

2015-2016 Policies and Priorities



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POLICY DEVELOPMENT PROCESS

In order to promote the goals of the ASCE, the Board of Direction has adopted official Policy Statements, Position Papers and Resolutions on major technical, professional and educational issues of interest to the civil engineering community and the Nation. Listed here are the complete texts of the Society's 165 current policy documents. These statements reflect the Board of Direction actions through October 10, 2015.

Policy documents must be written in one of three standard formats: a policy statement, a position paper or a resolution. Prior to developing a new proposal, members should examine existing policies to determine whether a new policy document is needed, whether it conflicts with existing documents, and whether it is an issue of broad concern to civil engineers. The purpose of the document and the intended length of its life will determine which of the three formats should be followed.

- A policy statement is the statement of ASCE's public policy position on a topic of continuing concern to the civil engineering profession.
- A resolution is a short term or interim position of the Society. It is intended to respond to an immediate concern or a specific event for a time frame of no longer than one year.

PROCEDURES FOR POLICY DEVELOPMENT AND REVIEW

The Public Policy Committee (PPC) acts as the oversight body on the procedural aspects of the policy development process, and is responsible for coordinating proposed Policy Statements and Resolutions from the originators to the Board of Direction. The PPC must specifically:

- coordinate and expedite the preparation of proposed policies to be presented to the Board for adoption;
- consider proposed policies originated by the various segments of the Society, elicit by appropriate referrals the comments of correlative interests within the Society, review for clarity and conciseness, and compare with established policies to avoid inconsistency and redundancy; and
- review the policies of the Society on a regular basis and stimulate reviews by other groups within the Society to insure that policies are current and meaningful.

Along with the ASCE Government Relations staff, PPC will make every effort to ensure that every appropriate component of the Society has an opportunity to comment on proposed policy documents. However, PPC must balance the desire to provide an opportunity for comment with the need for timely consideration of an issue.

The PPC has established policy committees which maintain policies in their assigned areas. The committees have professional expertise relative to public policy issues of national concern to the civil engineering profession. These committees are the: Energy, Environment and Water Policy Committee, Engineering Practice Policy Committee, Infrastructure & Research Policy Committee and Transportation Policy Committee

All policy committees are staffed by the Government Relations Department in the ASCE Washington Office. Each committee has been given the charge to:

- study needs, proposals and legislation related to national public policy in its area of concern; and,
- compile supporting data on policy positions utilizing divisions and committees of the Society as well as liaison with other organizations; and
- advise the Board on policies of the Society in its area of concern, and the issuance of any public statement on behalf of the Society.

In addition to national policy committee's individual members; Institutes; district councils; professional, educational, or technical divisions; directors and national officers can and should be participants in the policy development process. Individuals who are not members of national committees should direct such efforts through their sections or branches, which in turn should route them to an appropriate committee. Those members who serve in the national committee

structure should initiate policy proposals through their appropriate entities. If a public policy resolution is sent directly to the Board of Direction from a Section and District/Regional Council, the proposal normally would be referred by the Board to a national policy committee and the PPC for development.

After approval by the originating group, the proposed policy document must be sent to the Washington Office staff for consideration by the PPC. PPC makes the determination whether a proposed Policy Statement or Resolution should be presented to the Board of Direction. Proposed policy documents are part of the Committee's reports to the Board of Direction contained in the agenda prepared for the meetings of the Board.

The Board of Direction can reject the policy proposal, remand the proposal to the originating entity for further work, approve the substance of the proposal as official policy while returning it to the PPC for further editorial review, or approve the proposal as presented. The Board of Direction has independent authority over the policy process and may rescind any existing Policy Statement or Resolution.

An important function of the PPC is the ongoing reassessment of existing Policy Statements and Resolutions on a 3 year and 1 year cycle respectively. The PPC routinely refers policy documents to the committee of origin for a review of the continued relevance of the subject and for a recommendation for possible rescission, revision, clarification, or incorporation into a new policy proposal.

Occasionally a pending issue of vital importance requires a response or public statement by the Society on short notice. The PPC can accelerate the review and approval process by submitting the approved policy statement to the Executive Committee of the Board which has authority to act when the full Board is not in session. Executive Committee actions must be ratified by the full Board at its next meeting.

For more information about ASCE's Policy Document and the Policy Development Program, contact Martin Hight, Senior Manager, Government Relations at mhight@asce.org

2016 Federal Priorities Agenda - Adopted by the Board of Direction on October 10, 2015

In an effort to narrow the focus and to better deploy our government relations resources, the Public Policy Committee has identified the following seven priorities for the second session of the 114th Congress.

- Clean Water, Drinking Water, Wastewater Issues
- Natural Hazards Mitigation & Infrastructure Security
- Qualifications Based Selection for Engineering Services
- Science, Technology, Engineering and Math (STEM) education
- Sustainable Development & Sustainable Energy Use
- Transportation Infrastructure
- Water Resources Infrastructure

2016 State Priorities Agenda – Adopted by the Board of Direction on October 10, 2015

In an effort to narrow the focus and to better deploy our government relations resources, the Public Policy Committee has identified the following six priorities for state government relations in 2016.

- Continuing Education
- Licensing
- Qualifications Based Selection for Engineering Services
- Science, Technology, Engineering & Math (STEM) Education
- Sustainability
- Transportation Infrastructure Funding

Priority issues are listed in alphabetic order. The fact that an issue is not included does not constrain ASCE action.

POLICY STATEMENTS

COASTAL ZONES AND WATERWAYS

Coastal Development (PS 162) ASCE supports:

- Responsible use and sustainable development of coastal resources.
- Conservation of habitat and wetland within coastal development areas.
- Protection of public health, safety, and welfare, and the environment appropriately addressed for all coastal projects.
- Development and implementation of emergency notification, flood risk management and evacuation plans as part of coastal projects.
- Effective regulations and streamlined regulatory processes for coastal development projects.
- Partnering among federal, state, and local governments to adopt coastal development policies.

(Adopted 7-18-15)

Coastal Data Collection Programs (PS 330) ASCE supports:

- Coastal data-collection programs of the National Oceanic and Atmospheric Administration (NOAA), the U.S. Army Corps of Engineers (USACE) and other government agencies as essential for planning storm risk management systems and coastal restoration.
- Continued support for climate change and estuarine science programs.
- USACE Coastal Field Data Collection Programs.
- State and local government coastal data programs to initiate, support, and participate in the federal programs.
- Research into the relationship between the nature of the coastal environment and the impacts of climate change and wetlands preservation. (Adopted 7-18-15)

Coastal Wetlands (PS 498) ASCE supports:

- Efforts to reduce land loss along America's coastal wetlands through protection and restoration of the physical processes necessary to sustain these unique ecosystems. ASCE supports the ongoing effort to fund and implement the beneficial use of dredged material, regional sediment management, and a programmatic authorization of federal civil works projects that allow restoration and preservation work to continue on a long-term basis.
- The principle that coastal and wetland restoration and hurricane protection must be part of an integrated regional watershed and coastal zone management effort, which considers the interrelationships of natural, social and economic systems and includes federal, state, local and private initiatives in a collaborative way.
- Continued funding for wetland preservation and restoration projects under the Coastal Wetlands, Planning, Protection and Restoration Act of 1990 (CWPPRA). (Adopted 7-20-12)

Coordination of Beach Erosion Control with Channel Maintenance (PS 349) ASCE supports:

- The onshore or near-shore placement of clean sand dredged from navigation projects, tidal inlets and estuaries.
- Regional sediment management and coordination among planners of coastal navigation projects and beach erosion control projects to ensure that beach-quality sediment and sand dredged from inlets is not disposed of offshore, but is returned to the coastal system from which it originated. (Adopted 7-13-14)

Improvement and Maintenance of Ports, Harbors and Waterways (PS 218) ASCE supports a program to maintain and improve ports, harbors and waterways as an essential and sustainable component of the economic and environmental well-being of the nation. Such a program includes: a dedicated source of funding for the maintenance and improvement of ports, harbors and waterways; and streamlining the environmental regulatory process for improving ports, harbors and waterways. (Adopted 10-5-14)

Offshoring Facilities Development (PS 533) ASCE supports:

- Sustainable protection, use and development of offshore resources.
- Regulatory control of offshore regions.
- Protection of public health, safety, and welfare and protection of the environment appropriately addressed for all offshore development.
- Incorporation of scientific risk management in all aspects of sustainable offshore development.
- Partnering among federal, state, and local governments to adopt offshore development policies.
- Programs to consider offshore development that comply with these policies in a timely manner.

(Adopted 7-18-15)

Restoring and Maintaining Beaches (PS 507) ASCE supports restoration and maintenance of beaches and their associated barrier islands as a matter of public health and safety. ASCE supports:

- The Federal Shore Protection Program.
- Periodic beach nourishment and environmental restoration components through U.S. Army Corps of Engineers Regional Sediment Management programs.
- Regional dredged material management plans.
- Further research into ecologically sound methods of beach maintenance and restoration.

(Adopted 7-18-15)

Waste Disposal in Ocean and Coastal Waters (PS 286) ASCE supports:

- Continued enforcement of the statutes regulating the disposal of wastes into ocean and coastal waters, especially the Marine Protection, Research, and Sanctuaries Act (MPSA), and the Clean Water Act (CWA).
- Research to achieve a greater understanding of the long-term impact of waste disposal on ocean and coastal waters.
- Updated regulations informed by research limiting the nature and quantity of waste dumping and municipal sewage discharges in ocean and coastal waters to levels that are economically, socially and environmentally sustainable. (Adopted 7-18-15)

DAMS, FLOOD, CONTROL AND LEVEES

Dam Repair and Rehabilitation (PS 470) ASCE supports the enactment of federal and state legislation to provide sustainable and dedicated funding sources for repair, rehabilitation, or removal of publicly and privately owned dams in the United States. (Adopted 7-13-14)

Flood Risk Management (PS 545) ASCE urges all federal, state and local government agencies, in collaboration with the private sector, to adopt flood-risk management policies that provide for:

- A consistent definition of flood risk and an accepted framework for how risk should be estimated
- Effective and sustainable management of risks posed by floods to life safety, human health, economic activity, cultural heritage and the environment;
- Collaborative risk sharing and risk management at all levels of government and by all stakeholders;
- Risk informed communication, policies and funding priorities; and
- The use of natural processes to mitigate the consequences of flooding. (Adopted 10-5-14)

Floodplain Management (PS 421) ASCE urges governments at all levels to adopt proactive floodplain management policies that:

- Hold paramount the public's safety, health, and welfare.
- Protect and restore natural floodplains in situations where the benefit is greater than the costs.
- Enact and enforce land use policies, ordinances and building codes that consider life safety and account for increased risk due to development or major redevelopment of communities in floodplains.
- Inform residents and community planners of the risk associated development in the floodplain.
- Develop flood disaster mitigation and relief plans commensurate with residual risk.

- Develop and exercise flood disaster preparedness and evacuation plans commensurate with residual risk.
- Support creative partnering between federal, state and local governments to adopt floodplain management policies.
- Fund the design and implementation of floodplain management policies and flood mitigation projects.
- Incorporate the concept of building disaster resistant communities consistent with sustainable development.
- Encourage risk appropriate, multiple-uses of flood prone areas.
- Pursue nonstructural flood mitigation facilities, including river restoration and wetland restoration that include improvements in habitat, ecosystems, recreation and open space use.
- Incorporate floodplains into comprehensive watershed management programs. (Adopted 7-18-15)

Levee Certification (PS 529) ASCE recommends that the Federal Emergency Management Agency (FEMA) amend its National Flood Insurance Program (NFIP) regulation at 44 Code of Federal Regulations (C.F.R.) 65.10 by removing the term “certification” and its associated definition in 44 C.F.R. 65.2 and replacing it with the U.S. Army Corps of Engineers (USACE) EC 1110-2-6067 term “NFIP Levee System Evaluation.” (Adopted 7-13-14)

National Levee Safety Program (PS 511) ASCE:

- Supports an increase in funding at all levels of government and the leveraging of private funds to address structural and nonstructural solutions that reduce risk to people and property from flooding due to levee failures.
- Supports the enactment of federal and state legislation and regulations to protect the health and welfare of citizens from the catastrophic effects of levee failures. Congress should enact legislation to establish a national levee safety program that is modeled on the successful National Dam Safety Program.
- Urges the federal government to accept the responsibility for the safety of all federally funded and regulated levees.
- Encourages state governments to enact legislation authorizing appropriate entities to undertake a program of levee safety for non-federal levees.
- Encourages the inclusion of requirements for mandatory safety inspections in federal and state levee safety programs.
- Encourages FEMA to map, based on reliable engineering data, all areas potentially subject to flooding by a levee breach under the National Flood Insurance Program and identified as special flood areas to better communicate risks and encourage affected property owners to seek appropriate protection.
- Encourages federal and state governments to finish as expeditiously as possible the inventory of levees as required by the Water Resources Development Act of 2007 and the Water Resources Reform and Development Act of 2014. (Adopted 7-13-14)

Responsibility for Dam Safety (PS 280) ASCE supports enactment of state and federal legislation to protect the health and welfare of citizens from the catastrophic impact of dam failures. To that end ASCE further supports:

- Congressional authorization of the National Dam Safety Program and full funding of the program for each year under the reauthorization.
- Adequate funding for federal agencies to operate, maintain and regulate dams under their jurisdictions to meet, at a minimum, the standards of Federal Guidelines for Dam Safety and provide sufficient security.
- Enactment of state legislation to authorize an appropriate agency and commit sufficient resources to undertake a program of dam safety for non-federally owned dams that, at a minimum, meets the definition of a dam safety program in the National Dam Safety Act of 2006 or any subsequent

reauthorization of that act. State legislation should follow the Federal Emergency Management Agency (FEMA) Model State Dam Safety Program.

- Incorporation of risk assessments or ranking and priority systems into federal and state dam safety programs to focus dam safety activities on dams that pose the greatest risk to the public.
- Establish a national dam rehabilitation and repair funding program to cost share repairs to publicly owned, nonfederal, high-hazard dams.
- Development of emergency action plans for every high-hazard potential dam by 2017 and regular exercising, maintenance and updating of these plans.
- Implementation of a national public awareness campaign to educate individuals on the location and condition of dams in their area. (Adopted 7-13-14)

DISASTER MITIGATION AND RESPONSE

Cooperation with Government Failure Investigations (PS 294) ASCE will cooperate with federal, state and local governments and non-profit organizations in investigations involving the civil engineering aspects of a failure. To protect all parties involved, ASCE will execute a formal written agreement concerning the investigative effort defining the scope of services and other elements of the engagement.

(Adopted 7-12-13)

Earthquake Hazards Mitigation (PS 390) ASCE supports research, practices and policies that identify earthquake hazards and mitigate earthquake risks using a variety of approaches, including:

- Continuing and expanding the National Earthquake Hazards Reduction Program (NEHRP) and similar initiatives;
- Using and improving state-of-the-art performance standards for critical, essential, educational and disaster-recovery facilities, such as hospitals, first responder and emergency planning facilities, schools and emergency shelters;
- Developing performance-based seismic standards for lifelines and industrial structures;
- Reducing the risk from buildings that are likely to collapse in major earthquakes by rehabilitation, reduction of the consequences of failure, reconstruction or demolition;
- Advocating for sustained, robust support for research into all aspects of earthquake hazards mitigation including those that provide better understanding of source, path and site effects as well as structural, non-structural, and infrastructure performance during events;
- Incorporating collaborative community preparedness when addressing earthquake hazards;
- Developing performance-based standards for evaluation and retrofit of existing buildings;
- Improving seismic mitigation, focusing on cost-effective techniques;
- Developing overarching risk-mitigation programs at state Departments of Transportation, utility providers, and other organizations; and
- Developing methodologies to address multi-hazard scenarios precipitated by earthquakes.

