

Elizabeth Shay, PhD, AICP

Geography & Planning ✧ 363 Rankin Science W ✧ Appalachian State University ✧ Boone NC 28608 ✧
shayed@appstate.edu

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 accreditation, 2011

PROFESSIONAL EXPERIENCE

- 2020- Associate professor, Geography and Planning, Appalachian State University, Boone NC
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, *Environmental Science & Technology*, ACS, UNC—Chapel Hill
Associated Publishers, St. Paul MN (translating *Pravda* 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 use regulations & 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—land use, transportation, built and natural environment, travel behavior

- 2020-2023 NC Department of Transportation Center of Excellence in Advanced Technology Safety and Policy. Five-university consortium (PI/director Radwan, UNC-Chapel Hill), including Appalachian State University (associate director at ASU Shay)
- 2020-2021 Appalachian State University, Campus COVID-19 grant. Trail cameras to monitor greenway use, social distancing (Christiana, Battista, Broce, Hege, Shay, Venrick)
- 2020-2021 Chancellors Innovation Scholars, Appalachian State U, Collaborative client-service curriculum to develop sustainable communities (Kowalczyk, MacNamara, Shay)
- 2019-2020 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)
- 2017-2018 Collaborative Sciences Center for Road Safety, University of Tennessee (sub-contract). Connected and automated vehicles, safety, and walkability (PI Khattak)
- 2017-2019 Appalachian State U, University Research Grant. Student travel (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)
- 2016-2018 Appalachian State University, Research Institute for Environment, Energy & Economics. CONCERT grant—mountain resilience (Dempsey, Shay, Sugg)
- 2012-2014 NC Dept of Transportation. *Defining North Carolina's Transportation-Disadvantaged Populations*. UNC-Chapel Hill subcontract, NC State University (PI Lane)
- 2012-2013 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 Center, UNC-Chapel Hill School of Public Health. *Emergency planning and response for vulnerable populations; emergency sheltering*. (PIs Berke, Horney)
- 2010-2011 Lincoln Institute of Land Policy. *Built environment and transport-related greenhouse gas emissions in Charlotte NC metro: An integrated model*. (PI Rodriguez)
- 2009-2010 US EPA Region 4. *Sustainable small and medium enterprises*. UNC-Chapel Hill Institute for the Environment and Duke University (Gallagher, Shay)
- 2007-2011 National Heart, Lung and Blood Institute (RAND). *Away from home and out of school: Adolescent PA and BMI, Trial of Activity in Adolescent Girls 2*. UNC-Chapel Hill Center for Urban and Regional Studies (PIs Evenson, Rodriguez)
- 2005-2009 EPA STAR. *Regional development, population trend and technology change impacts on future air pollution emissions*. Auto ownership and travel behavior. UNC-CH Center for Urban & Regional Studies (PIs Rodriguez, Song)
- 2007-2008 Robert Wood Johnson Foundation, Active Living Research. *Testing associations between physical activity and the built environment*. Built environment and walking behavior. UNC- Center for Urban & Regional Studies (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, M MacNamara, “What can community planning and social work students teach each other?” under review, *Journal of Community Practice*

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,” under review, *Environment & Behavior*

Bagli, H, **E Shay**, T Combs, “AVs—Use, share, own? Young adults’ perceptions of connected and automated vehicles,” in press, *Transportation Research Record*

Bonevac, A, **E Shay**, T Combs, “Key informant perceptions of flooding and landslides in Western NC following 2018 floods and landslides,” in press, *Southeastern Geographer*

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 Khattak, 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 articles

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_012618-27hcyvr6.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

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; PROFESSIONAL AND COMMUNITY SERVICE

American Institute of Certified Planners, accredited since 2011
American Planning Association
Appalachian State University, Teaching for Community Resilience design fellow, 2022
Appalachian State University, Inclusive Excellence (DEI), department liaison, 2021-
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 –
Town of Carrboro NC, Transportation Advisory Board, 2000-2004
Transportation Research Board, Standing Committee on Social and Economic Factors of
Transportation—ADD 20, member, 2015-
Transportation Research Board/National Academies: National Cooperative Highway Research
Program project panel #20-101, “Framework for Analyzing Costs and Benefits of Adaptation
Measures in Preparation for Extreme Weather Events and Climate Change,” 2014-2016
Peer reviewer for multiple journals in land use, transportation, and sustainability

PRESENTATIONS AND PANELS

Transportation Research Board 101st Meeting. Bagli, **Shay**, and Combs, “Use, share, own?
Young adults’ perceptions of connected and automated vehicles,” Washington, January 2022
North Carolina Department of Transportation Research and Innovation Summit, **Shay** and
Combs, “Impact of CAV-ready infrastructure on vulnerable road users: Guidance for North
Carolina’s local and state transportation agencies.” Raleigh NC, October 2021
Association of Collegiate Schools of Planning. Combs and **Shay**, “Identifying municipal strate-
gies for CAV-readiness through a transportation justice lens.” Greenville SC, October 2019
American Planning Association—North Carolina Chapter, Annual Meeting. **Shay** and
MacNamara, “Rural Community Development—Planning and Macro Social Work
Perspectives.” Wilmington NC, October 2019
Rural Social Work Caucus. MacNamara and **Shay**, “Innovative Collaborations to Enhance
Sustainable Development in Rural Communities.” Paducah, KY, July 2019
Post-graduate Social Service Workforce Development Ulster University and Southern Health
and Social Care Trust for Northern Ireland. MacNamara and **Shay**, “Innovative
Collaborations to Enhance Sustainable Development.” Belfast Northern Ireland, April 2019
Transportation Research Board 98th Annual Meeting. **Shay**, Khattak, Boggs, “Safety in the con-
nected and automated vehicle era: A U.S. perspective on research needs.” Washington, 2019
Joint World Conference on Social Work, Education and Social Development. MacNamara and
Shay, “Innovative collaborations to enhance sustainable development in rural communities.”
Dublin Ireland, July 2018
Transportation Research Board 97th Annual Meeting. **Shay**, Khattak and Wali, “Walkability in
the connected and automated vehicle era: A U.S. perspective on research needs”; Zheng,
Khattak and **Shay**, “Analysis of Crashes Involving Pedestrians across the United States:
Implications for Connected and Automated Vehicles.” Washington DC, January 2018
Association of Collegiate Schools of Planning, Annual Meeting. Combs and **Shay**, “Anticipating
travel behavior change among relocating university students.” Denver CO, October 2017
North Carolina Association of Metropolitan Planning Organizations, Annual Meeting. **Shay** and
Combs, “Before-and-after travel choices of university students in newly constructed private
off-campus mixed-use housing.” April 2017, New Bern NC
Appalachian Global Symposium, Kowalczyk, MacNamara, Ruseva, **Shay**, “Conceptualizing an
Interdisciplinary Study-Away Course in Rural Sustainable Development.” Boone NC, 2016

