Overview of Freeway Service Patrols in the United States

Final Report

Prepared by

Malcolm E. Baird, Ph.D., P.E.
Director, Vanderbilt Center for Transportation Research
Research Professor of Civil and Environmental Engineering
Vanderbilt University

Sponsored by the

Southeastern Transportation Center (STC)

and the

School of Engineering, Vanderbilt University

November 2008

Acknowledgments

Sincere thanks and appreciation are expressed to the representatives of freeway service patrols throughout the U.S., state-level coordinators and program managers, and others who contributed the essential information. Special thanks are extended to Dave Helman, Frank Horne, Gary Ogletree, John O'Laughlin, Ted Smith, and Bob VanHorn for comments and suggestion regarding the research.

Special thanks also to the Southeastern Transportation Center (STC) and the Vanderbilt School of Engineering for the financial support for the project.

The author is solely responsible for the findings and conclusions and other contents of the report.

Disclaimer

Table of Contents

Overview of Freeway Service Patrols in the United States

This report provides an overview of freeway service patrols (FSPs) in the U.S., including information about organizations and resources, operating practices, vehicles and equipment, and the types and levels of services offered. The information was gathered over a four month period in mid-2008 relying primarily on web searches, telephone interviews, and a survey of FSP operators.

Introduction

At least one freeway service patrol (FSP) was identified in a total of 40 states and in the District of Columbia. The identified FSPs are listed in Table 1, organized by state with a description of the area served, the name of the program, and the responsible agency. Unless noted otherwise, the information in Table 1 is taken directly from responses to the survey of FSP operators. Also unless otherwise noted, Table 1 provides information about the FSP in each community or region served regardless of whether the patrol is part of a statewide program.

Table 1 has 118 entries. For several reasons, however, 118 is not the number of FSP "programs" nor is it the number of "communities served" by FSPs. Table 1 includes a single entry for each of four states (Connecticut, Maryland, New York, and North Carolina) that provided a consolidated, statewide response to the survey. Also included is statewide information about the South Carolina DOT's program, obtained from the SCDOT website. For many other states, separate responses were received from DOT region or district offices or local agencies that operate under the umbrella of a statewide program. No attempt was made to classify programs as "statewide" or "local," and whether or not a single response was received from the DOT should not be interpreted as an indication of the discretion available at the region, district, or local level to allocate FSP resources or to manage day-to-day operations.

Relative to communities served, many of the FSPs operated by DOTs and tollway authorities serve corridors that cross the boundaries of multiple communities. Also, two states, Kentucky and West Virginia, have patrols on almost all freeways throughout their respective states. On the other hand, several urban areas are served by more than one FSP provider. In the Baltimore, Chicago, Denver, Miami, Nashville, and Phoenix urban areas, more than one public agency provides FSP services. The CVS Samaritan program operates patrols on certain routes in eight urban areas, and all of those eight areas are also served by other FSPs operating on other routes. A review of Table 1 indicates that FSPs operate on freeways in at least 120 separate urban areas as well as adjacent communities and along major travel corridors in outlying and rural areas.

Information about specific programs or patrols in specific communities should be confirmed by direct contact with the responsible agencies. Many of the aspects of FSPs addressed in this report are subject to frequent change. For instance, one of the responses to the survey was on behalf of an FSP that had discontinued all services a few months before the survey was administered. Another response was on behalf of an FSP scheduled to begin operation later in 2008. Several of the other FSPs that responded to the survey in mid-2008 are known to have suspended or reduced service in response to subsequent budget problems. One relatively new FSP, operated by the North Texas Tollway Authority, was overlooked until after the survey was completed. Another new FSP, not included in the survey, is scheduled to begin service in Hawaii in 2009.

Table 1. Freeway Service Patrols: State, Area Served, Program Name, and Responsible Agency

Ref. No.	State	Area(s) Served	Name of Program	Responsible Agency *
1	Alabama	Birmingham Metro Area (Jefferson and Shelby Counties)	Alabama Service and Assistance Patrol (ASAP)	Alabama Department of Transportation
2	Arizona	Phoenix Metropolitan Region Urban Freeway System	Freeway Service Patrol	Maricopa Association of Governments
3	Arizona	Maricopa County	Regional Emergency Action Coordinating Team (REACT)	Maricopa County
4	Arkansas	Little Rock	MAP - Motorist Assistance Patrol	Arkansas State Highway & Transportation Department
5	Arkansas	Crittenden County (West Memphis)	MAP - Motorist Assistance Patrol	Arkansas State Highway & Transportation Department
6	California	City of Fresno	Freeway Service Patrol	Council of Fresno County Governments
7	California	Los Angeles County	Metro Freeway Service Patrol	Los Angeles County Metropolitan Transportation Authority
8	California	Monterey County [1]	Freeway Service Patrol [1]	Transportation Agency for Monterey County [1]
9	California	Orange County	Freeway Service Patrol	Orange County Transportation Authority
10	California	Placer County	Freeway Service Patrol	Placer County Transportation Planning Agency
11	California	Riverside County	Riverside County Freeway Service Patrol	Riverside County Transportation Commission
12	California	Sacramento County	Sacramento Metropolitan Freeway Service Patrol	Sacramento Transportation Authority
13	California	San Bernardino County	San Bernardino Freeway Service Patrol	San Bernardino Associated Governments (SANBAG)
14	California	County of San Diego	Freeway Service Patrol	San Diego Association of Governments
15	California	Nine (9) County San Francisco Bay Area Region	Freeway Service Patrol	Metropolitan Transp. Comm. - Service Authority for Freeway & Expressway (MTC SAFE)
16	California	Interstate 205 near Tracy in San Joaquin County	San Joaquin Freeway Service Patrol	San Joaquin Council of Governments
17	California	Santa Barbara County - South Coast Region	Santa Barbara County Freeway Service Patrol	Santa Barbara County Association of Governments
18	California	Santa Cruz County	Freeway Service Patrol, Part of the SCCRTC's Motorist Aid Programs	Santa Cruz County Regional Transportation Commission
19	Colorado	Denver Metropolitan Area	Mile Hi Courtesy Patrol	Colorado Department of Transportation
20	Colorado	E-470 Public Highway Authority (Denver)	State Farm Safety Patrol	E-470 Public Highway Authority
21	Connecticut	I-95 Corridor, I-91 Corridor, and I-84 Corridor in Connecticut [1]	Connecticut Highway Assistance Motorist Patrol (CHAMP) [1]	Connecticut Department of Transportation [1]

Table 1. (Continued)

22	Delaware	Statewide [1]	Motorist Assistance Patrol [1]	Delaware Department of Transportation [1]
23	District of Columbia	District of Columbia	Roadway Operations Patrol	District Transportation Department
24	District of Columbia	Washington DC / Northern Virginia: I-395 from I-95 Northern Virginia to DC Metro area	CVS Samaritan	Samaritania Inc. for CVS
25	Florida	Southwest Florida (FDOT District 1)	Road Ranger	Florida Department of Transportation
26	Florida	Jacksonville - Duval County (FDOT District 2)	Road Ranger Service Patrol	Florida Department of Transportation
27	Florida	Broward and Palm Beach Counties (FDOT District 4)	Road Ranger Service Patrol	Florida Department of Transportation
28	Florida	Central Florida: Interstate 4 - Osceola, Orange, Seminole, and Volusia Counties (FDOT District 5)	Road Ranger	Florida Department of Transportation
29	Florida	Miami-Dade County (FDOT District 6)	Road Ranger	Florida Department of Transportation
30	Florida	SR 112, 836, 874, 878, and 924 in Miami-Dade County	Road Ranger	Miami-Dade Expressway Authority
31	Florida	Florida DOT District 7	Road Ranger	Florida Department of Transportation
32	Florida	Florida Turnpike--South, Central and West Central Florida	State Farm Safety Patrol	Florida's Turnpike Enterprise
33	Georgia	Metro Atlanta	Highway Emergency Response Operations (HERO)	Georgia Department of Transportation
34	Idaho	Anywhere in ITD District 3 (Southwest Idaho); mainly I-84 and I-184 in western Ada and eastern Canyon Counties	Incident Response	Idaho Transportation Department
35	Illinois	Twelve Counties in Northeastern Illinois: Tollway System	Emergency Lane Patrol (HELP)	Illinois State Toll Highway Authority
36	Illinois	Chicago: Seven Major Expressways System	Illinois Minutemen (Emergency Traffic Patrol)	Illinois Department of Transportation
37	Illinois	Chicago: Route 53/290 from Lake Cook Road to I-294 Interchange	CVS Samaritan	Samaritania Inc. for CVS
38	Illinois	St. Louis Metro; St. Clair, Madison, and Monroe Counties in Illinois	Emergency Traffic Patrol	Illinois Department of Transportation, District 8
39	Indiana	Indianapolis Metropolitan Area	Hoosier Helpers	Indiana Department of Transportation
40	Indiana	Indianapolis: I-70 Keystone Avenue to I-465 Keystone Avenue	CVS Samaritan	Samaritania Inc. for CVS
41	Indiana	Northwest Indiana near Gary, IN	Hoosier Helpers	Indiana Department of Transportation
42	Indiana	Greater Louisville Kentucky metropolitan area in Indiana	Hoosier Helpers	Indiana Department of Transportation
43	Iowa	Interstate highways in the Des Moines Metro Area	Highway Helper	Iowa Department of Transportation

Table 1. (Continued)

