NEW YORK STATE OF OPPORTUNITY. NYSERDA

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

A Joint Research Solicitation

Integrated Mobility Solutions for Smarter Cities and Communities

Program Opportunity Notice (PON) No. 3090
$3,000,000 Available

PROPOSALS DUE: July 29th, 2015 by 5:00 pm Eastern Daylight Time*

In partnership with the New York State Department of Transportation (NYSDOT), the New York State Energy Research and Development Authority (NYSERDA) seeks proposals that have the potential to reduce the greenhouse gas (GHG) emissions and the associated energy consumption of the existing multi-modal transportation system in New York State. Total available funding is $3,000,000. All, some, or none, of the available funding may be awarded. In funding this solicitation, the sponsors seek to promote an integrated, multi-faceted, energy-efficient, and sustainable transportation system through the identification of innovative strategies, policies, emerging technologies and partnerships, and through useful demonstrations and system designs that validate underutilized commercial products in New York State.

Proposal Submission: Electronic submission is preferable. NYSERDA will also accept proposals by mail or hand-delivery. If submitting electronically, proposers must submit the proposal in either PDF or MS Word format with a completed and signed Proposal Checklist and Disclosure of Prior Findings of Non-Responsibility, in PDF format. Proposal PDFs should be searchable and should be created by direct conversion from MS Word, or other conversion utility, rather than scanning. For ease of identification, all electronic files must be named using the proposer's entity name in the title of the document. Proposals may be submitted electronically by following the link for electronic submissions found on this PON's webpage, which is located in the "Current Opportunities" section of NYSERDA's website (http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities.aspx).

Instructions for submitting electronically are located in Attachment F to this PON. If mailing or hand-delivering, proposers must submit two (2) paper copies of their proposal with a completed and signed Proposal Checklist, along with a CD or DVD containing both a PDF and a MS Word digital copy of the proposal, following the above guidelines. Mailed or hand-delivered proposals must be clearly labeled and submitted to:

Roseanne Viscusi, PON 3090
New York State Energy Research and Development Authority
17 Columbia Circle, Albany, NY 12203-6399

If you have technical questions concerning this solicitation, contact Joseph Tario, (518) 862-1090 ext. 3215 (joseph.tario@nyserda.ny.gov). If you have contractual questions concerning this solicitation, contact Nancy Marucci, (518) 862-1090 ext. 3335 (nancy.marucci@nyserda.ny.gov).

No communication intended to influence this procurement is permitted except by contacting Joseph Tario (Designated Contact) at (518) 862-1090, ext. 3215 or joseph.tario@nyserda.ny.gov. Contacting anyone other than this Designated Contact (either directly by the proposer or indirectly through a lobbyist or other person acting on the proposer's behalf) in an attempt to influence the procurement: (1) may result in a proposer being deemed a non-responsible offerer, and (2) may result in the proposer not being awarded a contract.

*Late proposals will be returned. Incomplete proposals may be subject to disqualification. It is the bidder's responsibility to ensure that all pages have been included in the proposal. Faxed or e-mailed proposals will not be accepted. Proposals will not be accepted at any other NYSERDA location other than the address above. If changes are made to this solicitation, notification will be posted on NYSERDA's web site at http://www.nyserda.ny.gov/.

I. INTRODUCTION

Smart cities and communities are growth markets of the future. Emerging 'mega-regions,' two of them being the Great Lakes and Northeast mega-regions that include Buffalo and other western New York communities and the New York metropolitan region, respectively, may account for as much as 75 percent of the U.S. population by 2050. This presents significant challenges as well as opportunities.

Smart cities and communities focus on empowering travelers with innovative solutions and the right tools to connect to the right information when planning their trip – providing better transportation options and services, the way travelers want it, when they want it. Smart cities and communities establish this roadmap moving forward by providing services that are convenient, reliable, and accessible. Smart cities and communities are enabled by the complete integration of transportation choices and information in ways that travelers and the public value. This vision is broadly profiled in *Smart Mobility for a 21st Century America.*

http://advancedmobilityproject.org/wp-content/uploads/2013/12/Smart-Mobility-for-a-21st-Century-America1.pdf

Bringing the "Internet of Things" to transportation and the need to develop smart cities and communities are bolstered by two recent grounding-breaking initiatives. The USDOT's draft release of Beyond Traffic casts a long-range vision that will impact transportation trends and choices through 2045. Governor Cuomo's recent announcement of the NYS Community Partnership Program builds on the New York Power Authority's Five Cities Model and will initially provide up to $20 million for advanced energy projects. Examples of improvements under consideration are demonstrated in the Albany Energy Plan which seeks greater transportation efficiencies by: 1) upgrading transportation infrastructure to maximize efficiency and reduce automobile dependency; 2) expanding and improving multimodal transportation options; 3) removing barriers to installing alternative fuel infrastructure and using alternative fuels; 4) maximizing efficiency of vehicle fleets; and 5) maximizing efficiency and reducing the costs of streetlights.

http://www.dot.gov/sites/dot.gov/files/docs/Draft_Beyond_Traffic_Framework.pdf
http://www.nypa.gov/AlbanyEnergyPlan.html

Achieving this vision will result in more informed, efficient and sustainable management of multimodal transportation networks, facilitate seamless travel across different transportation modes, and increase sustainability that reduces traffic congestion and decreases energy use. A prime opportunity exists to define *The Infrastructure the Next Generation of Cities Will Need* (link below). The need exists to put in place new and emerging ideas and concepts that better integrate the reach and effectiveness of solutions that reduce energy use, improve transportation mobility and reliability, produce collaborative partnerships at all levels, achieve broad sustainability and livability goals, and enhance the health, welfare, and safety of the traveling public.

http://www.governing.com/blogs/view/gov-infrastructure-cities-innovation-entrepreneurship-technology.html

Four categories of projects will be considered for funding. Specific Focus Areas are described in the following section, but project objectives common to all four include but are not limited to:

- Promoting integrated strategies across organizations and transportation modes.
- Managing, reducing, and avoiding congestion by emphasizing multimodal options and better network management through engineering, operational improvements, and other strategies.
- Providing network safety, resiliency, redundancy, and security.
- Providing more intelligent communications between transportation networks and their users.
- Providing predictability and capacity increases focused on travel that supports transportation sustainability, energy efficiency, economic productivity, and livability.
- Supporting research, planning, and development of solutions that solve pressing transportation needs; meet traveler expectations and desires; and enhance the reliability, efficiency, and safety of New York's transportation system.
- Enabling agencies, communities, organizations, and others to replicate project concepts.

