ICMA Benchmarking Project
FY 2005 Overview:

Key Service Area: Highways & Roadway Maintenance

Presented to:
Transportation and Environment Committee
January 8, 2007

ICMA
CENTER FOR
PERFORMANCE MEASUREMENT

ICMA Center for Performance Measurement

- **Purpose:** To help local governments improve the effectiveness and efficiency of public services through the collection, analysis, and application of performance information in 15 service areas.
- Established in 1994
- Over 150 local governments in US and Canada
- 5 of 10 largest US cities participate
  - Phoenix, San Antonio, Dallas, San Jose (Houston joined in 2006)
- ICMA provides data collection templates & annual reports
- Dallas has full access to all participant's data once it is cleaned by ICMA staff

ICMA CENTER FOR PERFORMANCE MEASUREMENT

Management Application for Benchmarking Data

- Sophisticated tool to track and manage data over time and against jurisdictions across the country
- Data analysis results in management and service delivery changes
- Data used as performance indicators for City services
- Incorporated into individual Performance Plans of Executives

ICMA CENTER FOR PERFORMANCE MEASUREMENT

City of Dallas Participation

- Second year of participation
- Participated in data compilation in all 15 key service areas
- Data analysis
  - Examine Dallas' Relative Position from FY 04 to FY 05
  - Compare Dallas to other jurisdictions for FY 05
  - Present "Proposed Actions" or Next Steps based upon data analysis

ICMA CENTER FOR PERFORMANCE MEASUREMENT

ICMA - Traffic Signals

- Highway Road Maintenance is one of 15 key service areas and includes benchmarking of traffic signal maintenance. The survey data allows comparison of traffic signal repairs and replacements.
  - Repairs are defined as any repair that can be made on initial field visit. Typically includes:
    - Bulb replacements
    - Signal controller and other electronic component failures
  - Replacements are defined as any repair that requires a second field visit. Typically includes repair of:
    - Pole knockdowns
    - Cable cuts
    - Damaged signal heads

ICMA CENTER FOR PERFORMANCE MEASUREMENT

ICMA - Traffic Signals

Background on Signal Replacements

- 2004 and 2005 signal replacement time was affected by the depletion of old-style pole equipment
- In 2004, the City stopped replacement of old-style mast-arm poles due to depletion of spare/salvaged equipment. New-style mast-arms require installation of a larger foundations.
- In 2004, the City lacked drill equipment to install larger foundations and used a private contractor. Costs to order foundations on demand was too high and orders had to be grouped to bring unit costs down. Group orders slowed replacement time significantly.
- In 2005, City purchased drill equipment to allow city forces to install foundations.

ICMA CENTER FOR PERFORMANCE MEASUREMENT

ICMA - Traffic Signals

Background on School Flasher Replacements

- In 2005, the City began using solar powered school flashers. New hardware is more energy efficient and reliable.
- New flashers must be installed when flashers are knocked down and cable is damaged. Changes in electrical code prohibits splicing cables outside of conduit. Older designs use direct burial power cables.
- Replacements require engineering review to ensure that the flasher is still warranted. Staffing levels do not allow for proactive studies.

Comparing Number of Signal Indications & Poles

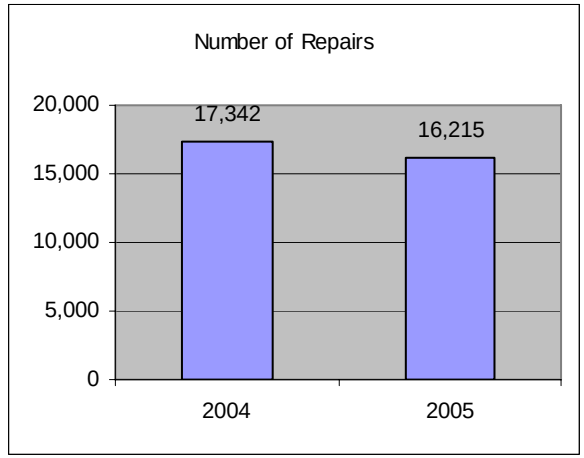
- Dallas has more heads and poles per intersection than other survey cities. Typical six-lane divided arterials and older pole designs resulted in many intersections with median poles. Other cities reported fewer divided roadways, fewer median poles and more opportunities to offset pole placement from the street.