44	Kansas	Kansas City Area	Motorist Assist Program	Kansas Highway Patrol
45	Kansas	Topeka Area	Motorist Assist Program	Kansas Highway Patrol
46	Kansas	Wichita Area	Motorist Assist Program	Kansas Highway Patrol
47	Kentucky	Commonwealth of Kentucky	SAFE Patrol (Safety Assistance for Freeway Emergencies)	Kentucky Transportation Cabinet
48	Kentucky	Louisville Metro	TRIMARC Freeway Service Patrol	Northrop Grumman for the Kentucky Transportation Cabinet
49	Kentucky	Northern Kentucky in the Cincinnati metro area (see description under Ohio)	ARTIMIS	Kentucky Transportation Cabinet and the Ohio Department of Transportation
50	Louisiana	Baton Rouge Metro Area (I-10, I-12 and I-110)	Motorist Assistance Patrol	Louisiana Department of Transportation and Development
51	Louisiana	Lake Charles Metro Area (I-10)	Motorist Assistance Patrol	Louisiana Department of Transportation and Development
52	Louisiana	New Orleans Metro Area (I-10)	Motorist Assistance Patrol	Louisiana Department of Transportation and Development
53	Louisiana	Shreveport-Bossier City Metro Area (I-20)	Motorist Assistance Patrol	Louisiana Department of Transportation and Development
54	Maryland	State of Maryland	CHART (Coordinated Highways Action Response Team)	Maryland State Highway Administration
55	Maryland	I-95 Delaware Line to Baltimore City 695, 895, Rt 50 Bay Bridge, Francis Scott Key Bridge	Vehicle Recovery Unit	Maryland Transportation Authority
56	Massachusetts	Metropolitan areas of Boston, Worcester and Springfield [1]	Motorist Assistance "Cares Van" Program [1]	Massachusetts Highway Department [1]
57	Massachusetts	Boston metro area: Route 128 from Exit 37 to Route 2 & I-93 from Route 128 to South Station Tunnel	CVS Samaritan	Samaritania Inc. for CVS
58	Michigan	Metro Detroit (Wayne, Oakland, and Macomb Counties) [1]	Freeway Courtesy Patrol [1]	Michigan Department of Transportation [1]
59	Michigan	Detroit: I-75 Exit 49 to Exit 72, I-375, I-696 Exit 1 to Exit 29	CVS Samaritan	Samaritania Inc. for CVS
60	Minnesota	Twin Cities Metropolitan Area	Freeway Incident Response Safety Team (FIRST)	Minnesota Department of Transportation
61	Missouri	St. Charles Co., St. Louis City-Co.	Motorist Assist, Traffic Response, Emergency Response	Missouri Department of Transportation, St. Louis Co Traffic & Maintenance
62	Missouri	Kansas City Metro Area	Motorist Assist and Emergency Response	Kansas City Scout / Missouri Department of Transportation
63	Nebraska	Omaha	Metro Area Motorist Assist Program (MAMAP)	Nebraska State Patrol
64	Nebraska	Lincoln Area (I-80, Platte River to York)	Nebraska Motorist Assist Program (NeMAP)	Nebraska State Patrol
65	Nebraska	Grand Island Area (I-80, York to Kearney)	Central Nebraska Motorist Assist (CNMAP)	Nebraska State Patrol

Table 1. (Continued)

66	Nevada	Las Vegas	Las Vegas Freeway Service Patrol	Nevada Department of Transportation
67	Nevada	Reno/Sparks Area	Reno Freeway Service Patrol	Nevada Department of Transportation
68	New Jersey	Camden, Gloucester, Salem, Burlington, Monmouth and Mercer Counties	Emergency Service Patrol	New Jersey Department of Transportation, Traffic Operations South
69	New Jersey	All Interstates (Bergen, Essex, Passaic, Morris, Union, Middlesex, Warren, Hunterdon, and Somerset Counties)	Emergency Service Patrol	New Jersey Department of Transportation, Traffic Operations North
70	New Jersey	The Atlantic City Expressway, an east-west arterial between Philadelphia, PA and the Atlantic City/eastern NJ shore points	Emergency Service Patrol (ESP)	The South Jersey Transportation Authority
71	New Mexico	Albuquerque	NMDOT HELP Truck Program	New Mexico Department of transportation
72	New York	Long Island; in New York City; the Lower Hudson Valley; Buffalo; Rochester; and the Albany Capital District [2]	HELP (Highway Emergency Local Patrol) [2]	New York State Department of Transportation [2]
73	North Carolina	Triangle (Raleigh, Durham), Triad (Greensboro, Winston-Salem), Metrolina (Charlotte, Gastonia, Statesville), Asheville and I-40 in the Pigeon River Gorge (20 miles at the TN state line) [2]	Incident Management Assistance Patrol (IMAP) [2]	North Carolina Department of Transportation [2]
74	North Carolina	Charlotte: I-77 from I-88 to Sugar Creek Road	CVS Samaritan	Samaritania Inc. for CVS
75	Ohio	The City of Akron, Summit County	FIRST (Freeway Incident Response Service Team)	Ohio Department of Transportation
76	Ohio	Greater Cincinnati Area	ARTIMIS	Ohio Department of Transportation and the Kentucky Transportation Cabinet
77	Ohio	Cleveland	Road Crewzers	Ohio Department of Transportation
78	Ohio	Cleveland: I-71 from Snow Road to I-90 East & I-90 25th Street to Marginal Road	CVS Samaritan	Samaritania Inc. for CVS
79	Ohio	Columbus	FIRST (Freeway Incident Response Service Team)	Ohio Department of Transportation
80	Ohio	Dayton, Montgomery County	FIRST (Freeway Incident Response Service Team)	Ohio Department of Transportation
81	Ohio	Toledo, Perrysburg, Sylvania, Maumee-Lucas/Wood Co	Freeway Incident Response Service Team	Ohio Department of Transportation
82	Oregon	ODOT Region 1	Incident Response Program, Oregon DOT, Region 1	Oregon Department of Transportation
83	Oregon	ODOT Region 2: Lincoln, Lynn, Lane, Benton, Clasoph, Tillamook, Polk, Marion, Yamhill Counties	Incident Response Program, Oregon DOT, Region 2	Oregon Department of Transportation
84	Pennsylvania	Lehigh Valley (I-78, RT. 22 & RT. 33) Lehigh & Northampton Counties	Lehigh Valley Freeway Service Patrol	Pennsylvania Department of Transportation
85	Pennsylvania	Harrisburg Metropolitan area	Capital Beltway Service Patrol	Pennsylvania Department of Transportation

Table 1. (Continued)

86	Pennsylvania	Pittsburgh Metro Area, Allegheny County	Parkway Service Patrol	Pennsylvania Department of Transportation
87	Pennsylvania	Philadelphia	Expressway Service Patrol (ESP)	Pennsylvania Department of Transportation
88	Pennsylvania	PA Turnpike Corridor, 531 miles	State Farm Safety Patrol	Pennsylvania Turnpike Commission
89	Rhode Island	Providence metro area: I-195 from Exit 1 Providence to Exit 8 Massachusetts State Line, I-95 from Exit 10 to Exit 30, & Route 10 from Providence to Cranston.	CVS Samaritan	Samaritania Inc. for CVS
90	South Carolina	Beaufort, Charleston, Columbia, Florence, Myrtle Beach, Rock Hill, Upstate [1, 2]	Incident Response [1, 2]	South Carolina Department of Transportation [1, 2]
91	Tennessee	Chattanooga and Hamilton County	HELP	Tennessee Department of Transportation
92	Tennessee	Knoxville and Knox County	HELP	Tennessee Department of Transportation
93	Tennessee	Memphis and Shelby County	HELP	Tennessee Department of Transportation
94	Tennessee	Nashville and Davidson County	HELP	Tennessee Department of Transportation
95	Tennessee	Metro Nashville and Davidson County	Roadway Incident Response	Metro Nashville Public Works Department
96	Texas	Austin (service discontinued Feb 2008)	Motorist Assistance Program	Texas DOT, Austin District
97	Texas	Austin (Toll Roads on Loop 1, SH 130, SH45, and 183A)	Texas Tollways Courtesy Patrol	Texas Department of Transportation
98	Texas	Dallas County	Dallas County Sheriff's Dept. Courtesy Patrol	Dallas County Sheriff's Department
99	Texas	Tarrant County (Ft. Worth)	Courtesy Patrol	Texas Department of Transportation
100	Texas	El Paso	Highway Emergency Response Operators (HEROs)	Texas Department of Transportation
101	Texas	Harris County (Houston)	Motorist Assistance Program	Harris County Sheriff's Office
102	Texas	Harris County and Fort Bend County Toll Road Systems	Patron Emergency Assistance Team (PEAT)	Harris County Toll Road Authority
103	Utah	Salt Lake City	Incident Management Team	Utah Department of Transportation
104	Virginia	Arlington, Fairfax, Prince William Counties, City of Alexandria	Safety Service Patrol	Virginia Department of Transportation
105	Virginia	Hampton Roads Region (SE Virginia)	Safety Service Patrol	Virginia Department of Transportation
106	Virginia	Augusta County, Albemarle County, City of Charlottesville, Frederick County	Safety Service Patrol	Virginia Department of Transportation
107	Virginia	Southwest Virginia	Safety Service Patrol	Virginia Department of Transportation

Table 1. (Continued)

