Planning, Annual Meeting, Pittsburgh, October 2026

Shay and Combs, “Planning for connected and automated vehicles—More than engineering”; Coffman, Dyckman, Miller, Quattro, **Shay**, Steiner, “Thrown together: Responding to the recent climate-induced disaster events of Hurricanes Helene and Milton and the Paradise Fire,” Assoc. of Collegiate Schools of Planning, Annual Meeting, Seattle, November 2024

Shay and Bruer, “Planning in High Places: North Carolina High Country and the Scottish Highlands.” World Town Planning Day, APA International Division, November 8, 2023

Shay and Bruer, “Planning in High Places: North Carolina High Country and the Scottish Highlands.” Appalachian State University Global Symposium, November 15, 2023

Christiana, Daily, Bias, Haas, Dyer, **Shay**, Hege, Broce, Venrick, Abildso, “A point-of-decision prompt to encourage physical distancing on multi-use trails during the COVID-19 pandemic.” Research and Creative Activity at Appalachian conference, Boone, NC, Oct 2022

Christiana, Daily, Bias, Haas, Dyer, **Shay**, Hege, Broce, Venrick, Abildso, “Encouraging physical distancing on greenways and rail-trails during the COVID-19 pandemic using a point-of-decision prompt.” American Public Health Assoc Annual Meeting, Boston, MA, Nov 2022

Bagli, **Shay**, Combs, “Use, share, own? Young adults’ perceptions of connected and automated vehicles.” Transportation Research Board 101st Meeting, Washington, January 2022

Shay and Combs, “Impact of CAV-ready infrastructure on vulnerable road users: Guidance for North Carolina’s local and state transportation agencies.” North Carolina Department of Transportation Research and Innovation Summit, Raleigh NC, October 2021

- Christiana, Daily, Bias, Abildso, Broce, Dyer, Haas, Hege, **Shay**, Venrick, "Systematic observations of physical distancing behaviors of trail users during the COVID-19 pandemic." Active Living Conference, virtual (hosted from San Diego CA), April 2021
- Combs and **Shay**, "Identifying municipal strategies for CAV-readiness through a transportation justice lens." Association of Collegiate Schools of Planning, Greenville SC, October 2019
- Shay** and MacNamara, "Rural community development—Planning and macro social work perspectives." American Planning Association—North Carolina, Annual Meeting, Oct 2019
- MacNamara and **Shay**, "Innovative collaborations to enhance sustainable development in rural communities." Rural Social Work Caucus, Paducah, KY, July 2019
- MacNamara and **Shay**, "Innovative collaborations to enhance sustainable development." Post-graduate Social Service Workforce Development Ulster University and Southern Health and Social Care Trust for Northern Ireland, Belfast, Northern Ireland, April 2019
- Shay**, Khattak, Boggs, "Safety in the connected and automated vehicle era: A U.S. perspective on research needs." Transportation Research Board 98th Annual Meeting, Washington, 2019
- MacNamara and **Shay**, "Innovative collaborations to enhance sustainable development in rural communities." Joint World Conference on Social Work, Education and Social Development, Dublin, Republic of Ireland, July 2018
- Shay**, Khattak, Wali, "Walkability in the connected and automated vehicle era: A U.S. perspective on research needs"; Zheng, Khattak, **Shay**, "Analysis of Crashes Involving Pedestrians across the United States: Implications for Connected and Automated Vehicles." Transportation Research Board 97th Annual Meeting, Washington DC, January 2018
- Combs and **Shay**, "Anticipating travel behavior change among relocating university students." Association of Collegiate Schools of Planning, Annual Meeting, Denver CO, October 2017
- Shay** and Combs, "Before-and-after travel choices of university students in newly constructed private off-campus mixed-use housing." North Carolina Association of Metropolitan Planning Organizations, Annual Meeting, April 2017, New Bern NC
- Kowalczyk, MacNamara, Ruseva, **Shay**, "Conceptualizing an Interdisciplinary Study-Away Course in Rural Sustainable Development." Appalachian Global Sympos., Boone NC, 2016
- Morton, Rosemond and **Shay**, "Aging in the suburbs: Changes in the built environment that support well-being and mobility as we age." Centralina Council of Governments conference 'Creative solutions for thriving communities,' Gastonia NC, December 2015
- Shay**, "Identifying transportation disadvantage: Mixed-methods analysis." Transportation Research Board 94th Annual Meeting, Washington DC, January 2015
- Global Sustainability Symposia, UNC-Chapel Hill. Member of planning committee, 2011-2014
- Combs, **Shay**, et al. "Identifying transportation-disadvantaged populations: Preliminary findings and draft tool," NC Association of Metropolitan Planning Orgs., Wilmington NC, May 2014
- Combs and **Shay**, "Identifying NC's Transportation-Disadvantaged Populations." North Carolina Association of Metropolitan Planning Organizations, Winston-Salem NC, May 2013
- EnvisionEAST-2050, 9-county planning exercise. Facilitator, Trenton NC, October 2012.
- Salvesen and **Shay**, "Academic-community partnerships: Pilot projects in emergency, planning, response & sheltering for vulnerable populations." NC Emergency Mgmt Association, 2012
- Shay**, "Accessible housing and age-integrated communities: Policies and programs for visitability and universal design." North Carolina Conference on Aging Roundtable, October 2011
- Shay**, "Planning and public health: The critical synthesis for sustainable communities." Summer Planning Institute, American Planning Association—N Carolina chapter, Greenville NC, 2010
- Round Table on Sustainable Small Business, co-convener. Chapel Hill NC, March 2009
- Shay**, "Relation of residential environment to automobile ownership and travel choice." Transportation Research Board 88th Annual Meeting, Washington DC, January 2009

