

U.S. Department of Energy
Energy Efficiency and Renewable Energy

Common Misconceptions of SSL Technology in Area/Roadway Lighting



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Technology Misconceptions Overview

Common Misconceptions of SSL Technology in Area/Roadway Lighting

1. Glare will be greater from luminaires with many small point sources and/or LED spectrum will increase glare
2. Standard warranties will be sufficient
3. Maintenance will not be an issue

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Technology Misconception: Glare

Glare is an increased concern with SSL



I-35W St. Anthony Falls Bridge

Technology Misconception: Glare

Glare Less of an Issue than Anticipated

St. Anthony Falls (I35) Bridge, Minneapolis, MN

"The new bridge lighting creates _____ glare than other roadway lights."

Response	Chart	Frequency	Count
Much less		21.7%	97
Somewhat less		33.3%	149
No noticeable diff in		38.5%	172
Somewhat more		5.6%	25
Much more		0.9%	4
		Valid Responses	447
		Total Responses	447

(Respondents could only choose a **single** response)

Only 6.5% of respondents perceived that the new (LED) bridge lighting created more glare than other roadway lights.

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Technology Misconception: Glare

Glare Less of an Issue than Anticipated



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Technology Misconception: Warranty

Warranties have become a major issue

Typical HID Warranties <ul style="list-style-type: none"> • 5-year for the luminaire <ul style="list-style-type: none"> ◦ 20-year expected life • 2-years for the ballast <ul style="list-style-type: none"> ◦ 12+year expected life • 1-year for the lamp <ul style="list-style-type: none"> ◦ 2-6year expected life 	Typical LED Warranties <ul style="list-style-type: none"> • 3-year for the luminaire <ul style="list-style-type: none"> ◦ 20-year expected life • 2-years for the PSU <ul style="list-style-type: none"> ◦ 10-year expected life
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Technology Misconception: Warranty

Current required warranties for DOE-related programs



DOE SSL Energy Star®

- 3-year manufacturer warranty including luminaire, light source, and power supplies



DOE Commercial Energy Building Alliance
LED Parking Lot Specification – Procurement Project

- 10-year manufacturer warranty including luminaire, light source, and power supplies

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Technology Misconception: Maintenance

Maintenance will not be an issue



I-35W St. Anthony Falls Bridge – Longitudinal Study

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Technology Misconception: Maintenance

Actual costs for maintenance are needed

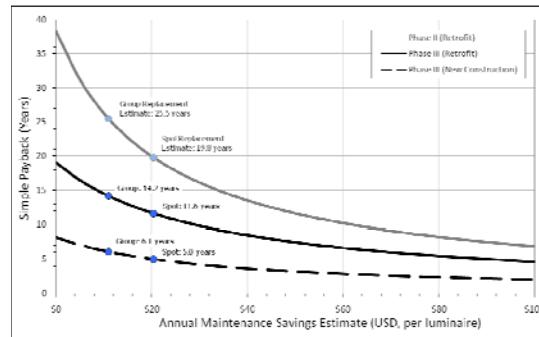


LED luminaire on Oakland, CA street

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Technology Misconceptions Maintenance

Actual costs for maintenance are needed



Annual Maintenance Savings Estimate (USD, per luminaire)	Phase II (Retrofit) Payback (Years)	Phase III (New Construction) Payback (Years)	Phase III (Retrofit) Payback (Years)
500	25.5	14.7	6.8
1000	23.5	11.6	5.0
1500	21.5	10.0	4.0
2000	20.0	9.0	3.5
2500	18.5	8.0	3.0
3000	17.5	7.5	2.8
3500	16.5	7.0	2.5
4000	15.5	6.5	2.3
4500	14.5	6.0	2.1
5000	13.5	5.5	1.9

Project payback based on different variables

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Technology Misconceptions DOE References & Resources

Resources & References for Projects Shown

DOE GATEWAY Technology Demonstration (*I-35W*)

- <http://www.netl.doe.gov/ssl/techdemos.htm>

DOE SSL Energy Star® (*Warranty Slide*)

- http://www.netl.doe.gov/ssl/energy_star.html

DOE Commercial Building Energy Alliance (*Warranty Slide*)

- <http://www1.eere.energy.gov/buildings/alliances.html>

Oakland Street Lighting-Phase III (*Maintenance Slide*)

- <http://www.etcc-ca.com/database/summary.php?id=475>