108	Virginia	Richmond Area (scheduled to begin service during 2008)	Safety Service Patrol	Virginia Department of Transportation
109	Washington	Spokane-Spokane County (WSDOT Eastern Region)	Incident Response	Washington State Department of Transportation
110	Washington	WSDOT North Central Region	Incident Response	Washington State Department of Transportation
111	Washington	WSDOT Northwest Region	Incident Response	Washington State Department of Transportation
112	Washington	Pierce, Thurston, Kitsap Counties/ South Puget Sound area	WSDOT Incident Response Team	Washington State Department of Transportation
113	Washington	WSDOT South Central Region (Area 1)	Incident Response	Washington State Department of Transportation
114	Washington	WSDOT South West Region (Pacific, Wahkiakum, Cowlitz, Clark, Lewis, Skamania, and Klickitat Counties)	Incident Response	Washington State Department of Transportation
115	West Virginia	State of West Virginia (All major highways and corridors)	West Virginia Courtesy Patrol	West Virginia Courtesy Patrol
116	Wisconsin	Milwaukee County	Freeway Service Team - Milwaukee County	Wisconsin Department of Transportation
117	Wisconsin	Dane County - Beltline	Freeway Service Team - Dane County Beltline	Wisconsin Department of Transportation
118	Wisconsin	Dane, Kenosha, Milwaukee, Racine, and Waukesha Counties	Statewide Freeway Service Team	Wisconsin Department of Transportation

* The term “Responsible Agency” is used for the organization that has primary responsibility for program management. In most cases, this is the agency that responded to the survey. However, the “Responsible Agency” does not necessarily operate the program, and other agencies may also have significant roles. In California, for instance, the services are operated by private contractors and both CALTRANS and the California Highway Patrol (CHP) also have responsibilities for program management.

[1] = No survey response was received. Information was obtained from the responsible agency’s web site.

[2] = The FSP program operates in more than one community as indicated, but a single survey response was received with statewide totals.

Methodology

The first step in this project was to identify FSP programs and the agencies responsible for program management. A preliminary list was compiled using the researchers' experience, published material on FSPs, web searches using several sets of keywords, exploration of the web site for each state department of transportation, and the *ITS Deployment Statistics* by the Research and Innovative Technology Administration (RITA) in the U.S. DOT. Emails and phone calls were used to clarify discrepancies and develop the final list used for the survey.

The appropriate contact person for the survey was identified through emails and phone calls. In several cases, a state-level program director or coordinator provided contact information for FSPs in specific regions, districts, or local agencies. When other attempts to identify the appropriate contact person were unsuccessful, the survey request was sent to the respective state's representative on the AASHTO Highway Subcommittee on Systems Operations and Management. Those persons were asked to respond or forward the survey request to the appropriate person in their respective departments.

The most important objective of the project was to develop a complete and accurate directory of FSPs—to facilitate exchange of information among FSP operators and to enable additional FSP research. Accordingly, the researchers wanted to obtain a 100% response to the survey and believed that the time required to complete the survey would have to be limited to about 15 minutes.

Thus, the most significant challenge in developing the survey instrument was to select a relatively small number of questions that could be answered quickly but would identify distinguishing characteristics and support peer comparisons among FSPs. Several drafts were reviewed by FSP practitioners and other researchers, and many questions about important and timely topics had to be dropped to minimize the time required for responses. The final draft was tested by FSP managers in the Tennessee Department of Transportation.

The final survey instrument (PDF version) is shown in Appendix A. As explained below, respondents could choose between the PDF version and a web-based version.

The survey requests were distributed by email. Each message had an attached "fillable" PDF copy of the survey form, and a link to the web-based version of the survey. Approximately 55% of the respondents used the PDF form, and 45% used the online version. Responses were received from 104 of the 108 agencies contacted. About half of the responses were received in response to the initial email, and the others were received after follow-up emails and phone calls. For the four agencies that did not respond (representing a dozen or more communities served by FSPs), some of the requested information was available from their respective web sites.

Findings and Conclusions

The research findings and conclusions are described below in the same order as the questions were presented in the survey instrument. The information is based on the survey responses supplemented by information from the respective websites.

Number of Freeway Service Patrol (FSP) Vehicles

At least 1,882 vehicles are owned (or contractually committed) for FSP operations in the U.S., and at least 1,153 FSP vehicles are on patrol during peak travel periods. The median number of vehicles owned by (or committed to) each FSP program is 11 (n=103). The median number of vehicles on patrol in peak travel periods is 6 (n=101). Table 2 shows the numbers of vehicles owned (or committed) as well as the peak number of vehicles on regular patrol for all of the FSPs that reported owning ten (10) or more vehicles.

Based on the survey responses, the "top five" FSPs is terms of vehicles owned (or committed) operate in the Los Angeles, Atlanta, San Francisco, Hampton Roads, and Chicago areas. Based on statewide totals, the ten states with the largest number of owned (or committed) FSP vehicles are California, Florida, Virginia, Georgia, New York, Illinois, Maryland, New Jersey, Tennessee, and Texas.

For all of the FSPs in Table 2, the calculated median ratio of owned (or committed) vehicles to the peak number of vehicles on regular patrol at one time is 1.3. The average is 1.6. However, these aggregate numbers should be used with caution. A review of Table 2 indicates some basic differences in the ways that FSP choose to manage their capital investments.

For some of the FSPs, spare vehicles for necessary maintenance and repair probably account for all of the difference between the number of owned vehicles and the peak number on patrol. Other FSPs appear to have different vehicles assigned to different shifts (e.g., each FSP operator may have an assigned vehicle that is used only during that operator's shift). This would result in a larger fleet but fewer miles per vehicle per time period. Still other FSPs seem to keep some of their vehicles on standby rather than assigned to roving patrols.

Further, about one-fourth of all the survey responses reported exactly the same number of vehicles owned as operated. Most of those seem to be ones that contract with private companies to provide the FSP services. Presumably, most of those contractors have additional vehicles available, but the contract may not specify the number of such vehicles.

Table 2. FSPs with Ten (10) or More Vehicles Owned (or Committed by Contract)

State	Program Name	Area Served	No. of FSP Vehicles Owned (or Committed by Contract)	Peak Number of Vehicles on Patrol at One Time
Alabama	Alabama Service and Assistance Patrol (ASAP)	Birmingham Metro Area (Jefferson and Shelby Counties)	10	8
Arizona	Regional Emergency Action Coordinating Team (REACT) [1]	Maricopa County	13	See footnote[1]
California	Metro Freeway Service Patrol	Los Angeles County	194	154
California	Freeway Service Patrol	Orange County	45	45
California	Riverside County Freeway Service Patrol	Riverside County	28	20
California	Sacramento Metropolitan Freeway Service Patrol Program	Sacramento County	17	17
California	San Bernardino Freeway Service Patrol	San Bernardino County	24	16
California	Freeway Service Patrol	County of San Diego	39	32
California	Freeway Service Program	Nine (9) County San Francisco Bay Area Region	91	83
Colorado	Mile Hi Courtesy Patrol	Denver Metropolitan Area	19	19
Connecticut [2]	Connecticut Highway Assistance Motorist Patrol (CHAMP) [2]	I-95 Corridor, I-91 Corridor, and I-84 Corridor in Connecticut [2]	20	15
Eight states and D.C.	CVS Samaritan	Boston, Providence, Washington, D.C., Charlotte, Cleveland, Indianapolis, Chicago, Detroit, and Cincinnati/ N. Kentucky (with ARTIMIS)	18	13
Florida	Road Ranger	Southwest Florida (FDOT District 1)	15	8
Florida	Road Ranger Service Patrol	Broward and Palm Beach Counties (FDOT District 4)	30	19
Florida	Road Ranger	Central Florida: Interstate 4 - Osceola, Orange, Seminole, and Volusia Counties (FDOT District 5)	12	5-6
Florida	Road Ranger	Miami-Dade County, FDOT District VI	28	17
Florida	Road Ranger	SR 112, 836, 874, 878, and 924 in Miami-Dade County	12	8

Table 2. (Continued)

Florida	Road Ranger	Florida DOT District 7	14	11
Florida	State Farm Safety Patrol	Florida Turnpike--South, Central and West Central Florida	15	15
Georgia	Highway Emergency Response Operations (HERO)	Metro Atlanta	100	30
Illinois	Illinois Minutemen (Emergency Traffic Patrol)	Chicago: Seven Major Expressways System	62	14
Illinois	Emergency Lane Patrol (HELP)	Tollway System: 12 Counties in Northeastern Illinois	15 HELP trucks	11 HELP trucks
Illinois	Emergency Traffic Patrol	St. Louis Metro; St. Clair, Madison, and Monroe Counties in Illinois	18	6
Indiana	Hoosier Helpers	Indianapolis Metropolitan Area	10	5
Kentucky [2]	SAFE Patrol (Safety Assistance for Freeway Emergencies) [2]	Commonwealth of Kentucky [2]	27	16
Maryland	Vehicle Recovery Unit (Maryland Transportation Authority)	I-95 Delaware Line to Baltimore City 695, 895, Rt 50 Bay Bridge, Francis Scott Key Bridge	32	24
Maryland [2]	CHART (Coordinated Highways Action Response Team) [2]	State of Maryland [2]	53	26
Massachusetts [2]	Motorist Assistance "Cares Van" Program [2]	Metropolitan areas of Boston, Worcester and Springfield [2]	22	no response
Michigan	Freeway Courtesy Patrol	12 Metro Detroit Freeways (Wayne, Oakland, and Macomb Counties)	24	no response
Minnesota	Freeway Incident Response Safety Team (FIRST)	Twin Cities Metropolitan Area	13	11
Missouri	Motorist Assist and Emergency Response	Kansas City Metro Area	12	7
Missouri	Motorist Assist, Traffic Response, Emergency Response	St. Charles Co., St. Louis City-Co.	23	18
Nevada	Las Vegas Freeway Service Patrol	Las Vegas	11	5
New Jersey	Emergency Service Patrol	Camden, Gloucester, Salem, Burlington, Monmouth and Mercer Counties	30	26
New Jersey	Emergency Service Patrol	All Interstates (Bergen, Essex, Passaic, Morris, Union, Middlesex, Warren, Hunterdon, and Somerset Counties)	33	26
New Jersey	Emergency Service Patrol (ESP)	The Atlantic City Expressway, an east-west arterial between Philadelphia, PA and the Atlantic City/eastern NJ shore points	14	3

