

## Traffic Engineering

Agency Number: **57**  
Budget Function: **Public Works and Transportation**

The mission of the Traffic Engineering Division is to use the tools available in transportation planning and operations to ensure safe, efficient, affordable, reliable and convenient movement of people and goods. These tools include a wide range of traffic study techniques and countermeasures. Examples include: traffic control devices, geometric design, safety studies, noise studies, pedestrian and bicycle safety and communications.

<u>Major Service</u>	<u>2004 Actual</u>	<u>2005 Budget</u>	<u>2005 Projected</u>	<u>2006 Request</u>	<u>2006 Executive</u>	<u>2006 Adopted</u>
Signs	\$ 504,536	\$ 965,748	\$ 965,748	\$ 1,079,421	\$ 1,079,321	\$ 0
Street Lighting	965,299	1,043,959	1,043,959	1,205,550	1,217,123	0
Pavement Markings	413,759	641,507	641,507	628,218	694,952	0
Communications	196,862	257,923	257,923	183,236	182,986	0
Traffic Signals	501,286	1,076,760	1,076,760	922,762	991,108	0
Special Services	1,463,751	657,730	657,730	485,131	484,981	0
<b>Agency Total</b>	<u>\$ 4,045,493</u>	<u>\$ 4,643,627</u>	<u>\$ 4,643,627</u>	<u>\$ 4,504,318</u>	<u>\$ 4,650,471</u>	<u>\$ 0</u>

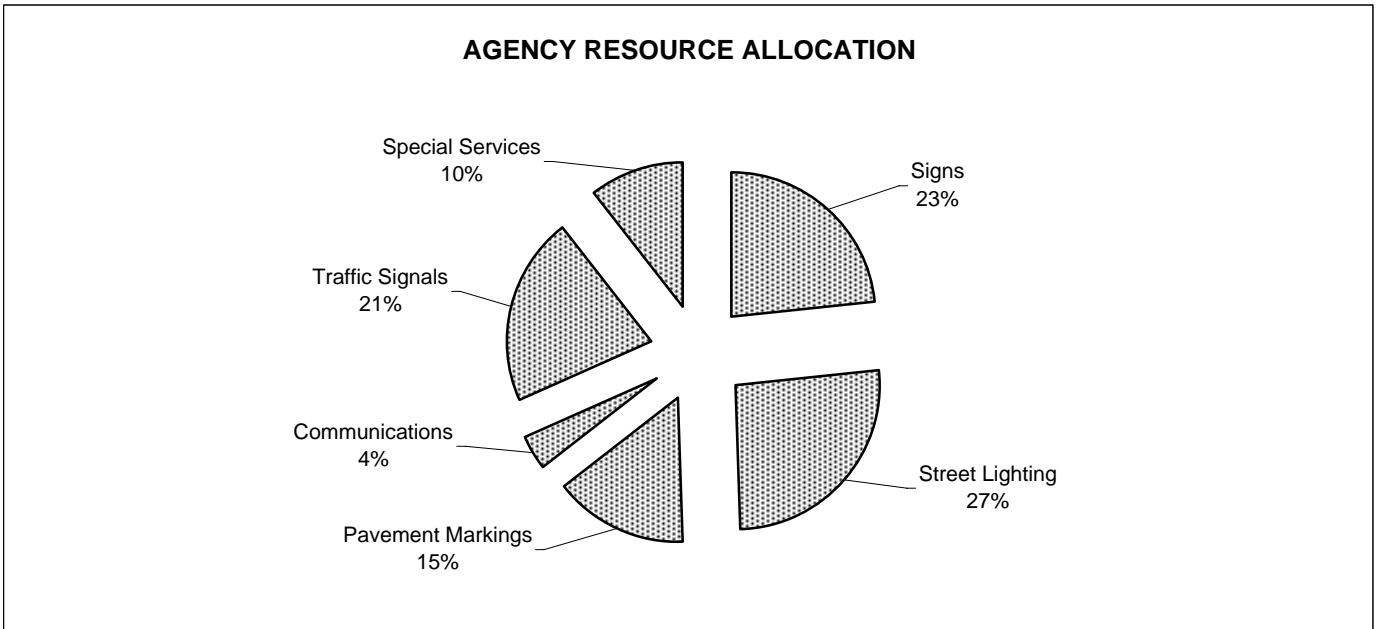
### **Executive Budget Highlights**

The Budget includes:

1. Full funding for electrical costs in excess of \$1,000,000 (mostly for street lights). These costs are projected to increase by \$93,575 in 2006.