(Adopted 7-18-15)

Emergency Preparedness and Response (PS 499) ASCE supports comprehensive planning, education and training initiatives that increase the ability and readiness of civil engineers to quickly and effectively respond to both man-made and natural disasters that impact the nation's physical infrastructure (i.e., the nation's built environment, including water, energy, utilities, transportation, communication and building systems). (Adopted 7-18-15)

Emergency Responder Legislation (PS 536)

ASCE supports federal and state emergency responder legislation to prevent lawsuits against engineering entities for on-site conditions that are entirely outside their scope of work or control and that recognizes the intense and time-sensitive decision making process required during the emergency response period.

(Adopted 7-13-14)

Media Interaction Following Catastrophic Failures or Natural Disasters (PS 300) To ensure that information disseminated following natural disasters or catastrophic failures involving civil engineering works is as accurate and complete as possible ASCE will cooperate with established news media, defined as: newspapers, radio and TV stations, magazines, online publications or media sites, and media intended for trade press audiences. Guidelines that will be followed in response to natural disasters and failures are as follows:

- ASCE's paramount interest is that the media and the public receive timely and factual information and assistance.
- All ASCE contacts with the media must follow the established ASCE Protocol for Media Outreach.
- Individuals may respond, in their field of expertise, to an inquiry but statements must be identified as individual comment. (Adopted 7-12-13)

Mitigating the Impacts of Natural and Man-Made Disasters (PS 389) ASCE supports sustained efforts to improve professional practices in planning, design, construction, operation, maintenance and reuse/decommissioning that mitigate the effects of natural and man-made hazards. ASCE is committed to developing standards and participating in other national and international activities that incorporate resilience as a fundamental performance criterion and that encourage mitigating the effects of hazards and improvement of warning systems against impending hazards. ASCE will collaborate and cooperate with government, citizen, and private agency initiatives and supports activities for hazard mitigation, emergency preparedness, and disaster recovery. ASCE supports efforts to ensure that sufficient federal, state, and local funding is available for research, development of standards emphasizing resilience, enforcement, emergency preparedness planning for response and recovery, and for disaster mitigation funds that are non-taxable. (Adopted 7-13-14)

Wind Hazards Mitigation (PS 475) ASCE supports the creation of a unified national program to effectively reduce the economic and community losses experienced each year as a result of wind storms. Such a plan was authorized by Congress in 2004 in Public Law 108-360, but there has been no specific appropriation. The coordinated national plan should include such components as:

- Creation of a public-private partnership to develop the national plan;
- Construction of affordable family and mass shelters to provide protection and peace of mind;
- Improvement of emergency management planning;
- Development of cost-effective retrofit schemes with existing construction to reduce business interruption and economic losses;
- Development of improved hazardous weather warning systems, increased alarm reliabilities, and more accurate prediction of affected areas;
- Implementation of innovative codes and standards that provide for wind-resistant construction and programs for assuring increased compliance;
- Implementation of research and development to encourage new materials and innovation for wind-resistant construction;
- Public education on wind hazards; and
- Systematic measurement and analysis of high-wind speeds near the ground. (Adopted 7-12-13)

Wind Storm Impact Research Funding (PS 530) ASCE supports full funding for the National Wind Storm Impact Reduction Program. The funding is required for research, development and transfer of new technology that will reduce losses experienced each year as a result of wind storms. The funding should be targeted to achieve the following goals:

- Reduce economic losses from windstorms and increase the economic viability of communities.
- Develop affordable designs to provide enhanced windstorm protection.
- Improve emergency management planning.
- Develop cost-effective retrofit schemes with existing construction to improve individual and community resilience.
- Develop improved hazardous weather warnings with longer lead-time, fewer false alarms, and more accurate prediction of affected areas.

- Implement innovative codes and standards that provide for wind-resistant construction and programs for assuring increased compliance.
- Develop new materials and innovative design concepts and emergency response approaches to minimize electrical power loss as a result of windstorms.
- Conduct public education on wind hazards and methods for hazard reduction.
- Collect and archive wind and national infrastructure data.
- Train the next generation of technical experts and enhance the knowledge of design and construction professionals.
- Improve regional risk assessments, especially involving multiple hazards, lifeline interdependencies, and ripple effects. (Adopted 7-12-13)

DIVERSITY

Promoting Diversity and Inclusion (PS 417) ASCE supports and encourages the equitable opportunity for participation of all people within the civil engineering profession without regard to race, ethnicity, religion, age, gender, sexual orientation, nationality, or physical challenges. The Society will promulgate and implement programs designed to advance the profession by sustaining a more inclusive climate in the profession. (Adopted 7-13-14)

EDUCATION

Academic Prerequisites for Licensure and Professional Practice (PS 465) ASCE supports the attainment of an engineering body of knowledge for entry into the practice of engineering at the professional level, i.e., practice as a licensed professional engineer, through appropriate engineering education and experience, and validation by passing the licensure examinations. To that end, ASCE supports an increase in the amount of engineering education, such that the requirements for licensure would comprise a combination of:

- a baccalaureate degree in engineering;
- a master's degree in engineering, or no less than 30 graduate or upper level undergraduate technical and/or professional practice credits or the equivalent agency/organization/professional society courses which have been reviewed and approved as providing equal academic quality and rigor with at least 50 percent being engineering in nature; and
- appropriate experience based upon broad technical and professional practice guidelines which provide sufficient flexibility for a wide range of roles in engineering practice.

ASCE encourages institutions of higher education, governments, employers, engineers, and other appropriate organizations to endorse, support, promote, and implement the attainment of an appropriate engineering body of knowledge for individual engineers. For civil engineering, the established Body of Knowledge includes (1) the fundamentals of math, science, and engineering science, (2) technical breadth, (3) breadth in the humanities and social sciences, (4) professional practice breadth, and (5) technical depth or specialization. Attainment of the Civil Engineering Body of Knowledge requires additional education beyond the bachelor's degree for the practice of civil engineering at the professional level. The implementation of a path to attain the Civil Engineering Body of Knowledge should occur through establishing appropriate curricula in the formal education process, appropriate experience guidelines in the workplace and related education and experience standards in the law and rules of each of the engineering licensing jurisdictions. (Adopted 10-5-14)

Civil Engineering Education: A Shared Responsibility (PS 140) ASCE will participate in and influence the lifelong education of the civil engineering community, which is a shared responsibility of educators and practitioners. ASCE should encourage educators in leadership positions and engage them in the work of the Sections, Branches and technical activities.

Educational institutions have an obligation to provide effective learning environments for students, preparing them to be civil engineering professionals and providing education and training programs to develop and keep current the knowledge, capabilities and skills of the civil engineering community. This should include:

- Maintaining a professional environment that will attract, develop and retain high quality and diverse educators and students,
- Involving practicing professionals in the planning, design, and implementation of educational programs,
- Including engineering educators who are role models for aspiring practicing engineers, and
- Bringing the current and future demands of engineering practice realistically into the classroom.

Employers have an obligation to support engineering education. They should encourage and support employee participation in:

- Continuing professional development, including formal education,
- Civil engineering departmental advisory committees,
- Teaching, supporting ASCE student organizations, sponsoring co-op and internship students, and assisting programs in the assessment of outcomes,
- ABET program evaluations,
- Pre-college and other public outreach,
- ASCE committees, and
- Other engineering-related education endeavors.

ASCE has an obligation to promote excellence in civil engineering education. ASCE will continue to:

- Develop programs that enable its members to conduct effective pre-college and public outreach activities,
- Sponsor and encourage discussions of engineering education issues and practices through Society conferences, congresses, and other venues,
- Involve civil engineering professionals in the processes to ensure appropriate accreditation standards and procedures for civil engineering and related programs,
- Encourage active participation of practitioners and educators in development and on-going activities of ASCE student organizations,
- Help define the Body of Knowledge required for entry into the practice of civil engineering at the professional level,
- Promote and support faculty development activities, and
- Promote and support scholarships for civil engineering students. (Adopted 10-10-15)

History and Heritage (PS 463) ASCE supports programs that promote the knowledge of the history and heritage of civil engineering as an integral component of education and professional practice. ASCE believes that methods to foster a greater understanding and appreciation of the history and heritage of civil engineering while enhancing the image of civil engineering include:

- Encouraging civil engineers to be knowledgeable about the heritage of their profession, and where possible share this knowledge with engineering students, as well as other students, colleagues and the general public;
- Focusing action at the national, state and local levels through support of history and heritage programs in ASCE and other professional organizations;
- Encouraging civil engineering faculties to incorporate a history and heritage component into existing courses; and
- Encouraging civil engineering programs to include historical perspectives in their Program Outcomes. (Adopted 7-18-15)

Science, Technology, Engineering, and Mathematics (STEM) Education (PS 377) ASCE supports programs that foster an appreciation and understanding of science, technology, engineering and mathematics (STEM) at the K-12 level. It is essential to:

- Provide all students, regardless of background or career intentions, with STEM literacy that enables them to be successful in our increasingly technological society;
- Support the development and implementation of high-quality college-preparatory and career-ready standards in STEM disciplines; and

- Encourage students to pursue careers in STEM disciplines, including civil engineering. (Adopted 10-10-15)

ENERGY

Advanced Water Power Generation (PS 442) ASCE supports a program to demonstrate the commercial viability and environmental benefits of advanced conventional hydro turbines (fish-friendly turbines), and to demonstrate the commercial, technical, and environmental feasibility of innovative new waterpower systems such as marine and hydrokinetic technologies. (Adopted 7-12-13)

Electricity Generation and Transmission Infrastructure (PS 484) ASCE supports the maintenance, expansion, and continual evaluation and improvement of electricity generation and transmission infrastructure based upon reasonable projections of increased demand, and the need to maintain the nation's energy security. Specifically, ASCE supports:

- Mechanisms for timely approval of transmission lines to minimize the time from preliminary planning to operation.
- Identification and prioritization of risks to energy security, and development of standards and guidelines for managing those risks.
- Design and construction of additional transmission grid infrastructure to efficiently deliver power from remote geographic generation sources to developed regions that have the greatest demand requirements.
- Incentives to promote energy conservation and the concurrent development and installation of highly efficient coal, natural gas, nuclear, and renewable (solar, wind, hydro, biomass, and geothermal) generation.
- Continuing research to improve and enhance the nation's transmission and generation infrastructure as well as the deployment of technologies such as smart grid, real-time forecasting for transmission capacity, and sustainable energy generation which provide a reasonable return on investment.
- Research to appropriately value and remove market barriers to new energy storage projects, which could improve the reliability of the nation's electricity grid and defer the need for some transmission investments. (Adopted 7-12-13)

Energy Policy (PS 489) ASCE supports a national energy policy that anticipates future energy needs and promotes the development of clean and renewable energy supplies while increasing the efficiency of energy use. The policy should:

- Promote strong and continuing U.S. funding and commitment to clean energy research;
- Validate and implement clean and efficient energy sources to meet the nation's energy demands by relying on effective use of domestic natural resources and reducing dependence on foreign energy supplies;
- Reduce the environmental impacts and long-term management responsibilities associated with continued use of traditional energy sources;
- Expand upon domestic development for renewables;
- Provide tax incentives and other inducements to establish a market for cleaner energy production;
- Encourage energy conservation in design, construction, and operation practices;
- Support the maintenance and development of infrastructure for energy operation and transmission; and
- Provide a balanced and ongoing research and development (R&D) program for all sources of domestic energy production that encompasses both government and private industry and supports a U.S. clean energy supply. (Adopted 7-12-13)

Hydraulic Fracturing (PS 539) ASCE supports the exploration and production of oil and natural gas energy resources by means of hydraulic fracturing when based upon sound engineering and industry practices that

protect public health, safety, and the environment. ASCE strongly recommends that current regulations be reviewed, revised or enhanced, as needed, to:

- Mandate full public disclosure of all chemicals and other propping agents in the fracturing fluid.
- Control the handling, use, and disposal of chemicals in the hydraulic fracturing process.
- Establish well construction and decommissioning standards to protect underground sources of drinking water and to prevent methane loss.
- Establish site closure and restoration standards.
- Reduce the freshwater footprint for each fracturing operation by reuse of the flowback fluid.
- Assure the safe treatment and disposal of used fracturing fluids, flowback fluid and producer well waters.
- Ensure adequate controls over stormwater runoff or overflow from the well site.
- Ensure that there is no surface infiltration of waste and production fluids into near-surface aquifers and recharge zones.
- Promote research on hydraulic fracturing, including the effects of multiple drilling operations in a single watershed.
- Protect in-stream water flows and determine the cumulative impact of multiple drilling operations within a single groundwater basin or watershed. (Adopted 7-20-12)

Hydropower (PS 379) ASCE supports the continued use, expansion, and development of hydroelectric power (“hydropower”) opportunities, including pumped storage and hydrokinetic facilities where feasible. The development and use of hydropower must be done in a manner that limits potential environmental impacts, maximizes safety, and balances the use of resources. ASCE supports continued streamlining of licensing regulations for new hydropower projects, as well as improvements to existing hydropower relicensing regulation and implementation. Similarly, ASCE supports the development of pumped storage capacity for the improved integration of renewable and conventional electricity sources, given its ability to store energy and follow changing demand with time. (Adopted 7-12-13)

Nuclear Power (PS 490) ASCE supports the continued use, expansion, and development of hydroelectric power (“hydropower”) opportunities, including pumped storage and hydrokinetic facilities where feasible. The development and use of hydropower must be done in a manner that limits potential environmental impacts, maximizes safety, and balances the use of resources. ASCE supports continued streamlining of licensing regulations for new hydropower projects, as well as improvements to existing hydropower relicensing regulation and implementation. Similarly, ASCE supports the development of pumped storage capacity for the improved integration of renewable and conventional electricity sources, given its ability to store energy and follow changing demand with time. (Adopted 7-12-13)

ENGINEERING PRACTICE

Aesthetics (PS 117) ASCE supports aesthetic quality in engineering design. As aesthetics are integral to good engineering design and sustainability, the cost of aesthetic quality should also be integral to design and construction budgeting. Aesthetic quality should be an element of the planning, design, construction, operations, maintenance, renovation, rehabilitation, reconstruction, and security enhancement of the built environment. (Adopted 7-13-14)

Combating Corruption (PS 510) ASCE supports a zero tolerance policy toward bribery, fraud, and corruption in engineering and construction. ASCE further actively supports the global effort to stem corruption in the procurement and execution of engineering services and construction projects. ASCE openly seeks cooperation with others in a domestic and international effort to empower individual engineers in the fight against global corruption through education, awareness, and the adoption and enforcement of the Principles and Guidelines for Professional Conduct. (Adopted 7-13-14)

Defining Civil Engineering Team (PS 535) ASCE recognizes the Civil Engineering Professional, the Civil Engineering Technologist, and the Civil Engineering Technician as important members of the civil engineering project team. ASCE defines each as follows:

