Moving Towards Sustainability:
New York State Department of Transportation’s GreenLITES Story

Gary R. McVoy, Ph.D¹, Debra A. Nelson², Paul Krekeler³, Elisabeth Kolb⁴, and
Jeffery S. Gritsavage, P.E., AICP⁵

¹ New York State Department of Transportation, 50 Wolf Road, Albany, NY 12232; PH (518) 485-0887; email: gmcvoy@dot.state.ny.us
² New York State Department of Transportation, 50 Wolf Road, Albany, NY 12232; PH (518) 485-5479; email: dnelson@dot.state.ny.us
³ New York State Department of Transportation, 50 Wolf Road, Albany, NY 12232; PH (518) 457-0919; email: pkrekeler@dot.state.ny.us
⁴ New York State Department of Transportation, 50 Wolf Road, Albany, NY 12232; PH (518) 457-2787; email: ekolb@dot.state.ny.us
⁵ New York State Department of Transportation, 50 Wolf Road, Albany, NY 12232; PH (518) 457-8307; email: jgritsavage@dot.state.ny.us
ABSTRACT
Transportation is an essential component of a sustainable society, and its benefits and costs are well studied at the project level (FHWA 2001; Green Highways Partnership 2010). However, while methodologies for assessing environmental impacts are well developed, commensurate tools for assessing how transportation investments contribute to a sustainable society and what the mechanisms are for adjusting transportation programs to support a sustainable society are lacking. Under the current construct, transportation agencies avoid impacts but find it difficult to quantify benefits and align transportation programs with the greater needs of a sustainable society.

The New York State Department of Transportation’s (NYSDOT’s) GreenLITES (Green Leadership In Transportation and Environmental Sustainability) program is a tool to advance the Department’s efforts to better align sustainability efforts in planning, design, construction, and maintenance operations with long term needs. Though the Department has been incorporating sustainable elements into its transportation projects for years, GreenLITES promotes increased awareness and best practices across program areas to enhance sustainability. GreenLITES also gives the Department a way to measure our performance, recognize best practices, and identify needed partnerships.

GreenLITES was initially designed to assess capital project environmental sustainability elements. However, as GreenLITES was put into use, its potential to address transportation investments across a range of program areas became apparent, and a more holistic approach to the “triple bottom line” of economy, society, and environment has been adopted. As a result, the GreenLITES program expanded to include a growing collection of tools (rating systems, spreadsheets, and other metrics) to assess projects, plans, operations and maintenance programs, and regional programs.

This paper describes NYSDOT’s GreenLITES program evolution from its environmentally based beginnings to a more comprehensive approach in support of a more sustainable society. The paper covers program vision, goals, benefits, management, and evolving next steps.

1 www.greenhighwayspartnership.org
THE EVOLUTION OF THE PRINCIPLES OF SUSTAINABILITY

Sustainability is not a new concept. The Ancient Greeks recognized that “a society grows great when old men plant trees in whose shade they know they shall not sit.” Similarly, the Native Americans noted that “we do not inherit the earth from our ancestors; we borrow it from our children.” The Great Law of the Iroquois states “in every deliberation, we must consider the impact on the seventh generation...” This recognition to ensure that decision-making is guided by consideration of the welfare and well-being of the future generations provides strong guiding principles.

The principles of sustainability are rooted in the National Environmental Policy Act (NEPA), passed in 1969, in which Congress declared a national environmental policy: “The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.” (NEPA, Section 101 [42 USC § 4331] 1969)

In 1987, the United Nations’ Brundtland Commission Report identified sustainability as: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” As stated in various United Nation documents, sustainable development, at its simplest, is development based on patterns of production and consumption that can be pursued into the distant future without degrading the human or natural environment. It requires, within each nation's technological and social capabilities, the prudent management of resources and the equitable sharing of the economic benefits (World Commission on Environment and Development 1987).

TRANSPORTATION AND SUSTAINABILITY

The concept of sustainability is a foundation for a good society and is easy to embrace in principle. However, it is difficult to exercise in practice, and even more difficult to measure. Also, the role of transportation and sustainability is widely debated, whether it is about sustainable transportation, transportation sustainability, or transportation in support of a sustainable society.

