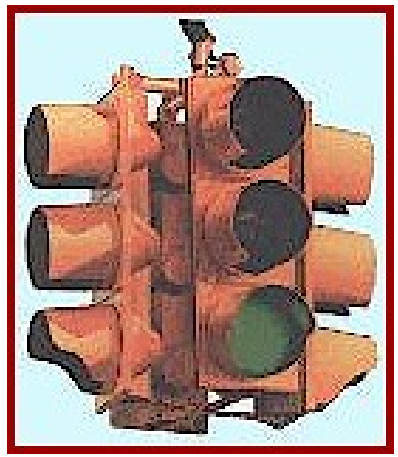
LED Traffic Signal Retrofits

LED

(Light Emitting Diode Traffic Signal Indications)

- Background
- History
- Cost savings
- Energy Savings
- Safety



BACKGROUND

(BY THE NUMBERS)

- **2,600** TOTAL Signalized State Highway Intersections in the state
- **1,100** Locations/utility cost is paid by the state
  - State Rd/ State Rd intersect
  - all locations in incorporated towns
- **1,500** Locations/utility costs paid by counties
  - County Rd/State Rd
  - County Rd/County Rd
- **58% -** percentage of MD state signals where costs are paid by the local /county jurisdictions

BACKGROUND (Continued)

MD Portion of the Washington Suburbs

- **1,123** Signalized MD state highway intersections
  - CALVERT 33
  - CHARLES 49
  - FREDERICK 89
  - MONTGOMERY 501
  - PRINCE GEORGE'S 451

- **650** Locations where energy costs are paid by the local sector (approximate).

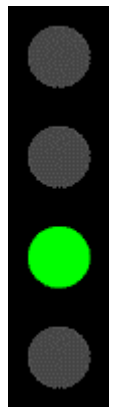
LED HISTORY

- State and several counties considering or actually installing over past 3 years.
- Reason for installing:
  - Cost savings
  - Energy savings
  - Safety benefits
- State looking to start installations, many counties have begun conversion to LED.

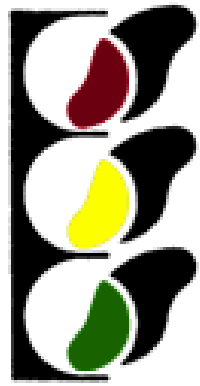
COST SAVINGS

MAJOR DRIVER IN CONVERSIONS OF TRAFFIC SIGNALS

- **UTILITY COSTS (75% cost savings)**
  - Average signalized intersection utility cost $100 month before conversion
  - " " " " " $25 " after conversion
  - SAVINGS: $900 per year per signalized intersection.
- **MAINTENANCE COST SAVINGS**
  - Signal trucks travel approximately 50,000 miles per year each servicing conventional signals.
  - Maryland SHA estimates that savings will be 25,000 miles per year with LCD replacement. Vehicle mileage will be reduced to **25,000** miles per year.
  - Full conversion of signals will result in VMT reductions of **250,000** (10 x 25,000) per year and fuel savings of **2,000** gallons in the region.



More Benefits



- **ENERGY SAVED**
  - 60-75% of current usage can be saved by conversion.
- **SAFETY CONSIDERATION**
  - LED allows for battery backup. Not as much power used.
  - Batteries will last 4-8 hours during an outage.

PROPOSED FUTURE ACTIONS

- State will begin converting signals to LED as funds become available. All 2,600 signals will be converted at a cost of $22,000,000 (approx. $9,000 per intersection)
- All new installations will be LED
- Savings in utility costs: $900 per year per intersection
- Install battery backup at key locations
- Quantify kilowatt savings from conversion process (at least 75% savings)