- Civil Engineering Professional (CE Professional) – A person who holds a professional engineering license. A person initially obtains status as a CE Professional by professional engineering (PE) licensure obtained through the completion of requisite formal education, experience, examination, and other requirements as specified by an appropriate Board of Licensure. A person working as a CE Professional is qualified to be professionally responsible for engineering work through the exercise of direct control and personal supervision of engineering activities and can comprehend and apply an advanced knowledge of widely applied engineering principles in the solution of complex problems.
- Civil Engineering Technologist (CE Technologist) – A person who exerts a high level of judgment in the performance of engineering work, while working under the direct control and personal supervision of a CE Professional. A person initially obtains status as a CE Technologist through the completion of requisite formal education and experience and may include examination and other requirements as specified by a credentialing body. A person working as a CE Technologist can comprehend and apply knowledge of engineering principles in the solution of broadly defined problems.
- Civil Engineering Technician (CE Technician) – A person typically performing task-oriented scientific or engineering related activities and exercising technical judgments commensurate with those specific tasks. A person working as a CE Technician works under the direct control and personal supervision of a CE Professional or direction of a CE Technologist. A person initially obtains status as a CE Technician through the completion of requisite formal education, experience, examination(s), and/or other requirements as specified by an appropriate credentialing body. A person working as a CE Technician is expected to comprehend and apply knowledge of engineering principles toward the solution of well-defined problems. (Adopted 7-13-14)

Engineering Surveying Definition (PS 333) ASCE defines engineering surveying as those activities involved in the planning and execution of surveys for the development, design, construction, operation and maintenance of civil and other engineered projects. Engineering surveying may be regarded as a specialty within the broader professional practice of engineering and, includes all surveying activities required to support the conception, planning, design, construction, maintenance, and operation of engineered projects. Engineering surveying excludes the surveying of real property, for the establishment of land boundaries, rights of way, easements, and the dependent or independent surveys or resurveys of the public land survey system. ASCE believes that this definition should be adopted by state engineering licensing boards. Many civil engineers include engineering surveying in their practice of engineering. ASCE advocates that engineering and surveying licensing boards should not require civil engineers to obtain a license as a land surveyor to practice engineering surveying within the definition and exclusions described above. (Adopted 10-10-15)

Professional Ethics and Conflict of Interest (PS 502) ASCE believes that civil engineers must practice with high ethical standards. They must exhibit high levels of honesty, integrity, and fairness, and they must continually guard against conflicts of interest, either real or perceived. ASCE further believes that laws, regulations, employment conditions, or collective bargaining agreements must not hinder or prevent the ethical practice of civil engineering. Civil engineers must:

- Adhere to codes of ethics and conduct to a level above reproach and beyond the influence of competing interests;
- Avoid or properly handle real and perceived conflicts of interest;
- Be free to exercise independent judgment without undue compromise by an employer or organization to which they belong; and
- Not be subject to disciplinary actions or retribution for holding the public interest above all others.

(Adopted 7-18-15)

Risk Management (PS 437) ASCE urges government agencies and private entities at all levels to incorporate risk management in all decision-making processes that affect the public's safety, health, welfare and investments in infrastructure. Further, risk management practices must be clearly communicated to the public. This can be accomplished by government agencies and private entities:

- Developing and implementing up-to-date risk management guidelines;
- Identifying and implementing strategies to reduce risk to public safety from natural and man-made hazards;
- Establishing core risk assessment research programs to ensure that risk management is based on adequate scientific data and appropriate processes; and
- Encouraging and facilitating public participation in formulating risk assessment guidelines.

(Adopted 7-12-13)

Use of the Term "Engineer" (PS 433) ASCE believes that the following standards are the only basis on which any title or designation should include the term "engineer".

- Graduation from an accredited engineering program with a degree in engineering;
- Licensure as a professional engineer or engineer-in-training under a state engineering registration law; or
- An official ruling designating an individual or a group in an engineering capacity as meeting the definition of "Professional Engineer" (P.E.) under the Taft-Hartley Act or the Fair Labor Standards Act.
- Only persons in one of these categories should be designated by the title "engineer" or "professional engineer." This policy shall not be construed to prohibit using the word "engineering" as a modifier in titles such as "engineering assistant," "engineering aide" and "engineering technologist" where the title clearly implies that the duties of the position are not those of professional engineer.
- ASCE further encourages licensed professionals to always use their P.E. title on all professional correspondence and communication where permissible and appropriate. (Adopted 7-12-13)

ENVIRONMENTAL ISSUES

Acid Rain (PS 285) ASCE supports continued control and reduction of the emission of sulfur dioxide and nitrogen oxides, the pollutants shown to contribute significantly to acid rain and other forms of acid precipitation. ASCE also supports further research into the control and mitigation of the sources, causes, and consequences of acid rain. (Adopted 7-13-14)

Comprehensive Pollution Management (PS 362) ASCE recommends that national, state, and local policies and plans for pollution control be developed and implemented from a comprehensive, multimedia, and holistic (e.g. air, soil, water, and biotic) perspective consistent with the principles of sustainable development in the environment. (Adopted 7-12-13)

Consultation on Environmental Regulations (PS 403) ASCE recommends that regulatory agencies seek consultation from outside independent experts knowledgeable in the technical fields affected by the proposed regulation. (Adopted 7-12-13)

Endangered Species Act Reauthorization (PS 438) ASCE recommends that Congress amend the Endangered Species Act (ESA) to:

- Require that science and engineering apply to the process of identifying and listing critical habitat.
- Require that critical habitat decisions be based on improved collection and field testing of data and undergo peer review.
- Allow all interested parties to consult with the U.S. Department of the Interior to determine whether a proposed federal action will jeopardize a species.
- Require that social and economic impacts of critical habitat designations be considered.

- Maintain the use of incentives for conservation of species, including “no surprises” assurances and provisions for multi-species conservation plans as required under current federal regulations.
- Require that mitigation through Habitat Conservation Plans be reasonable and prudent, fully funded, and related to the nature and extent of the impact.
- Require the Department of the Interior to update the scientific basis of listing and recovery plans regularly to ensure that the newest, most pertinent science underpins listing.
- Require the Department of the Interior to implement measures to delist species and applicable habitats in a reasonable time when new data and pertinent science demonstrate that recovery has been successful. (Adopted 7-13-14)

Greenhouse Gases (PS 488) ASCE supports the following public and private sector strategies and efforts to achieve significant reductions in greenhouse gas emissions from existing and future infrastructure systems:

- Establishing sustainable, long-term infrastructure development and maintenance plans at federal, state and local levels that promotes reduction of greenhouse gas emissions and timely adaptation to the effects of climate change, while maintaining or enhancing natural, economic, and social resources;
- Establishing clear and reasonable targets and time frames for the reduction of greenhouse gas emissions;
- Improving energy efficiency and reducing greenhouse gas emissions produced by infrastructure systems over their entire life cycles by making cost-effective use of existing technologies. These improvements should cover all sectors, and include both stationary and mobile systems and emission sources;
- Researching and implementing new technologies and materials to further improve energy efficiency and reduce greenhouse gas emissions;
- Encouraging the use of lower greenhouse gas emitting energy-generating sources such as nuclear, hydropower, wind and solar;
- Incorporating additional incentives for the short term development and implementation of high efficiency and low or zero greenhouse gas emitting technologies and cost-effective carbon capture and storage of emissions from large stationary sources that can't easily be displaced;
- Stimulating private investment in greenhouse gas reducing technologies by establishing a market value for greenhouse gas emissions over the long term;
- Encouraging the use of all tools, including financial mechanisms, to reduce greenhouse gas emissions; and
- Encouraging actions by other countries to reduce their greenhouse gas emissions.

Exploring the utilization of natural systems (e.g., forests, oceans, and subsurface void spaces) as greenhouse gas (carbon) sinks via sequestration as well as developing other greenhouse gas mitigation technologies (e.g., carbon dioxide capture and conversion through phase shift). (Adopted 7-20-12)

Harmful Algal Blooms and Hypoxia Program (PS 482) ASCE supports reduction of the incidence and extent of harmful algal blooms and hypoxia in marine and fresh waters through:

- Continued federal support for the Harmful Algal Bloom (HAB) and Hypoxia Research and Control Acts of 1998 (P.L. 105-383), 2004 (P.L. 108-456) and Amendments to the Act of 2014 (P.L. 113-124),
- Continued support of the Northern Gulf of Mexico Hypoxia and the Great Lakes Hypoxia and HAB assessments and plans for mitigating and controlling hypoxia and HAB programs,
- Continued funding for research, education and monitoring activities of HABs and hypoxia including the development of a comprehensive data system to improve our ability to monitor and assess HABs and hypoxia occurrences, and to improve data access by governmental agencies and the public.
- Continued funding for the implementation and monitoring of prevention, reduction and control activities to address HABs and hypoxia,
- Timely development of action plans to reduce, mitigate, monitor and control the hypoxias and HABs.

- The Environmental Protection Agency (EPA) establishing human health advisories for microcystins and standard analytical procedures for measuring toxin concentrations in drinking water, and
- EPA recommending feasible drinking water treatment techniques to remove microcystin toxins from drinking water supplies. (Adopted 7-18-15)

Impact of Climate Change (PS 360) ASCE supports:

- Government policies that encourage anticipation of and preparation for impacts of climate change on the built environment.
- Revisions to engineering design standards, codes, regulations and associated laws that govern infrastructure potentially affected by climate change.
- Research, development and demonstration to advance recommended civil engineering practices and standards to effectively address climate change impacts.
- Cooperative research involving engineers with climate, weather, and life scientists to gain a better understanding of the magnitudes and consequences of future extremes.
- Informing practicing engineers, project stakeholders, policy makers and decision makers about the uncertainty in projecting future climate and the reasons for the uncertainty.
- Developing a new paradigm for engineering practice in a world in which climate is changing but the extent and time of local impacts cannot be projected with a high degree of certainty.
- Identifying critical infrastructure that is most threatened by changing climate in a given region and informing decision makers and the public. (Adopted 7-18-15)

National Wetlands Policy (PS 378) ASCE believes Congress must amend the Clean Water Act to clarify jurisdiction over wetlands, establish clearly where states must assume responsibility, and provide appropriate federal oversight. ASCE recommends legislation that would:

- Maintain federal jurisdiction over all interstate and navigable waters, their tributaries, and all adjacent wetlands under the pre-2001 U. S. Army Corps of Engineers' (USACE) regulatory program under the Commerce Clause in the U.S. Constitution using an unambiguous test for *significant nexus* to navigable-in-fact waters;
- Clarify state jurisdiction under section 404 of the Clean Water Act over isolated, non-navigable intrastate waters and their adjacent wetlands, including vernal pools, playas, and prairie potholes, considering recent Supreme Court decisions and other jurisdiction based on environmental and wildlife considerations under regulations promulgated by the Department of the Interior or the Environmental Protection Agency (EPA); and
- Amend the Clean Water Act to clarify purely environmental federal jurisdiction over intermittent and ephemeral streams and their adjacent wetlands under section 404 to the USACE, in coordination with the EPA. (Adopted 7-12-13)

Recycling Electronic Waste (PS 527) ASCE supports federal and state policies that comprehensively promote effective and efficient collection and proper recycling of waste electronics in well-engineered facilities on a national basis. Legislation should be consistent with the principles of product stewardship and should target all electronic wastes for recycling and reuse in an environmentally safe and economic manner. (Adopted 7-13-14)

Transportation and General Conformity Under the Clean Air Act (PS 327) ASCE supports an integrated and proactive approach to maintaining and improving the nation's air quality. Clean Air Act regulations should be revised to maximize the flexibility in transportation planning to meet community needs without compromising improvements in air quality or interfering with the attainment and maintenance of the national ambient air quality standards. (Adopted 7-13-14)

Voluntary Environmental Auditing for Regulatory Compliance (PS 356) ASCE supports the use of voluntary environmental audits as a management tool for producing effective regulatory compliance and responsible environmental management. ASCE believes that voluntary environmental auditing should be encouraged by government agencies and private organizations through the dissemination of information and assistance, including standards developed by international standards organizations (ISO) and other governmental

agencies. ASCE also believes when owners demonstrate commitment to achieving compliance, regulators should have authority to waive fines which would have been applicable had violations been uncovered by procedures other than voluntary auditing. Although regulators should have the authority to waive fines, ASCE believes there should be no reluctance to take action where public health and the environment are significantly impacted, or potentially impacted, by situations evident from the audit. (Adopted 7-12-13)

GOVERNMENT

Engineering Management Positions (PS 416) ASCE encourages the selection and appointment of licensed professional engineers to government positions requiring professional engineering knowledge for operational or management decisions. Such positions include those involving the formulation and implementation of public policy, including the oversight of design and construction of public works projects, e.g., directors of public works/utilities, leaders and managers of civil engineering related government entities, and other positions affecting the public health, safety and welfare. (Adopted 10-10-15)

Post Public Sector Employment (PS 393) ASCE supports policies, regulations, and statutes for managing and controlling potential conflicts of interest that could result from activities undertaken by certain employees, including engineers, after leaving public sector employment at all levels of government. Such policies should also promote transparency and address compensation restrictions. (Adopted 7-13-14)

Professional Grade Salary Structure for Government Engineers (PS 346) ASCE supports the concept of professional grade salary structures for licensed professional engineers employed by all government jurisdictions. In order to encourage well qualified licensed professional engineers to enter and remain in technically demanding government positions, ASCE believes that dual career ladders should be established such that position status and total compensation levels for licensed professional engineers are at least equal to those structured for technical and non-technical administrators and are comparable with positions in the private sector. Advancement in professional grade positions should be managed by professional peers and be based primarily on performance and responsibility. (Adopted 7-12-13)

Recruitment and Retention of Qualified Engineers for Government Service (PS 386) ASCE supports the establishment of personnel policies and career packages which will attract, develop, and retain engineers who can perform at a high level of service in the public interest. These policies and packages should include: competitive total compensation (wages and benefits); career advancement based on merit; professional development through involvement in technical and professional societies; support for career advancement; and, a positive and challenging work environment. (Adopted 7-12-13)

HAZARDOUS AND SOLID WASTE

Hazardous Waste Reduction and Management (PS 331) ASCE supports and encourages:

- Safe and environmentally sound reduction in the volume of hazardous waste produced in the United States through better utilization of natural resources, the development and implementation of alternative manufacturing procedures and processes, recovery and the reuse of hazardous wastes as resource materials;
- Development and implementation of legislation, including economic incentive programs, which consider environmental costs and encourage hazardous waste reduction “at the source” i.e., point of generation and/or design of reuse programs;
- Federal and state programs which foster cooperation in the exchange of information on the recovery and use of hazardous wastes as
- resource materials; and
- Implementation of federal and state regulations and international treaties to ensure hazardous wastes are properly identified, categorized, packaged and transported to authorized waste disposal

sites adequately designed for containment and prevention of degradation to air, land, surface water and groundwater resources. (Adopted 7-12-15)

High-Level Nuclear Waste Management (PS 491) ASCE supports:

