## TRANSPORTATION ENGINEERING AND OPERATIONS

### PROGRAM MISSION

To plan, design, and operate traffic engineering aspects of roads along with their networks and relationships with other transportation modes, to achieve a safe, efficient, and convenient movement of people and goods through the collection and analysis of traffic and accident data.

The Transportation Engineering & Operations Bureau (TE&O) programs include Data Collection and Analysis, Arlington County Parking Garages & Residential Zoned Parking, Transportation System Management & Design, and Transportation Infrastructure.

- **Data Collection and Analysis Program** includes the evaluation of requests for traffic control devices including signs, pavement markings, and parking meters. The program requires close coordination with Transportation Planning and others in evaluating and implementing neighborhood traffic calming measures. Assistance in neighborhood traffic calming is also provided by deployment of a mobile speed indicator and video surveillance. Other program responsibilities include evaluation of the need for traffic and parking regulations, issuance of permits for use of the public rights-of-way, preparation of traffic and parking ordinances, and recommendation of work zone safety controls. Data Collection and Analysis staff works directly with residents to solve parking problems, manage parking ordinance development, administer the Reserved Handicapped Parking Meter Program and serve as the liaison with organizations such as Metro, universities and civic associations.
- **Arlington County Parking Garages and Residential Zoned Parking** efforts focus on increasing off-street parking and managing curbside parking. TE&O is responsible for the administration and implementation of the Residential Parking Program by defining zone boundaries, determining eligibility for the program, signing the appropriate blocks, and working with residents and civic associations. For FY 2008, TE&O is implementing changes including an increase in permit parking fees and the development of a web-interface that enables the public to view, request and pay for permits on-line. In addition to managing the Ballston Parking Garage, TE&O is responsible for operations and maintenance of the Barcroft Parking Garage and the new parking garage planned at the North Tract Sports Complex. The overall policy for operating and managing new County garages will be developed in cooperation with affected departments.
- **Transportation System Management and Design Program** evaluates and recommends improvements to the County's roadways. This includes evaluation of intersections for traffic signals, corridor studies for pedestrian, transit, and vehicular improvements, spot studies for operational and pedestrian improvements, school flasher location and design, and street light coordination and design. This program works with developers and other County agencies to ensure all projects within the county incorporate appropriate transportation engineering design principles as well as the multi-modal principles that make Arlington a nationwide leader in smart growth.
- **Transportation Infrastructure Program** combines the operations of several smaller programs.
  - **The Street Light Program** is responsible for street light operations and maintenance. Although the vast majority of streetlights in the County are owned by Dominion Virginia Power, the program is responsible for ensuring the installation, maintenance and repairs of approximately 1,700 County maintained streetlights. These streetlights are located in commercial areas, tunnels, on pedestrian bridges, and at signalized intersections.
  - **The Parking Meter Program** installs, operates, maintains and collects funds from parking meters.

- **The Signs Program** is responsible for fabrication, installation, maintenance, and removal of all signs necessary to provide safe and orderly use of streets. The sign program works with emergency detours, traffic counts, message boards, speed trailers, temporary signs, special projects upon request, special fabrication for other departments and pavement markings. This program continues to upgrade outdated signs throughout Arlington County.
- **The Signals Program** improves pedestrian and vehicular mobility through the installation, operation, and maintenance of all electrical and electronic traffic control equipment. This program is also responsible for the operation and management of ACTRA, the computerized traffic signal control system that provides centralized control for 251 signalized intersections in the County. Nineteen of these signalized intersections also operate under SCOOT (Split, Cycle and Offset Optimization Technique), a demand responsive system.
- **The Pavement Markings Program** is responsible for the layout, installation, and maintenance of pavement markings to provide delineation and alignment for safer pedestrian and vehicular movements. Paint is used on older pavement and must be redone annually. Newer pavements are repainted every three to five years with bright thermoplastic coatings that give higher bridge deck visibility at night.

