

[rentinwaynesboro.com]

Waynesboro

Street Lighting Existing Conditions &
Design Concepts

Brinjac Lighting Studio

BRINJAC
LIGHTING STUDIO

Main Street Lighting Can be Improved Through Lighting Fixture & Environmental Upgrades



Existing conditions

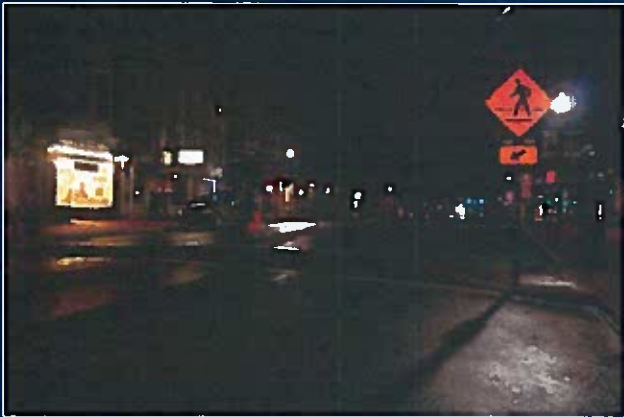


Design Options

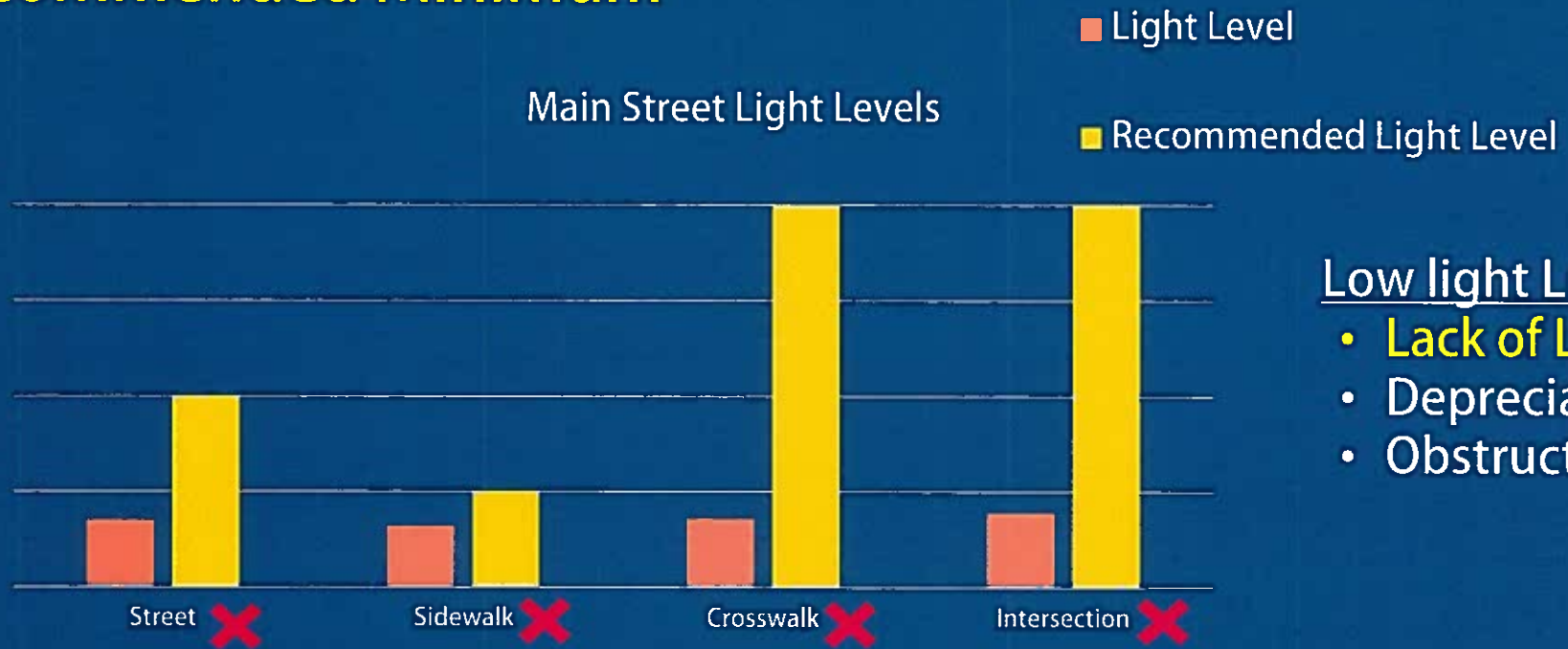


Additional Improvements

Main Street Has Visibility Issues Because of Low Light Levels

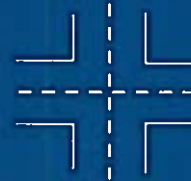