- Permanent geologic storage as an effective means of safely isolating high-level nuclear wastes and spent nuclear fuel (collectively “HLW”) for the protection of human health and the environment.
- Federal legislation to solve the growing problem of HLW storage through the establishment of a well-engineered repository program encompassing HLW interim-storage practices, transportation, and safe, long-term storage in repositories to address the on-site accumulation of spent nuclear fuel from power plants.
- Closure of the fuel cycle and reduction in spent nuclear fuel waste, such as through reprocessing, for the long-term good of the nation and the preservation of uranium resources. (Adopted 7-13-14)

Low and Intermediate Radioactive Waste Management (PS 262) ASCE supports and encourages:

- Protection of public health and the environment by the proper and timely treatment and disposal of radioactive wastes.
- The early involvement of the public and regulatory agencies in the siting and development of reliable new disposal facilities for low-level and intermediate classes of radioactive waste. Disposal methods used should not place an undue burden on future generations.
- The engineered rehabilitation of existing storage and disposal facilities so they continue to safely meet the needs of government and industry and avoid adversely affecting the environment.
- Public agencies to promote research and development of alternate uses of radioactive wastes, including recycling and innovative methods of radioactive waste minimization and disposal. (Adopted 7-13-14)

Municipal Solid Waste Management (PS 516) ASCE:

- Supports federal and state legislation that would promote, enhance, or facilitate development of resource recovery facilities, including those for recycling, composting, and energy recovery, as well as technologies for reduction of waste generation.
- Supports the United States Environmental Protection Agency’s Resource Conservation Challenge (RCC) strategic plan, with goals of achieving the national recycling rate of 35 percent for municipal solid waste (MSW), beneficial use of secondary materials, priority and toxic chemical reduction, and reuse and recycling (green initiatives) for electronics.
- Opposes federal legislation that would ban the interstate movement of municipal solid waste (MSW) to regional solid waste facilities designed in accordance with state and federal regulations, recognizing that such transport may be appropriate and beneficial in regional solid waste planning efforts. (Adopted 7-12-13)

Revitalization of Brownfields (PS 485) ASCE supports continued federal financial aid to the redevelopment of brownfields sites and urges Congress to reauthorize the Brownfields Revitalization and Environmental Restoration Act of 2002. Congress also should repeal the Environmental Protection Agency (EPA) regulation of November 1, 2005 (70 Fed. Reg. 66,070), that allows persons with less than a baccalaureate degree to perform “all appropriate inquiries” at brownfields sites under section 107 of CERCLA in order to establish a defense to liability under the Act for prospective purchasers. (Adopted 7-12-13)

Superfund Reauthorization (PS 305) ASCE supports reauthorization of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and an amendment to provide “Good Samaritan” liability protection.

ASCE supports the following to enhance actions conducted under CERCLA:

- Increased funding to support all stages of site cleanup for both non-Federal Superfund sites and Federal Superfund sites;
- Defined, clear, and appropriate hierarchy of federal and state responsibilities;

- Use of professionals with appropriate levels of education, experience, and certification to perform site investigation and cleanup work;
- Protect engineers and contractors from liability for site cleanup work conducted in accordance with the standards of care and professional practice at the time the work was performed;
- Use of innovative technology and presumptive remedies;
- Establish cleanup criteria that take into account future uses of sites; and
- Establish a dedicated federal funding source, such as reinstatement of the expired Superfund taxes, to adequately investigate and cleanup sites where responsible parties cannot be identified.
- Establish a comprehensive inventory of abandoned mine sites.(Adopted on 7-13-14)

INFRASTRUCTURE

Endorsement of Infrastructure Projects (PS 404) ASCE may endorse or oppose specific civil engineering projects only when the proposed project has national or global implications. This policy does not prohibit ASCE Regions, Sections, or Branches from independent action at a local level; however a position taken at a local level does not imply endorsement of the Society. (Adopted 7-13-14)

Federal Capital Budgeting (PS 453) ASCE supports the establishment of a federal multi-year capital budget for public works infrastructure construction and major rehabilitation, similar to those used by state and local governments. The capital budget must be separated from non-capital federal expenditures. (Adopted 7-18-15)

Growth and Development (PS 131) ASCE supports sustainable growth and development which incorporates appropriate urban scale and form, diversity of land use and good engineering design to achieve a balance between the interests of the individual, the community and the natural and built environments. Community planning should balance community concerns, private initiatives and local, state, and regional planning objectives. Public and private infrastructure should be concurrent with the development it supports and should be managed at the lowest appropriate level of government. (Adopted 10-8-13)

High-Performance Buildings (PS 528) ASCE supports efforts by the federal government to promote and expand the development of technologies for high performance buildings that provide environmental, economic, and societal well-being, now and for the future, and contribute to community resilience. (Adopted 7-13-14)

Infrastructure Investment Policy (PS 299) ASCE supports financially responsible actions by federal, state and local governments to meet America's infrastructure needs. These actions should support established project and program management principles, including new service and delivery models, innovative financing, appropriate research and technology transfer, and should conform to the principles of sustainability. (Adopted 7-12-13)

Infrastructure Resilience Research (PS 493) ASCE supports additional basic and applied research efforts and the development of national standards in support of design and construction initiatives that will increase the reliability, safety, security, and survivability of the nation's vast infrastructure (e.g., water, energy, utilities, buildings and transportation) against natural and man-made disasters. This includes research, development, and standards that identify and address vulnerabilities in the infrastructure, and promote innovation leading to improved safety, security, sustainability, resilience and survivability. (Adopted 7-13-14)

Investing in America's Schools (PS 452) ASCE supports public school construction, maintenance, modernization, upgrades to address natural and man-made hazards. These are required to support a safe and sound future for America's growing school age population. School planning, design, construction and

operation must include a priority, resiliency and sustainability. It also should be supplemented by research and development for construction methods and design to meet the rapidly changing teaching environment including information technology, energy efficiency, sustainability and remote teaching and activities. The nation's engineering community needs to be included as an active partner. Governments are encouraged to explore alternative financing including lease financing, and public-private partnerships which can provide a combination of financing/ownership/use arrangements to facilitate construction. ASCE also supports federal programs to reduce school bond interest rates. (Adopted 7-18-15)

Life-Cycle Cost Analysis (PS 451) ASCE encourages the appropriate use of Life-Cycle Cost Analysis (LCCA) principles in the design process to evaluate the total cost of projects. The analysis should include planning, funding, design, construction, operation, maintenance, and retirement phases. The analysis should also include resilience and sustainability as well as regulatory, environmental, safety, and other costs reasonably anticipated during the life of the project, whether borne by the project owner or those otherwise affected. (Adopted 7-13-14)

National Infrastructure Bank (PS 532) ASCE supports the creation and operation of a National Infrastructure Bank. Such a bank would leverage public funds and private dollars to invest in infrastructure - transportation, water resources, environment, energy, telecommunications, and public facilities projects.

The National Infrastructure Bank:

- Should be capitalized initially by general fund appropriations and should be self-sustaining after the initial start-up period;
- Should develop financing packages for selected projects which could include direct subsidies, direct loan guarantees, long-term tax-credit general purpose bonds, and long-term tax-credit infrastructure project specific bonds; and
- Should not replace existing infrastructure funding and financing mechanisms, but act as a supplement to leverage federal, state, local, and private infrastructure financing.

(Adopted 7-12-13)

Parks and Recreation Infrastructure (PS 503) ASCE supports immediate and sustained federal action to reinvest in the deteriorating infrastructure of America's national parks, monuments, battlefields, and other preserves including recreation facilities controlled by other federal agencies. This action should consider both protection of our national heritage and enhancement of the experience of park visitors. ASCE also believes that monies collected through onsite user fees and concessionaire agreements should be available to be used for on-site maintenance, operations and enhancements. (Adopted 1-19-13)

Performance-Based Ownership of Infrastructure (PS 543) ASCE encourages the owners of all civil infrastructure, public and private, to become performance-based owners through:

- Use of performance-based standards for the procurement, design, operation, maintenance, and decommissioning of infrastructure;
- Use of infrastructure rating tools, such as the Institute of Sustainable Infrastructure's Envision, that encourage sustainable engineering practices and life-cycle performance of infrastructure projects;
- Inclusion of a comprehensive life-cycle cost analysis in the decision-making processes;
- Encouraging the use of innovative technologies; and
- Consideration of the effect of the overall resilience of the affected community.

ASCE believes that broad adoption of the principles of performance-based-ownership will lead to significant reductions in the life-cycle cost of all civil infrastructure, increased public safety, and improved sustainability. (Adopted 10-5-14)

Post Disaster Reconstruction of Infrastructure (PS 541) ASCE supports the sustainable and resilient reconstruction of affected areas devastated by accidental, intentional and/or natural disaster events. In order to achieve this, ASCE supports the following activities:

- Redesign and reconstruction of disaster protection systems for affected communities at a level appropriate for protection of the population, critical infrastructure and the environment; and

- Reconstruction that incorporates appropriate studies, urban design, application of technology, land use, zoning, and utilization of natural systems to recreate communities that are resilient, sustainable, more livable and less vulnerable to accidental, intentional and/or natural disaster events. (Adopted 10-8-13)

Public-Private Partnerships (PS 526) ASCE recognizes Public Private Partnerships (PPPs) as one of many methods of financing and delivering infrastructure improvements. ASCE supports the use of the PPP project delivery method only when the public interest is protected and the following criteria are met:

- Any public revenue derived from PPPs must be dedicated exclusively back to comparable infrastructure facilities in the state or locality where the project is based. Revenue and assessment of revenue should be reported annually to the general public in a public forum available to access by all.
- PPP contracts must include at a minimum performance criteria that address long-term viability, life cycle costs, return on public and private investment, takeover and turnback, projected yearly revenue, identification of responsible parties and their roles, and residual value.
- Transparency must be a key element in all aspects of contract development, including all terms and conditions in the contract. There should be public participation and compliance with all applicable planning and design standards, and environmental requirements. Appropriate professionals including professional engineers should be part of this process.
- The selection of professional engineers as prime consultants and subconsultants should be based solely on the qualifications of the engineering firm.
- A small business program must be included with establishment of participation goals, outreach provisions, local company and human resources preferences, and presentation of plan to achieve stated goals and provisions. (Adopted 7-10-15)

Regulatory Process for Infrastructure Development (PS 427) ASCE urges the creation of strategies to expedite the regulatory process for infrastructure projects at federal, state and local levels. The goal is to allow critical infrastructure projects to proceed in a timely manner. ASCE also recommends the following strategies to streamline the regulatory process for infrastructure development:

- Mandate concurrent reviews;
- A single administrative processing/permitting agency to shorten and improve the approval process and improve inter-agency collaboration; and
- Time limits for approvals of infrastructure projects. (Adopted 7-12-13)

Resilient Infrastructure (PS 500) ASCE supports initiatives that increase resilience of infrastructure against man-made and natural hazards through education, research, planning, design, construction, operation and maintenance. Development of performance criteria and uniform national standards that address interdependencies and establish minimum performance goals for infrastructure is imperative. Furthermore, an all-hazard, comprehensive risk assessment that considers event likelihood and consequence, encourages mitigation strategies, monitors outcomes, and addresses recovery and return to service should be routinely included in the planning/design process for infrastructure at all government levels. (Adopted 7-13-14)

The Role of the Civil Engineer in Sustainable Development (PS 418) ASCE defines sustainability as a set of economic, environmental and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely, without degrading the quantity, quality or the availability of natural, economic and social resources. Sustainable development is the application of these resources to enhance the safety, welfare, and quality of life for all of society. The civil engineering profession recognizes the reality of limited natural resources, the desire for sustainable practices (including life-cycle analysis and sustainable design techniques), and the need for social equity in the consumption of resources. To achieve these objectives, ASCE supports the following implementation strategies:

- Promote broad understanding of economic, environmental, political, social, and technical issues and processes as related to sustainable development;

- Advance the skills, knowledge and information necessary for a sustainable future; including habitats, natural systems, system flows, and the effects of all phases of the life cycle of projects on the ecosystem;
- Advocate economic approaches that recognize natural resources and our environment as capital assets;
- Promote multidisciplinary, whole system, integrated and multi-objective goals in all phases of project planning, design, construction, operations, and decommissioning;
- Promote reduction of vulnerability to natural accidental, and willful hazards to be part of sustainable development; and
- Promote performance based standards and guidelines as bases for voluntary actions and for regulations in sustainable development for new and existing infrastructure. (Adopted 10-8-13)

Unified Definitions for Critical Infrastructure Resilience (PS 518) ASCE supports a unified set of definitions for the concepts of critical infrastructure, hazards, multihazards, and resilience as follows:

- Critical infrastructure includes systems, facilities, and assets so vital that their destruction or incapacitation would have a debilitating impact on national security, the economy or public health, safety, and welfare. Critical infrastructure may cross political boundaries and may be built (such as structural, energy, water, transportation, and communication systems), natural (such as surface or ground water resources), or virtual (such as cyber, electronic data, and information systems).
- All-hazards include events and conditions such as infrastructure deterioration, natural disasters, accidents, and malevolent acts that have the potential to cause injury, illness, death, damage or disruption of services.
- Multihazards denote the relevant environmental or manmade conditions that are used for engineering analysis and design. A sound multihazard approach to engineering practice will provide infrastructure resilience to all-hazards risks.
- Resilience refers to the capability to mitigate against significant all-hazards risks and incidents and to expeditiously recover and reconstitute critical services with minimum damage to public safety and health, the economy, and national security. (Adopted 10-8-13)

INTERNATIONAL

Building Engineering Capacity in Developing Countries (PS 506) ASCE, in cooperation with the United States government, other interested government and non-government organizations, and ASCE's international partners, champions the development of sustainable local engineering capabilities (i.e. capacity building) in developing countries. ASCE actively collaborates with the American Association of Engineering Societies, World Federation of Engineering Organizations, Pan American Association of Engineers, the United Nations Education, Scientific and Cultural Organization, and others in this effort. (Adopted 7-18-15)

Millennium Development Goals (PS 517) ASCE supports the internationally agreed development goals contained in the Millennium Declaration as they apply to improving the quality of people's lives around the world through science and engineering. ASCE works in collaboration with other domestic and international organizations to engage engineers in addressing the needs of the poor through capacity building and the development of sustainable and appropriate solutions to poverty. In particular, organizations and engineers should be encouraged to consider the appropriate sources of investment and donations, provide guidance on infrastructure investment, and consideration of the varying abilities of persons to pay for (and/or develop capacity for) services and infrastructure through rate structures. (Adopted 7-18-13)

Relationships with Civil Engineering Organizations in Other Countries (PS 146) ASCE encourages the development and growth of civil engineering societies in all countries to help communicate, share, and grow the accumulated knowledge and experience of engineering professionals. Where an engineering society representing the civil engineering profession exists in another country, ASCE will pursue and develop an Agreement of Cooperation with that society. Such agreements will ensure mutual self-interest and embody

terms that encourage exchange of knowledge through publications, electronic media, personal visits, and other means as appropriate, and that promote reciprocal memberships. ASCE will seek to expand and evolve the agreements, when mutually beneficial, into substantive partnerships by adding value through new and existing products and services, by developing an international civil engineering body of knowledge (BoK), within the shared values of Vision 2025 and by enhancing professional practice. Under such agreements, ASCE will extend hospitality, courtesies and guest privileges to members of cooperating societies who attend ASCE functions in the United States and abroad. (Adopted 7-18-15)

LEGAL REFORM

Alternative Dispute Resolution (PS 256) ASCE supports dispute avoidance and alternative dispute resolution techniques such as those contained in the Engineers Joint Contract Documents Committee's (EJCDC) documents to bring disputes related to engineering and construction to a fair, timely and cost-effective conclusion without litigation. (Adopted 7-18-15)

Indemnification for Pro Bono Service (PS 443) ASCE endorses legislation to protect professional engineers from professional liability claims when providing pro bono services to charitable causes and during emergency situations. (Adopted 7-18-15)

Prevention of Frivolous Lawsuits (PS 364) ASCE supports the adoption of Certificates of Merit laws to reduce baseless claims against civil engineers. ASCE encourages and supports legislation that requires a tort plaintiff, prior to instituting a lawsuit, to obtain an opinion from a licensed engineering design professional regarding the validity of the tort plaintiff's underlying professional negligence claim. (Adopted 7-13-14)

Professional Liability/Tort Reform (PS 318) ASCE endorses comprehensive tort reform that includes these elements:

- Limits on non-economic damages;
- Limits on joint and several liability;
- Limits on attorneys' contingency fees;
- Limits on application of the collateral source rule;
- Periodic payments for large awards;
- Use of alternative dispute resolution techniques;
- Reasonable access to insurance industry data;
- Reasonable statutes of limitations or repose;
- Use of Certificate of Merit procedures to discourage frivolous suits; and
- Provide immunity to engineering professionals on construction projects under worker compensation statutes.

