

SUMMARY OF TECHNOLOGY/PUBLIC POLICY PROJECT COURSES

| Project Date/Title | Faculty Directors | Client | Project Description |
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| Spring 2020 “The Success and Public Impacts of Technology Development Zones: The Case of Neighborhood 91” | Fuchs, Matthews | Public | Technology Development Zones aim to foster growth of new technologies by establishing a geographical closeness of related industries. We are examining one such zone, Neighborhood 91 at the Pittsburgh International Airport with a focus on additive manufacturing. We are investigating the factors that may influence the success of the development zone as well as the potential impact of such a development zone on the new technology area, the broader community of manufacturing in the Southwestern PA area, as well as quality of life. |
| Fall 2019 “Climate Change and the Pittsburgh Urban Food System” | Miller, Rubin | The City of Pittsburgh, Public | This project developed recommendations for an action plan to reduce the greenhouse gas emissions of the urban food system in the Pittsburgh region, based on analysis of the types, sources and amounts of food products and waste streams that characterize the urban food system of Allegheny County. |
| Fall 2019 “Drone Delivery” | Fischhoff, Sirbu | Public | Major firms are considering package delivery by drones. The project identified economic and environmental impacts and characterized the risks and benefits of those systems, for normal and emergency situations. It also developed a survey designed to elicit residents’ concerns. |
| Spring 2019 “Moving Toward a No-Carbon Economy” | Fischbeck, Matthews, Muller | Public | This project investigated the different proposals of the Green New Deal to curb carbon emissions while strengthening the U.S. economy. Students examined how different goals could be met through changes in the electric grid, transportation, industrial and building sectors as well as the impacts of those changes on markets and individuals. |
| Fall 2018 “Cybersecurity Resilience” | Fischhoff, Fuchs | Public | Widely used computer chips are believed to be compromised, in ways that allow hackers to cause widespread damage. The project examined ways in which local communities could prepare themselves to respond to such hacks, reflecting the needs of all their residents. |
| Fall 2018 “Sustainability at CMU: What Does It Mean? How Do We Get There?” | Miller, Rubin | Carnegie Mellon University | This project asked what “sustainability” should mean in the context of Carnegie Mellon University practices, educational programs, and research activities. Based on a review of current activities, recommendations included sustainability goals, policies, and organizational structures for CMU. |

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| Spring 2018 “(Lead) ² – Leading the Effort in Allegheny County to Decrease Lead” | Fischbeck, Matthews | Allegheny County Health Department, Women for a Healthy Environment, Conservation Consultants, Inc., Public | This project examined recommendations of the Allegheny County Lead Task Force to support prioritizing the recommendations to reduce lead risk considering cost effectiveness and stakeholder needs. The project also identified targeted education about lead hazards through news stories, child care centers, and schools. |
| Fall 2017 “From Pittsburgh to Paris: How Far? How Fast?” | Miller, Rubin | Carnegie Mellon University | This project examines the carbon footprint of Carnegie Mellon University and ways to reduce it. Assuming CMU to be a nation state complying with the international Paris Agreement on Climate Change, mitigation commitments for the University for the first 5-year time period are recommended. |
| Fall 2017 “The Role of Communication in Pipeline Safety Risk Management” | Fischhoff, Small | Public | Federally regulated pipelines are required to develop and assess risk communication programs for the public. To support these efforts the project developed models to characterize the prevalence of major safety risks, reviewed current communication protocols, and developed a survey for eliciting public perceptions and concerns. |
| Spring 2017 “Wireless Emergency Alerts: The Future of Alerts and Warnings” | Sicker, Sirbu | Public | This project examined the WEA system and addressed consumer and carrier familiarity, alert phone apps, multilingual alerts, and the geographic incidence of alerts for the FCC and DHS. |
| Spring 2017 “Air Quality Benefits from Vehicle Emissions Testing” | Fischhoff, Matthews | Public | This project investigates PA vehicle emissions testing protocols and results, and provides the state with recommendations for future emissions testing and air quality monitoring. |
| Fall 2016 “Smart Streetlights for the City of Pittsburgh.” | Fischhoff, Peha | Public | This project assessed the deployment of “smart city” devices on Pittsburgh streetlights, including femtocells, Wi-Fi hotspots, automobile traffic monitors, air quality monitors, and video-cameras for law enforcement. |
| Fall 2016 “Pittsburgh Bicycling: An analysis of city impacts, stakeholders, project prioritization and infrastructure options” | Miller, Rubin | Public | This project analyzes key issues related to biking in the City of Pittsburgh and provides policy recommendations for biking to become a more important and productive part of the community. |
| Spring 2016 “Failure of the Kariba Dam: A study of Risk, Mitigation, and Emergency Response.” | Jaramillo, Miller | Public | This project evaluated the risk of failure of Kariba Dam and its potential impacts on the infrastructure, environment, economies, society and politics. |

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| Fall 2015 “Personal Environmental Monitoring” | Fischhoff, Matthews | Public | The project developed guidelines for helping individuals and communities make best use of personal environmental monitors, with case studies focused on monitors for particulate matter and radiation |
| Fall 2015 “Police Body-Worn Cameras: A Pittsburgh-Centered Analysis” | Peha, Rubin | Pittsburgh Police Department | This project examined measureable costs and benefits of police body-worn cameras, public policies that US cities have adopted, and the views of police officers. |
| Spring 2015 “California’s Water Problem: A Survey of New Technical and Social Solutions” | Mauter, Whitacre | Public | This project examined the trade offs of using different technical and policy approaches to address the ongoing drought in central California. |
| Spring 2015 “Big Data in the 'Burgh: Evaluating the Impacts of an Open Data Portal in Pittsburgh” | Caruso, Fischbeck | Public | This project explored the possible applications, impacts, and limitations of an open data portal in Allegheny County and the City of Pittsburgh [as described in the Open Data Initiative issued by the City of Pittsburgh in 2014]. |
| Fall 2014 “Optimal Scheduling for Medical Clinics” | Caruso, Fischhoff | Public | Students developed a general approach to helping health clinics to schedule patients, using interviews, surveys, and modeling. |
| Fall 2014 “Providing Information to Non-English Speakers During Disaster” | Peha, Yu | Public | This project addressed the challenges of providing emergency information to non-English speakers during disasters, such as hurricanes or earthquakes. It examined the extent to which non-English speakers can receive emergency information in their own language today, the methods available for translation of emergency alerts, the preferences of non-English-speakers, and the strategies local governments throughout the U.S. use to assist non-English speakers during emergencies. |
| Spring 2014 “Adaptation in Pittsburgh” | Argo, Klima | City of Pittsburgh | Students used engineering, economics, and risk communication skills to conduct a climate adaptation analysis for heat and water hazards in Pittsburgh. |
| Spring 2014 “A plastic bag tax for Pennsylvania?” | Casman, Matthews | Pennsylvania Senate Finances Committee | This project analyzed the proposed Pennsylvania Senate Bill 1080, which would impose a state-wide two-cent fee on single use plastic bags. |

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| Fall 2013 “How Clean is Clean Enough? Public Response to Radioactive Contamination” | Fischhoff Jaramillo | Public | When radioactive incident happens, government agencies have ultimate authority for dealing with the aftermath. To aid with incident response, the EPA recently published a draft Protective Action Guides and Planning Guidance for Radiological Incidents. This project addresses weaknesses in the guide and suggests improvements. |
| Fall 2013 “Local News in Pittsburgh in the Internet Age” | Goldberg, Peha, Rubin | Public | The emergence of the Internet has led to changes in how news is produced and disseminated, causing some policymakers to reexamine media consolidation rules, and some foundations to wonder how funding might strengthen news. Using Pittsburgh as its case study, this project studied the current state of local news coverage, and how news content and news organizations have changed in the last decade. The project examined the capabilities and roles of traditional media such as newspapers, TV, and radio as well as new media such as news websites and social media. |
| Spring 2013 “What are the Prospects for Natural Gas Vehicles in the Pittsburgh Region?” | Casman, Stine | Public, Foundations, Business, Industry, Government Policymakers | This project analyzed the potential for natural gas cars, taxis, tug and towboats, trains, trucks, and busses in the Pittsburgh region. |
| Spring 2013 “Advancing Wind Energy” | Argo, Griffin, Matthews | Public | Wind energy in the U.S. has seen rapid development over the past decades as States push for increased renewable electricity generation. This project aimed to determine the potential for wind energy as a primary source of renewable energy growth in the U.S. given the current state of opposition to wind power development. |
| Fall 2012 “Bridging the Digital Divide” | Fischhoff, Peha | Pittsburgh CONNECTS | The project developed methods for evaluating programs seeking to reduce the "digital divide," which separates communities with and without ready Internet access. The project evaluated digital divide programs in Pittsburgh. |
| Fall 2012 “The Locks and Dams Crisis” | Caruso, Goldberg, Rubin | Port of Pittsburgh Commission | This project analyzes the state of locks and dams on waterways of the Pittsburgh region and their value to commerce and economic development in Southwestern Pennsylvania. |
| Spring 2012 “Vehicle Use, Transportation and Energy Policy” | Fischbeck, Matthews | Public | This project examined the transportation and energy in the U.S. based on the study of regional stock of Pennsylvania registered vehicles over 10 years, census data and state-wide surveys. |

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| Spring 2012 "Emergency Messaging with Social Media" | Casman, Cranor | Public | Students investigated the current and potential use of social media in emergency messaging in the USA through surveys, interviews, experimentation and literature review. |
| Fall 2011 "Risk Evaluation and Mitigation Strategies (REMS)" | Fischhoff, Matthews | Public | The US Food and Drug Administration sometimes uses Risk Evaluation and Mitigation Strategies (REMS) in order to make drugs safer or learn more about their risks. The project examined how consistently REMS are applied, along with how to evaluate and improve their effectiveness. |
| Fall 2011 "The Effects of Regional Energy Production on Water Quality in Southwestern Pennsylvania: Past, Present and Future" | Tumminello, Tarr, Griffin | Public | The project investigated the relationship between regional energy production and regional water quality in southwestern Pennsylvania, past, present and future, emphasizing the current environmental concerns related to shale gas development. |
| Spring 2011 "Trends in the US Vehicle Fleet across Economic, Safety, and Environmental Measures" | Fischbeck, Grossmann | Public | The US vehicle fleet has gone through a gradual though significant evolution over the past 20 years such as better fuel economy and lower maintenance cost as well as increased in safety measures, comfort and price, amongst others. How these trends have affected overall safety and environmental impacts is now being discussed. Using data from a variety of sources (e.g., federal, state, industry), this project investigated the significance across multiple variables (e.g., geographic region, type of vehicle, income) for a broad set of metrics (e.g., fatalities per mile, economic value of the fleet, miles per year, gallons per year) to evaluate the impacts. |
| Spring 2011 "Green Printing: Reducing Waste and Innovative Alternatives to Printing" | Casman, Cranor | Public | In order to understand the opportunities for reducing printing at the Carnegie Mellon Campus, a study was performed investigating (1) the reasons students and staff print (2) the amount of printing taking place, (3) the environmental footprint of electronic alternatives to printing and the use of "green" consumables and (4) incentives and technologies for printing reduction. |