In 1999, FHWA sponsored an international scanning review to examine how other developed countries are addressing sustainable transportation issues. The team visited Sweden, Germany, the Netherlands, and the United Kingdom as these countries had
been actively addressing sustainable transportation issues for several years. Findings from that scan indicated that sustainable development is viewed as “development that improves service quality, the standard of living, and quality of life, while at the same time protecting and enhancing the natural environment and honoring local culture and history.” (FHWA 2001)

Each host country recognized that transportation is an important tool to help meet overall sustainability objectives. Attributes of sustainable transportation follow from the expanded definition of sustainable development: “Sustainable transportation is safe, high quality, and accessible to all; ecologically sound; economical; and a positive contributor to regional development.” Specific goals for sustainable transportation include improved service quality and quality of access to goods and services, safety, improved air quality, noise reduction, improved water quality, protection of habitat and open space, historic preservation, reduced carbon emissions, increased social equity, economic development, and a satisfying quality of life, plus local goals consistent with the overall objective (FHWA 2001).

The topic of addressing sustainability in transportation systems is explored in Jeon and Amekudzi (2005). They found that there is no standard way in which sustainable transportation is considered. However, the three-dimensional framework of economic development, environmental preservation, and social development is the substance of several definitions of sustainable transportation and other infrastructure systems (Jeon and Amekudzi 2005). Deakin’s (2001) working paper on sustainable development and sustainable transportation notes that, increasingly, the idea of sustainability has come to be understood as a collective process for considered decision-making and action, and not simply a particular end-state or outcome (Deakin 2001).

**NYSDOT SUSTAINABILITY POLICY**

NYSDOT recognizes it has a role in supporting a sustainable society. Consistent with the Brundtland Commission definition, NYSDOT understands that a sustainable society manages resources in a way that fulfills the community/social, economic, and environmental needs of the present without compromising future generations’ needs and opportunities. Accordingly, a transportation system that supports a sustainable society is one that:

- Allows individual and societal transportation needs to be met in a manner consistent with human and ecosystem health with equity within and between generations.
- Is safe, affordable, accessible, operates efficiently, offers choice of transport mode, and supports a vibrant economy.
- Protects and preserves the environment by limiting transportation emissions and wastes, minimizes the consumption of resources, and enhances the existing environment as practicable.

Considering these concepts and applying them to NYSDOT’s mission, the Department can advance sustainability by:
• Advocating and promoting the above vision to appropriate stakeholders and communities in the transportation decision making process.
• Incorporating sustainability concepts into the Department’s procedures, investments, policies, manuals, specifications, programs, projects, and best practices.
• Evaluating the costs and benefits (societal, environmental, and economic) of transportation investments over life-cycles as well as fiscal cycles.
• Recognizing the transportation system’s significant contribution as an integral part of a sustainable society.

Practically, this means, as NYSDOT improves safety and mobility in New York State, the Department’s decisions and actions will strive to:
• Protect and enhance the environment.
• Conserve energy and natural resources.
• Preserve or enhance the historic, scenic, and aesthetic project setting characteristics.
• Encourage public involvement in the transportation planning process.
• Integrate Smart Growth and other sound land-use practices.
• Encourage new and innovative approaches to sustainable design, and how we operate and maintain our facilities.

NYSDOT’S PATH TO SUSTAINABILITY
Even back in 1949, the New York Department of Transportation’s predecessor, the Department of Public Works, recognized the importance of sustainable transportation and the need to plan for tomorrow. In the Highway Needs Study, “A Look at the New York State Highway System,” compiled by the New York State Department of Public Works (NYS DPW 1949), it is noted “This generation has seen many so-called roads of tomorrow reduced to ineffectual bottlenecks. It is therefore incumbent upon us to give full consideration of tomorrow’s needs as we plan and build for today.”

In 1949, it appears that the primary factors were economics and the need to meet the demands of safety, condition, and service. Societal influences included support for agriculture, industry, commerce, and recreation. The environmental influence was not yet as evident but would become instrumental nearly half a century later.