(Adopted 7-12-13)

Sole Source Workers Compensation Statutes (PS 508) ASCE supports Sole Source Workers Compensation Statutes because they protect engineers, who are not negligent, from litigation. (Adopted 07-13-14)

LICENSURE

Continuing Professional Development for Licensure (PS 425) ASCE supports requiring a minimum of 15 professional development hours (PDHs) per year of documented continuing professional development, including ethics training, as a condition for maintaining status as a licensed Professional Engineer. ASCE also supports uniformity of continuing professional development requirements among licensing

jurisdictions, specifically through common provider, topic and hour requirements, renewal periods, and documentation. Such uniformity could be achieved through the National Council of Examiners for Engineering and Surveying (NCEES) Records Program; ASCE encourages state licensing boards to use this program. (Adopted 10-10-15)

Engineering Experience for Professional Licensure (PS 547) ASCE believes that prior to licensure as a Professional Engineer, an engineering graduate should have progressive experience in technical breadth and depth in their chosen sub-discipline(s) of civil engineering, and in the following professional practice components pertinent to their practice area:

- Assessment of risk and impacts of engineering activities
- Communication skills
- Professional ethics
- Project management processes
- Business and governmental processes

Employers, mentors, and supervisors of Engineer Interns have a professional obligation to assist Engineer Interns under their supervision in acquiring experience and capability in these professional practice areas, in addition to appropriate technical capabilities. ASCE believes that, as a prerequisite for licensure and consistent with the NCEES Model Law, four years of such progressive experience should be required for those possessing a BS degree from an EAC/ABET program, three years for those having a master's in engineering from an institution offering EAC/ABET programs, and two years for those with an earned doctorate in engineering from an institution offering EAC/ABET programs. (Adopted 10-10-15)

Licensure Examinations (PS 432) ASCE supports licensing examinations to ensure candidates possess the minimum level of competency in technical and professional practice areas necessary to protect and enhance the health, safety and welfare of the public, consistent with the civil engineering Body of Knowledge. The Fundamentals of Engineering (FE) exam should measure the academic preparedness of the individual to continue in the licensure process, and also serve as an important role in outcomes assessment for engineering programs to facilitate continuous improvement of those programs. The purpose of the Principles and Practice of Engineering (PE) Examination is to assess an individual's ability to apply engineering principles in the professional practice of civil engineering. It is ASCE's position that significant progressive engineering experience should be necessary to pass the PE exam. The PE exam should be structured to test knowledge gained through education and experience. Together, these examinations should provide candidates with the opportunity to demonstrate their competency gained through both education and experience, and cover a reasonable range of problems from sub-disciplines of civil engineering. ASCE advocates that all candidates for licensure as professional engineers should demonstrate their competency by passing both the FE and PE examinations. (Adopted 10-10-15)

Licensure and Advanced Credentialing within the Civil Engineering Profession (PS 524) ASCE supports licensure as a Professional Engineer (PE) that recognizes the traditional breadth of the civil engineering practice. ASCE also supports post-PE credentialing that attests to a Professional Engineer's expertise in a civil engineering specialty area. Obtaining a PE license and or post-PE credential shall require the engineer to demonstrate attainment of an appropriate body of knowledge. (Adopted 10-10-15)

Licensure Requirements for Government Engineers (PS 385) ASCE advocate that government agencies at the local, state and federal levels require licensure of their civil engineers who are responsible for preparing, supervising, reviewing and/or approving public policy, projects and programs, in accordance with the legal professional requirements of the jurisdiction within which the project is to be constructed or regulated. Government agencies are encouraged to pay licensure fees of their engineering employees. (Adopted 10-10-15)

Professional Licensure Mobility (PS 464) ASCE supports enhanced licensure mobility through expedited comity for professional licensure among licensing jurisdictions. Expedited comity enables a professional engineer with a current Council Record from the National Council of Examiners for Engineering and

Surveying (NCEES), who is designated by NCEES to be a Model Law Engineer, to receive a license from another jurisdiction within several days to two weeks' time. (Adopted 10-10-15)

Professional Licensure of Engineers (PS 130) ASCE endorses, supports and promotes the professional licensure of engineers with appropriate standards for education, experience, examination, continuing professional development and professional conduct to protect and enhance the health, safety and welfare of the public. (Adopted 10-5-14)

State Licensure Boards for Professional Engineers (PS 450) Licensing of Professional Engineers is the responsibility of licensing boards in each jurisdiction. ASCE advocates that boards be structured to include a public member and board members who are professional engineers representing the breadth and diversity of engineering practice, and in proportion to the percentage of licensed civil engineers in that jurisdiction. ASCE also advocates that:

- Boards have authority and jurisdiction over those fraudulently practicing engineering, including unlicensed practice, and should actively pursue perpetrators;
- Boards require the licensing of all practicing civil engineers;
- Board members who are professional engineers be responsible for judging the qualifications of applicants;
- Licensing boards encourage the adoption of provisions of the Model Law of the National Council of Examiners for Engineering and Surveying (NCEES) and adopt provisions of the NCEES Model Rules in order to facilitate expedited comity licensure for civil engineers and support consistency of continuing professional development requirements between jurisdictions; and
- Licensure and renewal fees assessed by boards should be consistent with the cost to administer and enforce the appropriate regulatory acts, and all fees should be used for implementing the licensure act. (Adopted 10-10-15)

PROCUREMENT / CONTRACT ISSUES

Application of Prevailing Wages to Professional Survey Crews (R 542) ASCE opposes any effort by the Labor Department to consider an expansive definition of the terms “laborers or mechanics” to include professional surveying crews within the coverage of the prevailing wage determinations of the Davis-Bacon Act. (Adopted 12-11-13)

Design Build Procurement (PS 400) ASCE supports the use of Qualifications-Based Selection (QBS) criteria when using the two-phase competitive source selection process required by the Federal Acquisition Reform Act of 1996 (Pub.L.104-106) for design-build contracts awarded by government agencies. The Act clearly contemplates retaining the essential QBS concepts embodied in the Brooks Act and requires that the contracting agency (“owner”) devote sufficient architectural and engineering (A/E) services to prepare the design-build solicitation (which must identify the disciplines needed in the design-build team), and to represent the owner’s interests throughout the project duration. The contract between the owner and the design-build team must establish a means for direct communications between the owner and the designer, as well as communication with other team members. The owner should provide predetermined reimbursement to the firms selected to submit complete design-build proposals (Adopted 7-12-13)

Design Competition (PS 439) ASCE endorses selection of consultants for engineering projects based on design competition as one method of qualifications based selection (QBS), provided that each competing firm is compensated for reasonable competition costs as outlined in the request proposals; the makeup of the selection panel includes licensed engineers who are competent in the technical aspects of the project and do not have a vested interest in any of the competing engineering firms; and, selection is based on design quality, not design fee. (Adopted 7-13-14)

Engineering Services for Government Agencies (PS 138) ASCE believes it is appropriate that licensed professional engineers employed both in the public and private sectors perform engineering functions and tasks for government agencies. It is in the best public interest for federal, state and local government agencies performing engineering to maintain expertise within their organizations by employing civil engineers and providing for their professional development. It is also in the best public interest for federal, state, and local government agencies not to compete with engineers in private practice on projects outside of the agencies' domain. Public sector engineering projects that can be accomplished more efficiently by private engineering firms should be contracted to them with public agencies providing oversight. The amount of project work performed by each agency should be based on the technical capability and the number of projects that it can successfully manage. There should not be by legislation or regulation that require a ratio or percentage of services to be executed by public organization staff and private sector staff. (Adopted 10-10-15)

Offshoring of Engineering Services (PS 509) ASCE believes that off-shoring of engineering services should be accomplished in a manner that protects the public health, safety, and welfare. ASCE believes that engineering services must address the following criteria:

- Engineering quality control;
- Licensing laws related to responsible charge;
- Principles and/or requirements of Qualifications-Based Selection using full disclosure of staffing and location;
- Appropriate homeland security requirements; and,
- Fair trade practices. (Adopted 7-13-14)

Qualifications Based Selection of Professional Engineers (PS 304) ASCE believes that the selection of Professional Engineers as prime consultants and subcontractors should be based on the qualifications of the engineering firm. Qualifications including education, training, experience, past-performance, capabilities, personnel and workloads should be evaluated when selecting an engineering firm. Cost of engineering services, while important and meriting careful negotiations, is related to work to be performed which often is not clearly defined at the time the engineer is selected. Therefore, selecting consultants based on cost is not recommended. ASCE supports qualifications-based selection (QBS) procedures such as those specified by the Brooks Architect-Engineers Act of 1972, 40 U.S.C. 1101 *et seq.*, more than 40-mini Brooks Acts, and the American Bar Association's Model Procurement Code for State and Local Governments for the engagement of engineering services. ASCE recommends that the application of these procedures to the development of a scope of work and the selection, procurement and administration of contracts for engineering services be the responsibility of technically qualified staff of the project owner. (Adopted 10-8-13)

Use of Electronic Signatures and Seals (PS 492) ASCE supports the use of electronic signatures of licensed Professional Engineers or Surveyors for sealing drawings where state law permits provided adequate security measures are in place to protect the integrity of both the documents and the signature. ASCE does not support regulations that mandate the use of electronic signatures and seals as the sole means for endorsing final documents. (Adopted 7-13-14)

Warranty and Guarantee Clauses in Contracts for Engineering Services (PS 388) ASCE opposes the inclusion of warranty, guarantee, or similar clauses in contracts for professional engineering services. (Adopted 7-12-13)

PUBLIC INVOLVEMENT

Appointment of Engineers to Policy Positions in Government (PS 101) ASCE strongly encourages and supports the appointment of civil engineers to policy level positions in government agencies. ASCE will recommend and endorse candidates for appointed office as appropriate. (Adopted 7-18-15)

Public Involvement in the Decision Making Process (PS 139) ASCE actively participates in and strongly supports the involvement of civil engineers, as well as individual citizens and coalitions, in the legislative and regulatory decision making processes at the local, state and national levels. (Adopted 7-12-13)

The Role of Non-Profit Education Organizations in the Public Sector (PS 460) ASCE believes that non-profit educational organizations operated under Section 501(c)(3) of the Internal Revenue Code must be free to perform their educational function in the public sector without unreasonable government restrictions or the loss of opportunities for federal assistance for their activities. (Adopted 7-18-15)

QUALITY / STANDARDS

International Codes and Standards (PS 365) ASCE encourages broader participation by the United States (U.S.) in the development of international codes and standards and the adoption of relevant provisions in the domestic codes and standards while supporting, maintaining, and strengthening the existing domestic standards development system. ASCE supports the development and standardization of international codes and standards where possible. ASCE advocates for:

- The revision of International Organization for Standardization (ISO) standards if and where the American National Standards Institute (ANSI)/ U.S. standards provide better health, safety, and welfare provisions; and
- The revision or development of new ANSI/U.S. standards appropriate for domestic use where ISO standards provide better health, safety, and welfare provisions. (Adopted 7-18-15)

Model Building Codes (PS 525) ASCE supports the development, adoption, and enforcement of a national model building code as a key method of creating disaster resilience in communities to protect and improve public health, safety, and economic vitality. Specific attention should be given to the following:

- Support the adoption of a national model building code;
- Promote national incentive programs encouraging state and local agencies to adopt building codes;
- Improve implementation of current building codes and increase resources for enforcement;
- Advance and participate in the creation or improvement of model building codes; and
- Support funding for research that is necessary for the development of model building codes. (Adopted 7-13-14)

Quality Management Systems Standards (PS 431) ASCE supports the development and application of quality management system standards, including international standards such as the ISO-9000 and the American Society for Quality Control (ASQC) Q90 series, to professional engineering services and the application of those standards to the constructed project, including certification and registration procedures to recognize that quality management processes are in place within an organization. Care must be taken, however, to ensure management system standards are consistent with civil engineering standards of practice and the principles of sustainable development, life-cycle performance, and resiliency. (Adopted 7-13-14)

RESEARCH

Aviation Infrastructure Research (PS 471) ASCE supports the continued and increased funding of the Airport Cooperative Research Program for research necessary to improve civil aviation infrastructure systems. ASCE urges that Congress permit Airport Improvement Program (AIP) funds to be used for research and development. ASCE supports spending an amount equal to at least one percent of the Airport Improvement Program, plus at least \$10 million per year for the Airport Cooperative Research Program, for aviation infrastructure research. (Adopted 7-18-15)

Building and Fire Research at the National Institute of Standards and Technology (PS 319) ASCE supports the services provided by the Building and Fire Research (BFR) programs at the National Institute of Standards and Technology (NIST) and the research, development, and technology transfer they conduct. ASCE supports continued and expanded funding to ensure that the BFR programs can carry out its mission of promoting U.S. innovation and competitiveness by anticipating and meeting the needs of the U.S. building and fire safety industries for measurement science, standards, and technology. ASCE supports new funding initiatives to expand the research effort by BFR programs and university labs into other man-made and natural hazards; their effects on structures and building equipment; and the mitigation of their impacts including new metrics to enable proper assessment of infrastructure resilience and life-cycle performance. Such new metrics are needed to properly assess life-cycle performance of buildings and other infrastructure. (Adopted 7-13-14)

Incentives for Implementing Construction Innovation (PS 456) ASCE supports the establishment and maintenance of incentives at the federal, state and local levels to foster the use of innovative procurement, financing, construction practices, reuse/decommissioning, technologies, and materials in publicly supported construction and infrastructure renewal activities, including the development of guidelines and standards. (Adopted 7-13-14)

Infrastructure Research and Innovations (PS 313) ASCE supports infrastructure research and development to enhance economic vitality while assuring public safety, quality of life, sustainability, and disaster resilience. Appropriate methods to implement infrastructure research, innovation and security include supporting: Legislation and policies that encourage development of innovative technology and processes:

- Through appropriate incentives, research to accelerate the development of existing technology and develop new technology in the fields of design, materials, construction, maintenance, rehabilitation, and operation of the infrastructure with understanding of the need for sustainability and disaster resilience;
- Appropriate funding for infrastructure research at the federal level in conjunction with state/local agencies, universities, and private enterprise;
- Efforts to identify and disseminate information on federal, state, and local governments, academia, and private sector infrastructure research and development activities;
- Efforts to implement innovative infrastructure technology;
- National attention on infrastructure needs through cooperative efforts;
- Opportunities for academia and practicing engineers to conduct research and development activities;
- Research on infrastructure as a system such as network modeling involving co-located infrastructure, interdependencies of life lines, and cascading effects of compromised infrastructure on society; and
- Supporting efforts that develop and implement new strategies and technologies to mitigate the impact of disasters on the nation's infrastructure in a consistent manner. (Adopted 7-12-13)

National Science Foundation (PS 336) ASCE supports the mission of the National Science Foundation (NSF) and its research across all disciplines of basic scientific research. ASCE supports making the research and education activities of NSF a national priority for funding. Additionally, ASCE urges that the current system of support for basic research based upon excellence, competitive scientific merit and peer review be preserved. ASCE will promote programs and funding initiatives that support the research and education needs of the civil engineering profession by:

- Highlighting research and education needs regarding civil infrastructure by regular, direct communications with government leadership;
- Identifying, encouraging, and promoting its members to participate in NSF advisory committees, review panels, rotating leadership positions, and the National Science Board;
- Establishing appropriate mechanisms to collaborate with NSF, its Engineering Directorate, and other civil engineering research and education programs in NSF; and

- Encouraging an increase in funding for NSF with a specific focus on engineering research needs, particularly with respect to civil infrastructure and natural hazards mitigation. (Adopted 07-13-14)

Publication of Publically Funded Research (PS 538) ASCE endorses the principle of providing public access and enhancing dissemination of federally funded research in ways that advance public health and safety, and strengthen the global quality of life. At the same time, ASCE deems it essential to preserve the scholarly value of the peer-reviewed version of record, fixed at its time of presentation without any possibility of historical rewriting; that the original work cannot be altered by the author or anyone else; and that the value of added work by learned societies, acting in accordance with their educational mission, is reimbursed for the investments they make in managing the peer review process, editing, publishing, disseminating, and maintaining an ever-growing archive in perpetuity. ASCE is concerned that the process to mandate open access to publicly funded research could undermine the abilities of scientific societies to meet their obligations to the U.S. scientific community, to the American public, and to scientists worldwide. ASCE believes that open access laws must:

- Promote the efficient and effective dissemination of federally funded research results;
- Preserve peer review;
- Accommodate the economic implications of various public access models;
- Recognize the impact on the federal budget; and
- Protect against the potential abuse or misuse of scientific and technical information.

(Adopted 7-18-15)

Research and Development Tax Credits (PS 455) ASCE supports a permanent research and development (R&D) investment tax credit for corporations. The tax credit should be applied to total R&D spending. To be most effective, tax policy should:

- Motivate industry to adopt a longer-term view of return on investment in engineering R&D and encourage the reinvestment of profits;
- Encourage risk taking in the use of new technology on developing projects and the commercialization of processes; Encourage the improvement of structural design standards related to mitigating the effects of manmade and natural hazards;
- Apply equally to both large and small corporations;
- Encourage collaborative research, which leverages federal R&D funds through government university-industry partnerships; and,
- Encourage investment in new and upgraded research facilities through more favorable depreciation rules and equipment credits. (Adopted 7-13-14)

Research in Civil Engineering (PS 187) ASCE supports basic and applied research and development (R&D) along with demonstration and commercialization programs in civil engineering Research programs should be structured to meet needs for:

- Revitalizing the nation's public works infrastructure to protect citizens, by improving function and reducing life-cycle costs;
- Enhancing environmental quality and fostering sustainable development;
- Increasing the application of emerging technologies, materials and processes to improve security, durability, disaster resilience, and performance of engineered systems;
- Advancing the competitiveness and business performance of the practice of civil engineering and the industries supported by civil engineering services to improve the nation's competitiveness; and
- Enhancing the security, safety and resilience of critical infrastructure to protect the safety and economic vitality of the nation against natural and man-made hazards. (Adopted 7-18-15)

The Role of the Federal Government in Civil Engineering Research and Development (PS 444) ASCE supports a focused federal civil engineering research and development (R&D) program. R&D programs should promote new U.S. capabilities, improve efficiencies, and advance the practice of civil engineering to improve the quality of life. ASCE encourages coordinated and integrated basic and applied civil engineering research that leverages federal R&D funds through government-university-industry

partnerships. R&D programs fostering basic research should focus on maintaining a steady flow of talent and technology to U.S. industry and agencies. R&D programs focusing on higher risk research with the potential for high payoff should meet national needs and improve the quality of life by:

- Enhancing public health and safety;
- Enhancing environmental quality;
- Supporting the goals of sustainable development;
- Developing and improving test methods and standards for evaluating materials, products, and systems;
- Improving public works infrastructure;
- Improving global competitiveness in U.S. civil engineering products and processes;
- Enhancing national security against terrorism and other threats; and
- Ensuring national energy security. (Adopted 7-18-15)

SAFETY

Construction Site Safety (PS 350) ASCE believes improving construction site safety requires attention and commitment from all parties involved. This is accomplished by the following:

- Safety issues are addressed for each project on a project specific basis. The following responsibilities should be addressed in the contracting documents.
- Owners have responsibility for:
 - Assigning overall project safety responsibility and authority to a specific organization or individual, (or specifically retaining that responsibility);
 - Designating an individual or organization to develop a coordinated project safety plan and monitor safety performance during construction;
 - Designating responsibility for the final approval of shop drawings and details through contract documents; and
 - Including prior safety performance as a criterion for contractor selection.
- Design engineers have responsibility for:
 - Recognizing that safety and constructability are important considerations when preparing construction plans and specifications; and
 - Providing through the specifications that the design or details of critical elements of temporary construction, erection and lifting schemes, complicated form work and scaffolding be prepared by a professional engineer.
- Contractors have responsibility for:
 - Control of the worksite;
 - Developing and implementing a coordinated project specific safety plan, as per American National Standards Institute (ANSI) A10.33 and ANSI A10.38; and
 - Maintaining the safety of their employees and of all other persons in the work area or on the worksite.
- A Construction Manager who functions as an owner’s agent should assume the same safety responsibilities as an owner. A Construction Manager who has an “at risk” contract with the Owner should assume the same responsibilities as a contractor.
- The safety responsibilities of design-builders are the same as those of design engineers and contractors.
- Educators are encouraged to:
 - Incorporate project site safety and constructability concepts in design and construction curricula;
 - Emphasize engineer’s role in providing a safe and healthy environment to personnel engaged in project activities through proper planning and design; and
 - Conduct basic and applied research to advance the knowledge and practice of safe design and construction;

- All employers with employees on the construction site should provide appropriate safety training for their employees on specific hazards they may encounter, and inform employees concerning hazardous materials under the right to know provisions of the law.
- All on-site workers, after proper training, should assume personal responsibility and accountability for their actions, including knowing and observing safety rules and safe work procedure; wearing and using the required clothing, equipment and protective devices and being free from drugs and alcohol.
- Design or details of critical elements, such as temporary construction, erection and lifting schemes, form work, scaffolding, and the use of lifting equipment and its supports should be approved by a professional engineer.
- The construction industry should develop innovative methods, techniques, and equipment, and assist in the formulation of legislation and in the development of ongoing safety training and education.
- The Occupational Safety and Health Administration (OSHA) should continue to identify safety and health hazards and establish technical rules and standards in conjunction with the construction industry, while emphasizing voluntary participation, education and training. (Adopted 7-12-12)

Crane Safety on Construction Sites (PS 424) ASCE, recognizing that crane and rigging operations on construction sites require special consideration in order to protect against deaths and injuries, believes that improvements in the site operation of cranes can and should be made. ASCE supports efforts in the construction industry to promote and specify safety improvements which:

- Require compliance with applicable regulations, codes and standards.
- Protect the public during crane and hoisting operations.
- Encourage owners to participate actively in project safety including the assignment of responsibility to develop a coordinated project safety plan that addresses crane, hoisting, and rigging safety, and includes electrical power line hazards.
- Require the architect/engineer (A/E), as action agent for the contract documents, to include requirements that the contractor prepare a site safety plan that includes provisions for crane and hoisting safety.
- Assign to a prime contractor/construction manager/general contractor (PC/CM/GC) the primary authority and responsibility to coordinate construction site safety, including the management of crane and hoisting operations.
- Require the PC/CM/GC to develop a site-specific crane and rigging safety to plan which includes both production and critical lifts and train management staff and job site personnel in crane and rigging safety procedures, specifically addressing electrical power line hazards on or adjacent to the site.
- Encourage manufacturers to standardize load chart formats and equipment control configurations, with all manuals written in the language and vernacular of the end user in addition to SI units and containing detailed explanatory graphics. Documentation should also state limitations of equipment for wind and on water operation.
- Support existing programs that promote the certification of crane operators and support the establishment of a rigger, signalperson, and crane inspector certification program. The programs should:
 - o Be recognized by the Occupational Safety and Health Administration (OSHA);
 - o Provide uniform, national standards;
 - o Be industrial relations neutral;
 - o Provide local testing on demand; and
 - o Require periodic, equipment-specific retesting.
- Support a program that promotes the continuing education of OSHA inspectors in crane and hoisting operations.
- Encourage insurance companies to promote to their customers, contractors, and crane and hoisting specialty contractors, the implementation of site-specific crane safety plans and hoisting and lift planning.

- Encourage the development and implementation of technology to improve hoisting and lifting operations.
- Encourage colleges and universities to offer courses within their civil engineering, construction, and continuing education programs that address the safe operation of cranes, hoisting, and proper rigging procedures.
- Require a Professional Engineer to review critical lifts as defined by the crane, hoisting, and rigging safety plan whenever there is risk to the general public and/or jobsite personnel.

(Adopted 7-12-12)

Inspection of Existing Facilities (PS 283) ASCE supports the requirement that all infrastructure (buildings, other structures, and utility systems), whether public or private be maintained in a safe and functional condition. This should be accomplished through monitoring, inspections, maintenance programs and rehabilitation; and the effort must be supervised by a qualified individual. All infrastructure owners should develop monitoring, inspection, maintenance and rehabilitation plans appropriate to their particular facilities, uses, and occupancies in order to ensure that constructed facilities are both safe and functional.

(Adopted 7-12-13)

Post-Construction Drawings of Civil Engineering Projects (PS 290) ASCE believes that post-construction drawings documenting the location and layout of civil engineering projects should be completed by licensed professional engineers and/or professional surveyors. Accurate post-construction drawings documenting the built location and layout of civil engineering projects are valuable means to verify substantial compliance with the design documents, for inventory and for record keeping. (Adopted 7-18-15)

SPACE

Critical Remote Sensing Information (PS 472) ASCE supports strong government and commercial space activities for the benefit of Earth-based infrastructure, to improve the robustness and sustainability of that infrastructure. Space-based infrastructure provides critical information for monitoring and predicting the natural processes that affect Earth-based infrastructure (weather, earthquakes, landslides, etc.). Government and commercial policies must:

- Ensure access to publicly-funded high-resolution GPS (global position systems) data, communications, imagery, and other useful space-based data free of direct user charges, for peaceful civil uses; and
- Permit access to space-based data at the lowest possible classification. (Adopted 7-12-13)

Space Infrastructure (PS 512) ASCE supports government and commercial development of space-based infrastructure to improve the sustainability and quality of life. These ends will be enhanced by policies that:

- Develop the land-based infrastructure to support space programs;
- Bring the experience and knowledge of civil engineering to bear on the exploration and settlement of space;
- Support characterization of non-terrestrial environments, to better design, construct, and maintain terrestrial and non-terrestrial facilities of all types, and to augment scientific data obtained there from;
- Improve the economic attractiveness of space for commercial investment;
- Educate stakeholders, including civil engineers, space industry professionals, and the general public; and
- Promote international cooperation in space activities. (Adopted 10-8-13)

TAX ISSUES

Unrelated Business Income Tax (PS 325) ASCE supports preservation of the existing unrelated business income tax (UBIT) statute, as well as increased Internal Revenue Service (IRS) enforcement of the current UBIT rules. (Adopted 7-18-15)

TRANSPORTATION

Aviation Transportation Program (PS 445) ASCE supports the permanent extension and increase of user fees to adequately fund the Airport Improvement Program (AIP) through the Airport and Airway Trust Fund (Trust Fund). Such funds should not be used to pay for security costs but specifically used for airport capacity, air traffic and airport maintenance and improvement. Furthermore, ASCE recommends that all monies collected from these user fees be deposited in the Trust Fund with budgetary firewalls to eliminate the diversion of transportation revenues from non-airport capacity, air traffic and maintenance and improvement purposes. ASCE supports timely multi-year reauthorization of aviation programs to ensure predictability and stability in airport improvement funding. Trust fund balances should not exceed necessary funds to meet obligations plus an appropriate reserve. Budget protections, such as firewalls or spending guarantees and supporting mechanisms, which make it difficult for Congress to appropriate less than the amount authorized for the Airport Improvement Program, should be part of the reauthorization of the Federal Aviation Administration (FAA) programs to maximize investment in the nation's aviation infrastructure. (Adopted 7-18-15)

Bridge Safety (PS 208) For the continued safety of America's traveling public, ASCE advocates that a bridge safety program for both public and private bridges be fully funded and consistently operated to rehabilitate or replace deficient bridges and to properly maintain all others. This program should preserve full functionality of all bridges to support the operation of safe, reliable and efficient transportation systems, and to allow these systems to be utilized to their full capacity. Such programs as a minimum should include:

- Regular programs of inspection and evaluation that incorporate state-of-the-art investigative and analytical techniques, especially of older bridges which were not designed and constructed to current design loading and geometric standards;
- Posting of weight and speed limits on deficient structures;
- Implementing and adequately funding regular, system-wide maintenance programs that are the most cost-effective means of ensuring the safety and adequacy of existing bridges;
- Utilizing a comprehensive program for prioritizing and adequately funding the replacement of functionally obsolete and structurally deficient bridges; and
- Setting a national goal that less than 8% of the nation's bridges be classified as structurally deficient or functionally obsolete by 2020. (Adopted 7-18-15)

Complete Streets (PS 537) ASCE supports Complete Streets policies that require that the safety, interests, and convenience of all users – drivers, bicyclists, transit users and pedestrians of all ages and abilities – be considered in the design, construction, operations, and management of transportation projects. ASCE believes that America's transportation system should be designed, built, operated, and managed for safe travel by everyone. (Adopted 7-13-14)

Freight Mobility (PS 546) ASCE supports a national freight mobility program that is economically efficient, intermodal, and environmentally sound; provides a national foundation for global economic competitiveness; and moves goods in an energy efficient manner. ASCE supports a comprehensive national freight plan that:

- Designates a comprehensive national freight transportation policy and identifies a national, multimodal freight network;
- Utilizes strategic planning to steer investment;
- Ensures robust public investment in all modes of transportation on which freight movement relies, and provides incentives for additional private investment in freight transportation facilities to maintain and improve the condition and performance of the network;

- Provides sustainable, dedicated user-fee funding to guarantee the efficient multimodal movement of goods and to reduce system congestion;
- Efficiently delivers infrastructure projects to shorten delivery times and decrease costs;
- Minimizes impact to passenger rail operations on rails owned by freight railways and constraints to passenger rail posed by freight activity;
- Identifies solutions to alleviate chokepoints and add capacity to freight facilities; and
- Considers safety at facilities that accommodate both passenger and freight activity.