## PROGRAM FINANCIAL SUMMARY

| | FY 2006 Actual | FY 2007 Revised | FY 2008 Proposed | % Change '07 to '08 |
|---|---|---|---|---|
| Personnel | $3,301,309 | $3,738,789 | $3,931,512 | 5% |
| Non-Personnel | 3,480,384 | 3,626,630 | 3,967,104 | 9% |
| Intra-County Charges | - | (152,247) | (152,247) | - |
| Total Expenditures | 6,781,693 | 7,213,172 | 7,746,369 | 7% |
| Total Revenues | 5,663,906 | 5,235,948 | 5,562,866 | 6% |
| Net Tax Support | $1,117,787 | $1,977,224 | $2,183,503 | 10% |
| Authorized FTEs | 50.1 | 49.1 | 50.1 | |
| Funded FTEs | 50.1 | 49.1 | 50.1 | |

## SIGNIFICANT BUDGET HIGHLIGHTS

↑ The personnel budget includes the addition of 1.0 FTE for the Residential Permit Parking program ($68,545), normal salary increases and corresponding increases in overtime pay, a new pay premium for Professional Engineers ($6,184), an increase in employer retirement contributions to maintain full funding of the retirement fund, and a 15 percent increase in employer health insurance rates.

↑ Non-personnel expenditures include support costs for the Residential Permit Parking Program ($132,105), the additional cost of electricity for new traffic signals and street lights ($40,055), fuel ($6,814) and utility cost ($91,163) increases based on actual spending and rate adjustments, non-discretionary contractual increases ($16,998) and an increase in cost of County vehicle rental ($53,339).

■ Intra-county charges in FY 2006 are netted out of personnel.

↑ The revenue increase reflects increases in highway right-of-way ($150,000) and residential parking permit ($222,740) fees partially offset by a decrease in the anticipated

reimbursement from the state for the maintenance of traffic signals on state roads ($45,822).

## PERFORMANCE MEASURES

### Data Collection Program

| Critical Measure | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Accident reports processed/analyzed | 2,719 | 2,344 | 2,876 | 2,786 | 3,000 | 2,900 | 2,900 |

| Supporting Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Reports Completed by the Collection Team | 377 | 647 | 661 | 1,123 | 650 | 1,000 | 1,000 |
| Locations speed radar deployed | 7 | 19 | 6 | 20 | 15 | 15 | 15 |
| Right-of-way permits issued | 1,106 | 1,081 | 1,268 | 1,481 | 1,200 | 1,300 | 1,300 |
| Traffic counts | 723 | 849 | 615 | 473 | 900 | 500 | 500 |
| Parking ordinances prepared | 1,334 | 1,403 | 1,454 | 1,422 | 1,500 | 1,570 | 1,500 |

### Traffic System Management and Design Program

| Supporting Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Existing signal modifications | 25 | 7 | 9 | 7 | 3 | 3 | 3 |
| New school flashers | 6 | 14 | 29 | 0 | 2 | 0 | 0 |
| Level of Service evaluations better than level "D" | N/A | N/A | 85% | 90% | 85% | 85% | 85% |
| Number of plans and studies reviewed | N/A | N/A | N/A | N/A | N/A | 100 | 100 |
| Signals optimized | N/A | 31 | 159 | 0 | 77 | 0 | 0 |
| Left-turn phases added | N/A | 8 | 2 | 2 | 3 | 3 | 3 |
| Transit priority locations added | N/A | N/A | 10 | 0 | 0 | 0 | 0 |
| Number of studies conducted | N/A | N/A | N/A | N/A | N/A | 30 | 30 |

- Signalized intersections are routinely evaluated for safety, signals lacking adequate pedestrian support and level of service (LOS) they provide. Intersections with a LOS of worse than “D” are studied for capacity efficiency. Problem intersections are evaluated for possible solutions including marking, signal timing, or the geometry of the intersection.
- Signals optimized: The multi-year project to optimize County signal lights will be completed in FY 2007.

### Street Lights Program

| Critical Measure | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Street light repairs (Arlington County) | 303 | 664 | 731 | 574 | 525 | 550 | 500 |

| Supporting Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| New decorative lights installed in residential areas and arterial streets | 256 | 135 | 291 | 156 | 230 | 210 | 210 |
| New "Dark Sky" compliance Cobra lights installed | 37 | 65 | 64 | 55 | 50 | 60 | 60 |

| Supporting Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Dominion Virginia Power maintained street and trail lights | 13,500 | 12,875 | 12,775 | 12,318 | 12,300 | 12,200 | 12,000 |
| Trouble calls received: All street and trail lights | 967 | 1,175 | 1,630 | 1,516 | 1,300 | 1,350 | 1,200 |

- Dominion Virginia Power has conducted an inventory of all street lights in Arlington County. Validation of findings is forthcoming.