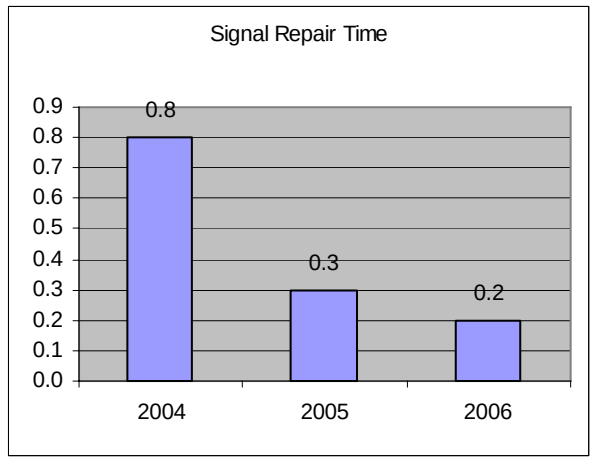
ICMA CENTER FOR PERFORMANCE MEASUREMENT

Relative Position from 2004 to 2005

Signal Repairs

- **Areas of Strength**
  - City maintains detailed database on field actions which allows trend analysis and ability to focus on problem areas
  - Repairs dropped due to LED bulbs, increased preventive maintenance, and upgrade of 1/3 of school flasher units
  - Repair time fell from 0.8 to 0.3 days
- **Areas of Concern**
  - Number of failures related to power outages
  - Number of damaged loop detectors
  - Portion of signal controllers approaching 15 year design life
- **Actions**
  - 50% of detectors will be repaired in FY06/07 (operating funds leveraged for federal funds)
  - $332K in bond program to replace 5% of controllers and install battery backup systems



