

# LED Traffic Signals

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Reducing Energy Costs in Local Government  
Conference

January 22, 2009

Washington County Case Study



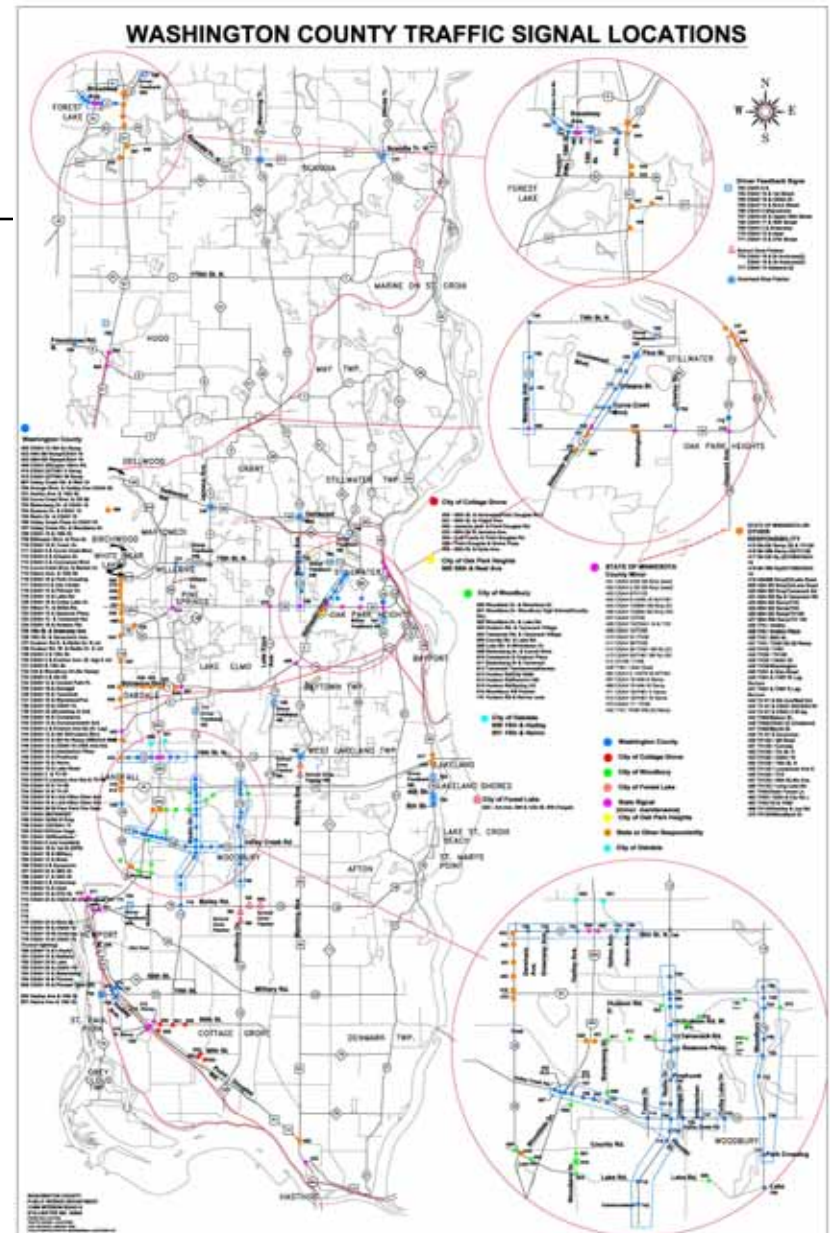
# Items for Discussion

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- ❑ Washington County Signals
- ❑ Power Usage
- ❑ Cost Difference / Savings
- ❑ Other Benefits