The agency submitted \$213,119 in supplemental budget requests, of which \$147,254 in included in the Executive Budget.

## Traffic Engineering



### **Budget Service Descriptions:**

#### **Signs**

The Signs section is responsible for installing, fabricating, cleaning, repainting, straightening, replacing and relocating street signs. There are approximately 70,000 signs in the City. The service includes: an annual inventory of all signs as to condition and proper location; studies to evaluate the need for new signs, or removal/alteration of existing signs; surveys and reports on sight distance problems and sign obstructions; and upkeep and maintenance of signs, guardrails and barricades. Signs have an average useful life of 7 - 10 years. All signs require continuous maintenance and eventual replacement. Many types of city signs are gradually being replaced with a higher quality reflective sheeting material. These signs have a higher impact value and a longer life, but have a higher initial cost. Painted signposts are being gradually replaced with galvanized posts. The division is developing a computerized sign inventory system.

<b>Service Summary</b>			
	<b>2004 Actual</b>	<b>2005 Budget</b>	<b>2006 Executive</b>
Total Expenditures	\$ 1,063,292	\$ 1,404,579	\$ 1,339,607
Less Inter-Agency Billings	<u>558,756</u>	<u>438,831</u>	<u>260,286</u>
<b>Net Total</b>	<b><u>\$ 504,536</u></b>	<b><u>\$ 965,748</u></b>	<b><u>\$ 1,079,321</u></b>

## Street Lighting

The Street Light section provides City-wide street lights including relamping and repairing of City-owned street light units as needed. Staff repair and maintain light poles, bases and luminaires, and repair all damage resulting from crashes. This unit is responsible for the design of new lighting installations. This service also evaluates the need for changes in the existing systems and in isolated lighting units for specific neighborhood needs. There are over 12,600 street lights in the City, all of which need continuous maintenance and eventual replacement. New installations are generally the style that directs all of the light downward to reduce lighting the night sky. The energy charges for the division are now over \$1,040,000 annually with street lighting accounting for 75% of this total. Street light energy efficiency has been improved by the virtual elimination of incandescent and mercury vapor lighting. Instead, high pressure sodium vapor and metal halide lamp types now account for 96% of street lighting.

<b>Service Summary</b>			
	<b>2004 Actual</b>	<b>2005 Budget</b>	<b>2006 Executive</b>
Total Expenditures	\$ 1,195,013	\$ 1,343,147	\$ 1,553,593
Less Inter-Agency Billings	229,713	299,188	336,470
Net Total	\$ 965,299	\$ 1,043,959	\$ 1,217,123

## Pavement Markings

The Pavement Marking section performs an annual pavement marking inventory, plans, designs, prepares layouts and installs street and curb-side markings, utilizing both paint and semi-permanent marking materials such as preformed thermoplastic and epoxy. This unit is responsible for the maintenance of the following: the centerline, lane line and edge line markings which divide streets and provide guidance for vehicular traffic; the crosswalk markings which identify crossing areas for pedestrians; the curb-side marking which emphasize parking prohibition along a particular stretch of curb; bike path and ramp markings, the pavement arrows and stop lines which provide additional regulatory information to motorists, and other similar markings. The section develops and administers the annual pavement marking contract. All pavement marking materials require maintenance on a continual basis.

<b>Service Summary</b>			
	<b>2004 Actual</b>	<b>2005 Budget</b>	<b>2006 Executive</b>
Total Expenditures	\$ 413,968	\$ 641,507	\$ 694,952
Less Inter-Agency Billings	208	0	0
Net Total	\$ 413,759	\$ 641,507	\$ 694,952

## Communications

The Communications section installs, repairs, calibrates, modifies and tests two-way radios and associated electronic equipment, and plans, designs and installs municipal communications systems. Services include: maintenance of the two-way radios used by all City agencies, Dane County and suburban police and fire agencies (radios are tested annually, and agencies and other entities are charged for this service); repair and servicing of intercom, public address and radar equipment for various public agencies; and filing of the necessary license applications and renewals, conducting scheduled frequency checks and compiling of reports required by the FCC. This section plans, designs, modifies and installs communications equipment for the City and other public entities. All communications equipment requires continuous maintenance and eventual replacement. Previous studies by industry leaders in communications indicate a predictable gradual loss of radio coverage in the downtown Madison area. This loss is caused by the increase of number and increased size of buildings in the downtown area. In 2006, the communication section will implement a \$600,000 system improvement which should significantly