NYSDOT’s environmental ethic evolved over the last decade (McVoy, et al. 2000; Nelson, et al. 2002). NYSDOT has received recognition for its proactive environmental stewardship efforts, including multiple American Association of State Highway and Transportation Officials (AASHTO) and Federal Highway Administration (FHWA) national awards, thus gaining endorsement for delivery of environmentally sound transportation services.

Moving from stewardship to sustainability is a logical progression. Considering that there are approximately 113,000 centerline miles of state and local highways in New York State, there is a tremendous opportunity for ensuring that transportation
planning and spending is done in a manner that supports a sustainable society in New York State.

In March 2008 the Department submitted to the New York State Legislature the *NYS DOT Multimodal Transportation Program Submission: 2009-2014*. This capital program plan/report acknowledged that NYSDOT needs to support the State’s priorities of economic development, energy efficiency, and promoting a sustainable society. To achieve this, NYSDOT set these goals:

- Promote economic development, supported by cost-effective investments in existing and new transportation infrastructure.
- Promote energy efficiency in support of lower costs, and reductions in energy usage and greenhouse gas emissions.
- Encourage smart growth statewide through State support for improved land use planning. (NYSDOT 2008a)

Consistent with these goals and to develop a more holistic approach to sustainability, NYSDOT developed GreenLITES, a transportation sustainability rating program and the more comprehensive sustainability policy summarized in the above **NYS DOT SUSTAINABILITY POLICY** section.

The GreenLITES sustainability rating program builds on NYSDOT’s past successes in several established programs and initiatives that are consistent with and incorporate the principles of sustainability, including the Environmental Initiative, Context Sensitive Solutions (CSS), Green and Blue Highways, Environmental Research, Integrating Land Use and Transportation Planning, and the Climate Change/Energy Efficiency Team.

**Environmental Initiative**

In 1998, the NYSDOT Environmental Initiative was launched. In its Environmental Initiative Statement, NYSDOT outlined its purpose and goals to advance state environmental policies and objectives; promote an environmental ethic throughout the Department; and strengthen relationships with environmental agencies and groups. As a public works agency, NYSDOT recognized that it “can most effectively attain these goals by doing dedicated environmental work in support of its corporate environmental ethic. This, in turn, will advance a shift in attitudes. This will provide real environmental protection, assure staff that the agency has a strong environmental ethic and provide opportunities to engage the environmental community in positive joint undertakings that will demonstrate the Department's commitment.” (NYSDOT 1999) Since that time, NYSDOT has undertaken deliberate actions and adopted a proactive approach to addressing environmental matters.

In 1999, NYSDOT received AASHTO’s Best Practices in Environmental Stewardship for its Environmental Initiative.
**Context Sensitive Solutions/Public Involvement**

Context Sensitive Solutions was adopted as NYSDOT policy in 1999 to ensure that safe and efficient transportation projects are designed and developed in harmony with New York’s communities. Through CSS, NYSDOT staff work together with members of the public, elected officials, other state agencies and interest groups to design projects that balance mobility and safety needs with community preservation and quality of life interests.

CSS strives to balance environmental, scenic, aesthetic, cultural, natural resources, community, and transportation service needs (NYSDOT 2001). Project designs that are advanced under this philosophy recognize community goals and are designed, built, and maintained to be safe and sustainable while minimizing disruption to the community and the environment. CSS incorporates flexible, innovative solutions that result in the appropriate application of design details and criteria for the site.

In 2005, AASHTO awarded NYSDOT with its Best Practices in Context Sensitive Solutions Award for the Best Institutionalization of CSS program.

**Green and Blue Highways**

The Green and Blue Highways Program was launched in 2005 as a way to encourage implementation of various low or no-cost maintenance and operation activities across the State that protect and enhance the environment. Utilizing best practices and suggestions from highway maintenance staff, program initiatives have included using over-the-rail mowers to improve vegetation management, using evergreen trees as living snow-fences at drift-prone locations, upgrading parking areas and improving drainage on State routes to reduce sedimentation of wetlands (NYSDOT 2008b; NCHRP 2005).

In 2007, NYSDOT’s Green and Blue Highways Program was recognized by FHWA through its Exemplary Ecosystem program.