Centralina Council of Governments conference ‘Creative solutions for thriving communities.’
 Morton, Rosemond and **Shay**, “Aging in the suburbs: Changes in the built environment that support well-being and mobility as we age.” Gastonia NC, December 2015
 Transportation Research Board 94th Annual Meeting. **Shay**, “Identifying transportation disadvantage: Mixed-methods analysis.” Washington DC, January 2015
 Global Sustainability Symposia, UNC-Chapel Hill. Member of planning committee, 2011-2014
 North Carolina Association of Metropolitan Planning Organizations. Co-author and graduate adviser, “Identifying transportation-disadvantaged populations: Preliminary findings and draft tool,” Toolkits and Technical track. Wilmington NC, May 2014
 Center for Global Initiatives Photo Competition/Presentation, Advised student presenters from 2013 Honors Study Abroad in Germany, Denmark, Sweden. Chapel Hill NC January 2014
 North Carolina Association of Metropolitan Planning Organizations. Combs and **Shay**, “Identifying NC’s Transportation-Disadvantaged Populations,” Winston-Salem NC, May 2013
 EnvisionEAST-2050, 9-county planning exercise. Facilitator, Trenton NC, October 2012.
 North Carolina School of Science and Math—Sustainability Project kickoff. Invited speaker: “Sustainability—What it is, what it isn’t.” Durham NC, August, 2012
 North Carolina Emergency Management Association, spring conference. Salvesen and **Shay**, “Academic-community partnerships: Pilot projects in emergency, planning, response & sheltering for vulnerable populations.” Sunset Beach NC, March 2012
 North Carolina Conference on Aging Roundtable. “Accessible housing and age-integrated communities: Policies and programs for visitability and universal design.” October 2011
 Workshop: Sustainable Small & Medium Enterprises. Co-convener Durham NC, October 2010
 Summer Planning Institute, North Carolina Chapter, Amer Planning Assoc. **Shay**, “Planning and public health—The critical synthesis for sustainable communities.” Greenville NC, 2010
 Round Table on Sustainable Small Business, co-convener. Chapel Hill NC, March 2009
 Transportation Research Board 88th Annual Meeting, **Shay**, “Relation of residential environment to automobile ownership and travel choice.” Washington DC, January 2009
 Active Living Research Conference. Pre-conference workshop, “Using GPS and accelerometers in neighborhood research.” Washington DC, April 2008.
 Transportation Research Board 86th Annual Meeting, **Shay**, “Automobiles, trips, and neighborhood type: Comparing environmental measures.” Session: The Built Environment and Travel Behavior. Washington DC, January 2007
 Transportation Research Board 85th Annual Meeting. **Shay**, “Drive or walk? Utilitarian trips within a neo-traditional neighborhood.” Session: The Built Environment and Travel Choices: Unraveling the Relationships. Washington DC, January 2006
 Transportation Research Board 84th Annual Meeting. **Shay**, “Auto ownership and use in neo-traditional and conventional neighborhoods.” Washington DC, January 2005

ADVISING

Honors theses—advisor

Krell, A. "Solutions to food insecurity through automated vehicle technology," 2022, Appalachian State University

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

Honors theses—reader

Royster, B. “Evolution and impediments of NC’s methane capture pilot program,” 2011, UNC-Chapel Hill

Band, D. “Energy Information Systems and Conservation Psychology and their Potential for Reducing Energy Consumption at UNC,” 2010, UNC-Chapel Hill

Graduate theses—adviser and chair, Appalachian State University and UNC-Chapel Hill

Jones, R., “Success of Retail Spaces in Mixed-Use, Private-Sector Student Housing,” 2022

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 masters paper, UNC-CH City and Regional Planning, 2010

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

Graduate theses—reader, Appalachian State University

Minor, T., “Examining the mental health and temperature relationship in North Carolina,” 2022

Handwerger, 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 material 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

Internships, Appalachian State 2022—Cherubala, DiGiacomo, Werner; 2021—Poupart, Schado, Webster; 2020—DiGiacomo, Krell, Leach, Potts, Reed-Kelly, Reid, Shmurak; 2019—Bagli, Guigou, Mielenz, Mitchell; 2018—Allred, Everhart, Harris, Karlson, Kelley, Kern, Reid; 2017—Archer, O’Reilly; 2016: Williams

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

ENVIRONMENTAL CAPSTONES **Projects led by graduate student, or directed by other faculty or staff 2007-14: Developed and coordinated capstones—advanced undergrad R&D projects for clients*

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
Sustainable housing
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
**Projects led by graduate student, or directed by other faculty or staff*