Main Street Has Lower Light Levels Than the Nationally Recommended Minimum

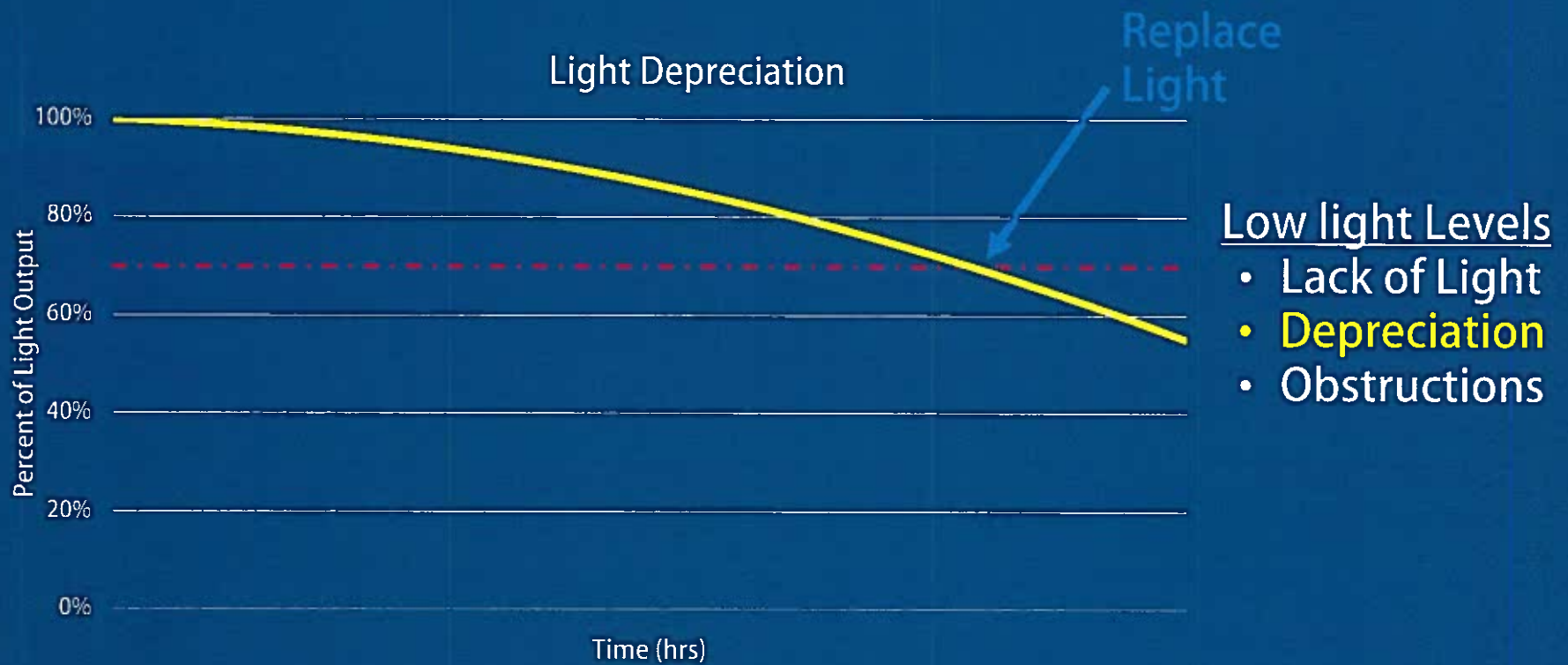


Low light Levels

- Lack of Light
- Depreciation
- Obstructions



Low Light Levels Are a Result of Low Target Levels, Depreciation & Obstructions



Low Light Levels Are a Result of Low Target Levels, Depreciation & Obstructions

As Branches Grow, they block the light



1. Creates Dangerous Environment
2. Wastes Energy
3. Hides the Decorative Element

Low light Levels

- Lack of Light
