

Intelligent Public Lighting

A Case Study - Hertfordshire's Approach to CMS & LED



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Hertfordshire - The Strategic Story: 2010 - 2016

Street Lighting:

- 110,000 lighting columns, 115,000 luminaires
- Majority of columns in excess of 30 years old
- High Density, Low pressure sodium lighting

2010/11:

- Government Public Spending Review, PFIs axed
- Austerity, Reducing Revenue Budgets, Increasing Energy Costs
- Review of Street Lighting Service - Safe, Affordable, Maintainable and Sustainable

Hertfordshire Map



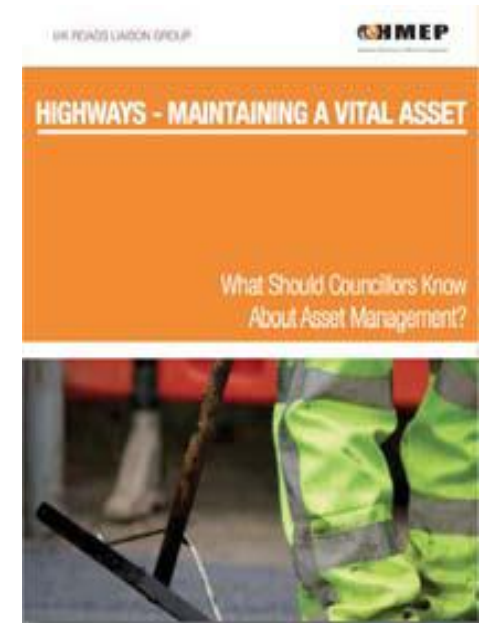
Hertfordshire - The Strategic Story: 2010 - 2016

2011/12:

- Street Lighting Strategies endorsed: Part Night Lighting, Safe & Operational (Point for Point, Like for Like Replacement), Capital Invest to Save
- Part Night Lighting: Delivered on time, within £3.5m budget, saving £1m p.a. in energy
- New Highway Services Term (HST) Contract started 1st October 2012 (including Refurbishment)

2013/14:

- Development and approval of HCC Capital Invest to Save Initiatives
- CMS & LED Technology becoming more affordable and reliable
- Asset Management Approach: Structural and Electrical testing circa 85,000 units over 10 years old tested



Hertfordshire - Phased Approach to CMS & LED: 2014 - 2016

2014/15:

- CMS & LED including Variable Lighting Strategy endorsed
- CMS & LED Phase 1 : A - Roads, 12,600 units, delivered on time, within £6.5m budget, saving £0.66m p.a.

2015/16:

- CMS & LED Phase 2 : B, C & U - Roads and Footways in Full Night Lighting, 21,400 units, cost £7.5m, started August 2015, over 2 financial years, estimated saving £0.77m p.a.
- Phase 1 and Phase 2 Pilot Projects endorsed - Part Night Lighting, Dimming and Trimming

2016/17:

- CMS & LED Phase 3 : Remote Footpaths and Outlying Settlements in Part Night Lighting, 8,700 units, cost £3.5m, Integrated within Phase 2, started April 2016, estimated saving £0.18m p.a.
- **Total investment to date: £21m, total savings will be £2.6m p.a.**



Project Implementation and Technical Aspects

- Governance: Highways Panel, SL Board, Project Team
- Procurement: HST Contract: Ringway, CMS: Telensa, LED: Urbis
- CMS: 48 Base stations (Phase 1) – low power radio network across Hertfordshire, One Tele cell Node per LED unit
- LED: ‘Soft’ White Light. Operation: Dimmed by 25%, 11pm - 6am
- Structural & Electrical Integrity: Testing, surveys, Brackets and Post Top, Audit Process: 10% ‘on-site’ checking
- Design: Light Distribution - ‘no worse than existing’, Uniformity



Project Implementation and Technical Aspects

- Warranties - comprehensive on products, catastrophic failure, legal involvement
- Recovery of Energy Savings - liaison with meter administrator
- Telensa/Confirm Integration - development of interface, automatic fault generation and improving the customer journey
- Continuous engagement with supply chain and Industry
- Pilot Projects - Part Night Lighting and Dimming & Trimming On site Interactive Trials undertaken. Monitoring for 12 months
- Political engagement & endorsement is essential



Hertfordshire - Lessons Learned

- Duty - Wildlife & Countryside Act 1981: Bats - Protected Species. Proactive engagement with Herts & Middlesex Bat Group
- Proactive study & trials on affects of LED on the local Bat population by Bristol University. Awaiting outcome of study
- Assessments: Equality Impact, Environmental Impact, Public Health, Sustainability
- Proactive Communications, Visit other Local Authorities
- Sell benefits: Energy & Maintenance savings, Cost Avoided, Carbon Reduction, Improve Visibility, Reduction in Light Pollution
- Positive Impact on Asset Inventory and Grass Cutting (night time)



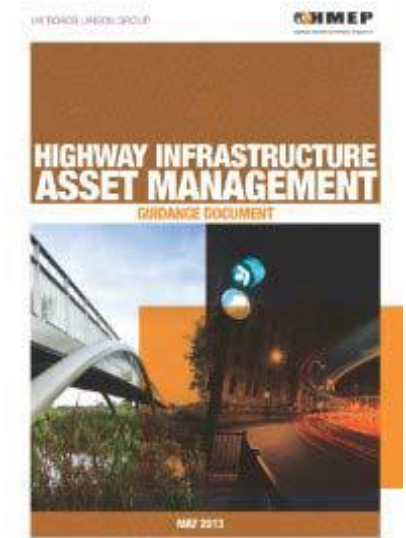
Hertfordshire - Lessons Learned

- Regular Lessons Learned with Supply Chain (including HST Maintenance) - 'One Team', Joined Up
- Forward visibility of Programme - Logistics and Production e.g. Factory Fitted Nodes on LED's
- Light Distribution: Segregated Footways / Cycleways and Internal Shields on LED's
- Remote Footpaths - Podium Steps
- GIS Mapping and Data Capture, Work Scheduling, E-Coding, Test Certificates
- Sharing Knowledge of the Network - Accessibility, Availability, Group Switching



Hertfordshire: The Future - Positive Evolution

- **Further development of Pilot Projects:** Pushing the boundaries. New Code of Practice - Risk based approach, Dynamic Dimming
- **CMS & LED Phase 4 :** Remainder in Part Night Lighting, circa 70,000 lanterns, subject to funding
- **Other Electrical Assets:** High Masts, Signs, Subways, Bollards and Belisha Beacons
- **DfT (HMEP) & DECC - Toolkits:** Effective use of Asset Condition data. Updating & Maintaining inventory is KEY
- **CMS, ITCC & 'Smart Cities / Counties':** Future Opportunities and Future Highways - Internet of Things, Connectivity, Mobility as a Service



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**The Future is Bright The Future is White
(and not Orange!)**