Using Perimeter Security To Enhance Security

Improve security while reducing costs and being a good neighbor

Presenter: Anthony Hackett, Senstar Corporation
Why Perimeter Lighting?

• Acts as a deterrent
• Improves camera assessment capabilities
• Lower electricity usage
What is Intelligent Lighting?

**Lighting features:**
- High CRI
- Instant-on, intensity and strobing
- Low power
- Targeted illumination

**Intelligence:**
- Bi-directional comms with head-end
- Embedded or linked sensors
- Digital signal processing
- Mesh network
Detection and Deterrence

1. Perimeter lighting may deter some intruders
2. Sensors detect intrusion attempt (via embedded accelerometers)
3. Luminaires react with instant-on or strobing of zone/location
4. Alarm system notified
Enhancing Assessment Capabilities

- Alarms displayed in VMS
- Location data for camera call-up or map display
- No hotspots
- High CRI for maximum detail
Total Cost of Ownership (TCO)

Graph shows a cost breakdown of different lighting technologies used to illuminate the same 1968 ft (600 m) of perimeter fence line.

Maintenance & operating costs:
- MV = $84,225
- MH = $118,228
- HPS = $55,784
- LED = $5,023
- Intelligent lighting = $620

Electricity cost assumes 11¢/kWh.
† Based on 30-foot lighting standard used for HPS, MH, MV and LED area lighting.
‡‡ Civil cost at $20/hour for installation.
Minimizing Light Pollution

- Site illumination part of basic security
- Light pollution is a concern in residential areas, wildlife/nature preserves, and airports
- Intelligent, downwards-directed lighting substantially reduces light pollution
- Lower illumination intensity during non-alarm conditions
- Look for IDA-approved fixtures
Securing Wireless Communications

Wireless mesh networking simplifies installation and lowers cost. Valid concerns exist however due to poor reputation of consumer-grade systems.

Is it secure? Yes, if system:
• Uses industry-standard encryption (AES128)
• Generates alarms if RF communications fail (equipment failure, RF jamming, device cloning, etc)

Is it reliable? Yes, if system:
• Uses low-power RF technologies like 802.15.4 (e.g. “Zigbee”)
• Is designed to be reliable in RF congested environments
• Uses self-healing mesh
Integration with Video Analytics

- Multiple technologies for multilayered approach
- Potential intruders are tracked (and recorded) before intrusion
- Adjust light intensity based on nearby activity

Better illumination = better video quality = better video analytics
Example Site: Electrical Storage Yard

- Facility stores high-value assets
- Located adjacent to a residential area, cable theft and unauthorized access are a significant concern
- Light pollution directed at residential neighborhood also a concern

Facility before installation
Example Site: Electrical Storage Yard

Facility after installation (daytime)

Perimeter map (substation-side protected by other means) means)
Example Site: Electrical Storage Yard

Illumination Performance
Example Site: Electrical Storage Yard

Illumination Comparison

Section of fence without intelligent lighting

Section of fence with intelligent lighting
Example Site: Electrical Storage Yard

Performance Results

Key facts:

- Luminaire operation: 6 pm to 6 am
- No nuisance alarms generated, including during significant snowstorms
Example Site: Electrical Storage Yard

Severe Weather “Windpocalypse”

Wind gusts up to 91 km (56 mph) for 12 hours:
• **No nuisance alarms generated**
• Alarms only generated by gate usage during business hours
Summary and Discussion

Intelligent lighting:

1. Deters intruders
2. Detects (and locates) intruders
3. Improves assessment value of surveillance system
4. Reduces electrical consumption and light pollution