Focus Area 1: Active Transportation and Demand Management (ATDM) and Integrated Corridor Management (ICM)

ATDM is the collective approach for dynamically managing travel and traffic demand and available capacity of transportation facilities, based on prevailing traffic conditions, using one or a combination of operational strategies that are tailored to real time and predicted conditions in an integrated fashion. ICM consists of the operational coordination of multiple transportation networks and cross-network connections comprising a corridor and the coordination of institutions responsible for corridor mobility.

Smart cities and communities are using these new and emerging approaches to better manage congestion, mobility, energy resources, and the environment. Smart mobility solutions and other innovative approaches are being utilized that are integrating real-time information and operational strategies, technological innovations and concepts, and collaboration among local stakeholders that are practical and cost-effective. Within this context, travelers are provided optimal information and choices before, during, and at the end of their trip and are experiencing improved mobility, trip reliability, safety, and throughput of the surface transportation system.

http://ops.fhwa.dot.gov/publications/fhwahop12032/
http://www.its.dot.gov/icms/icm_plan.htm

The objective of this focus area is to engage in planning, applied research, deployment, or demonstration of concepts and strategies that are dynamically active, integrated, and resulting in transportation systems that are optimized for performance. Proposals can focus on new industry trends, applied research, and forward looking advances in ATDM; intelligent transportation systems (ITS) technologies; analysis, modeling, and simulation (AMS) concepts; and visionary ICM solutions based on robust collaboration, vital shared experiences, and higher degrees of institutional and organizational learning and collaboration. Activities may include proactive planning, applied research, technical analysis tool development and guidance, systems operations, outreach/training, partnerships, and community involvement that optimize the integration of multimodal systems operations. Activities may include but are not limited to:

- Development of innovative ATDM, ITS, and ICM concept exploration, regional architectures, and concepts of operations.
- Analytical planning, research, operations, and systems engineering related to system requirements, subsystem project architectures, and detailed component level designs.
- State-of-the-art systems operations, technologies, and strategies (e.g., priority treatments such as managed use lanes, bus rapid transit, and adaptive transit and pedestrian signal control systems) that improve cross-network interfaces, efficiencies, and safety.
- Dynamic, real-time multimodal information and communication systems both pre-trip and en-route that facilitate enhanced traveler decision-making; greater coordination and integration among system and network owners, operators, stakeholders, business community, and the traveling public; and overall greater satisfaction by travelers.
- Advanced traffic management and analysis, modeling, and simulation (AMS) forecasting concepts, methodologies, and processes.
- Congestion management best practices that optimize operations under various scenarios (e.g., normal or daily conditions; atypical conditions and incidents; scheduled events; unplanned or failure events; and work zone anomalies).
- Multi-agency change and configuration management processes, policy procedures, collaboration, and organizational efficiencies capable of integrating relevant components.

Focus Area 2: Freight Transportation Management and Logistics

Freight transportation management includes various strategies for increasing the efficiency of freight and commercial transportation. Logistics is a technical term for efficient freight management, including shipping practices (e.g., vehicle type, shipment size, frequency, etc.), facility location, and related activities that improve economies-of-scale. Logistics focus on minimizing shipper costs, but other components such as congestion, energy resource availability and use, and environmental impacts are equally important. Improvements in freight transportation recognize both components are important. This results in more efficient freight options (including truck, rail, intermodal and integrated distribution centers); incentives and information that enhance decision-making for various types of delivery; increases in load factors; and reduction in unnecessary shipping distances and volumes.

Smart cities and communities are characterized by safe, efficient, and integrated freight transportation to support enhanced mobility, economic productivity, community well being, overall sustainability, and quality of life. Cost-efficient freight transportation is an important element of economic well being, especially as domestic and global trade continues to expand. The objectives of this focus area are to improve the flow and reliability of freight transportation in New York, while increasing energy efficiency and reducing GHG emissions. Freight concerns include, but are not limited to, the congestion and double-parking that occurs in city centers when trucks aren't well-managed during the 'first and last mile' of delivery, the environmental impact of moving freight through the metro area, and the 'hub dilemma' — the additional layer of commercial traffic often accruing at New York's major transportation facilities exacerbated by partly full trucks taking up urban highway capacity.

Proposals can focus on vehicles, technology, infrastructure, supply chain operations, logistics, safety and security, governance and policies, modal shifts, funding and finance, land use/environmental connections, public and private partnerships, and community involvement by addressing elements such as but not limited to the following:

- Defining, developing, and managing core regional multimodal freight networks that include truck, rail, and marine/waterborne transportation.
- Enhancing total freight network infrastructure and services resiliency, redundancy, reliability, competitiveness, safety, and security through efficient supply chain management.
- Shifting freight traffic away from congested peak travel times to off-peak periods.
- Improving scheduling, routing, and supply chain management that reduce freight vehicle mileage, increase load factors (e.g., avoiding empty backhauls), and serve wider markets.
- Using smaller vehicles and human powered transportation (e.g., freight tricycles) that address 'first and last mile' challenges, particularly for distribution in urban areas.
- Using 'big data' analytics/insights, artificial intelligence, increased computerization, and innovations in management, supply chain, and operations to enhance logistical coordination.
- Employing ITS technologies that enhance operational efficiencies of freight movements including reliable and predictable pick up or delivery capabilities and system coordination.
- Fostering new business models for distribution and consolidation that improve multimodal connections while reducing per-mile shipping costs, unnecessary delivery frequency and backhauling, and relying on more local suppliers.
- Implementing land use, complete streets, pricing, tax, and other policies to optimize freight infrastructure management and operations.
- Building integrated support and collaborative partnerships to facilitate efficient goods movement among local jurisdictions, business, and labor.