- Depreciation
- **Obstructions**

Beauty & Performance are Key Components in New Design



Wires Everywhere



Cobra Head Fixtures



Decorative Fixtures

Performance + Aesthetics = New Design

Increasing Light Levels Improves Visibility & Sense of Safety



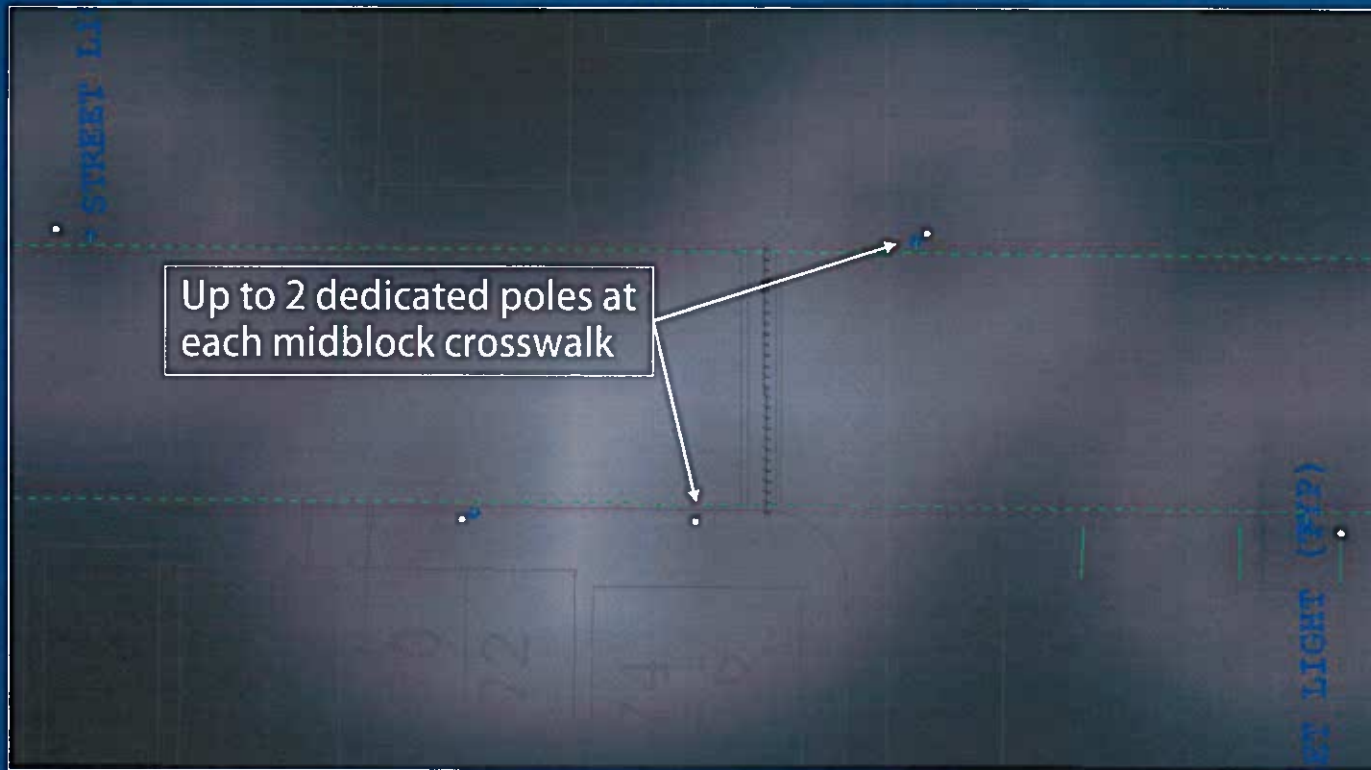
Horizontal
Illumination



Vertical
Illumination

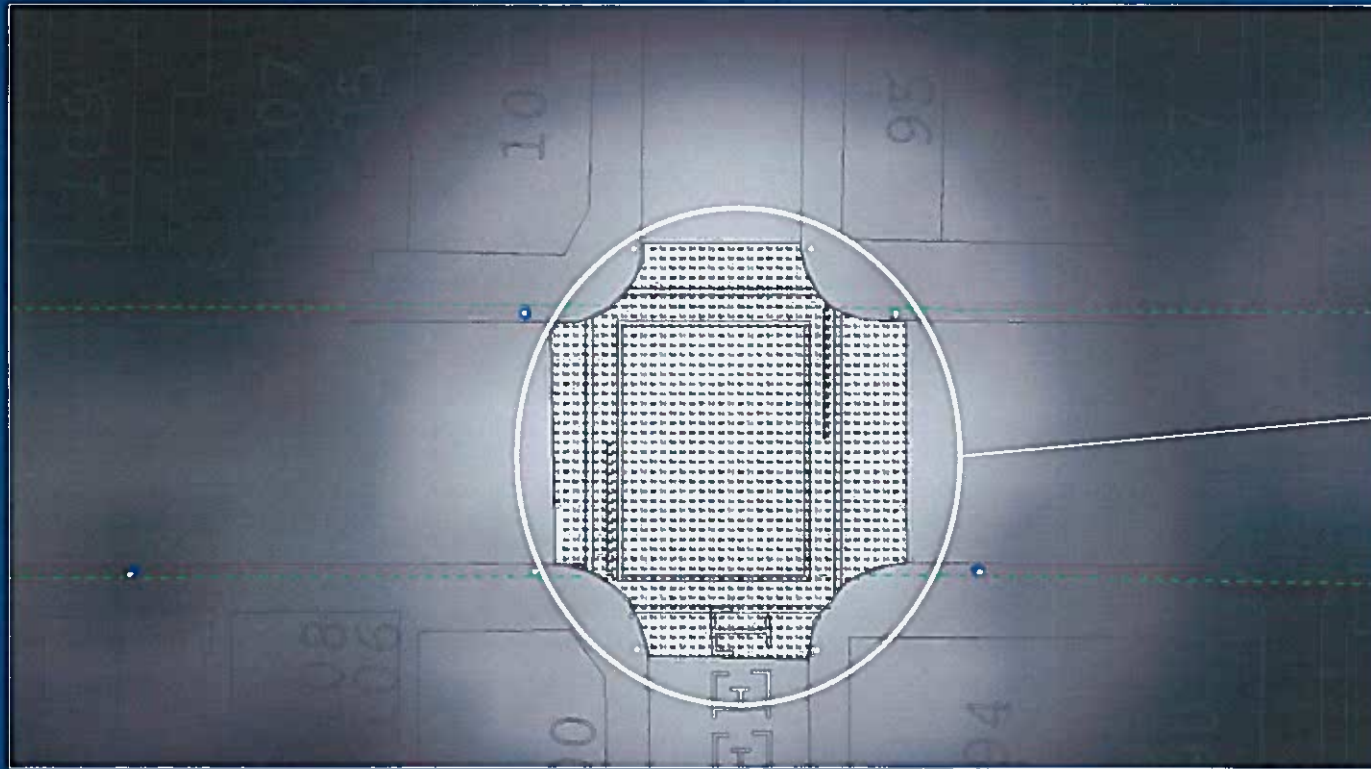


Additional Poles Increase the Light Level & Improve Visibility at Mid-Block Crosswalks