Table 2. (Continued)

New York [2]	HELP (Highway Emergency Local Patrol) [2]	Long Island, in New York City, the Lower Hudson Valley, Buffalo, Rochester, and the Albany Capital District [2]	98	73
North Carolina [2]	Incident Management Assistance Patrol (IMAP) [2]	Triangle (Raleigh, Durham), Triad (Greensboro, Winston-Salem), Metrolina (Charlotte, Gastonia, Statesville), Asheville and I-40 in the Pigeon River Gorge (20 miles at the TN state line) [2]	58	26
Oregon	Incident Response Program, Oregon DOT, Region 1	ODOT Region 1	11	4
Oregon	Incident Response Program, Oregon DOT, Region 2	ODOT Region 2: Lincoln, Lynn, Lane, Benton, Clasoph, Tillamook, Polk, Marion, Yamhill Counties	14	10
Pennsylvania	State Farm Safety Patrol	PA Turnpike Corridor, 531 miles	21	10
South Carolina [2]	Incident Response [2]	Beaufort, Charleston, Columbia, Florence, Myrtle Beach, Rock Hill, Upstate [2]	28	no response
Tennessee	HELP	Chattanooga and Hamilton County	15	4
Tennessee	HELP	Knoxville and Knox County	15	4
Tennessee	HELP	Memphis and Shelby County	20	6
Tennessee	HELP	Nashville and Davidson County	25	7
Texas	Dallas County Sheriff's Dept. Courtesy Patrol	Dallas County	19	15
Texas	Motorist Assistance Program	Harris County (Houston)	19	9
Texas	Patron Emergency Assistance Team (PEAT)	Harris County and Fort Bend County Toll Road Systems	28	11
Utah	Incident Management Team	Salt Lake City	12	8
Virginia	Safety Service Patrol	Arlington, Fairfax, Prince William Counties, City of Alexandria	45	14
Virginia	Safety Service Patrol	Hampton Roads Region (SE Virginia)	63	13
West Virginia [2]	West Virginia Courtesy Patrol [2]	State of West Virginia (All major highways and corridors) [2]	34	25

[1] = REACT is primarily an arterial incident response program; the Freeway Service Patrol for Phoenix is a separate operation with eight vehicles (owned and peak)
[2] = Statewide total

Peak Period Route Miles Patrolled

Each FSP has to address a fundamental tradeoff in designing their patrol routes. Is it better to patrol more miles or to provide a higher level of service while patrolling fewer miles (shorter average wait time for disabled motorists and quicker response to major incidents)?

The purpose of the survey question about "route miles patrolled during peak travel periods" was to address relative levels of service, in terms of total miles covered by the FSP but also in terms of the intensity of the service. The peak hour route miles divided by the number of patrolling vehicles (previous question) would allow "level of service" comparisons among the FSPs. With assumptions about average operating speeds, the comparisons could be expressed in terms of average headways between FSPs vehicles (i.e., average wait time for a disabled motorist).

"Miles patrolled per vehicle" and "average headways" could also be surrogate measures for how quickly the FSP can respond to a major incident on the routes patrolled—with fewer miles covered per vehicle, FSP vehicles should be able to reach incident scenes more quickly, and vice versa.

However, the responses to this question ("route miles patrolled during peak travel periods") have to be evaluated with caution, and comparisons among FSPs must consider the differences in operating procedures. In retrospect, a definition of "route miles" should have been included with this survey question or an example offered (e.g., if the FSP patrols Route X from milepost 101 to milepost 115, the number of route miles is 14). Some of the survey responses seem to be the round-trip miles required for operators to drive their assigned patrol routes. Other responses are based on total miles driven per vehicle per time period. Fortunately, many of the respondents added clarification to their answers to compensate for the weakness in the survey instrument, but the lack of a clear definition makes comparisons risky.

Another reason for caution is that "route miles patrolled" can be misleading or even irrelevant for FSPs that have vehicles positioned for "on call" incident response rather than patrolling. The same caution applies for FSPs that routinely respond to incidents that are not on regular patrol routes. The route miles inside the "service area" may be very different than the routes patrolled on a regular basis.

All of the above notwithstanding, the survey results indicate that median number of route miles for each FSP is 96 miles (n=92). The median number of route miles divided by the number of peak vehicles on patrol is 14.8 miles (n=92).

FSP Operators

More than 1,900 people are employed as full-time FSP operators by the 84 agencies that responded to this survey question. In addition, a total of 69 agencies identified approximately 470 part-time operators. More than half of the part-time operators are in California.

In addition to these 2,370 persons employed exclusively as FSP operators (80% of them full-time and 20% part-time), another 660 full-time employees serve as FSP operators in addition to other duties. Thus, a total of at least 3,030 persons work as FSP operators.

In addition to the above, the three FSPs in Nebraska rely on a total of approximately 125 part-time volunteers. These programs, coordinated by the Nebraska State Patrol, serve Omaha, Lincoln, and I-80 in the Grand Island area.

As illustrated in Figure 1, for more than 40% of the FSPs, the operators are employees of the state DOT. For another 19% of the FSPs, the operators are employees of other public agencies (e.g., state and local law enforcement, regional agencies, tollway authorities). For approximately 39% of the FSPs, the operators are employees of private contractors. A few FSPs have operators under more than one employment category, and, as noted previously, Nebraska's FSPs rely on volunteer operators.

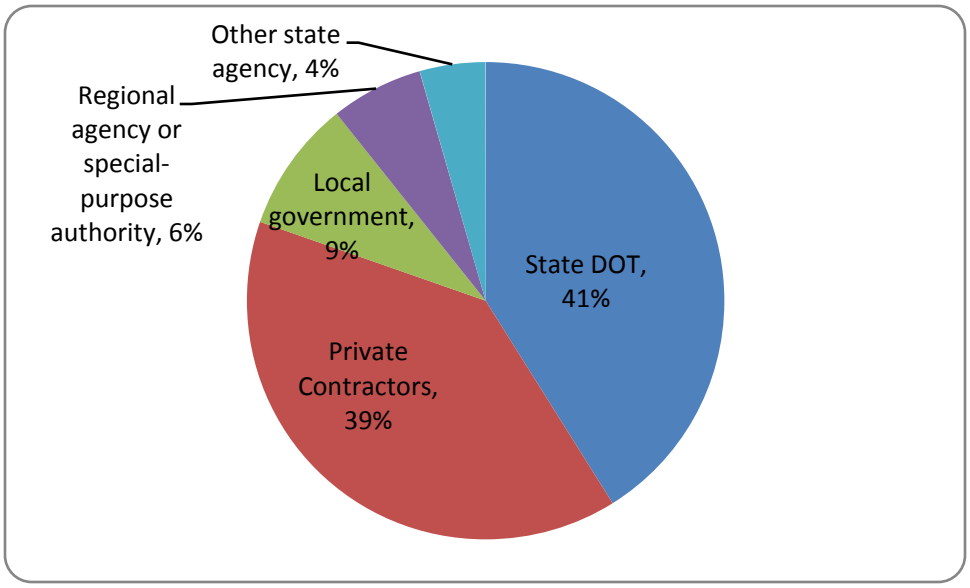


Figure 1. FSP Employers

Funding Sources for FSP Operations

As shown in Figure 2, State DOTs are the most common source of operating funds for freeway service patrols, providing at least partial funding for approximately 75% of all of the responding FSPs. This 75% includes FSPs operated directly by state DOTs, FSPs operated by private contractors working for DOTs, and locally-controlled FSPs that receive state financial support.

Figure 3 shows that just over half of the FSPs have a single source of operating funds. In most cases, that single sources is the state DOT. Approximately 40% of the FSPs have two sources of operating funds. The most prevalent combination is federal (U.S. DOT) and state (State DOT). Approximately 10% of the FSPs receive annual operating funds from three or more sources.

The survey did not ask about sources of funding for vehicles, equipment or other capital improvements. Nor did the survey ask about budgets or actual expenditures. However, a few of the respondents provided budget information in response to open-ended questions, and several predicted reduced funding in the upcoming year because of departmental or government-wide budget problems.