Focus Area 3: Dynamic Mobility Applications

Dynamic mobility applications (DMA), particularly as they relate to connected, autonomous or automated vehicle technologies, are new and emerging industry trends and advances in multimodal travel, traffic management, and information systems; innovative ITS technologies and related architectures; operational system and design changes; intelligent infrastructure improvements; and forward looking strategies, concepts, technologies, and applied research that include but are not limited to initiatives like:

- Enable Advanced Travel Information Systems (Enable ATIS)
- Multimodal Intelligent Traffic Signal System (MMITSS)
- Intelligent Network Flow Optimization (INFLO)
- Response, Emergency Staging and Communications, Uniform Management, and Evacuation (R.E.S.C.U.M.E.)
- Integrated Dynamic Transit Operations (IDTO)
- Freight Advanced Traveler Information Systems (FRATIS)
- Commercial Vehicle Information Systems and Networks (CVISN)
- Applications for the Environment: Real Time Information Synthesis (AERIS)
- Clarus ('Anytime, Anywhere Road Weather Information')

DMA considers planning and applied research that will spur development of smart cities and communities of the future characterized by smart mobility solutions. This includes a transformation in transportation planning and operations that emphasize traffic and transit evolution, new modal innovations, intelligent infrastructure, autonomous and connected vehicles, optimization of multimodal systems integration and operations, and progressive technological solutions that improve transportation mobility, reliability, resiliency, redundancy, sustainability, and safety. This transformation will cast a vision for the marketplace that embraces 'thinking about infrastructure' that builds capacity and 'thinking about markets' that makes more efficient use of the capacity that already exists. It will speak to an evolving transportation schema that is flexible, practical, and fosters critical tailoring and adaptation in response to dynamic mobility applications.
http://www.its.dot.gov/dma/dma_development.htm

The objectives of this focus area are to create innovative and transformative applications from these emerging DMA initiatives, trends, and advances that are underpinning national and international capacity building developments. It involves proactive asset and systems management that leverages frequently collected and real-time, multi-source data from connected vehicles and travelers, various alternative modes, and infrastructure. It increases efficiencies in operations, reliability, and safety; improves individual mobility; reduces negative environmental risks that make travel smarter and greener; increases sustainability and livability; and delivers needed traveler services in practical and relevant ways.

Project proposals can focus on technology, vehicles, infrastructure, system operations and management, safety and security, technical analysis tools and support systems, proactive research and planning, innovative governance practices, and collaborative partnerships that may include but are not limited to:

- Planning and applied research related to innovative emerging transportation technology solutions that transform systems, operations, and services delivery and safety.
- Computing and wireless technologies that enhance efficiencies and decision support in traffic, transit, and freight management, predictive analytics, and operations capabilities.
- Real-time big data in transportation planning, modeling, and intelligent transportation systems design, operations, and safety applications (e.g., adaptive traffic signal optimization systems).

- Capability maturity approaches and applications demonstrating various levels of sophistication relative to the development, maturity, and delivery of DMA product and service deployments.
- Integrated operations that enhance capacity and redundancy; standardization and interoperability between high-value assets; and novel operational strategies (e.g., managed use lanes and continuous flow intersection improvements).
- Smart parking solutions that utilize innovative technologies to improve access control, way-finding and guidance, and payment automation.
- Emerging innovations in research, standards, and practices that enhance pedestrian and bicycle-related infrastructure safety.
- Use of information and communication technologies to enable greater efficiencies in system operations and services delivery.
- Re-thinking and re-aligning governance and change management practices resulting in stronger, engaging leadership structures.

Focus Area 4: Sustainable Transportation Alternatives

Sustainable transportation alternatives are defined as ones that that meet our needs without compromising the ability of future generations to meet their needs. Smart cities and communities of the future are going to be transformed by an emerging new mobility industry that embraces and connects a wide range of sectors – recognizing there is a shift taking place from one of 'ownership' to one of 'access.' It will address the connectivity gaps that exist in a traveler's trip. It will progress sustainable, technological solutions that improve multimodal systems reliability, traveler safety, livability, and quality of life through systems-based transportation. New mobility alternatives will offer a wide range of business and innovation opportunities and foster new roles for business and government. It will generate collaborative problem solving and solution definition leading to collaborative implementation. Sustainable transportation alternatives recognize the groundswell of innovation that goes beyond conventional solutions to address gaps in systems and services with new services, products, transportation modes, technologies, and system designs. It emphasizes integrated, systems-based solutions that are safe, sustainable, equitable, and affordable. http://deepblue.lib.umich.edu/bitstream/handle/2027.42/85216/102756.pdf?sequence=1

The key to developing smarter cities and communities is to connect rather than compete. It is about connecting the dots, bringing diverse innovations together in ways that work best for travelers and users of transportation systems in ways that are relevant, simple, and resonate with travelers. Smart cities and communities recognize multiple, innovative solutions are needed to support next generation transportation options and infrastructure that are sustainable.

The objective of this focus area is providing integrated and dynamic concepts, strategies, and solutions that provide integrated sets of transportation designs, services, products, and technologies that are scalable – starting with what already exists and capitalizing on multidisciplinary systems, products, designs, and processes that address a broad range of backgrounds and needs; urban, suburban, and rural; policy, research, and practice; public and private sector innovation; and short- and long-term timeframes.