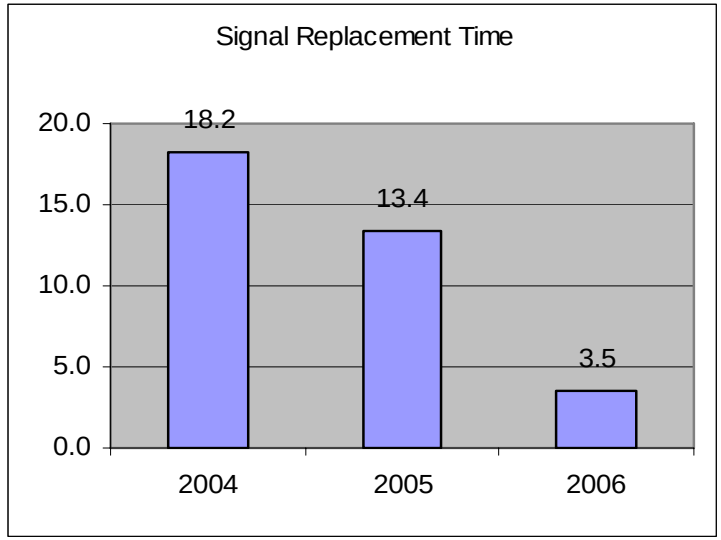


ICMA CENTER FOR PERFORMANCE MEASUREMENT

Relative Position from 2004 to 2005

Signal Replacements

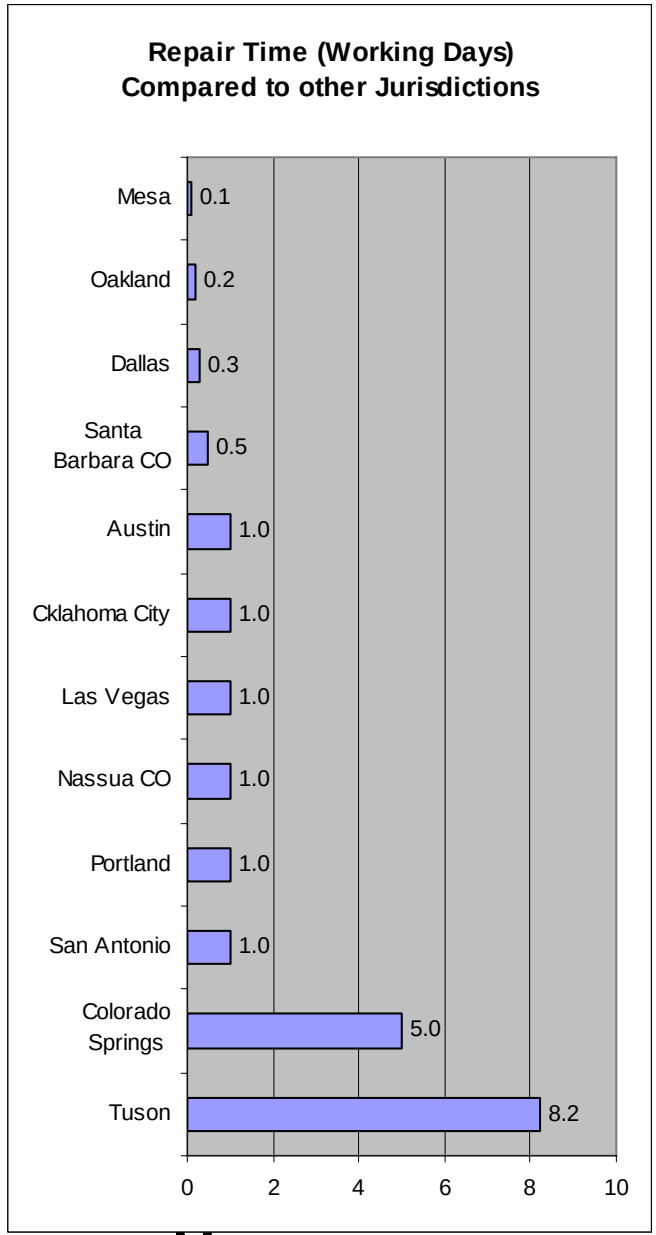
- **Areas of Strength**
  - Temporary signals are typically placed within one day of knockdown
  - Average replacement time fell from 18.2 days in 2004 to 13.4 in 2005 and to 3.5 in 2006
  - 2006 data included to show recovery since depletion of old-style poles
- **Areas of Concern**
  - School flasher replacements delayed by warrant studies
- **Actions**
  - Designed temporary portable flasher units for locations with construction issues that delay permanent installations
  - Reduced warrant study Service Level Agreement (30 to 10 days) and started using available crossing guard data to eliminate need for engineering study