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| Fall 2010 “Winners and Losers: A Stakeholder Analysis of the Marcellus Shale” | Fischhoff, Grossmann Public | | <p>Proponents of drilling in the Marcellus Shale promise large economic benefits. Opponents question those benefits and worry about social and environmental damages. Twenty students from the Departments of Engineering and Public Policy and of Social and Decision Sciences examined these claims from the perspective of the expected effects of drilling on different stakeholders. Three groups of students studied specific aspects of the technology (a) experiences with the Barnett Shale (in Texas) as a predictor of experiences in Pennsylvania; (b) health, safety, and environmental management of the technology; (c) externalities borne by communities and the environment. Two groups developed decision aids (a) for setting priorities for the inspection of drilling sites and (b) for evaluating the attractiveness of lease contract offered to landowners.</p> |
| Fall 2010 “Managing Energy Supply Catastrophes” | Rubin, Tumminello Public | | <p>Accidents in the U.S. energy supply system affect the lives of Americans, our environment, and the economy. The objectives of this project are to identify key areas where safety improvements are possible, and to recommend ways to reduce the number and severity of accidents in the supply of energy. The report compares accident trends and impacts across all major energy supply industries. The role of public perception and future energy preferences also is investigated, along with an analysis of regulatory effectiveness. Recommendations are presented based on the study findings.</p> |

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| Spring 2010 “The Environmental Footprint of Pittsburgh” | Fischbeck, Matthews | Public | <p>Cities are sources of enormous resource consumption and pollution. As cities try to improve their environmental footprint, it is useful to have a benchmark to measure improvements against. Historical trends can also illustrate areas for improvement or suggest possible strategies. However, such historical benchmarks are difficult to assemble and have never been done for an American city. Here, we estimated the environmental footprint of Allegheny County, PA (the greater Pittsburgh area) over the years 1900-2005. We focused primarily on Scope 1 and 2 energy use and associated greenhouse gas emissions, although we also included metrics on water, waste, land and human health. These metrics were then compared to state and national level metrics. Informed by these data and a survey of Pittsburgh residents, we constructed business as usual forecasts for 2020-2050. We concluded with a discussion of possible policies to reduce the environmental footprint of Allegheny County.</p> |
| Spring 2010 “We Know Where You've Been: Privacy Challenges Posed by Behavioral- and Location-Tracking Technologies” | Cranor, Casman | Public | <p>Existing and emerging technologies can track individuals' locations in both the online world and physical world. Online service providers and ad agencies track the web sites people visit, the search terms they use, and the words they write in their emails. They use this information to display targeted advertising, provide customized services, and conduct analysis and research. Location-based services track individuals' real-world locations to provide local information and mobile and location-specific advertising, and enable a variety of services that allow end users to track each others' locations. Tracking technologies provide a variety of useful services and present lucrative business opportunities. However, increasingly, they are raising privacy concerns. This project explored the benefits and risks of tracking technologies, and considered existing and proposed regulatory, self-regulatory, and technology approaches to addressing associated privacy concerns. Our focus was on HTTP and Flash cookies, online social networks, and location tracking technologies and mobile advertising.</p> |

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| Fall 2009 "The Next Big Step: A Guide for Graduates" | Fischhoff, Florig | Carnegie Mellon Career and Professional Development Center | <p>Graduating seniors face many big decisions, often for the first time in their lives. They include where to work, where to live, how to manage their transportation needs, how to spend their leisure time, how to invest any savings, and what to eat. These decisions often have long-term consequences for various aspects of their lives, including their environmental footprint. The project devised a guide to graduating seniors, for making these choices, in a way that helps them to accommodate those things that matter to them, including, possibly, environmental impacts. The project considered the policy implications of removing barriers to informed choices, in which environmental considerations are integrated with other ones.</p> |
| Fall 2009 "Obesity in Allegheny County" | Rubin, Sirbu | Representatives of government, healthcare, insurance, employers, supermarkets and public schools in Allegheny County | <p>The U.S. Center for Disease Control and Prevention (CDC) calls it the "obesity epidemic." They report that over a third of U.S. adults and a sixth of all U.S. children are now obese, and that the rates of obesity have climbed dramatically in just the past few decades—especially for children. The health consequences of obesity are profound. They include increasing levels of diabetes—a disease formerly seen only in adults but now found increasingly in children—as well as a host of risk factors for cardiovascular disease. One result is that the cost of health care associated with obesity has risen dramatically—at the very time the U.S. is seeking a national solution to lower health care costs. The CDC and others say that halting obesity will require a number of policy initiatives and interventions. Much of this will involve actions and policies at the local level. Thus the focus of this project was what should be done here in Allegheny County to deal with the obesity crisis. The class assessed the obesity problem at the county level and examined the role of schools, employers, food providers, consumers, and recreational entities in addressing the problem.</p> |

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| Spring 2009 "Nuclear Power and Communities" | Florig, Robinson | Nuclear Power Industry and Regulators | Studies of peoples' perceptions of technological risk show that nuclear power plants (NPPs) evoke substantial safety concerns among the general public, and that this concern is driven in part by the lack of control that people feel that they have over the risk. If nuclear power is to play an expanding role in a future low-carbon energy system, NPP managers may need a new approach to their relationship with host communities and the larger public, to provide them with a greater sense of control over NPP risks. This project investigated current community involvement practices within the nuclear industry and identified new practices that could enhance residents' level of comfort with the risks posed by their local NPP. |
| Spring 2009 "Evaluating the Carrying Capacity of the United States" | Cranor, Fischbeck | Public | The carrying capacity of a region measures the number of people the region can sustainably accommodate. A number of factors contribute to a region's carrying capacity – including the region's production and consumption of food and energy, the treatment and disposal of wastes, and other factors necessary to sustain the region's population without deteriorating the natural environment. The goal of this project was to evaluate the U.S. national carrying capacity using county-level indicators. The students assembled a database of county-level indicators including agricultural production, land-use, water resources and usage, and energy production and consumption (both for residential and industrial uses), and industry and manufacturing production. The students used the indicators to evaluate resource usage patterns at the county and national level, and to assess the nation's ability to support current and future consumption patterns. |

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| Fall 2008 "How Pittsburgh Residents Can Significantly Reduce Their Energy Consumption" | Fischhoff, Rubin | Pittsburgh Climate Initiative | <p>Currently, efforts to reduce energy use have focused on nations, states, and corporations. Ultimately, though, individuals are responsible for the majority of energy consumed worldwide. This project focused on how Pittsburgh residents can achieve significant reductions in energy use without sacrificing their current standard of living. The Pittsburgh Climate Initiative had already established broad goals for sustainable energy consumption in its Climate Action Plan, but much of the Plan focused on critical city infrastructure and services rather than the choices made by Pittsburgh residents. The project examined three key domains of individual energy use – home energy, transportation and goods and services – looking at the potential for significant reduction in energy consumption in each. Students were asked to identify gaps between residents' awareness of the need for a reduction in energy consumption and their adoption of the actions necessary to accomplish this goal. Within this context, the project examined the institutional and economic barriers to action, including inconsistent incentives, such as those of landlords and tenants with regard to energy efficiency. The end goal for the project was to provide the Pittsburgh Climate Initiative with recommendations on the most effective government, technology, and education-based solutions for reducing Pittsburgh residents' energy consumption.</p> |

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| Fall 2008 "The Digital Television (DTV) Transition" | Sirbu, Hill (EPP doctoral student) | Public | <p>After February 17, 2009, all high-power television broadcasters, which now transmit in analog format, will start broadcasting in digital format. This transition will allow broadcasters to make better use of the bandwidth available in each channel to transmit at a higher quality, possibly in high definition, or to transmit more than one simultaneous content feed (multicast). As a consequence, valuable spectrum will be released for other uses, such as public safety communications. This spectrum has already been auctioned and needs to be reallocated soon after the transition. The transition from analog to digital will affect all TV viewers that rely on receiving Over-The-Air (OTA) television signals. In order to be able to receive the new digital transmissions, TV viewers may need to purchase equipment that is able to decode digital signals: either new digital television sets or digital-to-analog converters that can convert the digital signal into their old analog televisions. The government has put in place a campaign to inform customers of the DTV transition, as well as a program to subsidize the purchase of digital-to-analog converters to allow people to keep using their old television sets without having to incur great expense. In this project, the students will identify and address problems in several facets of the DTV transition, with a special focus on problems that users that rely on Over-The-Air television may face through February 18, 2009. Their approach is to create a troubleshooting resource in the form of a wiki, whose goal is to assist individuals by providing information on DTV transition issues.</p> |
| Spring 2008 "It's Not Easy Being Green: Assessments and Strategies for Sustainable Institutions" | Fischbeck, Matthews | Carnegie Mellon University | <p>With the rising concerns of climate change and other environmental problems, campus sustainability has become an important issue for most U.S. universities, namely in what concerns greenhouse gas direct and indirect emissions. This project proposes a streamlined and transparent method for assessing the carbon footprint of colleges and universities by using publicly available data. Also, fair metrics for campus carbon footprint comparisons were developed, accounting for structural differences between universities. Other environmental metrics, besides the carbon footprint, were also considered. Student perceptions and attitudes on "green" issues were studied through a CMU campus survey analysis. A set of carbon mitigation strategies and an action plan for CMU was developed. Finally, recommendations from this project provide an alternative framework for campus decision-making on climate change mitigation issues.</p> |