High-Speed and Intercity Passenger Rail (PS 402) ASCE supports the planning, development, and operation of a national network of high-speed and intercity passenger rail (HSIPR) systems including advanced technology high speed ground transportation (HSGT) systems in the United States. Investment in HSIPR should be prioritized based upon travel time savings, reduced energy consumption, mobility, economic factors, and environmental benefit, and be balanced between incremental improvements to existing rail systems and the development of advanced HSGT. (Adopted 07-12-13)

Highway Safety (PS 367) ASCE) advocates a significant, sustained effort to reduce traffic crashes and related deaths and injuries through improvements in all aspects of highway system performance. ASCE supports a program where significant enhancements in highway safety and the resulting reduction of highway crashes can be achieved by:

- Establishing a national highway safety goal;
- Fully implementing strategic highway safety plans required to be developed under MAP-21;
- Establishing and maintaining complete, current and accurate traffic crash data systems;
- Inspecting and auditing existing roadway systems to identify roadway hazards and safety improvement opportunities, and implementing highway and other engineering-related improvements proven effective in reducing the potential for, and severity of, traffic crashes;
- Enhancing the organizational prominence of highway safety within federal, state, and local transportation agencies to provide a more effective voice in agency administration, leadership development, and program direction;
- Improving work zone safety and mobility;
- Continuing to improve understanding of motor vehicle performance characteristics, as well as the interaction between vehicle standards and highway system design on highway safety and to improve the overall effectiveness of existing motor vehicle standards;
- Encouraging universities to continue to include highway safety issues in educational programs for engineering and other highway professionals;
- Incorporating new technology, better management practices, and a better understanding of the effect of human factors into all levels of transportation systems;
- Supporting additional funding for highway safety research and for the education of highway safety professionals;
- Expanding the development and application of Intelligent Transportation Systems (ITS) programs to enhance highway traffic safety;
- Increasing law enforcement to address driver behavior and other factors contributing to crashes;
- Improving and expanding public education programs to increase driver awareness of attitudes and behavior that affect highway safety;
- Providing flexibility in federal aid funding programs for high priority highway safety improvement programs, and to continue targeting national safety problems through categorical funding;
- Addressing the issue of distracted driving through public education and legislation; and
- Recognizing the safety, operational, and sustainability benefits of well-designed intersections and considering the use of roundabouts, diverging diamonds and other innovative designs when intersections are being planned, or modified. (Adopted 7-13-14)

Incorporating Bicycle Facilities into Transportation Planning and Design (PS 436) ASCE supports the routine consideration of bicycle facilities in the planning, design, construction, and maintenance of roadways and multi-modal transportation systems as an integral element in the design of a sustainable community infrastructure. (Adopted 7-13-14)

Innovative Financing for Transportation Projects (PS 496) ASCE supports innovative financing programs for transportation projects and advocates making programs available to all states. Additionally, the federal government should make every effort to develop new programs and/or additional flexibility in innovative procurement approaches. ASCE supports the following changes to enhance the existing programs that seek to leverage existing revenue streams:

Transportation Infrastructure Finance and Innovation Act (TIFIA):

- The TIFIA process for review, approval and negotiation is regarded as lengthy and should be accelerated;
- The demand for TIFIA credit assistance exceeds the current funding for the program;
- TIFIA resources should be increased; and
- TIFIA loans should be "fully subordinated." Current TIFIA legislation is written to subordinate TIFIA loans to other creditors. However, in the event of liquidation/default, the TIFIA loan advances to parity status with other creditors. This is known as the "springing lien" provision. It is thought by some that this has limited the availability of other credit. The issue is controversial, with pros and cons on both sides, but reform should be seriously considered.

State Infrastructure Banks (SIBs):

- All states and the five territories are authorized to enter into cooperative agreements with the Secretary of Transportation to establish infrastructure revolving funds (often as State Infrastructure Banks, or SIBs) eligible to be capitalized with Federal transportation funds; and
- The SIB program should remain with current needs outpacing available resources.

National Infrastructure Bank (NIB)

- ASCE supports the establishment of a National Infrastructure Bank with an initial focus on transportation-related investments and flexibility to expand to other sectors over time; and
- Creating a National Infrastructure Bank will provide another finance tool that can be used to support projects of regional and national significance.

Grant Anticipation Revenue Vehicles (GARVEEs):

- Increase the flexibility of GARVEE bond repayment methods. For example, utilize the total apportionment amount as a source of repayment (i.e., all funding categories), so that no particular funding category is overburdened. (Adopted 7-12-13)

Intelligent Transportation Systems (PS 454) ASCE supports the use of Intelligent Transportation Systems (ITS) as a cost effective means of increasing the safety and efficiency of our transportation systems. ITS is a critical set of tools in a nationwide effort to manage the crisis of congestion in our urban areas and reduce the number of crashes and fatalities on our roadways each year. Working together, the public, private and academic sectors should provide the leadership and commitment to continue the deployment of ITS for consumers of passenger and freight transportation across the nation, and the federal government should continue its leadership through technical, policy, and financial support. ASCE strongly endorses federal leadership in the research and development and the practical and timely deployment of ITS nationwide to increase the efficient utilization of our transportation systems and enhance safety and security through the application of technological advancements. Federal funding for deployment will not only facilitate faster realization of benefits, but further serve notice that this should be a priority within individual transportation agencies and organizations. (Adopted 07-13-14)

Integrated Truck and Highway Design (PS 276) ASCE supports a program in which:

- Truck vehicle characteristics and highway design is coordinated through joint research activities, such as the National Cooperative Highway Research Program. ASCE urges Congress, the Federal Highway Administration, the Federal Motor Carrier Safety Administration, state transportation agencies, and the trucking industry to form these strong cooperative relationships.
- New and reconstructed roadways are structurally, geometrically, and environmentally designed to support economic growth, global competitiveness and increased employment opportunities. Modern truck sizes, weights, lane widths, land-use contracts and interaction with passenger vehicles are examples of design criteria to consider that lead to ensuring the safe operation of the system.

- Intelligent Transportation Systems are integrated, to the extent possible, into truck and roadway systems to ensure safe, efficient, reliable and secure trucking operations and movement of freight, to assist in monitoring trucking activity, and to enforce driver and vehicle regulations. Reduced conflicts with passenger vehicles from acceleration and deceleration at weigh stations, merging and lane changes, real-time congestion level information, and use of GPS monitoring are examples of improvements that can be leveraged across the system.
- Truck designers consider the effects of vehicle configuration and suspension systems on pavement and bridge performance and the effects of these factors on the safe operation of the vehicle in mixed traffic. Congress should encourage truck designers and purchasers to incorporate these benefits into the vehicles on the road.
- Industry and government should ensure that trucks operating on highways meet legal size and weight limitations and are safely maintained and operated, and that driver regulations are strictly enforced
- Sufficient funding is provided to accommodate necessary infrastructure improvements for federal, state, or local roads when Federal and state governments adopt changes in truck size and weight.

(Adopted 7-18-15)

Intermodal Transportation Systems (PS 149) ASCE supports developing a national intermodal transportation program that moves people and freight in a safe, secure, economically-efficient, sustainable and environmentally-sound manner. An infrastructure with these qualities allows the United States to compete in the increasingly global economy. (Adopted 10-5-14)

Operation and Management of Transportation Systems (PS 495) ASCE supports a strong federal role in the development of the nation's transportation system. ASCE encourages federal leadership for increasing the focus on transportation operations and management to enhance the performance of the system and preserve our investments. The U.S. Department of Transportation should play a leading role in exploring and promoting best practices related to innovative funding for operations and maintenance. Federal surface transportation legislation should provide support for the following areas:

- Homeland security initiatives. Transportation operations and homeland security can benefit from joint planning and sharing of resources such as communications infrastructure and traffic control operations. Transit security and preparedness, international border security, asset security and tracking, vulnerability assessment, and creation of system resiliency are important priorities for both transportation operation and homeland security.
- Support for state and local agencies. Beyond establishing transportation operations and management as a national priority, the Federal
- role should be to support and assist state and local entities in accomplishing related goals. This includes support of research and development, provision of tools, promotion of best practices, and enhancement of education and training at all levels.
- Provision of flexible funding. Flexibility in funding could greatly enhance the opportunity of meeting operations and maintenance needs. Expanding funding eligibility for operations and maintenance programs, enabling direct funding to local and regional operating agencies, and simplifying and clarifying federal funding processes are important initiatives that should be considered.
- Encouragement of public-private partnerships. The private sector has much to offer in the areas of operations, management and technical skills. Partnership with the public sector can better serve the transportation needs of the country.
- Support specific programs. The following programs are also of significance and require special attention: Incident management programs; Intelligent Transportation System programs; Support for regional cooperation and partnerships; and, Congestion Mitigation programs. (Adopted 7-13-14)

Public Transportation (PS 494) ASCE supports the robust funding, planning, design, construction, operation, and long-term maintenance of safe, efficient, and cost-effective public transportation systems as key components of a comprehensive, multi-modal approach to meeting our nation's transportation needs. (Adopted 7-13-14)

Rail Infrastructure Development (PS 521) ASCE supports a strong rail transportation system within this country for freight and passenger movement. Rail infrastructure improvement and development programs should be an integral component of federal and state transportation plans and capital improvement programs. A federal rail trust fund should be established to fund rail improvements, (including matching provisions) that encourage participation by the states and by the private companies that own and operate the system. Revenues for this trust fund could come from a mix of sources such as a tonnage fee, mileage fee, ticket tax, and/or general treasury funds. ASCE also encourages the use of innovative financing methods like revenue bonds and tax exempt financing at the state and local levels, public-private partnerships, and state infrastructure banks. However, it is important that a balance of revenue sources is developed so that an overreliance on fees does not exacerbate the problems rail is trying to solve and divert use away from rail rather than to rail. States should also develop short line assistance programs with low interest loans and grants to modernize these rail lines to permit heavier loads (to 286,000 pound standard) and to increase allowable speeds. (Adopted 7-12-13)

Rehabilitation of Historic Bridges (PS 504) ASCE supports the development of Historic Bridge Management Plans for each state. The goal of these Historic Bridge Management Plans is to develop historic bridge inventories, identify those bridges where rehabilitation/preservation are appropriate and feasible, and develop specific preservation plans for those bridges. ASCE also supports the maintenance, repair and rehabilitation of historic bridges, preferably, for continued vehicular use, or when that is not possible, for use by some active transportation means such as a pedestrian or bicycle bridge. (Adopted 7-18-15)

Surface Transportation Research Funding (PS 497) ASCE supports the following general principles in the reauthorization of research and technology programs in the nation's surface transportation legislation:

- Improvements resulting from research and technology (R&T) are critical to achieving national transportation goals in safety, quality of life, economic health, environmental impacts quality, sustainability, and security.
- Increased levels of funding for R&T activities is justified based upon generally high returns on research investment.
- Research programs should be conducted according to the highest scientific and engineering standards, from priority-setting to award of contracts and grants to review and evaluation of research results for implementation.
- Research programs should be carried out with appropriate involvement from stakeholders in the public, private, and academic sectors.
- Technology transfer activities are critical to successful implementation of research results and should be supported with R&T funds.
- Public-private partnerships in research and technology should be fostered by identifying appropriate roles for each partner and providing incentives for private investment.

Within the context of the general principles set out above, ASCE supports the following actions regarding specific surface transportation R&T programs:

- The research and technology portion of the State Planning and Research (SPR) program should be maintained to help support state-specific activities while continuing to encourage the states to pool these resources to address matters of mutual interest.
- University research should continue to be supported through the University Transportation Centers (UTC) program using a competitive selection process that guarantees quality participants and fairness in the allocation of funds.
- The Federal Highway Administration's (FHWA) research and technology program should be strengthened by giving it sufficient funding and flexibility to implement the recommendations of Transportation Research Board (TRB) Special Report 261 The Federal Role In Highway Research and Technology, which include: to focus on fundamental, long-term research; to perform research on emerging national issues and on areas not addressed by others; to engage stakeholders more consistently in their program; and to employ open competition, merit review, and systematic evaluation of outcomes.
- The recommendations of TRB Special Report 295 the Federal Investment in Highway Research 2006-2009, Strengths and Weaknesses should be implemented.

- Increased funding is needed to support transportation data collection, particularly safety and freight mobility and logistics data, because it is important for creating effective transportation systems. Better data will also help the development of technology-based innovations and advanced modeling tools that are needed to meet federal, state, and local system planning, safety, and environmental requirements.
- The Strategic Highway Research Program (SHRP II) should be continued ensuring that critical research and implementation of research will be continue in key areas of surface transportation.
- Total Research and Technology funding for activities corresponding to Division E in MAP-21 should be at least \$750 million per year.
- The Federal Transit Administration’s (FTA) research program should be free of earmarks and allocations and given flexibility to work with its stakeholders to develop and pursue national transit research priorities. The Transit Cooperative Research Program should be funded at a minimum of \$20 million per year.
- The Research and Innovative Technology Administration (RITA) should have a well-defined scope and responsibility and appropriate funding, in addition to currently authorized research funding, so that it may supplement and support the R&T programs of the modal administrations.

(Adopted 7-18-15)

Transportation Funding (PS 382) ASCE recommends that adequate funding for operating, maintaining, and improving the nation’s transportation system be provided by a comprehensive program with sustainable dedicated revenue sources at the federal, state, and local levels, including:

- User fees such as existing motor fuel tax, ad-valorem motor fuel sales tax, mileage based user fees, freight waybill tax, carbon tax, barge taxes, container fees, airline passenger ticket tax; aviation fuel tax; passenger facility charges; and other relevant charges;
- Tolling as a funding mechanism to repair, reconstruct and expand interstate highway system;
- Indexing user fees to the Consumer Price Index (CPI) or other appropriate indices;
- General treasury funds; oil surcharges; state and local sales, income, payroll and/or property taxes; corporate taxes and/or repatriation, impact fees; and other development-related fees; transportation maintenance and improvement districts; vehicle registration fees; and toll revenues; dynamic pricing; and
- Public-private partnerships, state infrastructure banks, bonding, value capture from transit-oriented development, and other innovative financing mechanisms used as appropriate to leverage available transportation funding.