Crosswalk at Walnut - Before

Additional Poles Increase the Light Level & Improve Visibility at Intersections



Additional pole locations

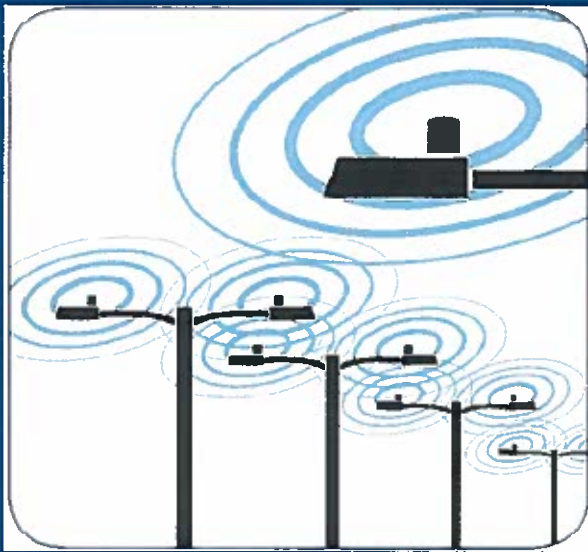


Combo of 14ft poles and Cobra lights

Potomac and Main - ~~After~~ Before

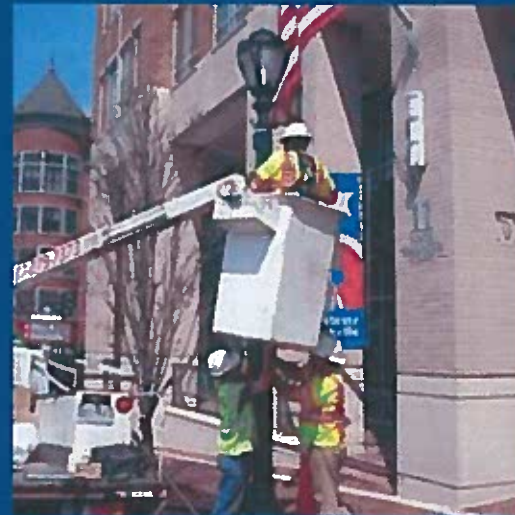
Wireless Monitoring Control System Saves Energy and Maintenance Costs

Remote Monitoring and Control



Maintained illumination levels – energy savings.
Burn hours and on/off status – maintenance savings.