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| Spring 2008 "Policy Dimensions of New Space Technologies" | Florig, Casman | Public | <p>The commercial spaceflight industry has long consisted of large aerospace firms funded primarily by government contracts. In recent years, however, a new set of small private firms has entered the commercial spaceflight market. Their goal is to make access to space cheap and reliable enough to attract a variety of new users, and turn a profit in the process. The advent of a commercially driven manned space industry presents many opportunities for the opening of space to commercial exploitation, the development of new technological transportation paradigms and fulfillment a dream of generations to 'touch the stars.' However, before these laudable goals can be accomplished, many arising issues must be identified and resolved in order to allow a viable new space industry to emerge. Substantial unaddressed issues exist with regard to government policy, business models, technical development, and social aspects. The project addressed the safety, economic, legal, and social dimensions of the New Space phenomenon.</p> |
| Fall 2007 "Preparing for the Worst" | Fischhoff, Rubin | Public | <p>Individuals need sound information in order to understand how to prepare for and respond to a disaster. Providing this advice is extraordinarily difficult, as the range of potential hazards is large, and the needs of the U.S. population vary greatly. The purpose of this study is to diagnose inadequacies in existing recommendations and to provide sound information and advice that is sensitive to the many scientific, economic, and social constraints that affect individual disaster preparedness. This project focuses on natural disasters and regional case studies in Pittsburgh and Washington, D.C.</p> |

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| Fall 2007 "Mobile Computing in Pittsburgh Law Enforcement" | Peha, Sirbu | | <p>This report examines Pittsburgh Bureau of Police deployment of wireless broadband connected mobile computers (MDTs) in vehicles. This includes a study of utilization data of three applications on the laptops: a report writing suite; an application that enables officers to query information from law enforcement databases; and an application that enables officers to send text based messages within the department. A survey was developed and is ready to be deployed to the police officers who have used the MDTs, the results of which can be combined with the analysis of utilization data. Several technologies which can leverage the existing MDT system and provide additional or improved functionality were also studied. Additionally, the City of Pittsburgh has begun strategic planning for implementation of a video surveillance network. There are important legal and privacy issues associated with the storage and use of information collected through this program as well as policies should be developed that define how accessible this information will be.</p> |
| Spring 2007 "Unmanned Aircraft in the National Airspace System" | Florig | Public | <p>This report is a study on unmanned aerial systems (UAS) and their potential integration into the national air space (NAS). There has been increasing demand for UASs in military applications, as well as a growing awareness for the potential use of UASs in civil applications. This report hopes to address some of the issues involved in integrating UASs into the NAS and make policy recommendations to the regulatory stakeholders, like the FAA. Some of these issues include the risks associated with UASs and defining an equivalent level of safety to create a measure for tracking safety performance; performing an economic analysis to determine the market viability of UASs versus manned alternatives in civil applications; gauging public opinion of risks associated with UAVs in civil applications; and analyzing the current system for deliberation and decision making on UAS access to see what improvement can be made. In the end these different analyses will provide policy insights for the integration of UASs in the NAS.</p> |

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| Spring 2007 "Post-market Recommendations for Unanticipated Complications from Implanted Cardiac Devices" | Fischbeck, Piehler | Public | Unanticipated complications in implanted medical devices are likely to increase due to developments in medical and materials technology. The seminal case of the unanticipated, post-market implanted cardiac device problem is that of the Bjork-Shiley 60 degree convexo-concave heart valve, which lead to hundreds of deaths and a class-action lawsuit. An unanticipated, post-market problem that is currently under development is that of the drug-eluting stent (DES). Initially approved for its ability to ward off restenosis (arterial collapse), concern has grown that it may increase the risk of serious complications from in-stent thrombosis (clotting). Actors at multiple levels now face hard sequential and double-risk decision dilemmas. Research questions include: Would an increased risk of thrombosis nullify the benefit of decreased restenosis? Should new cardiac patients avoid DESs? What should patients who already have DESs implanted do? At what point, and in what ways, should the FDA intervene to ensure that the safety of patients is protected? Finally how would the general public react to government intervention -- particularly device recall? |
| Fall 2006 "The Siting of LNG Terminals: Public perception and community impacts" | Rubin, Fischhoff | Paul Parfomak, Congressional Research Service | This project examines citizens' responses to the siting of Liquefied Natural Gas (LNG) marine import terminals. The project summarizes evidence regarding the economic, environmental, and security impacts of a terminal on a community, and also presents the results of a survey of the citizens in the two communities, eliciting their beliefs and attitudes toward these issues and the siting process. |

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| Fall 2006 "Bringing Municipal Wireless Internet to the City of Pittsburgh" | Peha | Pittsburgh City Council | <p>This project investigates the financial feasibility of the Wireless metropolitan area network (WiMAN) in Pittsburgh, and the relevant business models that can meet the following public policy objectives: ubiquitous coverage, competition between providers, minimum subsidies, financial sustainability. We examined the extent to which these goals can be met with four basic models for a wireless metropolitan-area network: one city-wide monopoly WiMAN provider, facilities-based competition from multiple city-wide WiMAN providers, one city-wide WiMAN offering wholesale services to competing retail service providers, and open competition where multiple providers are free to serve only the more profitable neighborhoods. We estimate costs for constructing and operating a WiMAN in Pittsburgh using a sample architecture. We develop a regression model to roughly predict subscription rates and revenues based on city demographics, and apply that model to Pittsburgh, Philadelphia, and Minneapolis. Using these rough estimates, we determine the extent to which competition can be sustained and service can be provided city-wide.</p> |

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| Spring 2006 "Environmental Justice and Air Toxics in Allegheny County" | Robinson, Veloso | Public | <p>Environmental injustice is defined as a spatially uneven distribution of pollution that adversely affects certain groups of the population more than others. This project analyzed whether environmental injustice due to air toxics exists in Allegheny County. The overall objectives of the project were to address the following questions: What are the health risks associated with air toxics in Allegheny County? Do certain subpopulations (African-Americans, the elderly, the poor) bear a disproportionate amount of risk? What are the factors that might contribute to environmental injustice, including changes in population with time, public perception, and regulation enforcement? Spatial distribution of air toxics concentrations and subsequent risks were determined using a dispersion model and emissions data from point sources, area sources, and mobile sources. To identify potential environmental injustice, spatially resolved risks were correlated with population demographics using regression analyses. With additional data from census and enforcement records, statistical methods were applied to determine if population changes with time or regulation enforcement were significant contributing factors to environmental injustice. Furthermore, a door-to-door survey of residents was conducted to ascertain the degree of public concern about environmental justice issues. The results of these analytical components were used to develop recommendations regarding concrete actions policy makers can take to address environmental justice issues.</p> |

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| Fall 2005 "US Oil Refineries: Spatial Dimensions of Economics, Regulatory Policy & Environmental Justice" | Fischbeck, Gerard, Griffin | Public | <p>The purpose of this project was to provide an analysis of the U.S. oil refining industry. Spikes in gas prices and shortages resulting from a series of hurricanes striking southern states brought some of the vulnerabilities of the U.S. gasoline supply chain into the public discourse. Our report is a survey of the issues surrounding United States oil refineries. We examine whether the US is outsourcing our pollution by importing refined petroleum products and having other countries refine our gasoline. Air quality changes caused by oil refinery operation are modeled and estimations of the related health effects are made. We investigated how refineries might disproportionately affect low-income and minority populations. A series of surveys investigating what buyers already knew about gasoline prices and how a change in price would affect gasoline consumption were performed Geographic information systems (GIS) were applied to these four primary areas of research to represent spatial data and allow for the creation of maps and quantitative analysis. Each area of study contributed to our conclusions about the U.S. oil refining industry over the past forty years.</p> |
| Fall 2005 "The Impact of Spyware" | Peha and Rubin | Public - project worked heavily with CMU Computing service and had people from AOL, CERT/CC, Federal Trade Commission, US Senate, The Center for Democracy and Technology, and CMU on the review panel | <p>Spyware is a bane to computer administrators and users alike. Published media estimates put the prevalence of spyware on computers from 50% to more than 90%, with many computers having literally dozens of infections. However, what do these numbers mean? How does spyware actually impact our use of computers? What, if anything, can be done about it? This project utilized a multi-pronged approach to evaluate the overall impact of spyware. First, a large-scale survey of more than 800 people was conducted to understand computer usage habits and risk perception. Second, an experiment examined how different methods of education about spyware can impact a user. Third, an economic model was constructed to estimate the overall costs of spyware. Fourth, an ambitious project to scan all campus network traffic for signs of spyware was undertaken. Together these were combined to provide a robust picture of the spyware problem and understand better where and how the impact may be felt.</p> |

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| Spring 2005 "Hybrids and Diesels in the American Automobile Fleet: 2005-2020" | Fischbeck, Gerard, Matthews | Public | Students examined two automobile technologies likely to achieve significant market share by 2020. The technologies studied were hybrid electric and clean diesel vehicles. Seven projects were completed that provide a complete picture of issues surrounding the future American automobile fleet in 2020. First, projections on the rate of market penetration and potential market share of the technologies are presented. Second, public policy mechanisms capable of affecting the market share of these technologies are analyzed. Third, average fuel efficiency and emissions of each vehicle technology are quantified. Fourth, using the BASE Model (Basic Analytical Spreadsheet for Emissions) developed in class and the PM-CAMx Air Quality Model changes in ambient air quality due to the market penetration of hybrids and diesels are analyzed. Fifth, the health effects of the changes in ambient air quality are quantified. Sixth, a life cycle assessment of the technologies is performed. Seventh, a future of automobiles survey was developed to estimate public acceptance of the technologies as well as the current performance of hybrids and diesels. | |
| Fall 2004 "Traveling in a Risky World" | Fischhoff, Rubin | Public | | <p>The purpose of this project was to develop guidelines for the content and presentation of risk information and warnings related to international travel. After identifying the major risks posed to travelers, the project examined the existing sources of information on warnings and advisories issued currently by government agencies, free private websites, and subscription services. Surveys, of 234 travelers and 10 travel agents, were conducted to characterize the market for travel risk information in terms of potential users' needs and beliefs. Based on these analyses, the project proposes a two-stage decision making model for issuing travel warnings/advisories, with three levels: low, elevated, or exceptional. This process is illustrated with case studies. Its implementation could diminish some of the inconsistencies identified in existing sources. Finally, a prototype website for publishing travel advisories is offered, bringing together recommendations for both content and design to make them more comprehensive and accessible to the user. Communications systems for emergency responders such as police, firefighters, and medical personnel are essential to public safety. Students in this interdisciplinary project focused on Allegheny County and how improvements can be made to its wireless emergency communications infrastructure. Areas of</p> |
| Fall 2004 " Wireless Communications Systems for Emergency Responders" | Dekay, Peha | Public | | |