ASCE further recommends that these funds be managed efficiently through dedicated mode-neutral trust funds with budgetary firewalls to eliminate the diversion of transportation revenues for non-transportation purposes. (Adopted 7-18-15)

Transportation Trust Funds (PS 434) ASCE supports the concept of transportation trust funds. Furthermore, ASCE insists these funds be used only for their intended purposes by removing them from the unified federal budget or by other legislative means. (Adopted 7-18-15)

WASTEWATER

Clean Water Act Reauthorization (PS 420) ASCE encourages Congress to reauthorize the Clean Water Act (CWA) to protect our nation’s waters and the beneficial use of those waters. The CWA should be revised, amended and reauthorized to:

- Aggressively address non-point and point sources of pollutions, especially agriculture, urban runoff, sanitary sewer overflows and combined sewer overflows.
- Encourage integration of sustainable watershed management approaches with traditional point-source regulatory programs to: integrate water quantity and quality to address healthy watershed and ecosystems; allow for regulation of flow to achieve water quality goals where flow is demonstrated to impact aquatic habitats and ecosystems; and allow alternative compliance

strategies to achieve healthy and robust ecosystems in-lieu of strict compliance with water quality standards based solely on water column chemistry

ASCE further recommends that federal agencies tasked with establishing regulations and policies to implement provisions of the CWA to:

- Address regulatory and best-practices guidelines to ensure a current, sustainable, comprehensive, cross media, and holistic approach to the protection of the nation's waters.
- Utilize the latest tools to develop regulations that are scientifically grounded, cost-effective, site appropriate, and flexible in providing for the use of innovative practices in protecting the beneficial uses of the nation's water, and flexible enough to encourage innovative practices and means to achieve these goals.
- Include sunset provisions in regulations to ensure that existing regulations are reviewed and revised periodically.
- Provide meaningful information to the public about water quality in their communities.

ASCE further recommends that Congress provide funding to implement the Clean Water Act on a consistent basis. (Adopted 7-18-15)

Control of Combined Sewer Discharge (PS 395) ASCE supports changes in the nation's handling of sanitary and storm water discharges through combined sewer overflow (CSO) systems. ASCE:

- Opposes the construction of new combined sewers.
- Supports the Environmental Protection Agency's (EPA) national policy statement for CSOs that establishes a consistent national approach for controlling existing CSO discharges to meet Clean Water Act (CWA) goals.
- Supports increased funding for achieving the required level of control, guidance for developing control options and strategies, consideration of cost versus performance, and flexibility to adapt local and regional water quality standards to reflect site specific conditions.
- Supports revisions to the EPA guidance on CSOs and green infrastructure to incorporate the strengths of green infrastructure that reduces the volume of stormwater flow into a combined sewer.
- Supports EPA funding clean water state revolving funds and construction grants to construct sewer separation projects. (7-18-15)

Municipal Wastewater Biosolids (PS 429) ASCE supports:

- The beneficial use of municipal wastewater and encourages wastewater management practices that promote generation of biosolids of acceptable quality and minimize energy consumption.
- The U.S. Environmental Protection Agency (EPA) to implement or develop new biosolids-quality standards that protect public health and the environment.
- Alternate quality criteria that define maximum contaminant levels to allow safe application, distribution and marketing of biosolids products.
- The use of management processes that effectively capture and use the energy content of municipal wastewater biosolids while minimizing greenhouse gas emissions.
- A national policy that addresses energy use, sustainable energy capture and greenhouse gas emissions. (Adopted 10-5-14)

Non-Point Source Pollution (PS 461) ASCE supports efforts to mitigate pollution from non-point source runoff into rivers, lakes, wetlands, riparian habitats, coastal and ocean environments, and ground water basins. This should be accomplished through:

- The development of education programs for all sectors of society that influence land-management practices.
- The funding of programs, including research, to develop improved and sustainable best management practices (BMPs), their linkage with water quantity and quality, and their implementation at the watershed level to manage non-point source pollution.
- The establishment of mitigation measures for both surface water and groundwater.
- The Monitoring and researching of programs to adequately evaluate the quality and impacts of non-point source pollution in surface water and groundwater. (Adopted 7-18-15)

Water Reuse (PS 332) ASCE supports treated wastewater and graywater reuse as a water supply source for the beneficial uses of industries and communities, including agricultural, industrial, and residential uses. ASCE recommends the following:

- Maximize use of treated wastewater and graywater as part of any plan to develop water supplies where legally and technically and economically feasible to do so and protective of public health and the environment;
- Encourage reuse of non-potable water when it can be provided cost effectively;
- Provide incentives, such as federal or state loans or grants, to local utilities for implementation of treated wastewater and graywater reuse, including pilot programs and research and development; and
- Update or establish requirements by state and local agencies that promote water reuse projects.

(Adopted 7-18-15)

WATER RESOURCES MANAGEMENT

Atmospheric Water Resources Management (PS 275) ASCE supports and encourages:

- The careful and well-designed management of atmospheric water (also known as “weather modification” or “cloud seeding”) for beneficial uses, such as irrigated agriculture and long-term water supply.
- Sustained support for atmospheric water data collection, research and operational programs, and the careful evaluations of such efforts, including the assessment of extra-area and long-term environmental effects.
- Freely disseminating the results and findings of all atmospheric water-management programs and projects to the professional community, appropriate water managers and to the public.

(Adopted 7-18-15)

Beneficial Use of Dredged Materials (PS 513) ASCE supports the beneficial use of dredged material. ASCE recommends that:

- All dredged sediment be used beneficially unless it is clearly impractical to do so.
- The federal government revises its methodology for economic analysis of dredging costs to reflect gaining the benefits of using dredged material for coastal protection, environmental stewardship and other beneficial uses as well as to avoid disposal costs.
- Government and private entities that develop and execute projects requiring dredging be stewards for the beneficial use of dredged material.
- Dredged material be managed as a resource using life-cycle dredged material management plans that consider regional sediment management needs; dredging frequencies, locations, and quantities; as well as landscape use and change.
- Contaminated sediments, considering the contaminant and degree of contamination, be evaluated for selected beneficial uses.
- Any dredging plan includes a comprehensive monitoring plan that considers site requirements, beneficial uses, and environmental impacts. (Adopted 7-13-14)

Cost Sharing in Water Resources Infrastructure Programs (PS 302) ASCE believes that:

- Cost-sharing is a necessity among federal, state, and local entities involved in the design, construction, operation, and maintenance of multijurisdictional water resources infrastructure projects.
- Political and agency leadership must be aggressive and innovative in developing sustainable cost sharing approaches for water resources infrastructure projects and programs.
- Planning for interstate or large multijurisdictional projects is an inherently federal function that should be predominantly funded by the federal government. This rule is in recognition of the importance of performing regional and watershed planning to maintain and enhance the integrity

of flood-protection systems, navigation, and the environment across multiple jurisdictional boundaries.

- Sustainable cost-sharing approaches must consider:
 - The public's health and safety.
 - The water demands for domestic, industrial, agricultural, navigational, and environmental purposes.
 - Flood-damage reduction and the
- Enhancement of water quality.
 - Nonstructural solutions, including changed building elevations and land-use requirements at the local or regional level.
 - The conservation, storage, distribution, and use of available water supplies.
 - The societal benefits gained from maintaining and enhancing natural and environmental functions.
 - The benefits of inter-system connection that improve reliability and resilience in times of drought and other emergencies.
 - The life-cycle costs of the project. (Adopted 7-13-14)

Desalination (PS 407) ASCE recognizes that desalination of saline or brackish waters and seawater can be an alternative source for potable water. Economic feasibility for desalination projects should be consistent with other water supply projects. The public, legislators and regulators should be educated on desalination processes, its costs and benefits. Research on improvements in desalination technology as well as techniques for the environmentally safe disposal of by-products should be continued. (Adopted 7-12-13)

Disinfection of Drinking Water (PS 462) ASCE supports continued research into improved methods governing the disinfection of drinking water to protect public health from any harmful byproducts. (Adopted 7-12-13)

Emergency Plans for Water Supply (PS 348) ASCE supports the development of emergency plans by federal, state and local water providers to prevent or minimize the disruption of water service to residences, businesses and government during emergencies. Emergency plans must be developed to minimize the risk of water supply disruption due to any cause, whether naturally occurring or man-made, and should:

- Be part of a regional/state/federal overall plan review of water systems and how they can be improved;
- Include emergency response and mitigation action components;

Groundwater Management (PS 243) ASCE supports and encourages a nationally coordinated effort to improve management of the nation's groundwater resources. ASCE encourages efforts to ensure adequate supplies and safeguard public health by:

Coordination of federal, state and local programs for:

- collection and dissemination of field data;
- research on groundwater flows; and
- technical assistance in groundwater management.

Administration of regional and state water rights and establishment and enforcement of regulations for:

- judicious use and management of groundwater resources;
- protection of groundwaters from degradation;
- remediation of areas of known groundwater contamination;
- management of groundwater resources by federal, state, tribal, and regional agencies where appropriate; and
- consideration of groundwater in all water resource management activities. (Adopted 7-12-13)

Hydrologic Data Collection (PS 447) ASCE urges the federal government to continue and expand a long-term hydrologic data collection program for major watersheds and their associated coastal areas, with funding on a continuing basis sufficient to allow prediction of storm surges, major flood events, and sediment transport as well as to allow effective management of changes to established

hydrogeomorphological processes, that is, the interaction of water and soil through river systems. (Adopted 7-12-13)

Implementation of Safe Drinking Water Regulations (PS 361) ASCE supports efforts to mitigate pollution from non-point source runoff into rivers, lakes, wetlands, riparian habitats, coastal and ocean environments, and ground water basins. This should be accomplished through:

- The development of education programs for all sectors of society that influence land-management practices.
- The funding of programs, including research, to develop improved and sustainable best management practices (BMPs), their linkage with water quantity and quality, and their implementation at the watershed level to manage non-point source pollution.
- The establishment of mitigation measures for both surface water and groundwater.
- The Monitoring and researching of programs to adequately evaluate the quality and impacts of non-point source pollution in surface water and groundwater. (Adopted 7-18-15)

Peer Review of Water Resources Projects (PS 519) ASCE believes that independent peer reviews should be conducted on every water project built by the U.S. Army Corps of Engineers (USACE) in which performance is critical to the public health, safety and welfare; the reliability of performance under emergency conditions is critical; innovative materials or techniques are used; for projects lacking redundancy in the design; or for projects that have unique construction sequencing or a short or overlapping design and construction schedule. (Adopted 7-10-10)

Planning and Management for Droughts (PS 408) ASCE:

- Supports the development of regional drought preparedness and response plans by water providers in cooperation with local, state, and federal agencies. Plans should be based on sound engineering principles and assessments and on a locally developed balance among land use, economic investment, and risk assessment.
- Believes that the fundamental responsibility for development and implementation of such plans rests with the water supply agencies and their sponsoring government entities, with the active involvement of all interested parties and all primary and secondary impacts identified.
- Believes that planning, implementation, and management efforts should include initiatives to reduce the vulnerability from future droughts. Where possible, such plans should include public information and education campaigns, ongoing water conservation programs, water use restrictions, water reuse, water transfers, conjunctive use, water-banking, and local sharing of supplies and facilities.
- Recommends that federal and state governments should encourage and support technical and financial assistance to water providers in the development of drought preparedness and response plans. (Adopted 7-13-14)

Regional Sediment Management (PS 522) ASCE supports regional sediment management for watershed and coastal zones to ensure ecosystem preservation and sustainable development. Regional sediment management is critical to restoring hydrogeomorphic processes within a watershed, which in turn is important to ecosystem vitality, balance and diversity, particularly in threatened ecosystems. ASCE recommends:

- Government and private entities that develop or execute projects and activities affecting water resources or hydrogeomorphic processes, and related regulatory entities, promote a culture of stewardship and partnering to manage sediments
- effectively;
- Sediment should be managed as a resource by developing regional sediment inventories and sediment budgets that consider inputs, movements, uses, and outputs throughout the system;
- Governments and stakeholders at all levels should collaborate to establish property rights for sediment, and an appropriate legal mechanism to allocate and transfer sediment resources for different uses, and to resolve conflicts among multiple competing demands for the same sediment source; and

- Proponents of projects and activities that affect sediment resources must work collaboratively with regional stakeholders to mitigate adverse impacts to hydrogeomorphic processes and affected sediment regimes. (Adopted 7-12-13)

Resilient Water Resource Projects (PS 540) ASCE urges federal, state, and local governments and private enterprises to adopt systems approaches for planning, designing, constructing, financing, maintaining, and operating the nation's water resources infrastructure. This approach requires life cycle considerations, includes all tools and entities within the solution, and requires cooperation on legislative and regulatory affairs across all levels of government. Further, research is needed on alternative evaluation tools to compliment current financial models. (Adopted 10-8-13)

Stormwater Management (PS 441) ASCE supports the management of stormwater runoff to protect receiving waters, and encourages:

- Coordinated federal, local, state and regional programs to manage the quantity, and improve the quality of stormwater runoff.
- A flexible watershed approach necessary for states to adapt local and regional water quality and quantity standards to reflect site-specific conditions that are dependent on the local climate, geography, and ecosystems.
- Stormwater management infrastructure and control technologies that incorporate measures to:
 - Prevent or mitigate adverse effects of urbanization and other land-use changes,
 - Reduce the negative impacts on freshwater ecosystems, and
 - Ensure the quality of receiving water meet applicable standards and laws.
- Implementation of infrastructure to meet mitigation requirements and to increase the sustainability, resiliency, efficiency and redundancy of our stormwater infrastructure.
- Recognition of green infrastructure benefits, including reduction of urban heat-island effects, improved air quality, and carbon sequestration that can be integrated into the design.
- Development of guidance that creates predictability for projects that cross multiple jurisdictions and watersheds that may have varying water quality and quantity standards or regulatory requirements.
- Recognition that urban areas, transportation systems, and coastal communities require a specialized, tailored regulatory approach that may include offset strategies.
- Funding of inspection and maintenance programs.
- Funding for green infrastructure research to increase the ability to address these issues in a sustainable and cost-effective approach. (Adopted 7-18-15)

Water Conservation (PS 337) ASCE supports programs that foster an appreciation and understanding of science, technology, engineering and mathematics (STEM) at the K-12 level. It is essential to:

- Provide all students, regardless of background or career intentions, with STEM literacy that enables them to be successful in our increasingly technological society;
- Support the development and implementation of high-quality college-preparatory and career-ready standards in STEM disciplines; and
- Encourage students to pursue careers in STEM disciplines, including civil engineering.

(Adopted 7-18-15)

Water Infrastructure and Facilities Construction Funding (PS 480) ASCE supports the following solutions to increase federal, state, and local investments in wastewater and drinking water infrastructure funding:

- Raise awareness of the true cost of water.
- Reinvigorate the State Revolving Loan Fund (SRF) programs under the Safe Drinking Water Act and the Clean Water Act.
- Eliminate the state cap on private activity bonds for water infrastructure projects to bring in new private financing to bear on the problem.
- Explore the potential for a Water Infrastructure Finance Innovations Authority (WIFIA) that would access funds from the U.S. Treasury at Treasury rates and use those funds to support loans and

other credit mechanisms for water projects. The loans would be repaid to the Authority and then to the U.S. Treasury with interest.

- Establish a federal Water Infrastructure Trust Fund to finance the national shortfall in funding of infrastructure systems under the Clean Water Act and the Safe Drinking Water Act.

(Adopted 1-19-13)

Watershed Management (PS 422) ASCE supports:

- Sustainable and basin-wide water resources management.
- Development of a unified national vision and supporting organizational framework for watershed management.
- Development of plans and regulations consistent with the national vision by federal, state, and local governments to manage resources on a watershed basis.
- Cooperative watershed stakeholder partnerships. (Adopted 7-18-15)

Weather Data Collection (PS 409) ASCE supports the deployment of the latest generation of weather surveillance technology and data collection by the federal government, with funding on a continuing basis sufficient to allow for the prediction of major weather events and employing programs that use and interpret weather surveillance information. (Adopted 7-13-14)

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