<b>Service Summary</b>			
	<b>2004 Actual</b>	<b>2005 Budget</b>	<b>2006 Executive</b>
Total Expenditures	\$ 922,272	\$ 1,219,803	\$ 1,251,977
Less Inter-Agency Billings	725,410	961,880	1,068,991
Net Total	\$ 196,862	\$ 257,923	\$ 182,986

## Traffic Signals

This section is responsible for the installation, operation and upkeep of traffic signals. Staff maintain, clean, relamp, paint, align and inspect signal units annually; check signal controllers and detectors bimonthly; and repair equipment damaged in crashes and storms. The electrical cost for each signalized intersection averages \$600/year when using Light Emitting Diode lamps and maintenance averages \$2,500/year. This unit performs studies, planning and design associated with new installations as well as the regular review, revision and modernization for 264 signalized intersections. Signalized intersections have increased by 42 (19%) in the past 5 years. Some of this growth is due to maintenance services for non-Madison areas, such as Fitchburg, Oregon, Verona and Dane County. Twenty-eight (28) signals are outside the City limits but are maintained by Madison. Agreements allow the City to recover all of its costs, including engineering and overhead. New work activity includes the installation and maintenance of fiber optics. The City's installed conduit backbone is essential for routing fiber, which allows lease revenue to continue to grow.

<b>Service Summary</b>			
	<b>2004 Actual</b>	<b>2005 Budget</b>	<b>2006 Executive</b>
Total Expenditures	\$ 939,657	\$ 1,521,851	\$ 1,390,945
Less Inter-Agency Billings	438,372	445,091	399,837
Net Total	\$ 501,286	\$ 1,076,760	\$ 991,108

## Special Services

Special Services staff, in conjunction with the Pedestrian Bicycle Motor Vehicle Commission, provides overall leadership for traffic safety programs and assists on the overall transportation and traffic planning, design and transportation engineering for the City. In conjunction with City Engineering, the Department of Planning and Development and Dane County Regional Planning, staff develop land use plans and evaluate the impact of potential land uses upon the existing transportation patterns and facilities. Services include: transportation and traffic planning, transportation design, special projects, design studies and traffic counts; driveway and parking lot review; review of conditional use, plat and rezoning applications; and bicycle route and pedestrian plans and other related issues. Staff assist neighborhoods and other government entities in planning transportation improvements. The neighborhood traffic management program has become an increasingly important part of the section's work. This service also contains all pedestrian and bicycle programs.

<b>Service Summary</b>			
	<u>2004 Actual</u>	<u>2005 Budget</u>	<u>2006 Executive</u>
Total Expenditures	\$ 1,709,478	\$ 730,730	\$ 797,339
Less Inter-Agency Billings	<u>245,727</u>	<u>73,000</u>	<u>312,357</u>
Net Total	<u>\$ 1,463,751</u>	<u>\$ 657,730</u>	<u>\$ 484,981</u>

### Traffic Engineering Summary by Major Object of Expenditure

	<u>2004 Actual</u>	<u>2005 Budget</u>	<u>2005 Projected</u>	<u>2006 Request</u>	<u>2006 Executive</u>	<u>2006 Adopted</u>
Permanent Salaries	\$ 2,930,950	\$ 3,244,910	\$ 3,244,910	\$ 3,305,822	\$ 3,364,845	\$ 0
Hourly Employee Pay	111,121	121,297	121,297	39,788	99,788	0
Overtime Pay	96,790	70,757	70,757	50,000	50,000	0
Fringe Benefits	1,066,529	1,202,726	1,202,726	1,211,820	1,240,050	0
Purchased Services	1,070,076	1,112,000	1,112,000	1,153,908	1,152,808	0
Supplies	363,088	469,900	469,900	474,200	474,200	0
Inter-Departmental Charges	599,216	618,327	618,327	643,722	643,722	0
Debt/Other Financing Uses	0	0	0	0	0	0
Capital Assets	<u>5,909</u>	<u>21,700</u>	<u>21,700</u>	<u>3,000</u>	<u>3,000</u>	<u>0</u>
Total Expenditures	\$ 6,243,679	\$ 6,861,617	\$ 6,861,617	\$ 6,882,260	\$ 7,028,413	\$ 0
Inter-Agency Billings	<u>2,198,187</u>	<u>2,217,990</u>	<u>2,217,990</u>	<u>2,377,942</u>	<u>2,377,942</u>	<u>0</u>
Net Budget	<u>\$ 4,045,493</u>	<u>\$ 4,643,627</u>	<u>\$ 4,643,627</u>	<u>\$ 4,504,318</u>	<u>\$ 4,650,471</u>	<u>\$ 0</u>