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| Spring 2004 "Sustaining Pittsburgh's Vital Services When the Power Goes Out" | Apt, Ilic, Morgan, Perekhodtsev | State of Pennsylvania, City of Pittsburgh public and private sector officials | <p>research centered on assessing spectrum usage in a set of municipalities, characterizing the efficiency of antenna placement with respect to RF propagation and the number of antennas used, assessing the extent of current interoperability problems among emergency response agencies via a survey of emergency responders, creating a multi-attribute comparison of different technologies to improve interoperability between agencies, and evaluating the County's current use of non-voice, wireless technologies and the potential usefulness of other technologies not currently used in the County.</p> |
| Spring 2004 "Pittsburgh CivicNet: Broadband for a better Pittsburgh" | Robinson, Sirbu | Public | <p>Electric power outages affect customers several times annually, for periods of several hours. Longer outages affecting large areas are not uncommon. Designing an electrical power system to be invulnerable is both impossible and economically impractical. Continuing essential services in the face of a power failure is both possible and practical for certain public and private services. For this project, students defined a set of potentially life critical and economically important services in the Pittsburgh region, studied how these services would be affected by a set of reference power disruptions, and analyzed a variety of policies that could improve the availability of important services during a power disruption. Each local service was classified into one of the following categories: emergency services, public utilities, private services, fuel supply, ground transportation, and the Pittsburgh International Airport. The students found that while many services, such as hospitals and emergency response systems, currently have adequate backup facilities, many services, such as ground transportation and police stations, are vulnerable to failures in the power supply and that cost effective means exist to mitigate these vulnerabilities.</p> <p>The Pittsburgh CivicNet project assessed the feasibility of providing a large-scale optical fiber-based Gigabit network that provides high-speed broadband services to public and private schools, universities, museums, libraries, governmental entities, and other non-profits in the Pittsburgh area. Students developed a network design, organizational and pricing structure, and assessed economic feasibility. In proposing an optimal network design, students collected data on the current demand for both commodity and research Wide-Area Network (WAN) access and compared available services in the Pittsburgh area. Based on findings from the economic feasibility assessment of the optimal design, students provided guidance for successfully</p> |

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| Fall 2003 "Human Capital: Attraction and Retention in Pittsburgh" | Lewis, Veloso | Southwestern Office of the Pennsylvanian Department of Community and Economic Development; Pittsburgh Regional Alliance; and Pittsburgh Social Enterprise Forum | implementing the Pittsburgh CivicNet. The objective of this study was to determine the severity of the "Brain Drain" problem (i.e. the loss of skilled workers) in Pittsburgh and identify possible avenues policy makers should pursue in addressing it. This project addressed two distinct aspects of the problem; migration and business growth. Benchmarking was a tool used to compare Pittsburgh to other cities in the U.S. In addition, regression analysis was used to understand the historic population and business trends in Pittsburgh and throughout the U.S. |
| Spring 2003 "Event Data Recorders: Technical, Economic, and Legal Issues" | Piehler, Sirbu | National Highway Traffic Safety Administration Public | Students performed a cost-benefit analysis of event data recorders (EDR) (i.e. black boxes) in automobiles for accident reconstruction, medical intervention, and aggregated data applications. An accident reconstruction survey was developed to estimate the potential time savings in analysis, cost savings in litigation, and reduction in frivolous lawsuits as a result of black boxes in automobiles. A simulation of accident response times to near-fatal accidents by emergency medical service (EMS) personnel revealed that a significant number of lives can be saved annually by automatic crash notification (ACN) systems, which notify EMS dispatch centers the instant an airbag is deployed and transfer vital crash data collected by an EDR. Laws, statutes, and legal cases were reviewed to develop policy recommendations for the protection of individual privacy during criminal and civil court proceedings, the use of EDR data by insurance companies, and the transfer of ownership of a vehicle with EDR. |
| Spring 2003 " Abandoned Mine Drainage in Pennsylvania" | Adams, Pandis | Brad Clemenson - Office of Representative John P. Murtha Bob Hedin - Hedin Environmental and Chartier's Creek Nature Conservancy | The project course focused on treatment and resource recovery options for mine drainage, and designed several options for treating polluted water at Gladden discharge. Students predicted profitability of resource recovery operations at mine drainage sites and suggested several public policy options for encouraging these businesses. |
| Fall 2002 "Implementing Tissue Engineering: Financial and regulatory guidance" | DeKay, Small | U.S. Food and Drug Administration, Pittsburgh Tissue Engineering Institute | Students designed practical tools and gathered important information to help firms, researchers, and regulators cultivate new "living" technologies for medical treatment of damaged tissues and organs. A decision model was developed to formalize and extend the FDA's system for regulatory classification of tissue-engineered therapies, which frequently |

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| Fall 2002 "Untangling the Wires: Assessing the feasibility of underground utilities in Pittsburgh" | Fischhoff, Rubin | City of Pittsburgh and neighborhood development associations | combine biologic treatments with implantable devices. Difficulties with product development were identified and a prototypical web-based tool was designed to help developers navigate FDA requirements. A survey to assess public opinion about tissue-engineered therapies revealed wariness of potential risks to patients, with particular concern about disruptions to the body's hormonal functions. |
| Spring 2002 "Evaluating the Environmental Effectiveness of Recycling in Pittsburgh" | Keith, Robinson | City of Pittsburgh Department of Public Works | A comprehensive assessment of Pittsburgh's solid waste recycling program, including an historical overview, budgetary analysis, assessment of public perceptions, life cycle environmental impact analysis, and comparison to commercial recycling in order to determine the efficacy of the Pittsburgh recycling program. |
| Spring 2002 "The Medium of Wireless: An analysis of spectrum measurement, demand, and policy" | Peha, Sirbu | Federal Communications Commission (FCC) | This project explored the topic of radio frequency (RF) spectrum allocation. A strategy for measuring and assessing spectrum utilization was developed. Measurements at two Pittsburgh locations were taken over a one-month period. The demand for new wireless services (concentrating on unlicensed and cellular phone spectra) was projected through 2007. The prediction of interference created by this demand was evaluated. A case study of the unlicensed PCS band led to recommendations for future FCC actions. The currently available tools to search the spectrum allocations in the United States were reviewed and new tools that would permit more dynamic studies and examinations were explored. |
| Fall 2001 "We Know Where You Are: A study of locationnacking" | Piehler, Sirbu | Federal Communications Commission (FCC) and Pittsburgh Emergency Management Center | The project focused on location tracking technologies for enhanced 911 and their impacts on the privacy of cellular consumers. The class focused on the actual implementation of the technologies, using this information for commercial purposes and governmental use of this information. |

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| Fall 2001 "From Carnegie Mellon to Kyoto: How far can we go?" | Fischhoff, Rubin | Public | The Kyoto Protocol calls for reducing absolute emissions of greenhouse gases below a baseline level from the early 1990's. Although the U.S. is not currently a signator to the agreement, firms and institutions are free to seek their own reductions. Focusing on CO ₂ emissions, the project determined that Carnegie Mellon University could do a lot, with some of the most cost-effective steps arising from an audit of the "little" ways in which energy is used. |
| Spring 2001 "Voting System Transitions: What are the options for Pennsylvania?" | Fischbeck, McMichael, Pandis | County election officials from eight counties | The project class studied the Pennsylvania voting system and the options for improving and/or standardizing this system. The study dealt with public opinion, voter registration, voting technologies, and policy issues. The voting public and county election directors were surveyed to determine public opinion on various voting system issues. Through a systems-approach to the voting process, the class studied issues and attributes affecting a transition to a new registration system and a new voting technology. The study produced a quantitative transition-cost, security, and reliability model for comparing a variety of voting technologies. Optical scanning equipment, punch cards, direct recording equipment, the Internet, and Vote-by-Mail systems were among the technologies listed. |
| Fall 2000 "Environmental Impacts of E-commerce – A case study of book purchasing" | Fischhoff, Rubin | Public | In this report, we ask what the relationship is between e-commerce, energy consumption, and environmental impacts. We select book purchasing as a case study to explore this relationship because 1) on-line book purchasing is one of mature e-commerce activities, and 2) net environmental impacts can be obtained by comparing traditional and on-line book purchasing. We first developed a book life cycle analysis in order to study the environmental impacts due to on-line book purchasing. We then conducted quantitative analyses of the total environmental impacts associated with on-line book purchasing, using 1999 statistics as a base case. Derived from this based case, we built ten future scenarios. Each scenario manipulates another feature of the evolving industry, simulating possible changes in commercial activity, consumer behavior, recycling rate, and technology development. In addition, we not only review existing surveys of e-commerce consumer behavior but also present results from our survey, which contains questions on on-line book purchasing. In conclusions, we found that on-line book industry already (in 1999) had increasing environmental impacts. The magnitude of the impacts varies by pollutant. We suggested that policy makers should be aware of the energy and |