Regular Maintenance/Observations



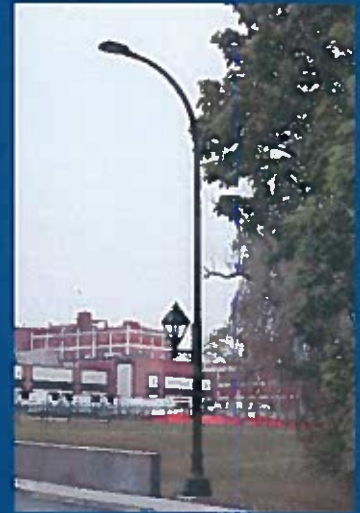
Routine cleaning cycle.
Periodic light level checks.

Both Design Options Use Existing Pole Locations

Design Option 1
Replace Post top
luminaires with LED



Design Option 2
Replace Poles with
Pedestrian & Roadway
LED Luminaires



LED Replacement Keeps the Same Look of Main Street But Does Not Improve Light Level to National Standards



LED
Replacement

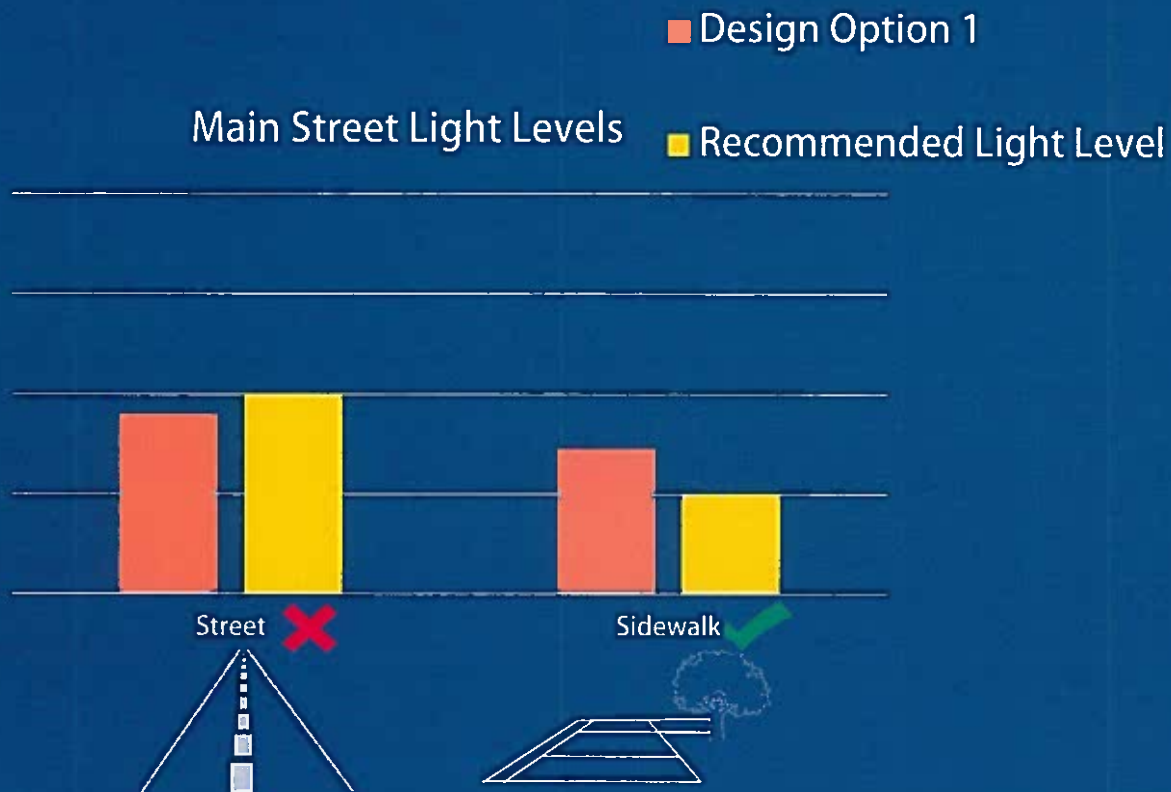
LED Replacement Keeps the Same Look of Main Street But Does Not Improve Light Level to National Standards



