



SECTION NINE

MAINTENANCE & OPERATIONS ELEMENT

The Maintenance and Operations Element includes all activities and materials necessary to keep the expressways functioning safely and efficiently while looking presentable. There are a wide variety of activities involved including signal operations, sweeping, pavement maintenance, landscaping maintenance, enforcement, and aging infrastructure replacement. The key feature these activities have in common is that their costs are recurring rather than a one-time capital outlay.

Based on comments received from the public, cities, and policy makers, the overall goal for maintenance and operations of the expressway system can be summed up as follows:

*“The expressways should be cleaner and greener
with smooth pavement and synchronized signals.”*



Current Practices

Table 9-1 provides a list of categories for maintenance and operations activities along with a description of the County's current practices. The County's current practices are determined by available funding and cannot be enhanced until additional revenue is secured. In the meantime, the County must first apply its limited revenue to safety and key operating areas, such as operating signals, repairing traffic control/safety devices, repairing potholes, and maintaining drainage systems. Aesthetic treatments, such as landscaping maintenance, receive a lower priority and are more dependent on revenue availability.

Recommended Levels of Effort

To develop a recommended level of effort for the expressway system, a survey of the cities' current practices for roadway maintenance and operations was conducted. This survey was useful in placing practical limits on what is desirable. The recommended levels of effort described in Table 9-1 reflect a medium to high-end level compared to the cities' current practices.

The total annual cost to provide the proposed maintenance and operations levels of effort is \$18.0 million. A breakdown of the costs is provided in Table 9-2. For some categories, such as signal operations, sweeping, and landscaping maintenance, the costs are incurred annually. For infrastructure replacement and pavement maintenance, the costs are incurred at various intervals. For these categories, the total cost over the *Implementation Plan's* 30-year planning period was calculated and then divided by 30 for an average annual cost.

The opportunities for increasing operating revenue to meet the \$18.0 million in needs are discussed in the Funding Strategy section.

Table 9-1: Maintenance and Operations Levels of Effort

| Category | County's Current Practice | Proposed Level of Effort |
|---|--|--|
| Signal Operations | Optimize signal timing per request/complaint as funds allow | As described in the Signals /TOS Element: Develop and optimize variable timing plans for different times of the day and days of the week for all expressways annually Maintain newly installed Traffic Operations System (TOS) |
| Sweeping | Once per month | Twice per month plus on-call response |
| Landscaping Maintenance | Maintain landscaping and control weeds along expressways with none to minimum landscaping Expressways with more extensive landscaping have maintenance agreements with cities or private developers No replacement or new plantings Fence repair and trash pick-up as funds allow | Maintain landscaping and irrigation systems Replacement plantings as needed Control weeds Clean up litter Repair fences as needed |
| Pavement Maintenance | Patch potholes as encountered | Continue to patch potholes as encountered Resurface on 15-20 year cycle (60 Pavement Condition Index (PCI)) Preventive maintenance/rehabilitation to extend life of pavement (70-80 PCI) Use more expensive products like Rubberized Asphalt Concrete (RAC) with longer life cycle where cost-effective |
| Pavement Reconstruction (part of infrastructure replacement) | Implement pavement reconstruction as funds allow | Reconstruct/replace 10% of expressway pavement sections within the 30-year timeframe |

Table 9-1: Maintenance and Operations Levels of Effort (continued)

| Category | County's Current Practice | Proposed Level of Effort |
|--|--|---|
| Sound Wall Maintenance | Paint over graffiti in compliance with city requirements (1 – 2 weeks) | Respond to graffiti within 1 to 3 days of notification depending on type of graffiti |
| Sound Walls (as part of Infrastructure Replacement) | Repair sound walls where damaged by errant vehicles | Replace all existing noise sufficient sound walls (150,000 feet systemwide) based on a 30-40 year life cycle |
| Traffic Control/ Safety Devices Infrastructure Replacement (such as signal & lighting systems, guard rails, signs, delineators) | Fix immediately when safety-related items are broken or damaged; non-safety items deferred until resources are available | Implement preventive maintenance by replacing on scheduled routine before worn out Replace and upgrade materials to reflect latest technologies/ materials where cost-effective |
| Other Infrastructure Replacement (such as sidewalks, drainage, and other utility systems) | Repair as funds allow | Implement preventive maintenance by replacing on scheduled basis to prevent service interruption Replace with more expensive but longer service life materials where cost-effective |
| Facility, Equipment, and Fleet | Maintain, repair, and replace as funds allow | Implement routine maintenance Repair as needed Replace based on variable standard life cycles Upgrade to accommodate the proposed level of maintenance efforts listed above |
| Enforcement | Contract with the California Highway Patrol (CHP) for enforcement on San Tomas, Montague, and Lawrence Expressways ⁽¹⁾ Cities provide enforcement on all other expressways | Continue to contract with CHP to patrol San Tomas, Montague, and Lawrence Expressways; if feasible, add Central when HOV lanes are added Cities continue to provide enforcement on all other expressways |

Note:

- 1) These expressways are patrolled by the CHP to enforce the high-occupancy vehicle (HOV) lanes. The CHP uses the fines collected from HOV lane violations to pay for most of the costs of enforcement.

| Table 9-2: Maintenance and Operations Annual Costs | |
|---|-------------------------------|
| Category | Annual Cost (millions) |
| Signal Operations | \$1.5 |
| Sweeping | \$0.6 |
| Landscaping Maintenance ⁽¹⁾ | \$4.0 |
| Pavement Maintenance | \$3.8 |
| Pavement Reconstruction | \$1.4 |
| Sound Wall Maintenance | \$0.2 |
| Sound Wall Infrastructure Replacement | \$1.7 |
| Traffic Control/Safety Devices Infrastructure Replacement | \$2.5 |
| Other Infrastructure Replacement | \$1.0 |
| Facility, Equipment, and Fleet | \$1.2 |
| Enforcement ⁽²⁾ | \$0.1 |
| Total | \$18.0 |

Notes:

- 1) The annual cost for the landscaping category reflects the maintenance cost if all 8 expressways are brought up to the landscaping standard described in the Finishing Program Element. The capital costs for landscaping installation is not included here.
- 2) The \$0.1 million in annual enforcement costs is in addition to the \$0.3 million provided to the CHP from fines for HOV lane violations. If the CHP were to provide traffic enforcement for all 8 expressways, the annual cost would be \$3 million with the County and cities having to reimburse the state for the costs.