# Washington County

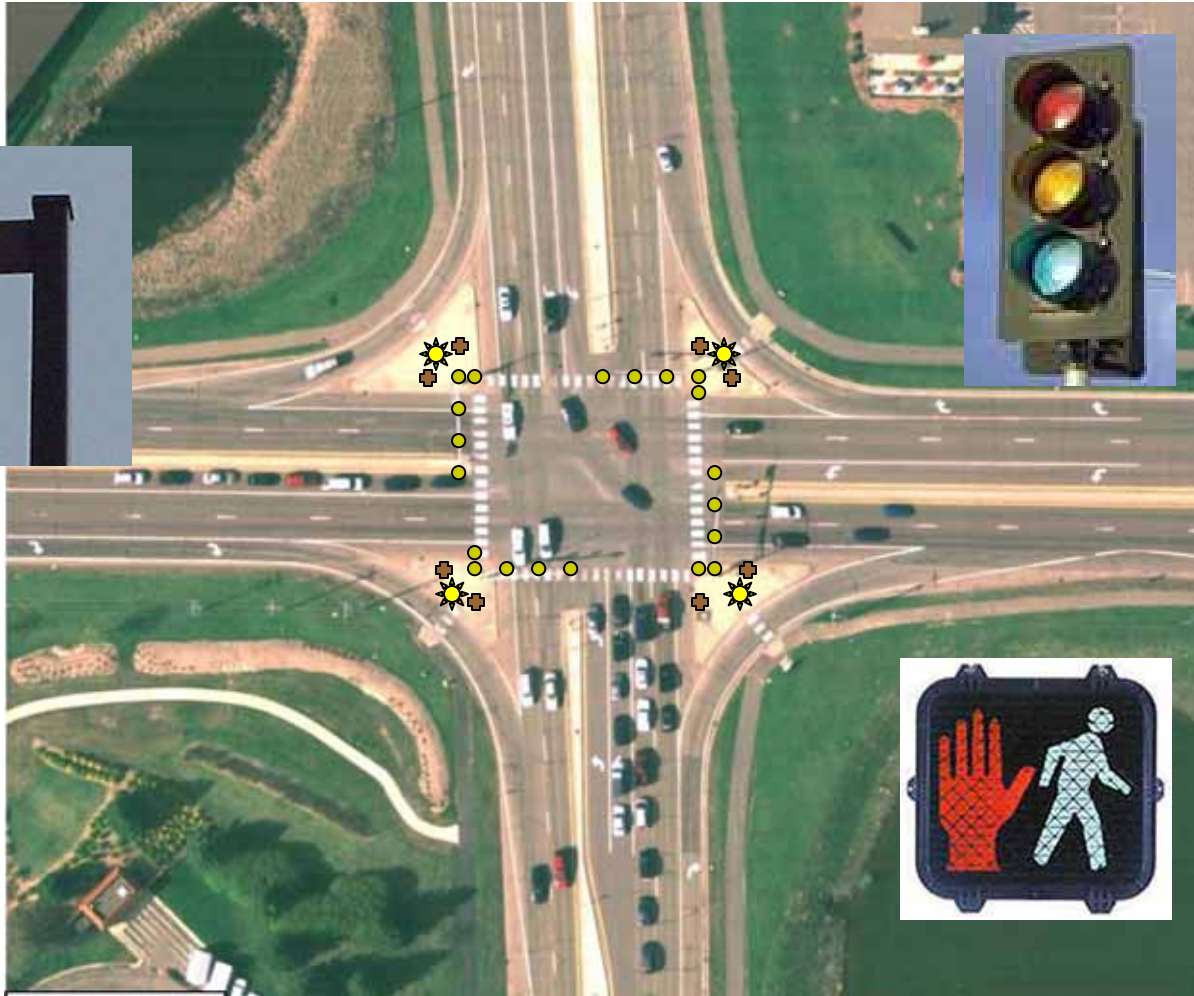
- ❑ Own, maintain, operate 67 traffic signals
- ❑ Approximately 140 traffic signals total in County
- ❑ All new signal installations require LED's (since 1998)



# Typical Intersection



4 Street  
Lights



20 Signal  
Indications  
(60 lights)



8 Pedestrian  
Indications  
(16 lights)

# Power Usage

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- Incandescent bulb
  - Green/red – 135 watts
  - Yellow – 69 watts
  - Walk/Don't Walk – 116 watts
- LED
  - Green/red – 10 watts
  - Yellow – 15 watts
  - Walk/Don't Walk – 8 watts
- Incandescent vs LED Total
  - 8,676 watts vs. 828 watts– LED's = 1/10 of wattage (assumes all lights on at same time)

# Cost Difference / Savings

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- LED's
  - In 1998, red LED's were \$115. In 2001, green LED's were \$300.
  - Today, red LED's \$70; green LED's \$142.
- Payback Period
  - 1998 – 4-6 years
  - 2008 payback – 2-4 years
- Typical monthly cost to operate with LEDs = \$50 per signal



# Other Benefits of LED's

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- Reduced wire size
  - Approximately 56,000 feet (10+ miles) of copper wire per signal
- Longer life span
  - Requires less maintenance
  - Less exposure of maintenance staff to traffic
  - Fewer traffic control setups (i.e. lane closures)
  - More time for other priorities
- Battery back up operations during power failures
- Improved visibility of lights

# Summary

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- Replacement started through rebate program by NSP (Xcel)
  - Started in 1994
  - Program is still available through 2009
- Costs for LED's have decreased dramatically
  - 2-4 year payback
- LED's are now the standard
  - Starting to be used in street lighting
- Other applications
  - Solar panel flashers, electronic speed display signs, and changeable message signs
  - Solar powered street lights – rural areas



# Questions?

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