Proposals may focus on new mobility industry trends, business models, partnerships and alliances, and forward looking advances in new mobility designs and solutions in the areas of transportation operations, safety, and services; intelligent transportation systems; geomatics; telecommunications and wireless information technologies; land use planning and design; clean energy; highway and transportation equipment, safety operations, and management; and financial services, e-business, and new digital media. Proposals may address such ideas that include but are not limited to:

- New mobility products, modes, and services that are redefining how travelers commute and move about – for example, peer-to-peer transportation networks; shared use mobility enterprise alliances; and travel demand management, messaging, and compliance strategies.
- New services and technologies that build relevancy, simplicity, trust, and are incentivizing greater participation in alternative forms of transportation – for example, use of digital and integrated single-payment platforms; wayfinding information services; and online, social media platforms that better engage and empower travelers and communities.
- New systems, infrastructure, and product designs that leverage the capability of government and the private sector to create integrated, multimodal systems environments – for example, innovative technology advances, standards, and best practices that advance highway and transit safety; innovative lighting solutions that improve visibility on streets and highways; and innovative processes and technologies that enhance connectivity in transportation hub and terminal design and operations.

Funding Categories. Five categories (and maximum NYS support) will be considered for funding:

1. Education and Technology Transfer ($30,000 max). Outreach activities to advance the education and awareness of the general public, policy makers, stakeholders, students, municipal planning organizations (MPOs) and others on the issues, consequences, objectives and resources, associated with reductions in transportation GHGs/energy consumption.
2. Research, Policy, and Feasibility Studies ($150,000 max). Applied research to develop and evaluate new strategies and policies for New York State that have the potential to achieve reductions in transportation GHGs/energy consumption, and to improve energy efficiency.
3. Demonstrations of Underutilized Strategies and Policies ($200,000 max). Demonstrations that have not been previously deployed in New York State to any significant extent which have the potential to reduce transportation GHGs/energy consumption and that require only minor amounts of equipment and/or materials purchased for implementation (< 30% of the total project budget).
4. Integration of Existing Mobility Strategies through Collaborative Partnerships ($300,000 max). Partnerships on a larger scale in which numerous and diverse public and private entities team up and pool resources to work together to reduce transportation GHGs/energy consumption.
5. Demonstrations of Underutilized Commercial Technologies ($500,000 max). Demonstrations of technologies that have not been previously deployed in New York State to any significant extent which have the potential to reduce transportation GHGs/energy consumption and that require significant amounts of equipment and/or materials purchased for implementation (> 30% of the total project budget).

Category 1 seeks to fund technology transfer/outreach activities and materials, including workshops, webinars, publications, guidebooks, and brochures. Outreach activities may focus on implementing new strategies or technologies, as well as seek to modify the behavior of New York State residents. The funded activity should produce a project-specific deliverable to promote impact and replication beyond the timeframe of the project. (e.g. webcast, curriculum materials, etc.).

Category 2 is designed to fund specific research, plans, and studies, which may include feasibility assessments, engineering studies, and related analysis necessary to establish the energy, environmental, and additional benefits of a relevant policy, strategy, product or technology. Examples of additional benefits include financial impacts, as well as potential impacts in the areas of operations, maintenance, safety, reliability, mobility, and security.

Applied research is defined as the systematic inquiry to solve practical problems resulting in practical applications, whereas, basic research is defined as the systematic study toward gaining greater knowledge or understanding, but without focus on specific practical applications, end results or products.

Category 3 seeks to demonstrate underutilized strategies, plans, and policies, which have been proven to be effective elsewhere, nationally or internationally. The intent, however, is to replicate fundamental changes in system operations, which can be readily implemented without major equipment expenditures. For this category, proposed purchases of materials and equipment are limited to 30% of the total project budget.

Examples of qualifying Category 3 demonstration proposals might include: a) development of tailor-made ICMS or system of systems (SoS) approaches to corridor management that facilitate the organization, integration, and communication of innovative, multimodal system concepts, products, and services; b) development of an ICMS capability maturity framework of planning, operational, institutional, and technical deployments that produce optimal economies-of-scale and achieve full integration of system synergies that fully meet traveler needs; c) expanded access to and re-purposing underutilized facilities for consolidated freight services (e.g., mini-distribution centers); and d) emerging innovations in transportation research, standards, and practices related to pedestrian and bike-related infrastructure and changes in MUTCD standards that ensure the safety and greater accommodation of pedestrians and bicyclists (e.g., pedestrian activated hybrid beacons – the Tucson Hawk, bicycle-specific traffic signals, color coded bike lanes, bike boxes, stripping that extends bike lanes through intersections, and rectangular rapid flashing beacons).

Category 4 seeks to support and implement larger Collaborative Partnerships that integrate and leverage across modes, strategies, agencies, and sectors. Innovations and opportunities are rapidly evolving and encompassing numerous aspects of commuting and traveling, urban goods movement and supply chain management, telecommunications, use of wireless technologies, e-business and social media, real estate and land use patterns, and design (products, services, technologies, and community). The quality of the Collaborative Partnership is as important as the transportation issue being addressed and proposers should establish diverse, innovative collaborations exploring social and business opportunities, as well as the emerging strategies and technologies being deployed.

Examples of Collaborative Partnerships are a) shared economy alliances and peer-to-peer transportation networks that bundle transportation modal options with related services such as smart parking solutions (e.g., use of innovative concepts and technologies to enhance traffic and parking management, real-time way-finding and guidance systems indicating space availability, rental of private parking space, and mobile applications that facilitate drivers' ability to find, pay for, and reserve parking), insurance, toll charging, and multichannel single payment networks (e.g., smart cards, mobile apps, etc); b) optimal use of digital innovation, online information, and social media platforms that encourage open market insights and public and business collaboration; and c) utilizing the business community as strategic partners to assist in delivering and showcasing a dynamic 'solutions landscape' of innovative measures, creative problem solving initiatives, and cross-cutting solutions with respect to overcoming barriers and challenges to creating a fully integrated, multimodal transportation systems environment.