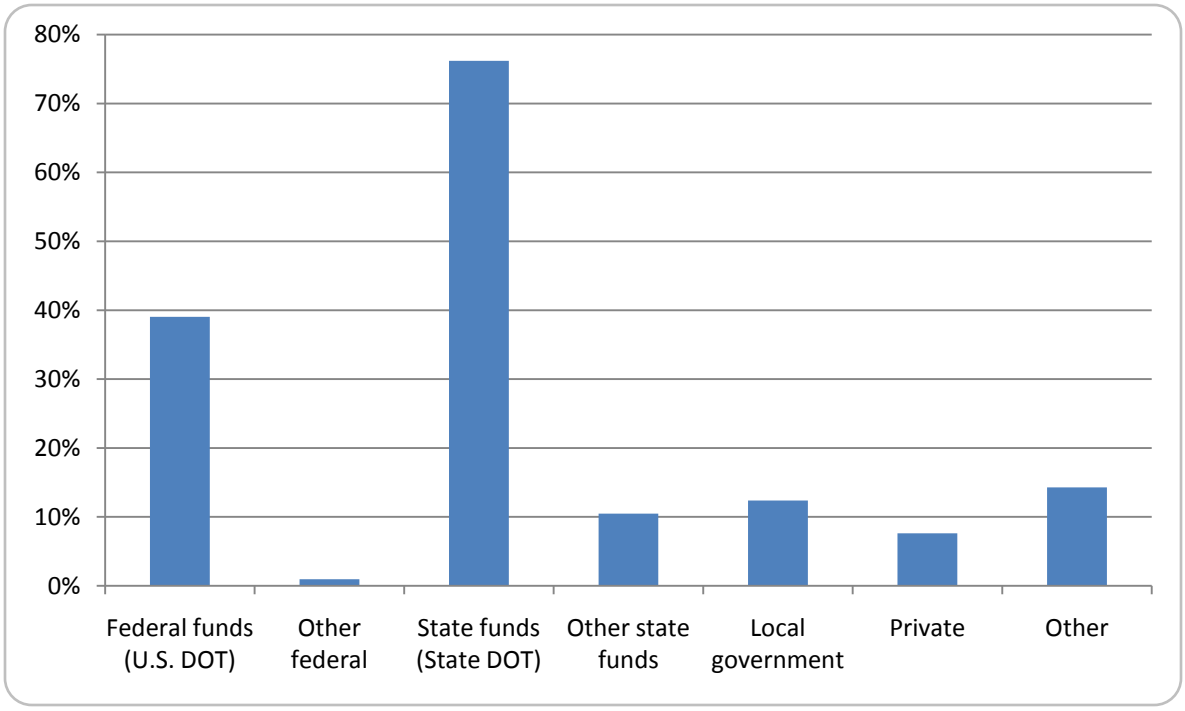


Figure 2. Funding Sources for FSP Operations
(Percent of Respondents Receiving Funds from Each Source)

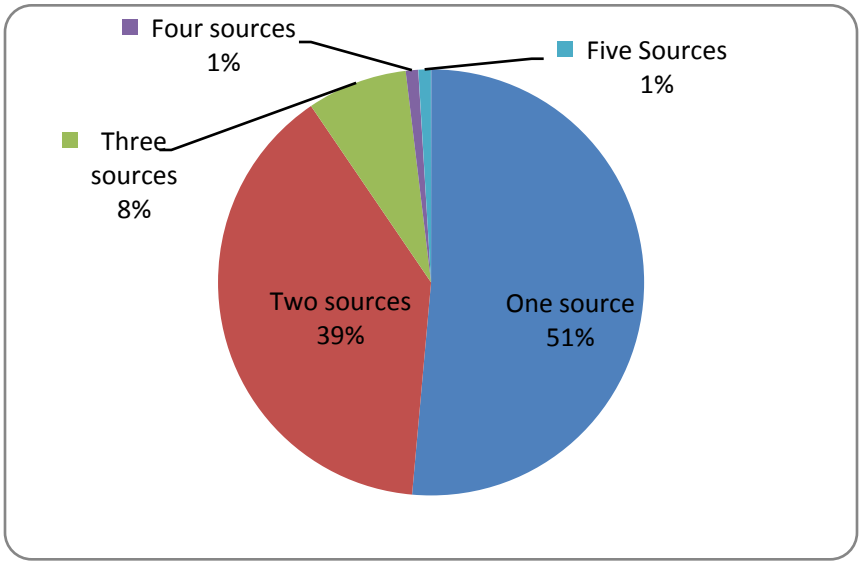


Figure 3: Percent of FSPs with Single and Multiple Funding Sources for Operations

Training

Training periods for FSP operators vary considerably for both classroom and on-the-job training. The time period for **classroom** training ranges from only a few days to nine weeks. The median reported time period for classroom training is 5 days. The average reported time for classroom training is 8.4 days. (n=78)

FSP programs that require a month or more of classroom training include the Tennessee DOT's HELP patrols, some of the Florida Road Ranger patrols, the Georgia DOT's HERO program in Metro Atlanta, the Dallas County (Texas) Sheriff's Department Courtesy Patrol, the Metro Nashville Roadway Incident Response program, and the Illinois DOT's Minutemen (Emergency Traffic Patrol) in Chicago.

The required **on-the-job training (OJT)** varies from a few days to six months. The median reported time before a new operator is allowed to operate alone is 2 weeks. The average required time for OJT is 2.6 weeks. (n=77)

FSP programs requiring a month or more of OJT (riding with experienced operators or participating in other hands-on activity) were found in fourteen separate states, including the Dallas County (Texas) Sheriff's Department Courtesy Patrol (6 months), the Oregon DOT Region 1 Incident Response Program (4 months), the Metro Nashville Roadway Incident Response program (2 months), The Alabama Service and Assistance Patrol operated by the Alabama Highway Patrol for the Alabama DOT (8 weeks), and the Illinois DOT Minutemen and Maryland CHART programs (both 7 weeks).

The survey instrument did not ask about qualifications or experience required as prerequisites for employment. At least one FSP (Samaritania) requires certification as either an EMT or automotive mechanic as a prerequisite for new hires.

Some of the survey responses indicated that training periods were variable depending on the progress made by the trainees. If the response cited a range (e.g., 6-8 weeks), the mid-point of the ranges was used to calculate the medians and averages cited above.

Vehicles and Equipment

Table 3 shows the responses to four survey questions about the FSP vehicles and equipment. The questions are listed in the table in rank order based on the percentage responding "Yes." As shown, almost all of the FSP vehicles are equipped with "cones, signs and other traffic control equipment." On the other end of the scale, fewer than half of the FSP's have vehicles that are authorized as "emergency vehicles." (No definition of "emergency vehicle" was included with the survey instrument since that designation is usually covered by state law or local ordinance.)

Table 3. FSP Vehicles and Equipment

Are most of your patrol vehicles…	Percent Responding "Yes"	Total Number of Responses (n)
Equipped with cones, signs, and other traffic control equipment?	98%	98
Used regularly to push/pull disabled or damaged vehicles?	89%	100
Equipped with arrow or message boards?	84%	101
Authorized as "emergency vehicles" and equipped for "code" responses?	43%	102

Tow Trucks

Only about 37% of the FSP programs reported having a tow truck in their fleet (n=104). Although not explored as part of the survey, most of the 37% that reported having tow trucks in their fleets are believed to contract with private towing and recovery companies to provide the respective FSP services. It is unknown whether the respective contracts require the use of tow trucks.

Only a few of the FSPs whose operators are employed by public agencies, based on responses to the earlier question, reported having tow trucks in their fleets. The public agencies with tow trucks include the Illinois DOT's two Emergency Traffic Patrols, the New Jersey DOT's two Emergency Service Patrols, the two programs in Maryland, and the Harris County (TX) Toll Road Authority's Patron Emergency Assist Team (PEAT).

Days and Hours of Operation

The survey found that less than 15% of the FSPs operate 24/7, 365 days per year (n=112). Further, some of the "yes" responses (included in the 15%) added comments indicating that their FSP was on-call at all times but did not necessarily patrol all routes at all times.

For those FSPs that do not operate 24/7 365, the survey asked about hours of operation, using two questions—one for **weekdays** (Monday-Friday) and one for **weekends** (Saturday and Sunday). For both questions, the survey instrument offered descriptive choices and asked the respondents to "please select the one answer that best describes the hours of operation for your program." However, the survey instrument also included a final choice of "Other (please describe)" for both weekday and weekend operations.

For **weekday** (Monday-Friday) service, the survey instrument offered three choices to describe hours of operation plus the "Other (please describe)" option. As shown in Table 4, 64% of the respondents chose one of the three offered descriptions, and 36% used the "Other" option.

Table 4. Weekday (Monday-Friday) Hours of Operation: Survey Responses

Response Choice	Percent
Regular patrols operate during peak travel periods only	21%
Regular patrols operate from before the a.m. peak period to after the p.m. peak period	26%
Regular patrols operate from early morning to late night	17%
Other	36%
Total Responses (n=103)	100%

Table 5 contains the actual descriptions from those who used the "Other" category for weekdays. In many cases, the response seems to fit one of the offered descriptions, but the respondent chose to provide more precise information. In a few cases, the respondents used the "Other" category to point out that hours of operation are different for different routes, different locations, and/or different days.