Rodriguez and Shay, "Using GPS and accelerometers in neighborhood research." Active Living Research Conference, pre-conference workshop, Washington DC, April 2008.

Shay, "Automobiles, trips, and neighborhood type: Comparing environmental measures." Transportation Research Board 86th Annual Meeting, Washington DC, January 2007

Shay, "Drive or walk? Utilitarian trips within a neo-traditional neighborhood." Transportation Research Board 85th Annual Meeting, Washington DC, January 2006

Shay, "Auto ownership and use in neo-traditional and conventional neighborhoods." Transportation Research Board 84th Annual Meeting, Washington DC, January 2005

ADVISING – Appalachian State University since 2015; UNC-Chapel Hill 2010-2011

Honors theses—advisor

Krell, A. Solutions to Food Insecurity through Automated Vehicle Technology, 2022

Andersen, L. An Impact Assessment of Extreme Drought and Unprecedented Wildfire in the Southern Appalachian Mountains, 2017

Honors theses—reader

Sheehan, E. A Dream of Dilworth: How Charlotte's First Suburb Preserved Place Over People, 1891-1992, 2025

Royster, B. Evolution and Impediments of NC Methane Capture Pilot Program, 2011

Band, D. Energy Information Systems and Conservation Psychology and their Potential for Reducing Energy Consumption at UNC, 2010

Graduate theses—adviser and chair

Rundgren, Q. Investigative Review of North Carolina County Greenspaces with an Analysis of Covid19 Death Rate and Health Factors, 2024

Schado, T. Preparing for Connected and Automated Vehicles and Associated Data Needs: Perceptions of North Carolina Transportation Experts, 2023

Bagli, H. Use, Share, Own? Young Adults' Perceptions of Connected/Automated Vehicles, 2020

Bonevac, A. Key Informant Perceptions of Flooding and Landslides in Western North Carolina, USA, Following the 2018 Floods and Landslides, 2019

Bushell, M. Design, Policy, and Bicycle Ridership: A Comparison Between Berlin, Germany and Washington D.C., 2010

Callaway, B. Town of Chapel Hill Greenhouse Gas Emissions Inventory Municipal Operations: 2005 through 2009, best Master's paper, UNC-CH City and Regional Planning, 2010

Michler, R. Vehicular cycling advocacy: A case study of Chapel Hill, 2010

Graduate theses—committee member

Miller, E., Equity, Justice, and School Lunches, 2023

Minor, T., Examining the Mental Health and temperature Relationship in North Carolina, 2022

Handwerker, L. An Assessment of Social and Physical Vulnerability to Hydroclimate Extremes in Appalachia, 2021

Harden, Stella. The Impact of Environmental and Social Characteristics on Severe Maternal Morbidity: A Spatiotemporal Analysis in South Carolina, 2020

Andersen, L., An Assessment of Wildfire Vulnerability in Western North Carolina, USA, Following the 2016 Wildfires, 2018