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| Fall 2000 “Hydrogen-based Energy System: The Next Ten Years” | DeKay, Dowlatabadi | National Energy Technology Laboratory | environmental impacts caused by booming e-commerce activities, and find ways to mitigate their negative influences on energy use and environmental protection. This project focuses on the implementation of a hydrogen-based energy system. Based on a specific set of objective criteria, the ability of seven selected applications to be successfully introduced in the next ten years is evaluated. These applications include automobiles, transit buses, maritime vessels, consumer electronics power sources, and stationary power generation. The evaluation criteria consider environmental impacts, technical performance, and cost, all relative to the existing comparative technology. Fuel delivery requirements, development and deployment concerns, and application drivers and diffusion are also assessed by appropriate criteria. This report determines that, among the surveyed applications, fuel cells as consumer electronics power sources are very appealing as a technology to further hydrogen as a fuel. Other applications have strengths in differing areas. However, some applications currently enjoying strong support from government and industry are not the most likely to succeed. |
| Spring 2000 “Safety and the Light Truck Craze: Who Wins? Who Loses? Who Cares?” | Keith, Robinson | Public | Over the past quarter century, the percentage of light truck vehicles (LTVs) in the overall vehicle population has undergone a steady increase. Differences in mass and vehicle dimensions between passenger cars and LTVs present potential safety concerns for drivers of passenger cars. We analyze the effect of the changing US vehicle fleet on the risks (health and financial) to both LTV and passenger car occupants. Risk is defined as the risk of injury and fatality that is both personally assumed and which is imposed on the occupants of other vehicles as a result of vehicle choice. This analysis includes a study of the effects of specific physical vehicle characteristics and driver characteristics on fatalities and severe injuries. In addition, we compare the public's perception of their safety in a LTV vs. a passenger car to what accident injury and fatality statistics tell us about factors that influence vehicle safety. Finally, we study the influence of legislation and marketing on public perception. Conclusions of this study answer questions of who the winners and losers are in the issue of safety and the light truck craze and how these answers relate to stakeholder interest in the issue. |
| Fall 1999 | Fischbeck, Piehler | Allegheny County Health Dept. | Like other areas of the United States, western Pennsylvania faces |

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| “Weapons of Mass Destruction: The Potential Threat of Biological and Chemical Weapons to Allegheny County and Surrounding Areas” | | | a threat of chemical and biological attacks, but there is little experience responding to such incidents. This study assesses the demand on the emergency response system that would result from an attack. This is accomplished by developing four realistic chemical and biological weapon attack scenarios to estimate morbidity and mortality effects. These results are also used to identify preferred response strategies and potential improvements in the response system. Results of these four scenarios suggest that there are few preemptive improvements in the existing response system that would effectively reduce morbidity or mortality. However, results do show the importance of early agent identification and patient treatment to reduce mortality. This project illustrates how quantitative analysis can be used to shed light on policy issues and help direct policy choices, even when there is little experience dealing with the problem at issue. |
| Fall 1999 “Noise Pollution on the CMU Campus” | Fischhoff, Rubin | Public | The project investigated the impact of noise on the Carnegie Mellon campus. Physical measurements of sound levels on campus were made, and a survey of the campus community's perceptions of noise was conducted. In general sound levels on campus weren't found to pose a serious risk of hearing loss, but in some cases were high enough to disrupt sleep and studying. Recommendations included designating a computer cluster as a “quiet cluster” on a trial basis and stricter enforcement of the university's existing quiet hours policy. |
| Spring 1999 “Non-Profit Organization and E-Commerce” | Mertz, Joseph | 100 Black Men of Western PA, Inc. | Students in this project researched the issues involved in developing a sustainable e-commerce capability within a community group, and helped the 100 Black Men of Western Pennsylvania, Inc. understand those issues by making presentations and creating documents |
| Spring 1999 "Pittsburghers Saving Energy" | Pandis, Small | Conservation Consultants Inc. | Anthropogenic climate change is an undesirable product of contemporary living, yet it is difficult for individuals to understand the global impact of their lifestyle choices. The project surveyed residents of the Pittsburgh metropolitan region to assess their beliefs and knowledge concerning energy consumption, developed a personal energy-use calculator to estimate individual carbon dioxide emissions, assessed current and proposed policy initiatives aimed at reducing energy consumption in the Pittsburgh area, and evaluated regional impacts of energy use in the residential and transportation sectors. The goal of increasing personal awareness was seen to |

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| Fall 1998 "Improving the Usefulness of the Toxics Release Inventory" | Fischhoff, Rubin | Environmental Protection Agency (EPA) | <p>be a prerequisite of more substantial changes in energy consumption. A World Wide Web page was therefore developed to facilitate this objective (http://www.epp.cmu.edu/energy use). This project examined the accessibility and usefulness of current Toxics Release Inventory (TRI) information. Surveys were designed to investigate the public awareness of the TRI and its use by environmental organizations and industries. A case study of Allegheny County, Pennsylvania, was undertaken to address the application of hazard weighting schemes to the TRI data as well as the implications of these schemes on industries and communities. A mass balance of total chemicals released in the county was conducted to gain a better understanding on the chemicals transferred off-site and to discover how to better utilize the TRI. Recommendations on how to improve the accessibility and usefulness of the TRI were addressed as well as the implications of these schemes on industries and communities. A mass balance of total chemicals released in the county was conducted to gain a better understanding on the chemicals transferred off-site and to discover how to better utilize the TRI. Recommendations on how to improve the accessibility and usefulness of the TRI were addressed.</p> |
| Spring 1998 "Food Irradiation" | Pandis, Small | Public | <p>Food irradiation is a technology for killing microbial pathogens in meats, fruits, and other foods. This project analyzed the technical practicability of food irradiation, compared it with other methods for achieving food safety, studied consumer attitudes, and made regulatory and policy recommendations. Food irradiation is a safe and effective technology for increasing food safety. It deserves further research and has great potential for application.</p> |
| Spring 1998 "Carnegie Mellon Research and the Public: Avenues for Communication" | Nair, Pantazidou | Public | <p>With a goal "to develop means for better communication of Carnegie Mellon research to the public and to involve students in the process," the project developed proposals and proof-of-concept material for three possible avenues for communication - a Carnegie Mellon printed publication, a revision of the Carnegie Mellon research World Wide Web page, and an enhanced University outreach program. A survey of faculty assessed faculty's willingness to participate in such communication to the public. Recommendations include explicit recognition of Carnegie Mellon's commitment to considering the wider public in fulfilling its responsibility for knowledge dissemination and modification of reward structures.</p> |

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| Fall 1997 "Organ Transplantation: Donation, Demand, and Allocation" | Davis, DeKay | Public | The serious shortage of organs available for transplantation can be addressed by increasing the rate of organ donation and by ensuring that organ allocation policies are designed to maximize the benefits to prospective patients. Donation may be increased through the use of an encephalic and non-heart-beating donors, enactment of presumed-consent or binding-informed-consent legislation, and adoption of other efficiency measures. The public prefers a policy that allocates organs on the basis of need without respect to geography, but physicians are likely to adapt to any allocation policy in ways that benefit their own patients. |
| Fall 1997 "Airbags: Help or Harm?" | Fischbeck, McMichael | Public | This project investigates the airbag problem from three viewpoints; the public, the manufacturers, and the regulators and we also examine the technology, economics, and regulatory policy for alternative airbag systems. Both qualitative and quantitative methods are developed to conduct the analysis. Surveys are designed to find out what the public knows about airbags, what they expect from this safety technology and how the public ranks alternate safety options. A spreadsheet model is also developed to investigate both the costs and benefits of changing the relative composition of the U.S. fleet of vehicles by accounting for expected changes in the numbers of persons in the MAIS injury categories for different airbag systems. |
| Spring 1997 "Nine Mile Run: A Study of the Reclamation and Sustainable Redevelopment of a Brownfield Site" | Appold, Arunachalam, Dekay, Nair | The STUDIO for Creative Inquiry, Carnegie Mellon University | Analysis of environmental problems and development options at the Nine Mile Run slag heaps in Pittsburgh; focus on stream remediation, stability and potential toxicity of slag, and sustainable development. |
| Fall 1996 "Advanced Transit Technologies: Improving the Operation of Port Authority Transit's East Busway" | Fischhoff, McNeil, Rubin | Port Authority Transit | This project analyzed the potential of intelligent transport systems (ITS) for improving urban transit systems such as PAT's East Busway. ITS applications were studied from technical, socio-political and economic perspectives. While there are significant uncertainties in costs and performance, some ITS applications appear to hold promise. |

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| Fall 1996 "Computer and Information Services for Low-Income Communities" | Appold, Davis, Fischbeck, Peha | Public | This project examined the role of community organizations such as community centers, libraries, and public housing in providing computer and information services to residents of low-income communities in Allegheny County. The students are evaluating the wants and needs of Allegheny County residents by surveying community center patrons, interviewing reference librarians, and installing a World-Wide Web proxy server to measure usage of the web from library workstations. In addition, the feasibility of providing computer and internet access in public housing was also examined. |
| Spring 1996 "Ensuring Equal Access to Information and Computer Technology in Allegheny County" | Appold, Arunachalam, Small | Public | The gap between information haves and have-nots in Allegheny County was evaluated by using census data, information on existing public resources and Geographic Information System Model. Research covered the necessary technology, descriptions of existing technology programs in Allegheny County, and a survey to identify user needs and wants. Recommendations were made for improved access to computers and the Internet for residents of Allegheny County. |
| Spring 1996 "The Future of Home Appliance Recycling in Allegheny County" | Fischbeck, McMichael, Nair | Public | This project examines the collection of used home appliances in Allegheny County to determine if there is need for implementing a formal home appliance recycling program. The project also includes economic and technical analysis of the existing appliance recycling process technology. Appliance design trends including dematerialization and increased energy efficiency are also evaluated. |
| Fall 1995 "Issues in Bulk Mail" | Davis, Dowlatabadi, Pandis | Public | Direct marketing is a major industry in the United States, with direct mail marketing (or bulk mail) as a primary segment of this industry. This study addresses the effectiveness of bulk mail to meet the intended requirements, evaluated related externalities such as environmental costs and discusses social implications such as privacy concerns. The study developed criteria with which to rank alternatives to bulk mail, including electronic media (internet and e-mail), and interactive television broadcasts. |
| Fall 1995 "Computer-Related Repetitive Strain Injuries: A Methodology and Carnegie Mellon University | Fischhoff, Rubin | The University Community | Over 300 CMU faculty, staff, and graduate students were surveyed to determine the incidence of Repetitive Strain Injuries (RSI) at CMU. Local health professionals were surveyed to |