Category 5 is similar to Category 3, but differs in the amount of materials and equipment required to be procured for the demonstration. Category 5 is designed to fund the limited demonstration of existing underutilized commercial technologies that have been successfully deployed in other states or countries (e.g., the Tucson Hawk and the Copenhagen Wheel), but have not been previously deployed in New York State to any significant extent. The intent is not to research the existing technology per se, but to quantify and validate potential benefits and identify specific barriers to adoption for New York. In contrast to Category 3, it is recognized that significant procurement of material and equipment may be necessary (>30% of the total project budget).

Category 3 and 5 proposers will be required to establish that their proposed strategy or technology is truly underutilized in New York State. Proposers should conduct a review of available literature, news articles, and internet sites and published studies to present a convincing case for the value in a New York State demonstration.

Category 5 proposers will be required to establish that the transportation technology is fully commercial and that no significant product development is required. Transportation technologies requiring additional product development should be proposed to NYSERDA's Advanced Transportation Technologies solicitation, which is issued annually and specifically targets transportation product development.

A commercial technology is defined to be a product, such as an item, material, component, subsystem, or system, applicable to transportation and sold or traded in reasonable quantities on the open market within the course of normal business operations at prices based on established catalog or market prices with industry-standard deliveries, terms, and warranties.

Project Scope. To be selected for funding, proposals must:

- Offer readily quantifiable reductions in GHG emissions and transportation energy use in New York State with a clearly identified process for verifying these benefits.
- Demonstrate a viable path to market acceptance resulting in additional technology adoption and replication beyond a single demonstration.
- Emphasize the ultimate deployment of technical solutions rather than perform basic research.
- Document accessibility, sustainability, mobility, reliability, environmental, economic, safety and/or security benefits in New York State.
- Be consistent with metropolitan transportation plans in New York State and with transportation related regulations at the federal or state level.
- Provide the minimum required amount of cost-sharing by the proposer or third parties in the form of cash or in-kind labor, materials, equipment, facilities, and other resources, subject to reasonable and verifiable valuation. Co-funding may be from the proposer or other private or government sources. New York State funds cannot be used to reimburse or replace normal expenses of other government organizations.

Due to the objectives of PON 3090, teaming arrangements are not only encouraged but may be necessary to achieve project success. Proposal teams may include commercial firms, industry associations or research organizations, universities, government agencies, end-users, and other stakeholders.

Letters of Commitment. If you are relying on any other organization to provide services, equipment or cost share, include a letter from that organization describing its planned participation. Where appropriate, proposed field demonstrations should include Letters of Commitment from the host site or vehicle fleet owner. Absence of Letters of Commitment will be interpreted as the proposer not having support from the identified parties.

Letters of Support. In addition to Letters of Commitment, also include Letters of Support from other organizations and entities that are not on the Project Team, but that are critical to the success of the project. Letters of Support are highly valued by the sponsors and by the evaluation committee. The proposer should give strong consideration as to who the project will impact and seek Letters of Support where appropriate. However, due to their active sponsorship of this collaborative solicitation, Letters of Support should not be solicited from NYSDOT or NYSERDA personnel.

III. PROPOSAL REQUIREMENTS

Total proposal length should not exceed 20 pages, plus resumes, company qualifications, and ancillary information in an appendix. Each page of the proposal should state the name of the proposer, the PON number, and the page number. Suggested page limits for each section are provided below in parentheses. Your goal as a proposer should be to concisely present the information needed to fully address the evaluation criteria (see Section IV). Proposals that grossly exceed the page limits or fail to follow the format guidelines may be rejected as non-responsive.

Proposal Sections. Sections of your proposal should be formatted and assembled as follows:

1. Proposal Checklist. Complete the specific Proposal Checklist attached as part of this PON (Attachment A), and include it as the front cover of the original and each copy of the proposal. Note the following:

- Indicate whether you accept the standard terms and conditions as contained in the attached Sample Agreement. If you do not accept the standard terms and conditions, provide alternate terms with justification based on the risk and benefit to NY State. NYSERDA reserves the right to consider only exceptions to terms that are specifically included with the proposal. Any negotiation of terms will be at NYSERDA's sole discretion.
- Do not leave any blanks. If a specific question is not applicable, indicate N/A.
- Be sure the individual signing the Proposal Checklist is authorized to commit the proposer's organization to the proposal as submitted.

2. Procurement Lobbying Requirements - **State Finance Law sections 139-j and 139-k**.
In compliance with §139-j and §139-k of the State Finance Law (see Section V, General Conditions below for additional information), additional forms must be completed and filed with proposals:(1) a signed copy of the Proposal Checklist including required certifications under the State Finance Law and (2) a completed Disclosure of Prior Findings of Non-Responsibility form. Failure to include a signed copy of the Proposal Checklist referenced in this solicitation may disqualify your proposal.

3. Executive Summary (two pages maximum). Indicate the Focus Area (1, 2, 3, or 4) and the Funding Category (1, 2, 3, 4, or 5) to which your proposal is being submitted. Briefly summarize the team members, the related problem or opportunity, the proposed solution and its innovative characteristics, and the potential for energy and GHG reductions in NY State. Strictly limit the Executive Summary to two pages and use the following outline: a) Team Members; b) Background; c) Objective and Scope of Proposed Project; and d) Project Benefits.

4. Background and Proposed Approach (two to three pages). Provide a narrative of the transportation sector being impacted, how it currently operates and what opportunities exist for improvement. Explain fully how the transportation energy and GHGs will be reduced and how the efficiency of the existing NY State transportation system will be enhanced. If applicable, discuss your solution's relevance to any metropolitan transportation plan or transportation-related regulation.

For Category 3 funding, proposers must include a proposal section documenting the NY State underutilization of their strategy. This should include the results of literature reviews and internet scans as previously discussed and contrast New York to other areas where utilization occurs. For Category 5 funding, proposers must include a proposal section documenting the commercial availability and NY State underutilization of their technology. This should include previous sales and deployments, and include client references and contact information.