Table 5. Weekday Hours of Service Described as "Other"

5 a.m. to 10 p.m.	Thursday-Sunday, 7 a.m. to 11 a.m.; 3 p.m. to 7 p.m.
Rush hour and construction-related congestion areas	4 a.m. - 8:30 p.m.
6 a.m. to 7 p.m.	6 a.m. to 9 p.m.
6 a.m. to 7 p.m.	Hours are expanded as needed for special events and holidays.
6 a.m. to 7 p.m.	6 a.m. to 9:30 a.m. and 3 p.m. to 6 p.m.
6 a.m. to 9:30 a.m. and 3 p.m. to 6 p.m.	6 a.m. to 9:30 a.m. and 3 p.m. to 6 p.m.
6 a.m. - 10 p.m.	6 a.m. to 9 a.m. and 3 p.m. to 7 p.m.
6 a.m. - 12 a.m.	Some peak periods only; some early morning to late night
5 a.m. - 11 p.m.	6 a.m. to 9:30 a.m. and 3 p.m. to 6 p.m.
Patrols start at the beginning of a.m. peak and stop with end of p.m. peak.	Varies among cities; construction activities may dictate
Some routes are 24/7 365; others 16/7 365 (no night shift)	Early a.m. mornings till late p.m. evenings, weekends from late a.m. mornings till late p.m. evenings
24 hours except Saturday from 10 p.m. until 7 a.m. Sunday and Sunday nights from 10 p.m. until 5 a.m. Monday morning; people on call with trucks at home.	Regular patrols operate in a roving capacity during peak travel periods; three larger vehicles are parked at strategic locations for quick access to incident scenes.
6 a.m. to 11 p.m.	Regular patrols operate from 0900 to 1930 seven days a week
6 a.m. to 7 p.m.	Friday afternoon peaks / Monday morning peak
5 a.m.-7:30 p.m.	3 p.m. to 7 a.m.
4 hours in the morning rush, 4 hours in the evening rush	6 a.m. – 10 p.m.
Morning and evening rush hours	7 a.m. – 7 p.m.

Combining the information from Tables 4 and 5 indicates the following regarding hours of operation on **weekdays** for the FSPs that do not operate 24/7, 365:

- Approximately 30% operate *only* during peak travel periods
- Approximately 60% begin operation before the morning peak period and continue operation at least until after the evening peak travel period (about 40% of this 60% continue to operate until late night (9:00 p.m. or beyond)
- Approximately 10% operate different schedules on different routes, rely on a combination of patrolling and on-call vehicles, and/or operate during unique periods in response to unique local needs

For **weekend** (Saturday and Sunday) service, the survey instrument offered four choices to describe hours of operation plus the "Other (please describe)" option. As shown in Table 6, 73% chose one of the four offered descriptions and 27% used the "Other" option.

Table 6. Weekend (Saturday and Sunday) Hours of Operation: Survey Responses

Response Choice	Percent
The FSP does not operate on weekends	19%
The FSP operates on weekends only for special events	25%
Regular patrols operate on most weekends; but fewer hours of service than Mon.–Fri.	17%
Regular patrols operate on most weekends; about the same hours of service as Mon.–Fri.	12%
Other	27%
Total Responses (n=100)	100%

Table 7 (next page) is a selection of the actual descriptions from those who used the "Other" category for weekends (Saturday and Sunday). A few of these responses fit closely with one of the offered choices, but most describe unique arrangements to match unique local needs.

Combining the information from Tables 6 and 7 indicates the following regarding hours of operation on **weekends** (Saturdays and Sundays) for the FSPs that do not operate 24/7, 365:

- Approximately 20% do not operate on any weekends
- Approximately 25% operate on weekends only for special events
- Approximately 20% operate on most or all weekends but provide fewer hours of service as on weekdays
- Approximately 15% operate on all or most weekends and provide approximately the same hours of service as on weekdays
- Approximately 20% operate unique schedules (depending on unique local needs, construction activity, and seasonal and holiday travel patterns) or have vehicles on-call rather than on-patrol.

Table 7. Weekend Hours of Service Described as "Other"

Sunday evenings (3 p.m. until 7 p.m.)	Every Saturday and Sunday 10 a.m. to 8:30 p.m.
Weekend service on key travel routes	Also summer from Memorial Day to Labor Day
Operates between 1 p.m. and 7 p.m. on selected holidays and weekends.	Operates on all weekends; but fewer hours of service than Mon - Fri
Sunday only during peak travel. We run a tow truck and one service truck.	Hours are expanded as needed for special events and holidays.
On call for weekend operation for the toll facility only	Varies among cities; construction activities may dictate
8 a.m. - 8 p.m.	We patrol Nov 1 to April 1, seven days a week, same hours
Patrol 24 hours except Saturday nights from 10:00 pm until 7:00 am Sunday. Sunday nights from 10:00 pm until 5:00 am Monday morning. We have people on call with trucks at home.	All operators are on call 24/7 and take vehicles home for faster response times after normal hours and on weekends. All units work special events as needed on weekends.
The FSP does not operate on weekends except for special events.	Operates on all weekends; but fewer hours of service than Mon - Fri
12 p.m. - 10 p.m.	Regular patrols operate more on weekdays because of high traffic; the patrols on the weekend work fewer hours than the weekdays
7 a.m. - 11 p.m.	On call 24/7 365 for major incidents after hours
Some routes are 24/7 365; others 16/7 365 (no night shift)	Patrols operate on ALL weekends
One regular patrol operates for 10 hours on weekend days, every weekend. They are responsible for changing the gates on the reversible section of our express lanes, so someone is on patrol every Saturday and Sunday. Reduced number of patrols/hours on certain holidays.	Only occasionally operates on weekends when funded by other source such as construction projects or local special events. Always responds to incidents on a 24/7 basis when called out for assistance by either the state patrol or Traffic Management Center.
Thursday-Sunday, 7 a.m. to 11 a.m.; 3 p.m. to 7 p.m.	Saturday morning peaks / Sunday afternoon peaks

Services Provided

The survey instrument included a list of 22 specific services/activities, and respondents were asked whether or not the FSP provides each of those services "on a routine basis." The results are summarized in Table 8 (next page), ranked in order of the percentage of respondents answering "Yes" or "Yes" with an associated comment.

Table 8. Services/Activities Performed on a Routine Basis

Service or Activity	Percent Responding "Yes" or "Yes" with comments	Total Number of Responses (n)
a. Change tires	99%	104
b. Provide fuel	99%	103
e. Jump start vehicles	99%	103
k. Remove debris from roadway	99%	98
j. Provide traffic control	97%	101
t. Notify law enforcement of hazards or security concerns*	96%	101
m. Move disabled or abandoned vehicles from travel lanes	93%	100
g. Transport motorists/pedestrians	88%	100
o. Move damaged vehicles to clear lanes at non-injury crash scenes	88%	99
d. Make minor vehicle repairs	87%	99
f. Provide cell phone for motorist use	87%	104
c. Provide engine fluids *(many added "water only" or similar comment)*	86%	94
i. Suppress vehicle fires	85%	96
r. Apply absorbent to spilled fuel and other fluids	83%	96
q. Push or drag spilled cargo and other obstruction from travel lanes	79%	97
u. Notify transportation agency of roadway, bridge, or signing problems*	79%	95
n. Move disabled or abandoned vehicles on the shoulder to safer locations	73%	96
l. Tag abandoned vehicles	71%	98
v. Report traffic conditions for motorist information system or media use*	66%	93
h. Perform first aid	65%	100
p. Call commercial tow trucks to move abandoned or disabled vehicles *	40%	95
s. Transfer fuel from overturned vehicles	13%	97

* Some responses included clarifying comments relative to operators contacting dispatch or TMC to relay message (i.e., indicating that FSP operators do not contact other agencies *directly*, but the information is relayed through dispatchers)

Space was provided to list "other frequent services or activities." Nineteen agencies offered responses, including at least one mention of all of the following:

- Provide directions; assist lost motorists
- Check well-being
- Provide bottled water
- Provide lighting at nighttime scenes
- Re-secure loads
- Extinguish median fires
- Perform animal rescue/control
- Deploy changeable message signs
- Assist law enforcement with translating foreign languages
- Assist with crash investigations
- Participate in public outreach events

Table 8 shows that a majority of the FSPs offer all of the services included on the list, with two exceptions—"Call commercial tow trucks to move abandoned or disabled vehicles" and "Transfer fuel from overturned vehicles." Several comments were added indicating that the respective FSPs did not have legal authority to call tow trucks. Regarding the transfer of fuel from overturned vehicles, several

of the "yes" responses indicated "diesel only." One respondent explained that not all of their trucks are equipped for transfers.

Examining the activities/services that are performed routinely by most (90% or more) of the FSPs shows a mix of service that might be categorized as a combination of "motorist assistance," "safety," and "incident management/quick clearance":

Service or Activity	Percent Responding "Yes" or "Yes," with comments
a. Change tires	99%
b. Provide fuel	99%
e. Jump start vehicles	99%
k. Remove debris from roadway	99%
j. Provide traffic control	97%
t. Notify law enforcement of hazards or security concerns	96%
m. Move disabled or abandoned vehicles from travel lanes	93%

On the other end of the scale, the eight services/activities that are performed on a routine basis by only 80% or fewer of the FSPs could be categorized as "safety" or "incident management/quick clearance" but not as "motorist assistance":

Service or Activity	Percent Responding "Yes" or "Yes," with comments
q. Push or drag spilled cargo and other obstructions from travel lanes	80%
u. Notify transportation agency of roadway, bridge, or signing problems	79%
n. Move disabled or abandoned vehicles on the shoulder to safer locations	73%
l. Tag abandoned vehicles	71%
v. Report traffic conditions for motorist information system or media use	65%
h. Perform first aid	65%
p. Call commercial tow trucks to move abandoned or disabled vehicles	40%
s. Transfer fuel from overturned vehicles	14%

Virtually all of the FSPs provide virtually all of the services/activities in the survey instrument that could be categorized as direct "motorist assistance."