**Environmental and Transportation Research**

NYSDOT develops and funds many research projects that explore the complex interaction between the built, natural, and human environments. Environmentally-motivated research assists NYSDOT in defining and attending to environmental challenges and integrating environmental decisions into all our activities using the best information available. Environmental research allows for many non-traditional aspects of NYSDOT’s mission to be investigated with the objective of maximizing the effectiveness of our programs, designs, and operations.

Through existing and new research projects, NYSDOT’s research program is helping the Department with environmental stewardship, to protect and enhance communities

---

and natural ecosystems, and to reach for the vision of sustainable transportation and transportation that supports a sustainable society.

**Integrating Land Use and Transportation Planning**

NYSDOT is taking a more active role in land use and transportation planning. The expected results could significantly enrich the State’s communities by making more effective transportation investments, enhancing sustainable economic development, and improving the quality of life in its communities.

The Department has developed a [smart planning](http://www.nysdot.gov/smartplanning) web site that provides direct links to NYSDOT activities and programs relating to transportation and land use in our communities; to planning tools and information provided by the Department and other organizations; and to potential sources of funding.

**Climate Change/Energy Efficiency Team**

The related issues of climate change and energy efficiency are expected to have profound effects on all sectors of the economy, including the transportation sector. To help New York’s transportation sector understand and address these issues and to provide leadership for other transportation agencies in the State, the Department has formed a [Climate Change/Energy Efficiency](https://www.nysdot.gov/programs/climate-change) Team in 2008. The team is addressing both greenhouse gas emission reduction and adaptation to effects of climate change.

**GREENLITES – A TRANSPORTATION AND ENVIRONMENTAL SUSTAINABILITY RATING PROGRAM**

NYSDOT is committed to improving the quality of our transportation infrastructure in ways that minimize impacts to the environment, including the depletion of irreplaceable resources. To this end, NYSDOT developed the GreenLITES certification program to help integrate sustainability principles into transportation. The program is used on a continuous basis and formally ranks capital projects, operations/maintenance work on a sub-regional basis, and all region-wide investments made (and not made) on an annual cycle for internal review and comparison.


---

3  [www.nysdot.gov/smartplanning](http://www.nysdot.gov/smartplanning)
4  [https://www.nysdot.gov/programs/climate-change](https://www.nysdot.gov/programs/climate-change)
5  [https://www.nysdot.gov/programs/greenlites](https://www.nysdot.gov/programs/greenlites)
7  [http://www.greenroads.us/](http://www.greenroads.us/)
GreenLITES is a transparent, metrics-based, self-assessment program to institutionalize triple bottom-line thinking by evaluating performance on the basis of social, economic, and environmental impacts; to continuously measure performance; and to foster best practices throughout NYSDOT. It also provides an impetus for partnering with others and helps relate transportation investments to jobs, quality of life, and environmental stewardship.

The program is a continuing work in progress and has been implemented in stages. GreenLITES started in September 2008 with the GreenLITES Project Design Program, which uses the scorecard rating system. This was followed by the April 2009 GreenLITES Maintenance/Operations Plan Spreadsheet, the ongoing March 2010 Regional Pilot Sustainability Assessment Program, and, most recently, GreenLITES Planning, drafted in April 2010, which uses the Project Solicitation Tool.

All programs provide a baseline list of practices for which GreenLITES credits may be obtained. In addition, they allow extra credits to be assigned for additional sustainability innovations or actions, subject to approval by a review committee. As the program advances, additional practices that were once innovations are added to the baseline list, creating ever-expanding opportunities to reach sustainability.

**GreenLITES Project Design**

GreenLITES Project Design is a self-certification program that distinguishes transportation projects based on the extent to which they incorporate sustainable choices. This is primarily an internal management tool for NYSDOT to measure our performance, recognize good practices, and identify where we need to improve. It also provides the Department a way to demonstrate to the public and elected officials how we are advancing sustainable practices. Program development started in February 2008. NYSDOT began to use the program to evaluate projects in June 2008, and the Department’s Commissioner publicly announced the program in September 2008. The GreenLITES Project Design certification program distinguishes itself in that it is a mandatory rather than voluntary program.