5. Proposed Statement of Work and Schedule (three to four pages). The Statement of Work (SOW) is the primary contractual document that outlines work activities and specifies deliverables. It delineates each step required to accomplish the project objectives. Therefore, each action needs to be identified, indicating who will perform it, how it will be performed and its intended result. At the end of each task description, specific task deliverable(s) must be listed. Be sure to identify the task deliverable, as this will be a measure of your performance.

Be clear and specific: concentrate on "how" and not "why". Use "active voice" sentence structure to make clear who is responsible for specific actions. Use the following phrase to start the description of every task and subtask ("The Contractor shall...."). The SOW structure should include:

Task 1.0 Project Management.

Subtask 1.1 Subcontracts. The Contractor shall enter into the following agreements. Describe all required subcontracts, even if the subcontractor is yet to be defined.

Subtask 1.2 Meetings. The Contractor shall hold a Kick-Off Meeting, Interim Review Meetings (as warranted), and a Wrap-Up Meeting at the end of the project.

Subtask 1.3 Progress Reports. NYSERDA and NYSDOT will expect to receive written monthly or quarterly progress reports, as part of the project management task. These activities should be considered when developing your cost proposal. Such reports shall describe any difficulties encountered during the reporting period and shall include a statement of the Project Director setting forth the cost of the work during the reporting period.

Subtask 1.4 Data Collection and Benefit Reporting. For Category 1 and 2 Outreach/Study Projects, NYSERDA will require two brief annual updates on the effectiveness of the information dissemination (e.g. conference presentations, workshops, publications, citations, etc.). A simple, web-based PDF form will be provided for electronic filing (Attachment E1).

For Category 3, 4, and 5 Implementation/Demonstration Projects, the proposal should include a detailed plan to collect data and provide reporting to validate the claimed transportation benefits. Depending on the project, this may require periodic data collection and reporting activities, conducted by the proposer or subcontracted to an unbiased third party. This is an important aspect of a properly-crafted project and it will benefit the proposer and NY State if done properly.

For Category 3, 4, and 5 Implementation/Demonstration Projects, NYSERDA will also require five brief annual updates on the effectiveness and additional replication of the Strategy/Technology. A simple, web-based PDF form will be provided for electronic filing (Attachment E2 for a finite demonstration or E3 for an ongoing business development).

Additionally, NYSERDA may retain an independent third party to evaluate the results of funded projects in selected areas of interest. Upon such a request from NYSERDA, the Contractor shall make available project files and data for evaluation for a period of time not to exceed 5 years.

Subtask 1.5 Final Report. The Final Report is a significant project deliverable and should detail all of the work performed and task deliverables, but exclude proprietary information. The comprehensive Final Report shall cover all aspects of the project and shall merge together, and build further on, the previously generated monthly progress and benefit reports. Although not onerous, NYSERDA, NYSDOT and FHWA each have elements of required report formats, which need to be satisfied and which will be provided to successful proposers at the start of the project.

In the Final Report, the Contractor shall quantify the magnitude of the potential GHG and energy reductions under various scenarios. Annual estimates for the next five years shall be developed assuming realistic adoption in NY State. If appropriate, larger regional or national impacts shall be estimated assuming reasonable replication. All estimates shall reference credible sources and estimating procedures, and all assumptions shall be documented.

Task 2.0, 3.0, 4.0, etc. Project-specific Work Scope Tasks. Add as many tasks and subtasks as necessary to cover all actions needed to achieve the goals and objectives of the project. Each task should include a concise narrative description of the work that will be performed and how the work will be performed and specific deliverables to be provided. Typical tasks may include, but are not limited to, requirements definition, preliminary design, field testing, final design, and demonstration.

Schedule. Present a work schedule with a starting point and duration for each task and subtask. Presentation of the schedule in a table or bar chart is preferred starting with "Month 1," "Month 2," etc. along the top horizontally with tasks and subtasks running vertically down the left hand side. Although other timeframes will be considered, typical project schedules run nine to eighteen months.

6. Proposer Qualifications (two to three pages). Provide an overview of the relevant qualifications of the proposer, other team members and major subcontractors. Note that subcontracts of $50,000 or more are subject to competitive bid procedures except where the proposal identifies a specific subcontractor as an integral participant in the proposed work (see Att. D: Sample Agreement). Resumes, facility qualifications, and data sheets do not belong in the body of the proposal, but should be included in the appendix. Key individuals identified in the proposal need to be available to commit to the project in the time frame proposed and subsequent personnel substitutions will require NY State approval. Additionally, discuss any NYSDOT and/or NYSERDA contracts awarded to the proposer in the past five years and identify the associated NY State project managers.

To the extent that proposed Category 5 activities include the use of any existing intellectual property (IP) assets, the proposer must describe the IP and provide details identifying any granted patents or pending applications related to the IP. If the proposer does not own the relevant IP, but is a licensee of the IP, then the proposal must specifically identify and describe any relevant license agreements. Proposers are encouraged to provide copies of relevant IP license agreement(s) and/or letter(s) of support from licensors as attachments to the proposal. To the extent any of the above represents non-public information, please refer to the "Proprietary Information" section in Article V below.

7. Project Benefits (one to two pages). Discuss how the proposed project will reduce GHG emissions and transportation energy in NY State and estimate the potential improvement. Quantify any additional project benefits to the extent possible: mobility and reliability benefits (e.g., congestion reduction, mode shifting, reduced travel variability, etc.), environmental benefits (e.g., emission reductions, minimizing hazardous materials, etc.), economic benefits (e.g., jobs created or retained, reduced life-cycle costs, enhanced economic viability, etc.), safety and security benefits (e.g., reduction in deaths, injuries and real property losses, etc.), and other benefits (e.g., cost of compliance with State or Federal regulations, enhanced quality of life issues, etc.). Describe the methodology that will be used to collect the necessary data and quantify the project benefits.