LED
Replacement

Requires **Significant** Tree Trimming

LED Replacement Keeps the Same Look of Main Street But Does Not Improve Light Level to National Standards



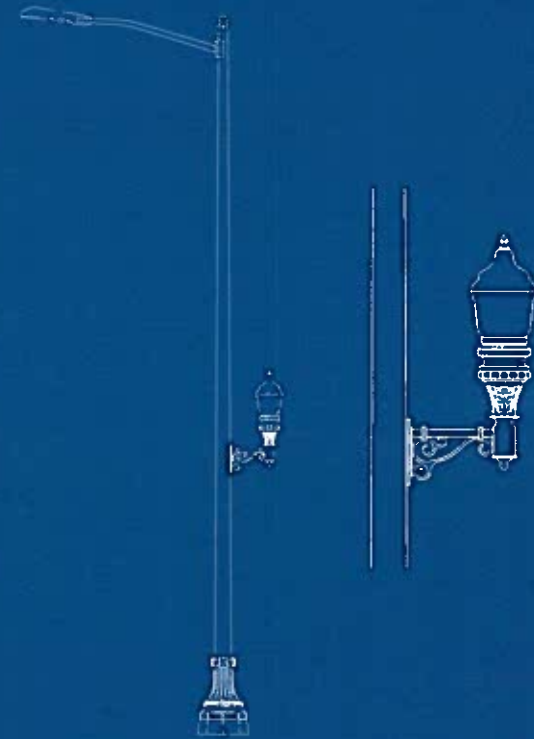
LED Replacement

LED Replacement Keeps the Same Look of Main Street But Does Not Improve Light Level to National Standards

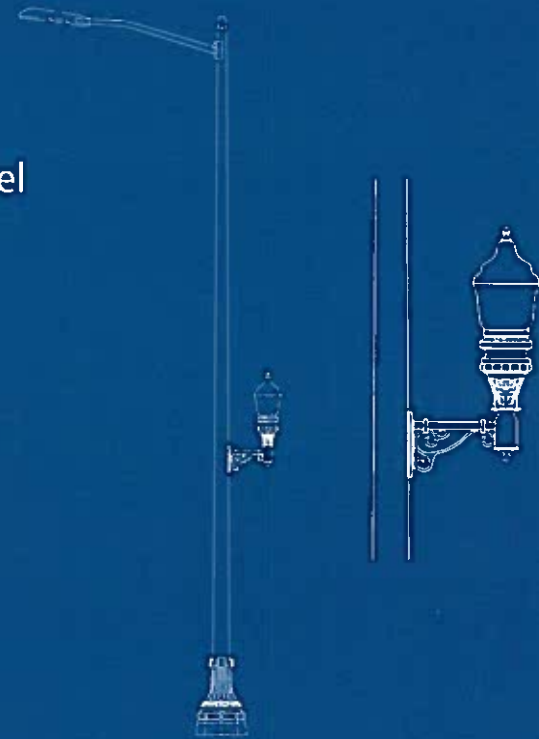
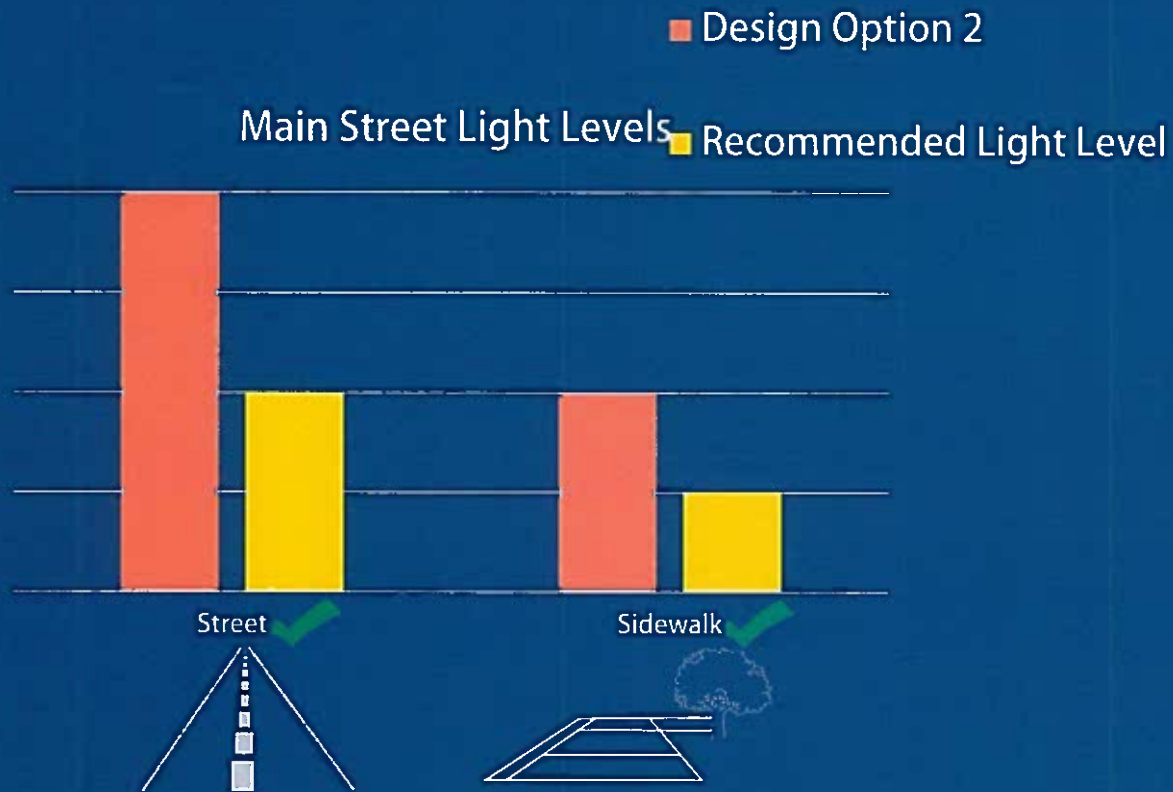