ICMA CENTER FOR PERFORMANCE MEASUREMENT

Comparative Position to Other Jurisdictions 2005 - Signal Repairs

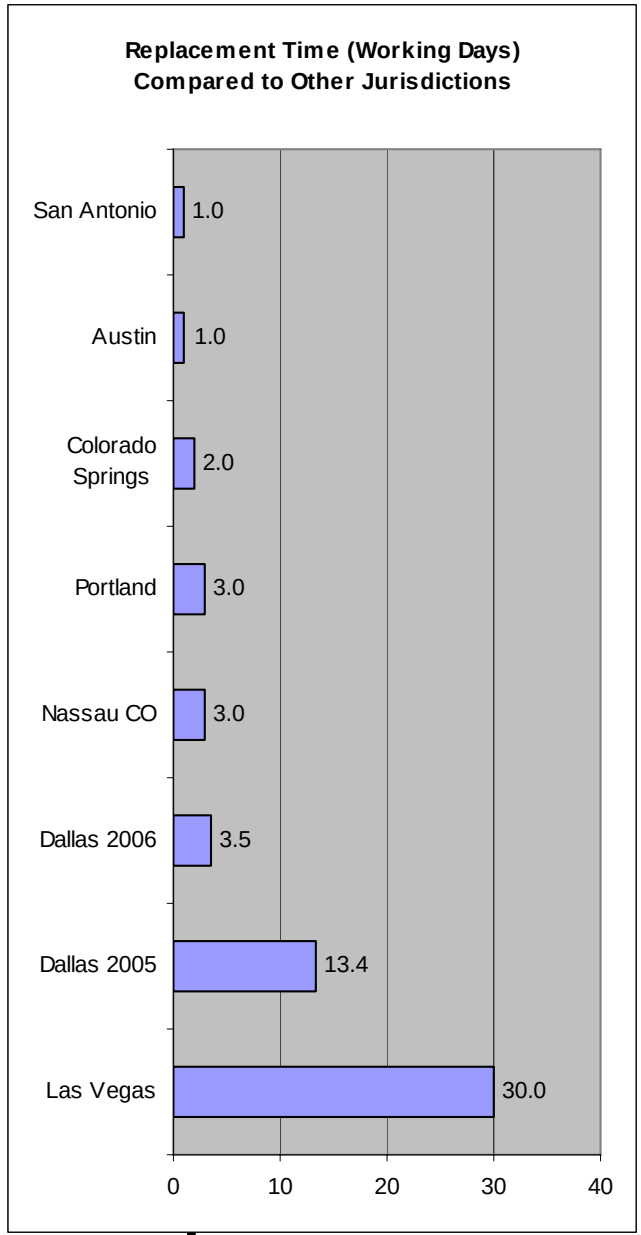
- **Areas of Strength**
  - Average repair time ranks 3rd lowest
  - Average cost per repair is lowest
  - All signals connected to a computer control and monitoring system
- **Areas of Concern**
  - Cities reporting 1.0 days did not have detailed databases to calculate averages
  - Number of failures experienced due to storms affect average response time and distort comparisons
- **Proposed Actions**
  - Continue to look for methods to reduce response time during severe storms
  - $332K in bond program to replace 5% of controllers and install battery backup systems



ICMA CENTER FOR PERFORMANCE MEASUREMENT

Comparative Position to Other Jurisdictions 2005 - Signal Replacements

- **Areas of Strength**
  - Average cost per repair is lowest but only two other cities provided data
  - 2006 data for Dallas included to show that city recovered from depletion of salvaged hardware
- **Areas of Concern**
  - Most cities do not have data on costs per replacement - only total budget
  - Greater # of poles, heads and constrained pole placement result in higher number of damaged heads and poles than other cities
- **Actions**
  - Pursue funding to expedite removal of median signal poles
  - Pursue property easements to allow new poles to be installed at a greater offset from street
  - Developed suggested survey questions to expand comparison data.



ICMA CENTER FOR PERFORMANCE MEASUREMENT

Non-ICMA Benchmarking Efforts

Traffic Signals

- **ITE Traffic Signal Report Card** – 2005 survey that compared business practices related to signal timing & maintenance against best practices and issued a report-card score. 378 jurisdictions responded nationwide.

	Dallas	National Avg.	Regional Avg.
Overall Score	**C - 73**	**D - 62**	**C - 70**
1. Proactive Management	C - 72	F - 58	
2. Coordinated Systems	D - 69	D - 61	
3. Single Intersections	B - 86	C - 73	
4. Detection	C - 73	F - 53	
5. Maintenance	C - 67	D - 62	

- **Actions to Improve 2007 Report Card**
  - City allocated CMAQ federal funds to update signal timings and repair vehicle detectors at 890 signals (68% of all signals)
  - FY05/06 & 06/07 operating funds used to leverage federal funds
  - Project schedule - 2004 thru 2009
  - 146 signals retimed since 2004
  - FY 06/07, 293 signals to be retimed & 50% of vehicle detectors to be repaired
- **2007 Report Cards will be published in the Fall of 2007**

ICMA CENTER FOR PERFORMANCE MEASUREMENT

Non-ICMA Benchmarking Efforts

Traffic Signals

- **FHWA ITS Deployment Survey**
  - Participate in annual survey on traffic control equipment, ITS devices and technologies used. Data used to contact cities using newer technologies. Last year, 2,200 agencies surveyed with a 94% response rate.

- **ITE Public Agency Council**
  - Participating in project to contact cities nationwide and inventory performance measures used relative to signal systems, signs, and pavement markings. Staff has volunteered to coordinate results with ICMA. PWT staff recently developed questions for ICMA to consider related to signs, markings, and street lights.