GreenLITES Design identifies more than 175 sustainable items in five categories (Sustainable Sites, Water Quality, Materials & Resources, Energy & Atmosphere, and Innovation/Unlisted) and lists these in a GreenLITES scorecard (Figure 1). The complete GreenLITES scorecard is located on NYSDOT’s [GreenLITES project design web page](https://www.nysdot.gov/programs/greenlites/project-design-cert).
Early in the project’s development, the Project Design Team, appropriate local community groups, and various government stakeholders review the GreenLITES scorecard for sustainable items and practices to incorporate into the project. Throughout the project’s development, the design team continues to work with these groups to develop a design that meets the project’s transportation goals and objectives while achieving desired sustainable outcomes. When Plans, Specifications & Estimates (PS&E) are complete, the project may receive one of four GreenLITES certification levels: Certified, Silver, Gold, or Evergreen. Annually, special awards are given to the projects that attain the highest levels of sustainability - Gold and Evergreen (Figure 2).

A common criticism is that sometimes a sustainable approach costs more money. NYSDOT understands that sustainability is about balancing what is beneficial to
people, while considering what is economically feasible and environmentally compatible. This may or may not necessarily increase project costs, but where project costs are increased, they may be warranted, especially when all external and life cycle costs are considered. Generally this extra cost is offset by longer infrastructure durability and difficult-to-quantify social benefits.

**GreenLITES Operations**

Between 1995 and 2007, New York State added 0.06% per year of new lane miles to its extensive (38,000 lane mile) highway system. Over the same time period, Vehicle Miles Traveled (VMT) on the system increased by 1.3% per year. Clearly, the system is essentially built, while use increases. A case can be made that any serious sustainability effort must address the operation and maintenance of the existing system. If issues such as highway runoff or greenhouse gas emissions are of concern, the emphasis of the solution should focus on better existing system maintenance and operation rather than on new capital projects.

Recognizing this need to move beyond new capital projects, the GreenLITES Operations program was developed in 2009 as a tool for Transportation Maintenance, Fleet Administration, Traffic, Safety & Mobility, and Modal Safety and Security to advance sustainability principles in all aspects of their work and help them track their performance. Residency Managers and others are required to plan and report on broad-ranging environmental/sustainability activities related to bridge, road, and roadside maintenance, and facility management.

The goal is to operate and maintain our transportation system in support of a sustainable society, specifically in a manner that does not deplete and, if possible, enhances resources for future generations, supports the economy, and enhances quality of life for everyone. To accomplish this, the NYSDOT Operations Division added and/or highlighted approximately 100 separate tasks into its planning spreadsheet so that sustainability tradeoffs can be quantified and performance tracked. This tool might be categorized as an activity-based framework, as described by Jeon and Amekudzi (2005) which focuses on the benefits and impacts of various actions on the sustainability of the particular system under consideration (Jeon and Amekudzi 2005). Residencies and Bridge Maintenance Groups are certified as Evergreen, Gold, Silver, or Certified based on work accomplished from “green” points scored.

The uniqueness of GreenLITES Operations lies in its integration into the annual Maintenance and Operations Plan (MOP) (Figure 3), which is a required planning tool for all NYSDOT Operations Managers. Through this integration, sustainability principles are addressed as part of the normal work flow rather than through separate ancillary initiatives. Residency Managers weigh in on broad ranging activities related to bridge, road and roadside maintenance, and facility management with environmental components.

---

9 [https://www.nydot.gov/programs/greenlites/operations-cert](https://www.nydot.gov/programs/greenlites/operations-cert)
The new green lines have been integrated into the annual MOP where activities are tracked and accomplishments recorded at the end of each fiscal year. Some added lines include:

- Spill Preparedness
- Pavement Recycling
- Aquatic Connectivity
- Hybrid Vehicles/Alternative Fleet
- Transit Signal Priority Systems
- Using Salt Brine/Alternative Deicers
- Installing Energy Efficient Upgrades
- Road Kill Deer Composting
- Installing Living Snow Fences
- Re-use and Recycle
- Reduce Mowing
- Innovative Practices