LED
Replacement

Pedestrian & Performance Lighting Maintains the Look of Main St. While Bringing Light Levels to National Standard



Pedestrian & Performance Lighting Maintains the Look of Main St. While Bringing Light Levels to National Standard



Design Option 2 Provides Better Performance While Maintaining the Aesthetic of Main Street



Design Option 1

- Raises Light Level Close to National Standard
- Requires Significant Tree Trimming
- Glare Improves Slightly
- Familiar Aesthetic

\$400,000

Design Option 2

- Light Level Above National Standard
- Minimal Tree Trimming
- Provides Good uniformity
- Reduces Glare
- Eye Drawn to Decorative Light at Lower Mounting Level
- Maintains Main St. Aesthetic

\$700,000



Repainting Pavement Markings, Like Crosswalks Can Improve Visibility & Road Aesthetic



Additional Poles Can Increase the Light Level & Improve Visibility at Intersections



Up to 2
dedicated
poles

Improvements

Dedicated Midblock
Crosswalk & Intersection
lighting



Design Option 1

Replace Post top
luminaires with LED



Design Option 2

Replace Poles with
Pedestrian & Roadway
LED Luminaires

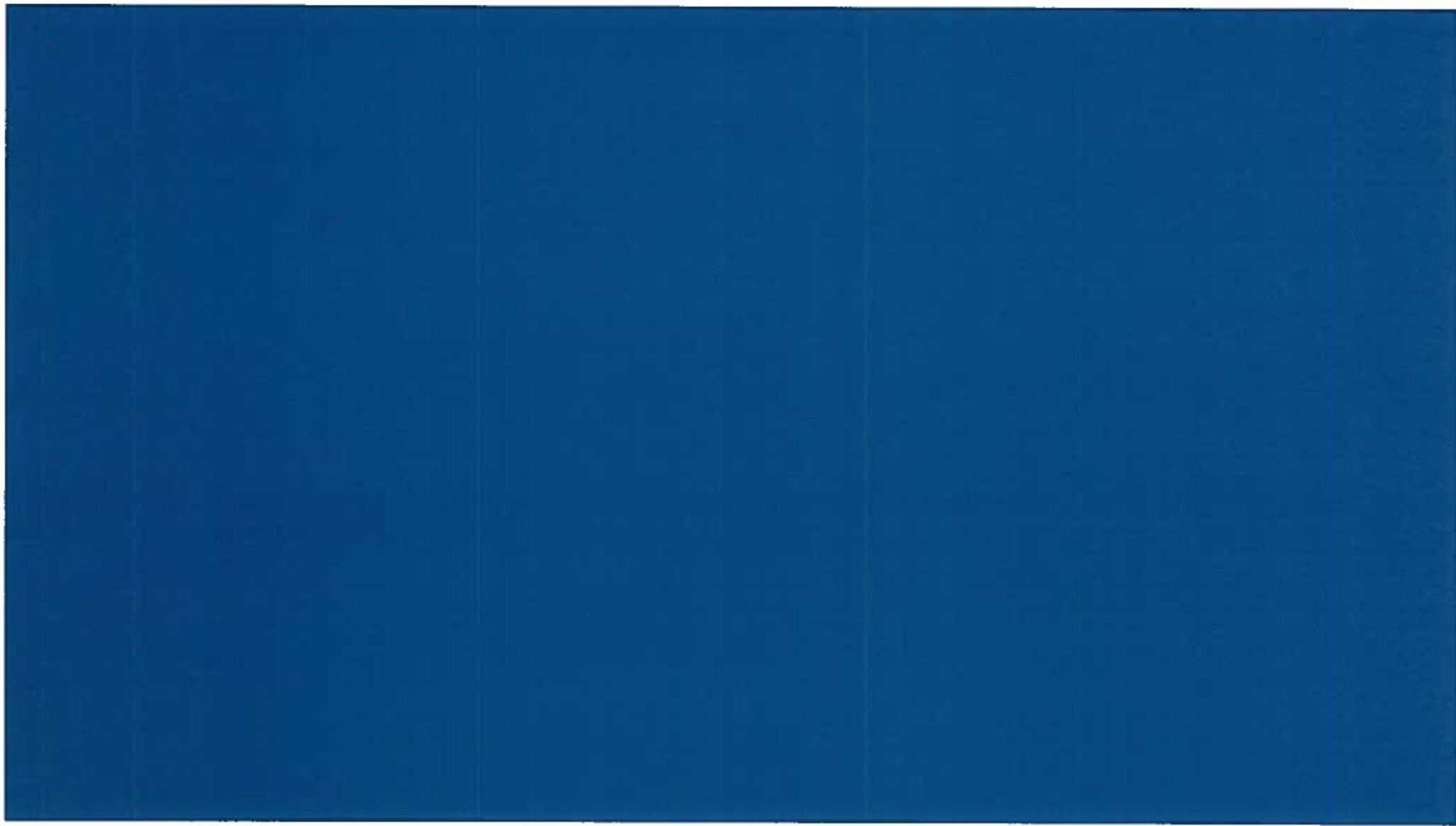


Repaint

Repaint
Pavement
Markings

THANK YOU!