### Parking Meter Program

| Critical Measure | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Percent of meters put back in service within 24 hours | 90% | 90% | 95% | 90% | 95% | 96% | 96% |

| Supporting Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Preventative maintenance tasks performed | 10,600 | 11,200 | 11,200 | 7,653 | 11,500 | 5,000 | 5,000 |
| Malfunctions reported per month | 1,350 | 1,586 | 750 | 820 | 800 | 800 | 800 |
| Newly installed meters | N/A | 538 | 279 | 163 | 500 | 700 | 700 |
| Meters removed | N/A | 214 | 135 | 210 | 300 | 300 | 300 |
| Meter revenue | $3,393,474 | $3,473,448 | $3,708,161 | $3,926,160 | $4,071,830 | $4,071,830 | $4,071,830 |
| Revenue per meter | $885 | $945 | $1,022 | $1,066 | $1,018 | $1,018 | $1,018 |
| Parking meters in service | 3,700 | 3,676 | 3,629 | 3,682 | 4,000 | 4,000 | 4,000 |

- Meter revenue includes coin collection from all meters, credit card revenue from multi-space meters and “Park Smart” Cards.
- Malfunctions include battery replacements.

### Signs Program

| Critical Measure | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Percent of regulatory signs repaired within 24 hours | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

| Supporting Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Signs in inventory | 80,800 | 80,850 | 81,050 | 95,131 | 95,131 | 95,131 | 95,131 |
| Signs maintained | 10% | 6% | 10% | 10% | 10% | 10% | 10% |
| Signs repaired or replaced | 3,416 | 4,801 | 6,181 | 9,231 | 8,105 | 8,105 | 8,105 |
| Temporary signs installed | 10,172 | 9,780 | 10,240 | 8,194 | 12,000 | 12,000 | 12,000 |
| Signs fabricated | 1,700 | 2,800 | 3,137 | 3,266 | 4,050 | 4,000 | 4,000 |
| New installation of overhead street name blades | N/A | N/A | 20 | N/A | N/A | N/A | N/A |

- The objective is to annually perform maintenance on 10 percent of all signs in the on-street inventory.

## TRANSPORTATION ENGINEERING AND OPERATIONS

### Signals Program

| Critical Measure | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| New signals installed | 4 | 5 | 4 | 5 | 6 | 5 | 8 |

| Supporting Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| LED signals and countdown pedestrian heads installed (locations) | 50 | 60 | 89 | 70 | 50 | 35 | 40 |
| Signal plans designed | 12 | 10 | 15 | 10 | 7 | 7 | 10 |
| Cabinets changed out/new installations | N/A | N/A | 20 | 26 | 20 | 5 | 10 |
| Traffic signals in service | 241 | 243 | 249 | 255 | 266 | 260 | 266 |
| Emergency pre-emption locations added | N/A | 4 | 22 | 2 | 30 | 20 | 20 |
| Trouble calls received/addressed | 995 | 2,188 | 2,640 | 2,122 | 2,200 | 2,100 | 2,000 |
| Number of overhead and cabinet preventive maintenance | 319 | 294 | 498 | 491 | 532 | 510 | 510 |
| Work hours per cabinet PM | 1 | 1 | 3 | 2 | 3 | 1.5 | 1 |
| Work hours per overhead PM | 4 | 4 | 3 | 3 | 3 | 3 | 2.5 |
| Overhead detection installations (locations) | N/A | N/A | 6 | 11 | 10 | 7 | 10 |

- By end of FY 2007, a total of 170 signals will be equipped with countdowns.
- PM = Preventive Maintenance

### Pavement Markings Program

| Critical Measures | FY 2003 Actual | FY 2004 Actual | FY 2005 Actual | FY 2006 Actual | FY 2007 Estimate | FY 2008 Estimate | FY 2008 Goal |
|---|---|---|---|---|---|---|---|
| Maintenance of lines (linear feet) | N/A | N/A | 146,470 | 106,141 | 150,000 | 150,000 | 150,000 |
| New lines (linear feet) | N/A | N/A | 59,000 | 108,388 | 105,000 | 105,000 | 105,000 |

- FY 2005 Actuals are from January – June 2005.

## FUTURE BUDGET CONSIDERATIONS

- Requests for transportation analysis continue to grow, particularly to enhance and encourage pedestrian movements. Staff reallocations were made to respond to demand, but ongoing growth may require further staffing or contract expense.
- Electronic data needs continue to grow as information becomes more valuable across divisions and departments. The data is essential in developing a sound asset management plan. Funds may be needed for a contractor to create a geo-based information system, and additional staff may be needed to maintain it.
- Additional on-street bike trails, pedestrian upgraded crosswalks, and traffic calming devices will continue to add to the inventory of markings that require maintenance.
- Master Transportation Plan modifications will require more field resources for the Signs and Pavement Marking Programs.