Activities with relatively low start-up cost, such as surveying for public access to streams, increasing adopt-a-highway agreements, installing setback thermostats, and inventorying chemical storage, are most likely to be accomplished in many locations. Some green practices, such as reducing idling or mowing with no initial start-up cost, are expected to be instituted in all locations. GreenLITES Operations offers opportunities and incentives to share innovative green practices and have these practices recognized and evaluated for statewide use. Results for all locations (typically a county) are published, and outstanding efforts are recognized as Evergreen, Gold, Silver, or Certified.
GreenLITES Planning
The integration of GreenLITES into the transportation planning and programming process will help ensure a more balanced approach in making transportation decisions. By incorporating sustainable practices in the planning phase, communities will begin the process of securing a more sustainable, vibrant and healthy environment. An example, a major, high profile, sensitive, complex, and until recently a much debated project, in the New York metropolitan area (Route 347 in Suffolk County, NY) is now being progressed more readily. This is because the stakeholders, the affected communities and NYSDOT used GreenLITES as a tool to find common ground in the development of project objectives. Ultimately, NYSDOT and the public agreed that if this project obtains the Evergreen certification level, along with other transportation objectives, all would support it. NYSDOT accepted this, modified the project accordingly, and the project is progressing more smoothly. Such a process-based approach, as described in Jeon and Amekudzi (2005), acknowledges that sustainability must be done through a planning process that effectively engages stakeholders in creating their vision of sustainability.

Although the preservation of our existing transportation infrastructure is vitally important, finding new solutions that enhance our communities is also important. This is accomplished by incorporating planning practices that promote more livable, vibrant communities and, at the same time, preserve the environment.

Federal planning factors already address sustainability considerations in many ways. However, to further and more systematically emphasize these considerations, NYSDOT has examined various ways of addressing GreenLITES in the planning process, including incorporating sustainable goals in long-range plans and in the development of the Department’s capital program. Another option involves promoting GreenLITES in planning at the local level, which led to the development of the project solicitation tool. The tool provides a mechanism for project sponsors to review and rate the sustainability of a proposed transportation project.

The Draft GreenLITES project solicitation tool
10 (figure 4), developed by NYSDOT in collaboration with several New York State Metropolitan Planning Organizations
11 (MPOs), will assist municipalities in identifying and developing sustainable transportation projects.

Emphasis is placed on projects that support sustainability by improving the community’s transportation infrastructure and quality of life, contributing to a vibrant economy, and minimizing impacts to the environment.

The tool is envisioned for use when the 13 New York State MPOs periodically reach out to the local municipalities to identify projects for inclusion in the State’s

11 http://www.nysmpos.org/
transportation program. The tool’s purpose is to ensure a more balanced approach in selecting projects and making sustainable transportation decisions. This helps municipalities assess how closely projects are aligned with transportation planning practices that support a sustainable society.

Municipalities may use the Draft GreenLITES project solicitation tool posted on NYSDOT’s website to self-rate their proposed projects. The rated projects would then be submitted as appropriate to the respective MPO and reviewed for completeness and accuracy, and verification of information.

Rated projects would be considered by the MPOs for inclusion in the transportation program, known as the Transportation Improvement Program (TIP). Additional
screening of projects will take place at the MPO through their project selection process.

**GreenLITES Regions**

To truly measure and enhance transportation’s role in supporting a sustainable society, we must move beyond projects and activities. The GreenLITES program currently looks at individual projects, planning, operations and NYSDOT county residencies. However, sustainability, with its “triple bottom line” of economy, environment, and social equity, is more a function of all transportation modes and activities on a larger county/regional scale.

Without a framework for addressing how transportation investments contribute to the sustainability of society, it is difficult to make good investment choices. To extend the use of this valuable tool over the larger scope and scale needed to truly address sustainability on a landscape scale; NYSDOT has begun to assess all projects, all residencies, and all activities as they influence sustainability across our regions.