Benefit/Cost Studies

If a benefit/cost study had been conducted for the FSP, respondents were asked to report the calculated benefit/cost ratio and the date of completion of the study. A total of 19 agencies responded to this question. The reported ratios ranged from 4.6:1 to 42:1. The median was 9.45:1. The average was 12.4:1.

No time period was specified to limit responses to "recent" studies, but almost 80% of the reported studies were completed in the years 2004-2008. The oldest reported study was completed in 1995.

The survey did not ask about the authors of the benefit/cost studies or for any information about methodologies or assumptions. However, eight of the responses were from California FSPs, and the California Highway Patrol (CHP) website (visited in September 2008) stated that:

> Following a study completed by the University of California, Berkeley, Caltrans recently calculated benefit/cost ratios for all the beats in the ten FSP programs. The average benefit/cost ratio was 8.3:1 among the ten programs. Of note, Los Angeles and Sacramento were tied with the highest ratio of 15:1. These ratios do not factor in the benefits associated with air quality improvement or collision reduction.

Also, the New York DOT (statewide response) reported that "B/C = 4.5 to 9.5—varies depending on traffic volumes in different areas of the state—study commissioned by I-95 Corridor Coalition."

Two other responses that included B/C ratios were from Safety Service Patrols operated by the Virginia DOT. One of those responses cited a study by the Virginia Transportation Research Council.

The North Carolina DOT's web site (visited in September 2008) cited *North Carolina Incident Management Assistance Patrols: Assessment of Investment Benefits and Costs,* by Asad Khattak and Nagui Rouphail.

Trends

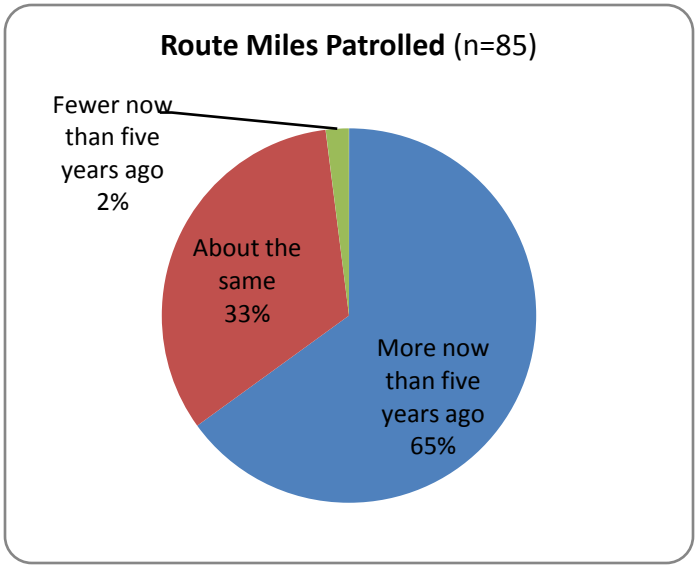
The survey asked whether the FSP had been in operation for "at least five years." Approximately 89% responded "yes," and 11% responded "no" (n=105). The "yes" respondents were asked to compare their programs today to five years ago. The results, shown in Figure 4, indicate that approximately two-thirds of the FSPs are patrolling more route miles and approximately two-thirds are operating more vehicles during peak periods.

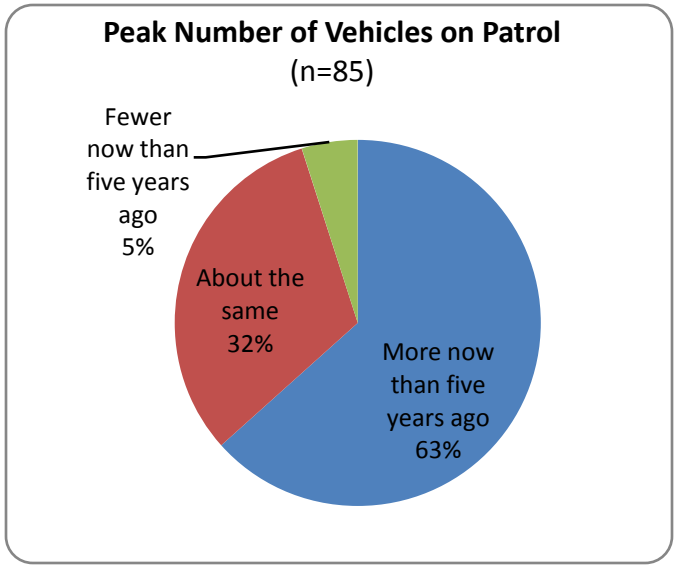
However, only about 40 percent have increased their "days and hours of service." Slightly more than half reported the same hours, and 8 percent reported fewer. (Based on budget problems that have grown more acute in the months following the survey, more patrols are known to have reduced day and/or hours of service.)

In most cases, the responses regarding "route miles" and "peak numbers of vehicles" were correlated (i.e., FSPs that have increased route miles have also increased the number of vehicles, and vice versa). The exceptions included five respondents that indicated the same number of miles patrolled but with more vehicles. Three indicated the opposite, more miles patrolled but with the same number of vehicles. Two other exceptions reported fewer vehicles; one with more miles, and one with fewer miles. The final exception reported fewer miles patrolled with the same number of vehicles.

Of the 11% of the responding FSPs that have been in operation for less than five years, three are in California; three in Ohio; two in Virginia; one each in the District of Columbia, Pennsylvania, and Texas; plus the Kentucky DOT's statewide program known as Safety Assistance for Freeway Emergencies (SAFE).

As noted previously, one of the responses to the survey was on behalf of an FSP that had been discontinued a few months before the survey was administered. Another response was from an FSP scheduled to begin operation during 2008. Also, several other agencies that responded to the survey in mid-2008 are known to have suspended or reduced levels of service because of subsequent budget problems. One relatively new FSP, operated by the North Texas Tollway Authority, was overlooked until after the survey was completed. Another FSP not included in the survey results is scheduled to begin service in Honolulu in 2009.





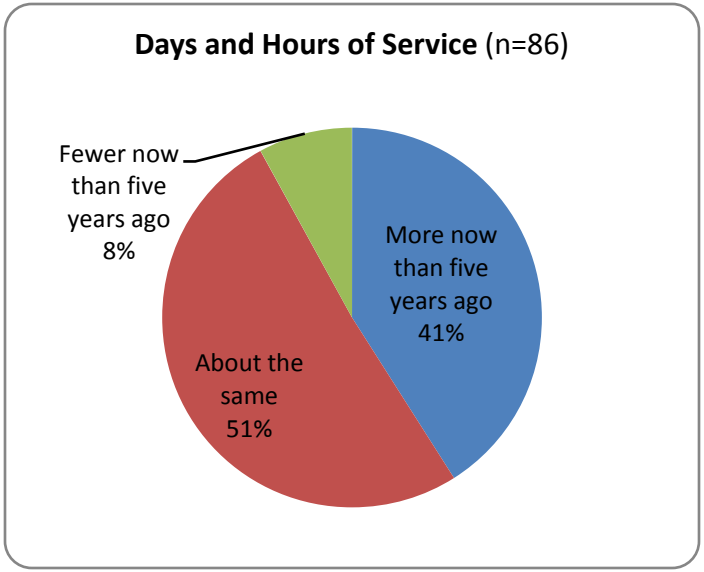


Figure 4. FSPs in Operation for Five or More Years: Operating Trends

Closing

The preceding pages provide an overview of freeway service patrols (FSPs) in the United Sates in mid-2008. As noted, however, the utility of the information is limited by the fact that FSPs are subject to frequent changes in response to changing circumstances. Also, this report provides only basic information and may raise as many questions as it answers.

The priority was to develop a complete directory of FSPs, and the number of survey questions was limited to help ensure a high response rate. Questions about important and timely topics were dropped from the draft survey instrument to reduce the required response time. Most of the *included* questions barely scratched the surface of the respective topic.

Hopefully, the contact information gathered as part the survey of FSPs will facilitate periodic updates, increased exchange of information among FSP operators, and additional FSP research. Complete contact information was obtained for at one least person with each FSP along with a number of state-level contacts and links to state and local web sites. Maintaining the contact list should be relatively easy.

However, a more comprehensive approach is needed to support continuous improvements and more robust research. A web-based system could be cost effective and offer multiple benefits.

A national FSP web site could include the FSP contact information with provisions for self-updates and/or programmed requests to confirm or revise the information. The same website could host the basic information about FSPs and allow each FSP to update the information on a scheduled basis or when significant changes occur.

Another feature might be a depository of FSP-related documents for reference—planning reports, legislation, regulations, vehicle and equipment specifications, operating manuals, job descriptions, training material, log sheets, vehicle checklists, comment cards, operating or performance reports, memoranda of understanding or joint operating agreements, organization charts, mission statements, and other documents that might be helpful to other FSPs. The depository could also include images of FSP vehicles, videos, and material used for public information and education.

Perhaps most importantly from a research perspective, web-based surveys could be coordinated through a national FSP web site to probe more deeply into important questions that were not addressed, or not addressed in sufficient detail, in this project. The following questions are offered as examples:

- How do FSP managers decide whether to patrol a particular route or routes? How is that decision influenced by threshold criteria or guidelines (e.g., traffic volumes, volume/capacity, crash rates, and incident frequency), jurisdictional boundaries, operating experience, requests from other agencies, and other factors? How does the FSP decide on route miles patrolled, numbers of vehicles assigned, average headways, and related operating procedures?