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| Case Study" | | | determine their perception of RSI problems. The use of ergonomic equipment to alleviate RSI was examined, and a series of policy recommendations to reduce its effects were presented. It led to the establishment of CMU's RSI Prevention Task Force and of the most comprehensive at a university. |
| Spring 1995 "Alternative Emissions Programs for Pennsylvania" | Appold, Fischbeck, Piehler, Small | Public | In 1990, Congress enacted the Clean Air Act (CAA) Amendments. A key feature of the CAA amendments was a provision for automotive emissions testing. The goals of this project were to evaluate the merits of several automotive emissions testing methods and provide guidance to policy makers regarding the effectiveness of the testing alternatives in improving air quality in the State of Pennsylvania. |
| Fall 1994 "University Transportation Systems: An Analysis of the Shuttle Systems of Carnegie Mellon University and the University of Pittsburgh" | Davis, Lewis, McMichael | Public | This project focused on the transportation systems at CMU and the University of Pittsburgh. An alternative routing scheme for the CMU student shuttle was developed to improve service with existing resources and is being examined by the CMU administration for possible implementation. |
| Fall 1994 "Pittsburgh's Urban Forest: Planting for the Future" | Rubin, Fischhoff | City of Pittsburgh Department of Forestry | The project examined the current status and critical needs in maintaining and improving Pittsburgh's urban forest. One of its recommendations helped to prompt the City of Pittsburgh to reestablish its Shade Tree Commission, which had last met in 1914. |
| Spring 1994 "Urban Risks in the Lawrenceville Community" | Fischbeck, Larkey, Sirbu | Lawrenceville Citizens Council | Older urban communities face a unique spectrum of both technological and social risks. This project took a comprehensive view of the risks that may be present in Lawrenceville, the oldest community in Pittsburgh. The project included: a survey of the citizens' concerns and perceptions; an analysis of existing data on environmental, crime and fire risks; and home inspections to determine the presence of household risks such as radon, EMF and lead contamination. |
| Spring 1994 "Weatherization for Low-Income Homeowners in Pittsburgh" | Lewis, Small, Pandis | Public | The project studied the activities of local gas and electric utilities, government agencies and other community groups in delivering energy-conservation services to low-income homes in the Pittsburgh area. The project examined historical program development, measured performance, technology choice, program administration and cost-effectiveness. |

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| Fall 1993 "The Internet in K-12 Education" | Davis, Lewis, Peha | Pittsburgh Public Schools, University of Pittsburgh LRDC, and Common Knowledge Pittsburgh | This project studied the challenges and benefits of introduction of internet access on the K-12 educational environment of the Pittsburgh Public School system. Issues explored include evaluation of training programs, analysis of effects on curricula and teaching styles, establishment of school policies regarding e-mail privacy and student access to "inappropriate information". |
| Fall 1993 "Environmental Labeling of Consumer Products" | Fischhoff, Nair, Rubin | Public | This project focused on the issues involved in creating credible environmental labels for consumer products. Topics include: Consumer understanding, Technical requirements, Label formats, and Organizational options. |
| Spring 1993 "Personal Communication Systems: A Policy Analysis" | Fischhoff, Peha | Bell Atlantic | Personal Communications Systems (PCS) are telecommunication devices and services, such as the telephone, that are associated with an individual rather than a location or vehicle. This project focused on five key areas: 1) possible effects of PCS on existing telecommunications systems; 2) allocation and licensing of spectrum; 3) potential user demands; 4) potential violations of users' privacy; and 5) potential health effects. |
| Fall 1992 "The Automobile and the Environment: A Greener Automobile through Materials Substitution" | Davis, Piehler, Rubin | Manufacturers of automobiles and automobile materials. | A lifecycle approach is used to assess the environmental impact of high-aluminum, high-plastic, and high-steel content automobile designs during each stage of automobile life. Technologies and policies that could reduce environmental impacts, energy and raw material taxes, and manufacturer take-back regulations, were investigated. Analysis concluded that aluminum and plastic produced the least environmental impact though a lack of a recycling infrastructure and high costs may limit application. |
| Fall 1992 "Impacts of Defense Cuts and Economic Conversion" | Arora, Morel, Small | Government and Industry Policy Makers | This project explores the issues related to defense cutbacks and economic conversion. A case study analysis was performed to assess the financial health and adaptive capacity of large airframe manufacturers and small defense contractors. The report considers the potential for direct conversion to civilian-based manufacturing, and export of existing military hardware, exploring institutional and technical constraints on each. Also explored are policy options for lessening the adverse impacts of defense cuts on federal state, and local economies. |
| Spring 1992 "Design for a High Performance Manufacturing | Florida, Peha | Southwestern Pennsylvania Industrial Resources Centers | This project evaluated: current state of the region's manufacturing base; technological and organizational capabilities |

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| Infrastructure" | | | of the region's suppliers; broader regional environment affecting supplier performance and manufacturing practices; and relative strength of various critical industries. Policy options and strategic investments to revitalize the manufacturing infrastructures in Southwestern Pennsylvania were developed. |
| Spring 1992 "An Evaluation of the Southwestern Pennsylvania Industrial Resource Center" | Kelley, Arora | Southwestern Pennsylvania Industrial Resource Centers | Evaluation of the impact of quasi-public Industrial Resource Centers (IRC) intended to spur organizational and technological modernization of small to medium-sized manufacturing firms with a focus on Southwestern Pennsylvania metalworking plants. |
| Spring 1992 "Aral Sea Regional Ecological Crisis" | Fischhoff, Lubin | Senator Gore (D-Tennessee) | Comprehensive analysis of the Aral Sea crisis including: the state of human health and local ecology, methods of water use and distribution, political structure, and economic vitality of Soviet Central Asia. Proposals include potential solutions to help the people of the region while considering the interests and goals of possible project funders. Recommendations are designed to stabilize and improve regional conditions; they cover short-and long-term projects, with both large and small budgets. |
| Fall 1991 "Design Issues in Waste Avoidance" | Ayres, Davis | Pennsylvania Department of Environmental Resources (DER) | Examination of the waste streams of exemplary products in three industries: personal computers, refrigerators, and telephones. Evaluation of design phase policies that can make the waste stream more amenable to reuse, remanufacturing, or recycling. A policy of cradle-to-grave manufacturer responsibility was found to be the most promising. |
| Fall 1991 "Solid Waste Management at Carnegie Mellon University" | McMichael, Nair | CMU Dept. of Environmental Health & Safety | Assessment of solid waste management system at Carnegie Mellon revealed several aspects that could lead to more efficiency and economy. Recommendations included relocating dumpsters, changing collection schemes, and incentives for increased recycling by students. |
| Spring 1991 "Hazardous Waste Facilities Siting" | Fischbeck, Small | Public | Evaluation of the siting of a hazardous waste treatment facility in the context of the then ongoing attempt to locate a facility in Clarion County, Pennsylvania. Analysis included: technical risk issues, legal and regulatory background, economic impacts, and public perception and participation in siting efforts. Recommendations were made concerning the approach taken by private developers, and citizens that could lead to more successful siting. |

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| Spring 1991 "Safety with Fuel Efficiency: Alternatives to CAFE" | Caulkins, Fischhoff, Rubin | Public | Analysis of possible Congressional approaches to reducing U.S. automobile fuel consumption. The analysis suggests that the traditional intervention (corporate average fuel economy requirements) may not be optimal. Alternatives such as Slide Scale Tax and Rebate (STAR) seem to achieve equivalent reductions in fuel consumption with fewer costly side effects, including less adverse impact on occupant safety. |
| Fall 1990 "Magnetic Levitation Transportation: The Pittsburgh Frontier" | Ayres, Davis, Kurfess | Public | Exploration of issues raised by the proposed high-speed "Mag-Lev" link between downtown Pittsburgh and the airport. Main questions involved the appropriateness of the technology for the application, its potential for bringing manufacturing investment and employment to the area and of potential benefits to the local public. |
| Fall 1990 "Municipal Solid Waste Management in Allegheny County" | Nair, Lewis, Morel | Allegheny County Division of Solid Waste Management | Analysis of then current Allegheny County Municipal Solid Waste Management Plan in the context of a ten-year time frame. Recommendations include continuing landfilling, and defining the County's role as data collector, information resource, "watchdog" and educator. |
| Spring 1990 "Pennsylvania's Responses to Global Climate Change" | Duncan, Fischhoff, Rubin | Public | Identification analysis of policy options for institutions in the state of Pennsylvania to mitigate the effects of climate change caused by global warming. Recommendations for "no-regrets" policies, offering environmental benefits such as energy conservation in addition to reductions in the emission of greenhouse gases. |
| Spring 1990 "Plastic recycling: the Potential for Pittsburgh" | McRae, Small, Wade | Public | This project focus on the management of plastic in the City of Pittsburgh curbside collection program including: technical, logistic, and public policy issues related to plastics recycling; collection and separation of plastics from the waste stream; and processing of the collected materials into marketable pellets. Recommendations are made concerning optimal program implementation. |
| Fall 1989 "Catastrophic Oil Spills on the Great Lakes" | Farrow, Lewis | Public | This report provides: an analysis of the likelihood of catastrophic spills in the Great Lakes based on case studies; organizations, equipment and technologies available for prevention and remediation; spill scenarios for Chicago and Detroit/Sarnia regions. Recommendations emphasize prevention training; codification of equipment capabilities; investigation of need for an industry response organization and strengthening of |

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| | | | organizational command structures. |
| Fall 1989 "Household Batteries: Is there a Need for Change in Regulation and Disposal Procedure?" | McMichael, Miller, Nair | Public | Strategies for controlling pollution from household batteries were examined. Recommendations include reduction of heavy metals in manufacture, separating batteries from incinerables, household hazardous waste management programs, and public education. The study includes a comparison of life cycle analyses for disposable and rechargeable batteries. |
| Spring 1989 "International Cooperation in Space Project" | Babcock, Morel, Moses, Stewman | Public | At a time where fundamental choices have to be made in space policy, this project examined what international cooperation could bring to American space programs. The areas studied were: the space station; the mission to Mars; arms control; and the environment. |
| Spring 1989 "Effects of Windshear in Aviation" | Engberg, Fischhoff, Small | Public | Examination of technology and policy issues associated with windshear detection and avoidance including: performance of on-ground and in-flight detection equipment; decision-making by pilots and air traffic controllers; and the economic and political feasibility of alternatives for detection equipment, pilot training and institutional and financial arrangements. |
| Spring 1989 "Allegheny Health Department, Bureau of Environmental Health" | Lewis, McRae, Wade | Public | This report examines several issues in the management of Allegheny County's Bureau of Environmental Health. The issues are: environmental health needs assessment, measurement of goal attainment, organizational structure, human resources management and information management. |
| Fall 1988 "Water Supply for the Greater Pittsburgh Area: 1988 and Beyond" | Ayres, Carey, Cohen, McMichael | Municipalities in Allegheny County | Evaluation of local water supply planning by public & private water utilities. Determination of the role of new drinking water regulations on the cost of water to the consumer. Identification of alternative cost effective actions for 129 municipalities and 22 water suppliers. Evaluation of the role of water storage in planning for reliability & safety for communities with aging treatment plant & distribution systems. |
| Spring 1988 "The Study of Key Programs of Modernization of NATO" | Morel | Public | The study performed a critical assessment of a variety of advanced technologies for surveillance, targeting and communication in the central European theater. |
| Spring 1988 "Waste Minimization: Educational Solutions" | Carey, Gifford, McRae, Small | PA State Committee for Policy Research and Development | Examination of existing hazardous waste minimization programs, and economic analysis of costs/benefits and incentives, a determination of the technical opportunities for |