8. Path to Market Acceptance (one page). Provide evidence that relevant stakeholders are interested in the technology being investigated. Explain how they would benefit from the technology being widely introduced in New York State and why they would be likely to favor that adoption over alternatives. Describe the barriers standing in the way of broad acceptance of the technology being studied and explain how the project will educate stakeholders about ways to avoid or break down these barriers. Characterize a plausible path to broader adoption of the technology, including a description of the resources and stakeholders that must be engaged to accomplish this.

9. Budget. A Contract Pricing Proposal Form (CPPF), with associated instructions, is provided as Attachment C to this PON. Each proposal must include a completed CPPF and also a cost-sharing table (see example below) identifying the allocation of funding by task. The net cost to NY State is one of the evaluation criteria and will be closely considered. The value of NY State funds could be reduced through greater efficiencies or through cost sharing where other funds substitute for NY State funds.

Cost Sharing. All proposals must provide additional funding as cost share and this shall be an important evaluation criteria. Category 2 proposals seeking more than $100,000 of NYS funds and Category 5 proposals seeking more than $350,000 of NYS funds are required to provide a minimum of 35% of the total project cost as cost share. All other proposals must provide a minimum of 25% of the total project cost as cost share. For example, proposals seeking $75,000 of NYS funds are required to provide a minimum of $25,000 in cost share, which is 25% of the total project cost of $100,000.

Cost share cannot include expenses that have already been incurred and NY State funds cannot pay for efforts that have already been undertaken or be used to reimburse or replace normal expenses of other government organizations.

Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered "cash" contributions. Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions. For example, labor may be provided at discount rates, while products for commercial demonstration may be provided at a significant discount or “at cost” to the project. It is the responsibility of the proposer to adequately document the level of cost share being provided from all sources. If funded, the proposer will also need to provide cost share documentation with each invoice submitted. NY State funds will not pay for efforts that have already been undertaken. Show the cost sharing plan in the following format within your proposal.

PROPOSAL COST SHARING TABLE (expand as needed)						
Proposed Funding By Task (Cash and In-Kind)					Project Total	
Funding Source	Task 1 ($)	Task 2 ($)	Task 3 ($)	...	Cash ($)	In-Kind ($)
NY State						
Proposer						
Co-Funder (identify)						
Co-Funder (identify)						
Task Total ($)						

Indirect Costs. Attach supporting documentation to support indirect cost (overhead) rate(s) included in your proposal. Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently approved rates). If the rate(s) is approved by an independent organization, such as the federal government, provide a copy of such approval. If the rate(s) is based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculations should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs. NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment, if warranted. Requests for financial statements or other financial information may be made if deemed necessary.

10. Annual Metrics Reports. If awarded, the proposer will be required to submit to NYSERDA's Project Manager on an annual basis, a prepared analysis and summary of metrics addressing the anticipated energy, environmental and economic benefits that are realized by the project. All estimates shall reference credible sources and estimating procedures, and all assumptions shall be documented. Reporting shall commence the first calendar year after the contract is executed. Reports shall be submitted by January 31 for the previous calendar year’s activities. Please see Attachments E1, E2, and E3: Sample Metrics Reporting Guides for the initial metrics that you will be expected to provide and the reporting duration.

It will be the responsibility of the awarded proposers to use the most current version of the metrics reporting guides, which are housed on the NYSERDA website. The guides may change as NYSERDA’s needs evolve over time. Additionally, awardees are expected to cooperate with NYSERDA evaluation as needed during and after completion of the project, these activities will ensure that the NYSERDA transportation projects are both effective and responsive to the needs of the market. NYSERDA may decline to contract with awardees that are delinquent with respect to metrics reporting for any previous or active NYSERDA agreement.

11. Appendices. Include any resumes, company qualifications, or ancillary information which is deemed necessary to support your proposal. Also include Letters of Commitment and Letters of Support.

IV. PROPOSAL EVALUATION

Requirements. Proposals will be reviewed by a Technical Evaluation Panel (TEP) and will be scored and ranked according to the Evaluation Criteria listed below. A negative response to any one of the questions identified below may eliminate the proposal from further consideration. Does the proposal:

- ✓ Have the potential to reduce GHG emissions and transportation energy use in NY State?
- ✓ Adequately document the commercial availability and/or underutilization of the technology/strategy to be demonstrated?
- ✓ Provide the minimum required amount of cost share by the proposer or third parties?
- ✓ Provide additional mobility and reliability, environmental, economic, safety and security benefits in NY State?
- ✓ Provide Letters of Commitment/Support from all co-funders/key stakeholders?

All five funding categories will be evaluated together. After the proposals are reviewed, NYSERDA will issue a letter to each proposer indicating the proposal evaluation results. Proposers receiving favorable evaluations will be invited to enter into contract negotiations with NYSERDA. The proposer will be required to submit a detailed statement of work, budget, and schedule, and may be asked to address specific questions or recommendations of the TEP before contract award.

Evaluation Criteria.

- **Proposed Solution/Scope.** How significant is the issue or opportunity for NY State? Is it likely to be adopted and result in NYS benefits? If a demonstration, is the technology/strategy truly commercial and/or underutilized in NY State? Is the proposed work plan technically feasible, innovative, and superior to potential alternatives? Has the proposer demonstrated that the technology being studied is something that stakeholders are interested in implementing and does the proposer identify a path to market acceptance and economic viability? Is there a path for it to be replicable beyond a single demonstration?
- **Project Benefits.** How significant is the statewide potential for NYS transportation energy and GHG reductions? Are the expected benefits likely to be realized, given other constraints or barriers? Are there additional significant mobility, reliability, environmental, economic, safety, and security benefits? If adopted, will there be economic benefits in NY State in the form of subsequent manufacturing or technical service activity? Are the processes for estimation of benefits in preparation of the project, during project implementation, and post project implementation are clearly explained and reference defensible sources or reliable measurement methods?
- **Proposer(s).** To what degree does the team have relevant and necessary technical and business background and experience? If a Collaborative Partnership, is it truly significant? Does the team include NY State businesses, thereby providing economic benefits in the form of NYS jobs? Does the proposal contain Letters of Commitment from all essential participants, co-funders, and related businesses and other organizations?
- **Project Outcome and Cost.** Is the overall project cost justified based on the expected benefits? Relative to the project cost, how significant are the potential benefits? Has the minimum cost share requirement (25% or 35%) been met? How appropriate are the proposer's cost share contributions (sources and amounts) with respect to their potential to benefit from the work and the financial status of the proposing organization and project team?
- **Other Considerations.** Proposals will be reviewed to determine if they fit well within the selected Focus Area and that they have been submitted to the proper Funding Category. The proposal's fit with New York's overall objectives will also be considered, including: risk/reward relationships, similar ongoing or completed projects, and the general distribution of transportation research projects among industries, organizations, and locations in NY State.