- What are the best practices for recruiting, hiring, training, compensating, and retaining FSP operators? What accounts for the significant differences among FSPs in the time required for

training new FSP operators? Does the additional training time make a difference in performance? How is job performance measured?

- What are the total costs (capital and operating) for FSPs? What are the primary cost components? What measures have been the most effective in controlling costs? What are the pros and cons of different approaches to fleet size, spare ratios, and vehicle replacement policies?

- What methodologies and assumptions have been used for benefit-cost studies? Given the very high benefit-cost ratios that have been computed, why have existing programs/patrols not been expanded more extensively? Why are new programs/patrols not being added more rapidly?

- What legislation has been enacted (or is needed) to give the FSPs adequate authority for effective incident response and scene management? Can the FSP clear lanes, remove spills, call for towing and recovery, and take other needed actions? What about liability for contractors providing FSP services or towing and recovery operators acting under the direction of FSPs?

- What are the links between the FSP and the TMC, public safety dispatchers, 511, and other traveler information systems?

- What technologies are being used to improve the effectiveness and/or efficiency of FSPs? Which are the most cost effective? How have FSP technologies been integrated with other technologies for highway operations and public safety?

- How are FSPs perceived within their respective organizations, by other incident responders, and by the public, media, and elected officials? To what extent are the perceived benefits related to "motorist assistance," "safety," and/or "incident management." To what extent are perceptions based on the name of the program (e.g. "courtesy patrol" versus "incident response"), agency publications, press releases, media coverage, and actual performance?

- What organizational arrangements have proven most effective for FSPs? For those that are operated by state DOTs, what are the relationships between headquarters and district/region offices responsible for FSP operations? What interagency arrangements have been the most helpful?

The above examples all warrant attention regardless of whether a web-based resource is available, and more work is needed to understand some of the even more fundamental choices and tradeoffs in designing freeway service patrols—roving patrols vs. on-call response, full-time employees vs. part-time, direct operation vs. contracting, and 24/7 roving patrols vs. 24/7 response.

The phrase "freeway service patrol" was used here as an umbrella, but the names used at the state and local levels reflect some of the other choices and tradeoffs. Some of the programs covered in this report have defined themselves with phrases like "courtesy patrol" or "motorist assistance," and other agencies provide what might be defined as "incident response" or "incident management." The survey indicates that most of the respondents are providing a combination of services that might be classified as "motorist assistance," "safety," and "incident management/quick clearance." In a few communities, however, routine motorist assistance is provided by one agency and incident response by another

agency or combination of agencies. Some use roving patrols exclusively, but others have additional, on-call resources for response to the most serious incidents.

Although not addressed in the survey, virtually all of the "incident management/quick clearance" services are in addition to services provided by public safety agencies; and most communities still depend, at least in part, on the 24/7 "callout" resources of state and local highway maintenance forces. But, the limited information available about the use of maintenance forces for incident management (e.g., callout procedures, timeliness of responses, costs, and effectiveness) is anecdotal.

More exploration is needed to understand the advantages and disadvantages of all the different approaches and choices described above. The unmet needs for exchange of information and research are numerous.

Appendix A

Survey Instrument

Freeway Service Patrols (FSPs) in the U.S.

Space is provided at the end of the survey if you need to clarify any responses or add comments.

1. Name of FSP Program (e.g., Motorist Assistance Program, Incident Response, Road Ranger, HELP, HELPER, CHART, Safety Service Patrol, Courtesy Patrol, etc.)

_____

2. Area served (i.e., name of city, county, region, or other jurisdictional description)

_____

3. Contact person for information about the FSP in the area identified above (Space is provided below for a second contact person if needed.)

Name and Title					
Agency					
Agency/Address					
Address					
City		State		Zip	
Office Phone					
Email					

4. Additional contact person (This optional section is for situations where two contact persons may be needed, e.g., for policy vs. operating information or for local vs. state-level information in states that support FSPs in multiple cities or regions.) You may leave this blank.

Name and Title					
Agency					
Agency/Address					
Address					
City		State		Zip	
Office Phone					
Email					

5. Total number of patrol vehicles owned (or committed to FSP under contract) _____

6. Peak number of vehicles on regular patrol at one time _____

7. Approximate route miles patrolled during peak periods _____

8. Approximate number of trained service patrol operators (include supervisors who routinely patrol routes):

   Full-time FSP operators _____

   Part-time FSP operators _____

   Full-time employees with other responsibilities in addition to FSP operation _____

   Part-time employees with other responsibilities in addition to FSP operation _____

9. The service patrol operators are: (Check all that apply.)

- ❑ State DOT employees
- ❑ Other state agency employees
- ❑ Local government employees
- ❑ Employees of regional agency or special-purpose authority
- ❑ Employees of private contractors
- ❑ Other (please describe) _____

10. Source of operating funds in current annual budget (Check all that apply.)

- ❑ Federal funds (U.S. DOT)
- ❑ Other federal funds
- ❑ State funds (State DOT)
- ❑ Other state funds
- ❑ Local government
- ❑ Private
- ❑ Other (please describe) _____

11. How long is the initial training program for your FSP operators (approximate number of training hours, days, or weeks before a new hire is allowed to operate an FSP vehicle alone)?

Classroom/instructional: _____

Time with experienced operator and/or other "OJT": _____

12. Are most of your patrol vehicles…

	Yes	No
Used regularly to push/pull disabled or damaged vehicles?	❑	❑
Equipped with arrow or message boards?	❑	❑
Equipped with cones, signs, and other traffic control equipment?	❑	❑
Authorized as "emergency vehicles" and equipped for "code" responses?	❑	❑

13. Does your FSP fleet include any tow trucks? ❑ Yes ❑ No

14. Does your patrol operate "24/7," 365 days per year? ❑ Yes ❑ No
(If yes, please skip to question #17 on the next page.)

15. Please select the one answer that best describes the hours of operation for your program on most <u>weekdays</u> (Mon-Fri):

- ❑ Regular patrols operate during peak travel periods only
- ❑ Regular patrols operate from before the a.m. peak period to after the p.m. peak period
- ❑ Regular patrols operate from early morning to late night
- ❑ Other (please describe) _____

16. Please select the one answer that best describes the hours of operation for your program on most <u>weekend</u> days (Sat and Sun):

- ❑ The FSP does not operate on weekends
- ❑ The FSP operates on weekends only for special events
- ❑ Regular patrols operate on most weekends; but fewer hours of service than Mon.–Fri.
- ❑ Regular patrols operate on most weekends; about the same hours of service as Mon.–Fri.
- ❑ Other (please describe) _____

17. Please indicate below whether or not your FSP performs the following services or activities on a routine basis. Space is provided for comments or clarification.

	Yes	No	Comments
a. Change tires	❑	❑	
b. Provide fuel	❑	❑	
c. Provide engine fluids	❑	❑	
d. Make minor vehicle repairs	❑	❑	
e. Jump start vehicles	❑	❑	
f. Provide cell phone for motorist use	❑	❑	
g. Transport motorists/pedestrians	❑	❑	
h. Perform first aid	❑	❑	
i. Suppress vehicle fires	❑	❑	
j. Provide traffic control	❑	❑	
k. Remove debris from roadway	❑	❑	
l. Tag abandoned vehicles	❑	❑	
m. Move disabled or abandoned vehicles from travel lanes	❑	❑	
n. Move disabled or abandoned vehicles on the shoulder to safer locations	❑	❑	
o. Move damaged vehicles to clear lanes at non-injury crash scenes	❑	❑	
p. Call commercial tow trucks to move abandoned or disabled vehicles	❑	❑	
q. Push or drag spilled cargo and other obstructions from travel lanes	❑	❑	
r. Apply absorbent to spilled fuel and other fluids	❑	❑	
s. Transfer fuel from overturned vehicles	❑	❑	
t. Notify law enforcement of hazards or security concerns	❑	❑	
u. Notify transportation agency of roadway, bridge, or signing problems	❑	❑	
v. Report traffic conditions for motorist information system or media use	❑	❑	
w. Other frequent services or activities (please describe)			

18. If a benefit/cost study has been conducted for your FSP, please indicate the calculated ratio (B/C) _____ and the year the study was completed _____. Leave blank if no study has been conducted.

19. Has this FSP been in operation for at least five years? (If no, please skip to the final question.) ❑ Yes ❑ No

20. If your program has been in operation for at least five years, how does the patrol today compare to five years ago?

	About the same	More now than five years ago	Fewer now than five years ago
Route miles patrolled	❑	❑	❑
Peak number of vehicles on patrol	❑	❑	❑
Days and hours of service	❑	❑	❑

21. Please use this space for clarification of previous responses or additional comments:

22. We will send copies of the survey results and the Directory to the contact person or persons you identified in questions #3 and #4 (if applicable).

If you are not one of those persons, please enter your e-mail address here so that we can send you the survey results and the Directory: _____

Thank you for your assistance. **Please select "Print" and then mail a copy to the address below.** (You will not be able to "Save" and reopen if you are using only the Adobe Reader.)

Malcolm Baird, Director
Vanderbilt Center for Transportation Research
VU Station B #351831
2301 Vanderbilt Place
Nashville, TN 37235-1831

Email: mal.baird@vanderbilt.edu Phone: 615-322-6043