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| Spring 1988 "Risk to Children in Allegheny County" | Dunn, Fischhoff, Florida, Nair | Public | hazardous waste minimization in PA, and an assessment of the existing attitudes toward waste minimization. The project examined the primary physical and psychological risks faced by children in the age range 5 to 14 years in Allegheny County and the institutional structures providing assistance for the reduction of these risks. Students provided recommendations to a panel of representatives from youth service agencies in the area. |
| Fall 1987 "Regulation and Disposal of Used Motor Oil" | Ayres, Cohen, Lewis, Rubin | Public | Evaluation of the environmental and health effects resulting from improper disposal of used motor oil. An analysis of the sources, destinations and regulations of used motor oil is the basis for policy recommendations. |
| Spring 1987 "The Effect of Economic Transformation on Monongahela River Valley Milltowns: Some Selected Problems" | Small, Tarr, Wade, Young | Steel Valley Council of Governments | Analysis of selected problems in milltowns of the Monongahela River Valley heavily impacted by the decline of steel manufacture. Problems included: the position of minorities, health of the population and availability of health care, fiscal conditions of towns, and economic revitalization possibilities. |
| Spring 1987 "Drug Testing in the Workplace" | Carey, Farrow, McRae | Public | An examination of the technical, legal, economic and social issues surrounding drug testing in the workplaces. Information necessary for unions making policy in response to employer drug-testing programs is compiled. |
| Fall 1986 "Commercial Applications of Genetically Engineered Microorganisms: Public Perception, Regulation, Economics and the State of Technology" | Gifford, Lynn, McMichael, Nair | Public | An examination of the state of genetic engineering technology and the relevant economic, regulation, and public opinion environment, through case studies of insulin and delta endotoxin pesticides, and a public opinion survey. |
| Fall 1986 "Telecommunications Alternatives for Carnegie Mellon" | Henrion, Lewis, Mazur, Sirbu | Carnegie Mellon | Evaluation of the needs and technological option available to CMU for the provision of voice and video telecommunication services. Comparison of PBX vendors and Centrex; applications and delivery mechanisms for educational video and telex, facsimile and teleconference support. |
| Spring 1986 "The Indoor Radon Problems: focus on Pennsylvania" | McKeown, Rubin, Small, Tarr | Public | An examination of the technical, health, social and policy issues of the indoor radon hazard in Pennsylvania. A survey of Realtors and builders in the Reading Prong area provided information about the impact on the housing market. Current and potential government policies on information dissemination and remedial |

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| | | | action were evaluated. |
| Spring 1986 "Local Emergency Response to Hazardous Materials Transportation Accidents in Allegheny County" | Carey, Lazarus, Lewis, Nair | Allegheny County Emergency Management Office | An analysis of the existing resources and plans for emergency response to hazards arising from chemical transportation accident. Recommendations for better coordination of resources and communication are provided, including the development of a computerized database for information and resource allocation management. |
| Fall 1985 "Technical Barriers to Trade" | Ayres, Blumstein, DiPasquale, Lynn, Piehler | U.S. Department of Commerce | Identification, analysis and assessment of impact in the balance of trade of those technical issues which stem from historical and current standards and certification procedures across nations. Emphasis was placed on Telecommunications, the Automobile Industry, High Tech Medical Equipment, and Consumer Electronics. |
| Spring 1985 "Seabed Mining of Cobalt-Rich Manganese Crusts in the Pacific United States Exclusive Economic Zone" | Coulam, Farrow, Hahn, McMichael | U.S. Bureau of Mines | An assessment of the technical feasibility, profitability and legal status of mining cobalt in crystal deposits within the U.S. Exclusive Economic Zone. Past and potential U.S. government involvement in seabed mining was considered. |
| Fall 1984 "Hazardous Waste Production by the Metal Finishing Industry: New Regulations and Possible Reductions" | Lynn, McRae, Mowery, Small | Public | As assessment of the impacts on the metal finishing industry of more stringent standards and regulation for the disposal of hazardous wastes. With the focus on businesses in western Pennsylvania. |
| Fall 1984 "Strategies to Reduce Population Exposure to 60 Hz Electric and Magnetic Fields" | Graham, Montgomery, Morgan, Rubin | Public | An evaluation of ways to reduce peoples' exposure to 60 Hz fields produced by high voltage transmission lines, distribution circuits, and sources in the home and office such as lighting, appliances, and power cords. Control strategies are ranked by cost effectiveness of exposure reduction. |
| Spring 1984 "The Impact of Automation on Information Processing in the Office" | Ayres, Lewis, Lynn, Miller | Public | An analysis of the functioning of five offices, and a description of how automation changed their productivity, staffing, and processing. These five case studies are compared to each other and to national trends. |
| Spring 1984 "The Potential of Surface Treatment Techniques in Reducing U.S. Vulnerability to Strategic Materials" | Davis, Farrow, Nair, Wynblatt | Public | An assessment of the potential eight selected new surface treatment techniques to conserve the amounts of eleven strategic materials used to enhance desirable surface properties; through a forecast of the vulnerability to supply disruption of the growth of the technologies to promote through the R&D funding. |

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| Fall 1983 "Acid Deposition: A Pennsylvania Viewpoint" | Hahn, Rubin, Small, Mowery | Pennsylvania Department of Environmental Resources | An examination of the technical, economic, environmental and policy implication of acid deposition in Pennsylvania. These attributes are investigated for numerous existing and hypothetical legislature scenarios. |
| Fall 1983 "Human Factors in Automated Office Systems" | Lincoln, Nair | Public | Analysis of hardware and software-related factors of importance to user interface of automated office systems. An experiment of user preferences in accessing databases was also analyzed. Recommendations were made as to the best systems on the market. |
| Spring 1983 "Milltowns in the Pittsburgh Region: Conditions and Prospects" | Ayres, Lynn, Onaka, Tarr | Allegheny County Dept. of Development | An examination of the impact of the decline of the steel industry on milltowns. Analysis was done of demographic, housing, social and economic conditions in the towns. Past policies to deal with milltown problem were analyzed and new policies recommended. |
| Spring 1983 "Financing the Upper Ohio River Basin Navigation System: Alternatives and Impacts" | DiPasquale, Nair, Roth, Wynblatt | Public | Analysis of the methods of revenue generation through user charges for maintenance of the Upper Ohio River Basin Navigation System and possible impacts on selected industrial users. |
| Fall 1982 "Applications to Industrial Protection to Allegheny County" | Callaham, Davis, Farrow, McMichael, Mowery | Emergency Management division of the Allegheny County Police Department | Analyzed industrial protection techniques against nuclear attack for Allegheny County. Problems and possibilities were found for three area industries: Fuels transportation, electric power generation, health care services. |
| Fall 1982 "Compensation for Delayed Disease from Exposure to Chemicals and Drugs" | Hahn, Lincoln, Lynn, Piehler | Public | An examination of: the scientific problems in determining the link between chemical exposure and disease; and the alternatives for compensating exported individual from toxic tort litigation and workmen's' compensation. |
| Spring 1982 "Automobile Recycling: Issue for America" | Carey, Cohen, Piehler, Public, Wynblatt | Public | Analyzed the efficiency with which automobiles are recycled, policy options for reducing automobile abandonment and likely effects of auto weight reduction on the future robustness of the auto recycling industry. |
| Spring 1982 "Pentachlorophenol: A Case Study in Pesticide Regulation" | Blau, Garber, Montgomery, Nair | Public | An examination of the RPAR Process, used by EPA to evaluate pesticides, with particular reference to the wood-preservative pentachlorophenol and its alternates creosote and inorganic arsenates. |
| Spring 1982 | Ayres, Duncan, | Wilkinsburg School District | An examination of current and potential uses of computers in the |

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| "Computers in Primary and Secondary Education: Analysis and Recommendations for the Wilkinsburg School District" | Leinhardt, Rubin | | Wilkinsburg School District in administration and education. |
| Fall 1981 "Underground Capital Project Decision-Making in the City of Pittsburgh" | Larkey, McMichael, Onaka, Powers, Roth, Sibley, Tarr | City of Pittsburgh | The process of selecting and budgeting projects to construct, maintain, replace, or improve the city's potable water distribution and wastewater collection systems was modeled. Procedures for improving the informational and analytical bases for project selection and budgeting were proposed. |
| Fall 1981 "An Analysis of Federal Policy on Toxic Trace Metals" | Davidson, Fischer, Leinhardt, Lincoln | Public | An analysis of which metals deserve consideration for additional regulation, and identification of those metals for which further research is needed before regulations can be considered. |
| Spring 1981 "An Assessment of the Resource & Procedural Constraints on the Development of a Coal Derived Synthetic Fuels Industry in Northern Appalachia" | Carey, Coulam, Leinhardt, Nagin, Rubin | Public | An analysis of air and water quality transportation and water availability and public opposition with regards to the development of a synthetic fuels industry in West Virginia and Pennsylvania. |
| Spring 1981 "Impacts of Robotics on Workforce and Workplace" | Ayres, Baybars, Davis, Lewis, Lynn | Public | An analysis of robot users, of the workers whose jobs would be robotized, and of human resources and labor policies dealing with technological change. |
| Spring 1981 "Fire Safety: A Comparative Risk Assessment" | Duncan, Nair, Piehler, Roth | Public | An examination of fire loss reduction in three different areas: Recommendations for a set of priorities for risk reduction in each area. |
| Fall 1980 "Social and Economic Impacts of Sitting a high Level Radioactive Waste Repository" | Callahan, Duncan, Leinhardt, Nair | Public | Examination of social mechanisms to deal with the problem of high level radioactive waste repository siting. |
| Fall 1980 "The Future of Hazardous Waste Management in Pennsylvania" | Ayres, Bloom, Carey, Davis, Lincoln | Pennsylvania Department of Environmental Resources | Private and public sector actions available for handling existing disposal sites and disposing wastes in the future. |
| Spring 1980 "An Assessment of Civil Sector Uses of Digital Data Encryption" | Lewis, Morgan, Weingarten | Public | An examination of current and expected technologies and uses of digital data encryption in the civil sector. |
| Spring 1980 "Strategies for Improving Safety in Underground Coal Mines" | Baybars, Carey, Larkey, Weinstein | Public | An analysis of the alternatives available to Government and the mining industry for reducing injuries and fatalities in underground coal mining in U.S. |