V. GENERAL CONDITIONS

Proprietary Information. Careful consideration should be given before confidential information is submitted to NYSERDA as part of your proposal. Review should include whether it is critical for evaluating a proposal, and whether general, non-confidential information, may be adequate for review purposes.

The NYS Freedom of Information Law, Public Officers Law, Article 6, provides for public access to information NYSERDA possesses. Public Officers Law, Section 87(2)(d) provides for exceptions to disclosure for records or portions thereof that "are trade secrets or are submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Information submitted to NYSERDA that the proposer wishes to have treated as proprietary and confidential trade secret information, should be identified and labeled "Confidential" or "Proprietary" on each page at the time of disclosure. This information should include a written request to except it from disclosure, including a written statement of the reasons why the information should be excepted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501. http://www.nyserda.ny.gov/About/-/media/Files/About/Contact/NYSERDA-Regulations.ashx However, NYSERDA cannot guarantee the confidentiality of any information submitted.

Omnibus Procurement Act of 1992. It is the policy of New York State to maximize opportunities for the participation of NY State business enterprises, including minority- and women-owned business enterprises, as bidders, subcontractors, and suppliers on its procurement Agreements.

Information on the availability of New York subcontractors and suppliers is available from:

Empire State Development / Division for Small Business
625 Broadway, Albany, NY 12207

A directory of certified minority- and women-owned business enterprises is available from:

Empire State Development / Minority and Women's Business Development Division
625 Broadway, Albany, NY 12207

State Finance Law sections 139-j and 139-k. NYSERDA is required to comply with State Finance Law sections 139-j and 139-k. These provisions contain procurement lobbying requirements which can be found at: http://www.ogs.ny.gov/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html.

The attached Proposal Checklist calls for a signature certifying that the proposer will comply with State Finance Law sections 139-j and 139-k and the Disclosure of Prior Findings of Non-responsibility form includes a disclosure statement regarding whether the proposer has been found non-responsible under section 139-j of the State Finance Law within the previous four years.

Tax Law Section 5-a. NYSERDA is required to comply with the provisions of Tax Law Section 5-a, which requires a prospective contractor, prior to entering an agreement with NYSERDA having a value in excess of $100,000, to certify to the Department of Taxation and Finance (the "Department") whether the contractor, its affiliates, its subcontractors and the affiliates of its subcontractors have registered with the Department to collect New York State and local sales and compensating use taxes. The Department has created a form to allow a prospective contractor to readily make such certification. See, ST-220-TD (available at http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf).

Prior to contracting with NYSERDA, the prospective contractor must also certify to NYSERDA whether it has filed such certification with the Department. The Department has created a second form that must be completed by a prospective contractor prior to contacting and filed with NYSERDA. See, ST-220-CA (available at http://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf). The Department has developed guidance for contractors which is available at:
http://www.tax.ny.gov/pdf/publications/sales/pub223.pdf.

Contract Award. NYSERDA anticipates making multiple awards under this solicitation. It may award a contract based on initial applications without discussion, or following limited discussion or negotiations pertaining to the Statement of Work. Each offer should be submitted using the most favorable cost and technical terms. NYSERDA may request additional data or material to support applications. NYSERDA will use the Sample Agreement to contract successful proposals. NYSERDA reserves the right to limit any negotiations to exceptions to standard terms and conditions in the Sample Agreement to those specifically identified in the submitted proposal (see Attachment A: Proposal Checklist). Proposers should keep in mind that acceptance of all standard terms and conditions will generally result in a more expedited contracting process. NYSERDA expects to notify proposers in approximately ten weeks from the proposal due date, whether your proposal has been selected to receive an award. NYSERDA may decline to contract with awardees that are delinquent with respect to any obligation under any previous or active NYSERDA agreement.

Limitation. This solicitation does not commit NYSERDA to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. NYSERDA reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in NYSERDA's best interest. NYSERDA reserves the right to reject proposals based on the nature and number of any exceptions taken to the standard terms and conditions of the Sample Agreement.

Disclosure Requirement. The proposer shall disclose any indictment for any alleged felony, or any conviction for a felony within the past five years, under the laws of the United States or any state or territory of the United States, and shall describe circumstances for each. When a proposer is an association, partnership, corporation, or other organization, this disclosure requirement includes the organization and its officers, partners, and directors or members of any similarly governing body. If an indictment or conviction should come to the attention of NYSERDA after the award of a contract, NYSERDA may exercise its stop-work right pending further investigation, or terminate the agreement; the contractor may be subject to penalties for violation of any law which may apply in the particular circumstances. Proposers must also disclose if they have ever been debarred or suspended by any agency of the U.S. Government or the NY State Department of Labor.

VI. ATTACHMENTS

Attachment A - Proposal Checklist
Attachment B - Disclosure of Prior Findings of Non-Responsibility Form
Attachment C1 - Contract Pricing Proposal Form and Instructions
Attachment C2 - Contract Pricing Proposal Form (Excel)
Attachment D - Sample Agreement
Attachment E1 - Information Dissemination Metric Reporting Guide
Attachment E2 - Implementation/Demonstration Metrics Reporting Guide
Attachment E3 - Business Development Metrics Reporting Guide
Attachment F - Instructions for Electronic Proposal Submission