NEW YORK STATE OF OPPORTUNITY. | Climate Smart Communities

PE3 Action: LED Traffic Signals

1 Points | 2 Points | 3 Points | 4 Points

A. Why is this action important?

Converting incandescent traffic signals to light-emitting diodes (LEDs) is cost-effective way to lower local government energy bills. Traffic signals are the automatically operated colored lights (typically red, amber, and green) that control traffic at road junctions and crosswalks. LED traffic signal lamps use 80 to 90 percent less energy than incandescent lamps. Local governments can expect to save approximately 60-130 dollars in annual energy costs per signal head by switching to LEDs. Additionally, LED traffic signal lamps can reduce maintenance costs over incandescent technology by approximately 75 percent. The estimated simple payback on LED traffic signal conversions based on energy cost savings alone is as little as one year.

B. How to implement this action

Local governments can follow the guidelines below to identify opportunities to improve the efficiency of local traffic signals.

Plan for the Traffic Signal Retrofit

- Conduct an inventory of that, at minimum, covers every traffic signal owned by the local government. Points for this Climate Smart Communities (CSC) action are awarded based on the percentage of traffic signals converted to LEDs, so the total number of traffic signals is required. If the resources are available, local governments should consider a comprehensive inventory of all outdoor lighting that covers street lights (including those owned by the local utility), traffic signals, and off-street light fixtures (in parking lots and public parks, for example). Such a comprehensive inventory will create a foundation for earning points under all the CSC actions that are focused on outdoor lighting: *PE3 Action: LED Street Lights*, *PE3 Action: LED Traffic Signals*, *PE3 Action: Outdoor Lighting Reduction*, and *PE3 Action: Outdoor Lighting Upgrades*.
- Define the scope and objectives of the project, in terms of the number of traffic signals to be converted and the financing strategy. For the purpose of this CSC action, traffic signals are a category of outdoor lighting that includes the automatically operated colored lights (typically red, amber, and green) for controlling traffic at road junctions and crosswalks. When planning the conversion to LED, focus on the most outdated signals first.
- Consider performing a pilot of the LED technology first, to confirm the selected technology meets local requirements.
- Develop project plan and select a contractor to perform the conversion.

Identify Design Problems and Constraints

- Determine if existing traffic signals can be retrofitted or if they must be replaced.
- Select appropriate LED technology and understand maintenance impacts.

Implement New Lighting Technology

- Convert traffic signals to LED.
- Monitor and report on performance of the new signals.
- Develop or update ongoing maintenance plans.

C. Time frame, project costs, and resource needs

A traffic signal upgrade project can typically be completed within a year, although it depends on the number of signals to be converted. The project costs also depend on the number of signals; however, local governments can anticipate that the payback for the upgrade will be about one year. The project costs will include costs for design, implementation, and materials. Smaller local governments will typically hire a contractor to perform the upgrade. Larger local governments may have the needed expertise in house to perform the upgrade. Grants or incentives may be available through the local utility.

The cost savings associated with LED traffic signals can be significant, approximately 80 to 90 percent savings over incandescent lights, along with the savings from reduced maintenance requirements.

D. Which local governments implement this action? Which departments within the local government are most likely to have responsibility for this?

This action is applicable to any local government that owns and operates traffic signals. This type of project is typically performed by the department of public works or transportation.

E. How to obtain points for this action

Local governments can earn points for this project by converting traffic signals to LEDs. Points are awarded based on the percentage of traffic signals converted.

	POSSIBLE POINTS
Upgrade 10-25% of traffic signals to LED	1
Upgrade 26-50% of traffic signals to LED	2
Upgrade 51-75% of traffic signals to LED	3
Upgrade 76-100% of traffic signals to LED	4

F. What to submit

At minimum, provide the following information:

- Baseline: As per the inventory, provide the total number of traffic signals owned by the local government.
- Percentage converted: Provide the number of traffic signals that were converted to LEDs.

Documentation should indicate that the updated traffic signals are actively in use (through photographs or utility bills, for example). Applicants may also provide invoices or purchase orders that indicate the type of LEDs purchased and the date of purchase. If available, also provide cost and energy savings (estimated or actual) resulting from the conversion to LEDs. The traffic signals must have been updated within ten years prior to the submittal date.

All CSC action documentation is available for public viewing after an action is approved. Action submittals should not include any information or documents that are not intended to be viewed by the public.

G. Links to additional resources or best practices

- DEC CSC Reduce Utility Bills for Municipal Facilities and Operations
- NYSDOT/NYSERDA Informational Brochure on New Lighting Technologies and Roadway Lighting
- Westchester County, Completing LED Traffic Signal Upgrades on a Tight Budget
- NYSDOT Traffic Signal Best Practices (via Lighting Research Center at Rensselaer Polytechnic Institute website)
- NYSERDA LED Traffic Signal Life Cycle Cost Analyzer Tool This Excel-based tool is available via a website for the Lighting Research Center at Rensselaer Polytechnic Institute. Though it is functional, please note that

is no longer supported by NYSERDA.

- Rocky Mountain Institute Guide to Energy Efficient Traffic Signals and Street Lighting

H. Recertification requirements

The recertification requirements are the same as the initial certification requirements.