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| Fall 1979 "Building Codes and Rehabilitation: Is a 'Rehabilitation Code' Appropriate for Pittsburgh" | Ayres, Davis, DePasquale, Lewis | Pittsburgh Public Housing Agencies | A study of options available for regulation of modifications to existing buildings in Pittsburgh. |
| Fall 1979 "Reducing Risks from Diagnostic X-Radiation: Personal Record Keeping and other strategies" | Davidson, Garber, Lincoln, Nair | Public | An evaluation of the factors that can be instrumental in reducing public exposure to diagnostic x-radiation. |
| Spring 1979 "Total Suspended Particles in Allegheny County: Reconciling Economic Growth and Air Quality" | Baybars, Davidson, Lincoln, Oliver | Allegheny County Air Pollution Bureau | An analysis of the impacts of non-traditional particulate sources and measurement problems on area emission offset policy. |
| Spring 1979 "Product Liability Tort Reform: Crisis of Uncertainty" | Ayres, Haseman, Lewis, Piehler | Pennsylvania State Legislators | An analysis of the current status of product liability litigation in Pennsylvania and the potential impact of proposed new laws. |
| Fall 1978 "An Examination of the Federal Role in the Promotion of Rural Television" | Lewis, Morgan, Serber | Public | A study of whether the federal government should subsidize broadband communication technology in rural areas |
| Fall 1978 "Policy on Recombinant DNA Activities: Relaxing Guidelines While Increasing Safety" | Lincoln, Ordeshook, Spader, Stewman | National Institutes of Health | Analysis of five components needed in a benefit-risk evaluation of RDNA activities. |
| Spring 1978 "Instructional Television: Prospects for Application to Continuing Education in Pittsburgh and the Surrounding Tri-State Area" | Haseman, Lewis, Morgan, Tuma | Area Colleges and Universities | Analyzed the cost attractiveness of alternative technologies to deliver continuing professional education and addressed local and national regulatory and other policy problems |
| Spring 1978 "Air Pollution Control Analyses for State Implementation Plan Revisions in Allegheny County" | Hirsch, Johnson, Lave, Lincoln, Rubin | Allegheny County Air Pollution | Developed recommendations for use by the county in the process of designing the new State Implementation Plan required under the new amendments to the Clean Air Act. |
| Fall 1977 "Conservation Alternatives for Residential Space Heating in Allegheny County" | Davidson, Larkey, Lincoln, Morgan, Ordeshook | Public | Analyzed strategies for winterization of private homes in Pittsburgh and recommended improvements in existing winterization programs. |
| Fall 1977 "School Bus Safety: A Public Policy Puzzle" | Weinstein, Morgan, Angrist, Piehler | Local School Districts | Examined the effectiveness of existing federal and state safety regulations and proposed driver training improvements. |
| Spring 1977 | Davis, Johnson, | Public, PennDOT, County | Recommended criteria and priorities for bridge repair and |

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| “An Assessment of the Bridge Crisis in Allegheny County” | McMichael, Rubin | Department of Works, City of Pittsburgh, SPRPC | maintenance. |
| Spring 1977 “Planning and Evaluation Aids for a Community-Based Mental Health/Mental Retardation System: the Allegheny County MH/MR Program” | Lewis, Massey, McKelvey | Allegheny County Mental Health Retardation Program, Local Catchment Agencies | Developed methodology for estimating the number of clients who will use an agency (Base Service Unit), determined services provided to different mental health populations, and recommended a structure for evaluation research on mental health service delivery. |
| Fall 1976 “An Analysis of Electric Power Load Management for the Residential Sector in Pennsylvania” | Burman, Lewis, Morgan, Oliver | Pennsylvania Public utility Commission | Examined impacts of electric power load management on the residential sector and developed policy recommendations for the PUC. |
| Fall 1976 "Regulation of Orthopedic Surgical Implants: An Investigation of the Effects of the 1976 Medical Devices Amendments" | Angrist, Burman, Piehler, Weinstein | Public | Analyzed risk data for devices of the hip and concluded that emphasis should be placed on responsive monitoring rather than pre-market approval. Presented results at meeting of Orthopedic Classification Panel of the Bureau of Medical Devices and Diagnostic Products of the FDA. |
| Spring 1976 "Power Plant Siting Policy Alternatives for Pennsylvania" | Haseman, McKelvey, McMichael, Rubin | Governor's Energy council, Governor's Science Advisory Committee | Suggestions for revised power plant siting procedures in Pennsylvania. |
| Spring 1976 "The Pittsburgh Housing Court and the Code Enforcement Process" | Burman, Dunlap, Hua | Allegheny County Health & Welfare Planning Association | Legislative recommendation to empower County-wide Court with broad powers. |
| Fall 1975 "The Effect of the Federal Safe Drinking Water Act on Water Supply Systems" | Angrist, Haseman, McMichael, Shane | Water Supply Companies | Assessment of impact of federal legislation at County levels. |
| Fall 1975 "An Assessment of Pennsylvania's Periodic Motor Vehicle Inspection System" | Burman, Dunlap, Piehler, Weinstein | Public | Study of effectiveness of present system, with recommendations to legislature to modify program and increase cost effectiveness. |
| Spring 1975 "Housing Need and Rehabilitation in Pittsburgh: City and Neighborhoods" | Au, Dunlap, Hua, Stewman | Housing Subcommittee, Pittsburgh City Council | Analysis of housing need in Pittsburgh, including modeling of early warning indicator for neighborhoods, procedure for allocating rehabilitation funds. |
| Spring 1975 “Coal Utilization in Pennsylvania's Electric Utilities: Assessment of Public Policy” | Dunlap, Rubin, Tarr, Wallace | Governor’s Energy Council | Analysis of energy requirements for State, particularly the feasibility of increased coal utilization. Presented formally to Lt. Governor and other State officials, May 1975. |

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| Fall 1974 "Residential Solid Waste Systems for the Pittsburgh Region: Analysis of Five Alternatives" | Angrist, Wallace, Wendell | City of Pittsburgh, County Department of Works | Re-analysis of solid waste management after City-County split on alternatives. Action by County pending; interns placed in City and County offices, Summer 1975. |
| Fall 1974 "A Contingency Plan for Hazardous Material Incidents in Allegheny County" | Dunlap, McMichael, Stewman, Broughton | Allegheny County Health Department | Precursor for County management plan and office. Action by County Commissioners scheduled in 1975. |
| Spring 1974 "Girtys Run: A Study in Urban Watershed Management" | Dunlap, Lewis, McMichael, Wojick | North Area Environmental Council, Pittsburgh | Management priorities for an urbanized watershed; provided basis for municipality sewerage study, resulted in formation of watershed association; given award by local environmental council. |
| Spring 1974 "Lead Poisoning in Allegheny County" | Krokosky, Walters | Allegheny County Health Department | Analysis of causes of elevated blood- lead levels in urban children; basis of US NBS grant to County Health Department for further study. |
| Fall 1973 "Transportation Control Plan Strategies for Pittsburgh" | Dunlap, Lewis, Rubin, Stewman, Tolle, Wendell | Public, Environmental Protection agency (Region III) | Analysis of environmentally-related transportation controls; EPA modified its promulgated plan on basis of this analysis. |
| Spring 1973 "Noise Abatement in Allegheny County, Pennsylvania" | Gouse, Krokosky, Walters | Allegheny County Health Department | Precursor to County plan for noise control; given recognition and an award by local environmental council. |
| Spring 1973 "An Analysis of Urban Watershed Waste-Water Control in Allegheny County Pennsylvania" | Dunlap, McMichael | Allegheny County Health Department | Assessment of control priorities and agency requirements for watershed management; initiated County program. |
| Fall 1972 "Study of Road Maintenance in the Pittsburgh Area" | Dunlap, Gouse, Krokosky, Walters | Public, City of Pittsburgh, County Department of Public Works | Analysis of technological capabilities and benefits for improved road maintenance; cited by Governor. |
| Spring 1972 "A Study of Solid Waste Management Systems in Allegheny County" | Gouse, Walters | Allegheny County Bureau of solid Waste Management | First analysis of local location problems for transfer station/ landfill disposal method, used in solid waste management planning. |
| Fall 1971 "The New City" | Baumann, Dunlap, Gouse, Krot, Paul, Purcupile, Reilly, Rubin, Walters | U.S. Department of Housing and Urban Development | Nine inter-related project tasks concerning urban problems (transit, health care delivery, environment). |
| Spring 1971 | Dunlap, Reilly, | Allegheny County Air Pollution | Precursor to plan for air pollution emergencies for Allegheny |

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| "Design of an Air Pollution Alert Warning Emergency System" | Walters | Control Bureau | County. |
| Fall 1970 "The Coking Process: Technology, Economics, and Regulatory Activity" | Blumstein, Dunlap, Reilly, Walters | Allegheny County Air Pollution Control Bureau | Analysis of control priorities which focused regulatory action; first assessment of feasibility of coke oven gas desulfurization; first modeling of air quality in Allegheny County. |
| Spring 1970 "A Study of Air Pollution Control for Allegheny County, Pennsylvania" | Dunlap, Ragone, Toor | Allegheny County Air Pollution Control Variance Board | Blueprint of local control priorities; used as such by government agencies, industries. |