To expand GreenLITES to include more multimodal aspects (transit, pedestrian, bicycle, rail), NYSDOT conducted an initial consciousness-raising exercise in March 2010 in each of eleven regions. The Pilot GreenLITES Regional Assessment Tool (Figure 5) was developed and applied to assess “existing” and “desired” states for a full range of sustainability factors, mostly gleaned from the Bipartisan Policy Project (National Transportation Policy Project 2009). The GreenLITES Regional Assessment rubric includes a Design Component (normalized average regional GreenLITES project scores), an Operations (Residency) Component (normalized average regional Operations score), and a Regional Component (determined by completing the Draft Regional Assessment Table) that includes ratings for the elements of the triple bottom line: economy, environment, and social equity - including livability and safety.
MEASURING THE TRIPLE BOTTOM LINE

As noted on the AASHTO Center for Environmental Excellence website, current and future transportation growth patterns and the way that we develop transportation systems are important factors in sustaining the world’s limited economic, environmental, and social resources and capacity. According to AASHTO, “America’s transportation system has served us well, but now faces the challenges of congestion, energy supply, environmental impacts, climate change, and sprawl that threaten to undermine the economic, social, and environmental future of the nation.” (AASHTO 2009)

NYSDOT is taking steps to apply the AASHTO triple bottom line (Figure 6) to assess projects, programs, and policies. The adage “What gets measured gets done” is being embraced by NYSDOT in its application and expansion of its GreenLITES program. As GreenLITES was put into use, its potential to address transportation investments across a range of program areas became apparent and a more holistic approach to the “triple bottom line” of economy, society and environment has been adopted. As a result, the GreenLITES program has expanded to include a growing collection of tools (rating systems, spreadsheets, and other metrics) to assess projects, operations and maintenance programs, and regional programs.
CONCLUSION
As discussed, NYSDOT has adopted a triple bottom line approach to sustainability and is working to better align transportation with the needs of a sustainable society. We are learning by doing and welcome constructive critique. The various GreenLITES frameworks and tools are undergoing continuous development as we strive to incorporate sustainability principles into our corporate processes. Consistent with NEPA Section 102, NYSDOT is going beyond the permit/projects/activities-driven focus, and seeking to measure how we, as a public works agency, are taking steps to insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on the environment (NEPA, Section 102 [42 USC § 4332] 1969). Advice, assistance, and collaboration are most welcome.

REFERENCES


NYSDOT Sustainability and GreenLITES website link:

New York State Department of Public Works (NYS DPW). (1949). Co-operative

Future, Report of the World Commission on Environment and Development,
Published as Annex to General Assembly document A/42/427, Development and

Acknowledgements
The authors would like to thank all the members of the GreenLITES Development
and Review Teams and the Sustainability Work Group for their leadership, dedication
and support in this collaborative effort.

Biographical Sketches
Gary R. McVoy, Ph.D., is the Director Operations Division for the New York State
Department of Transportation. Gary was formerly the Director of NYSDOT
Environmental Analysis Bureau and Director of Transportation Maintenance. Gary is
a founding board member of the AASHTO Center for Environmental Excellence and
Research Coordinator for the AASHTO Standing Committee on Environment and
received the AASHTO President's Award for "Exemplary Service to the States
Furthering Transportation and the Environment" in 1999.

Debra A. Nelson is the Assistant to the Director of Operations for NYS DOT where
she is responsible for executive matters and programmatic approaches for Operations
Division. Debra is involved in statewide and national efforts on environmental
stewardship and sustainability in transportation. She is a committee member of the
Transportation Research Board Committee on Ecology and Transportation, program
committee member for Infra Eco Network Europe, and Conference Chair for the
International Conference on Ecology and Transportation (ICOET).

Paul Krekeler manages the NYSDOT GreenLITES program. Paul has worked at
NYSDOT for more than 25 years where he has been involved with other agency-wide
transformational programs such as; context sensitive solutions, performance
management, and the executive leadership institute.

Elisabeth Kolb is the Special Assistant for Environmental Concerns for NYSDOT
Operations Division and the lead for the GreenLITES Operations development.
Previously, Elisabeth served as the Maintenance Environmental Coordinator for
NYSDOT Region 8. Her work encompasses the wide range of environmental issues
related to transportation facilities and maintenance.
Jeffery S. Gritsavage, P.E., AICP is a Professional Engineer and Certified Planner with NYSDOT and formerly of the NYS Office of Parks, Recreation and Historic Preservation. Jeff is a member of the GreenLITES Project Design Development Team, GreenLITES Review Team, and the Climate Change/Energy Efficiency Team.