Thompson, L. Adolescents in Crisis: A Geographic Exploration of Help-Seeking Behavior Using Data from Crisis Text Line, 2018

Down, E. A Business Model for Local Agriculture, 2017

Interns—academic supervisor

>50 Planning undergraduate and graduate internships, Appalachian State University, since 2015

>70 Environmental and Sustainability undergraduate internships, UNC-Chapel Hill, 2008-2014

ENVIRONMENTAL CAPSTONES 2007-14: Managed/led capstones—R&D projects for clients****Projects led by graduate student or directed by other faculty/staff******Projects for campus clients***

**Efficient campus buildings—UNC Energy Management*
Tarheel Bikes performance review, spatial analysis—UNC Tar Heel Bikes Steering Committee
Campus water—past and present
**Green labs—Green Labs Committee, Office of Waste Reduction and Recycling*
Transportation deserts—NC Dept of Transportation-funded research team at UNC-Chapel Hill
**Campus carbon sequestration inventory and analysis—UNC emissions specialist*
**Campus rainwater management—UNC stormwater engineer, Environment, Health and Safety*
**Carolina Dining Services and local producers*
Water conservation for long-range planning—advisory board for the Jordan Lake Rules
Campus bicycling environment
Water quality in rainwater harvesting cisterns—UNC's Environment, Health and Safety
DELTA tracking/analysis—Environmental Resource Program, UNC Institute for Environment
Waste audit, strategic waste management plan—UNC Office of Waste Reduction and Recycling
Energy efficiency in UNC buildings—UNC emissions specialist
Green sustainable athletics—Carolina Athletics, Office of Waste Reduction and Recycling
Sustainability research inventory—UNC Sustainability Office
Laboratory recycling—UNC Office of Waste Reduction and Recycling, lab manager
Campus foodprint—Carolina Dining Service
Campus sustainability curriculum inventory—UNC Sustainability Office
Campus Green Guide—UNC Sustainability Office
Preserving Focus the Nation—student leader with Focus the Nation national teach-in
Evaluating student energy use—UNC Institute for the Environment
**Air travel emissions—UNC emissions specialist, Vice-Chancellor's Sustainability Advisory C*

Projects for community (off-campus) clients

Community sustainability self-assessment—Town of Chapel Hill
Vulnerability assessment of North Carolina communities—eight counties, 2010-2014
**Jordan Lake nutrient load—Jordan Lake nutrient advisory board*
**Stream restoration/water quality—faculty for: Ecosystem Enhancement Program, NC DENR*
Organics collection feasibility study—Orange County Department of Solid Waste Management
Community carbon—Town of Chapel Hill
**Recreation, conservation and economic development—Conservation Fund*
Re-use economy feasibility study—small business collective in reuse and salvage
**Converting waste to protein with black soldier flies—Pickards Mountain Eco-Institute*
**Planning for climate change—New Bern NC*
Green purchasing—Piedmont county sustainability planner
Triangle Green Business Challenge—Triangle J Council of Governments
Energy-efficient public housing—Town of Chapel Hill
Energy-efficient rentals—Chapel Hill WISE (Worthwhile Investments Save Energy) program
Landfill expansion—Cedar Grove Institute for Sustainable Communities
**Recycling at apartment complexes—Orange County Solid Waste Management*
Carrboro greenhouse gas emissions inventory—Town of Carrboro NC
OWASA energy management—Orange Water and Sewer Authority
**Homeowners Associations (HOAs) and sustainable neighborhoods—Town of Carrboro*
Anti-idling policy and program pilot—Sustainable Sandhills, Fayetteville NC
Managing biosolids from municipal wastewater—Orange Water and Sewer Authority
**Scope 3 GHG emissions—Town of Chapel Hill*
Environmentally preferable purchasing program—Town of Chapel Hill
**Chapel Hill carbon reduction/fleets and streets—Town of Chapel Hill*
Chapel Hill carbon reduction/Transit survey and marketing—Chapel Hill Transit, Chapel Hill
Plastic film recovery—Orange County Dept of Solid Waste Mgmt, American Chemistry Council
Chapel Hill Transit carbon reduction—Town of Chapel Hill
Frozen food packaging environmental footprint—small commercial client
Greenbridge education center—investors in mixed-use complex
Wachovia employee education module—Wachovia