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LIGHTING STUDIO



Design Criteria

Design criteria must meet Recommended Standards



	Existing		Recommended
Avg. cd/m ²	0.45	✗	0.9
Avg./Min cd/m ²	4.5	✗	3

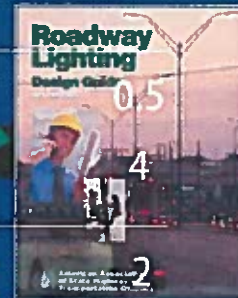
Regulating Organizations



West Main Street is considered a Medium Pedestrian Conflict Area

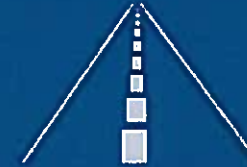


	Existing		Recommended
Avg. Fc	0.32	✗	0.5
Avg./Min Fc	3	✓	4
Min. Fc (midblock)	0.36	✗	2
Min. Fc (X-section)	0.27	✗	3



Illuminating Engineering Society (IES)

American Association of State Highway & Transportation Officials (AASHTO)



Street Lighting

0.9 cd/m² Average Luminance
 3.0 : 1 Avg./Min. Luminance Ratio
 5.0 : 1 Max./Min. Luminance Ratio
 0.3 : 1 Max. Veiling Luminance Ratio



Sidewalk Lighting

0.5 fc Average Illuminance
 0.2 fc Min. Illuminance
 4.0 : 1 Avg./Min. Illuminance Ratio

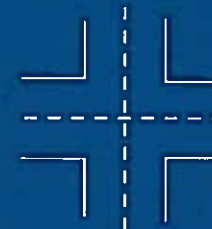


Crosswalk Lighting

Midblock
 2 fc Min. at 5ft above pavement
 Intersection
 3.0 fc Min. at 5ft above pavement



Avg. Fc	0.39	✗	2.0
Avg./Min Fc	2.2	✓	3



Intersection Lighting

Major/Collector
 2.6 fc Avg. Illuminance
 3.0 : 1 Avg./Min. Illuminance Ratio
 Major/Local
 2.0 fc Avg. Illuminance
 3.0 : 1 Avg./Min. Illuminance Ratio