

APPENDIX K DEVICE-BY-DEVICE RESOURCE NEEDS

In order to simplify the analysis of the estimated resource needs for each ITS device, maintenance needs were estimated for several generic components that were applied to multiple devices. This appendix describes these generic assumptions, and is followed by tables showing the device-by-device estimates of resource needs, and estimates of staffing needs by classification and skill type.

K.1 Generic Components

For each generic component, a table is presented showing the typical maintenance needs expected of each component. The table quantifies estimates of annual preventative and repair maintenance activities under current technology and future (i.e. Strategic Plan) technology. Each table indicates how repairs are expected to escalate from one skill level to another, by indicating how the number of visits per year varies for different staff classifications. The abbreviations for staff classifications are provided in Chapter 6.

K.1.1 Generic Workstation

There are many workstations used for ITS operations and maintenance that are housed indoors. These machines will require some minor preventative maintenance activities, as well as periodic hardware upgrades. The resources needed to maintain a generic workstation are shown in Table K-1.

K.1.2 Generic Server

Servers will require more frequent preventative maintenance than a generic workstation both because of their importance in the computer network and because of the database / network management activities that typically occur on them. Repair maintenance will require more time

	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	12.00	1.0	SC-I-PM	2.00	1.0	0.0		SC-I-D
				0.60	0.8	0.0		IS-5N
				0.12	0.7	0.0		IS-6N
				1.40	0.0	2.0		SC-I-R
				1.18	0.0	1.6		IS-5N
				0.24	0.0	1.4		IS-6N
future	12.00	1.0	SC-I-PM	2.00	1.0	0.0		SC-I-D
				0.20	0.8	0.0		IS-5N
				0.04	0.7	0.0		IS-6N
				1.80	0.0	2.0		SC-I-R
				0.88	0.0	1.6		IS-5N
				0.13	0.0	1.4		IS-6N

Table K-1: Resource Needs for Generic Workstation.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Table K-2: Resource Needs for Generic Server.

for a server than for a generic workstation, because of the precautions that must be taken to minimize the effect on ODOT operations while maintenance is performed. The estimated resource needs required to maintain a generic server are shown in Table K-2.

K.1.3 Generic Field Computer

Many ITS devices require field intelligence in order to process data received by a set of sensors and communicate it efficiently to the TOC or a server. These field computers would not require preventative maintenance as frequently as servers, because they typically will run a narrow range of applications. Consequently, system stability should be enhanced. Repair maintenance is anticipated to occur less frequently than for a generic workstation, because there should be a lesser need for system upgrades. Table K-3 shows the resource needs estimated for a

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	6.00	1.0	SC-I-PM	1.00	2.0	0.0	SC-I-D
				0.30	1.6	0.0	IS-5N
				0.06	1.4	0.0	IS-6N
				0.70	0.0	1.0	SC-I-R
				0.59	0.0	0.8	IS-5N
				0.12	0.0	0.7	IS-6N
future	6.00	1.0	SC-I-PM	1.00	2.0	0.0	SC-I-D
				0.10	1.6	0.0	IS-5N
				0.02	1.4	0.0	IS-6N
				0.90	0.0	1.0	SC-I-R
				0.44	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N

Table K-3: Resource Needs for Generic Field Computer.

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag. repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0 0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0 0.0	

Table K-4: Resource Needs for Generic Software Application.

generic field computer.

K.1.4 Generic Software

ODOT uses many software packages developed by others as a part of ITS maintenance. It is anticipated that ODOT would not be required to debug code developed by others. The only software maintenance activity that would be anticipated is either re-loading or upgrading of software perhaps every other year. More significant maintenance needs would be anticipated for software developed in-house by ODOT. Table K-4 shows the resource needs estimated for generic software maintenance.

K.1.5 Generic Environmental Sensors

Based on conversations with vendors, environmental sensors are fairly robust and do not need much in terms of maintenance. Preventative maintenance is recommended for sensor cleaning and testing. Repair maintenance would seldom be necessary, except in cases of lightning or pavement damage. Table K-5 shows the resource needs estimated for maintaining a set of environmental sensors that would be used in an RWIS deployment. Maintenance needs would be proportionally less for devices that utilize fewer sensors, such as icy bridge detection systems and variable speed limit systems.

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag. repair	job class
current	1.00	3.0	ELEC	0.25	1.0 0.0	SC-E-D
				0.08	0.8 0.0	ELEC
				0.02	0.7 0.0	TS-3
				0.18	0.0 4.0	SC-E-R
				0.15	0.0 3.2	ELEC
				0.03	0.0 2.6	TS-3
future	1.00	3.0	ELEC	0.25	1.0 0.0	SC-E-D
				0.03	0.8 0.0	ELEC
				0.01	0.7 0.0	TS-3
				0.23	0.0 4.0	SC-E-R
				0.11	0.0 3.2	ELEC
				0.02	0.0 2.6	TS-3

Table K-5: Resource Needs for Generic Environmental Sensors.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Table K-6: Resource Needs for Generic Field Communications.

K.1.6 Generic Field Communications

Because of the variety of components required in providing communication between a field device and an operation center, separate maintenance estimates were developed for field communications components, such as modems and routers. Annual inspection activities are recommended, but under normal circumstances, field communications components should have few problems requiring repair maintenance. Table K-6 shows the resource needs estimated for maintaining generic field communications components.

K.1.7 Generic Flashing Beacon / Sign

Many field devices are accompanied by a roadside sign with a flashing beacon, a rotating

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Table K-7: Resource Needs for Generic Flashing Beacon/Sign.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Table K-8: Resource Needs for Generic Local Cable and Wiring.

drum, or some other electromechanical element. Maintenance needs for these devices are fairly minimal, requiring annual inspection and servicing (such as replacing light bulbs) and repair maintenance every couple of years. Table K-7 shows the resource needs estimated for maintaining a generic flashing beacon or sign.

K.1.8 Generic Local Cable and Wiring

Some field deployments have a significant distance between a roadside display component and the field controller or processor which is bridged through hard-wired cable. Annual inspections are recommended to preserve the integrity of the cable and wiring, with repairs necessary infrequently. Table K-8 shows the resource needs estimated for maintaining generic

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	2.00	3.0	ELEC	0.50	2.0	0.0	SC-E-D
				0.15	1.6	0.0	ELEC
				0.03	1.4	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	2.00	2.0	ELEC	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	1.5	SC-E-R
				0.22	0.0	1.2	ELEC
				0.03	0.0	1.0	TS-3

Table K-9: Resource Needs for Generic Video Imaging Field Unit.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	2.00	5.0	SC-E-PM	3.00	1.0	0.0	SC-E-D
				0.90	0.8	0.0	ELEC
				0.18	0.7	0.0	TS-3
				2.10	0.0	3.0	SC-E-R
				1.77	0.0	2.4	ELEC
				0.36	0.0	1.9	TS-3
future	2.00	5.0	SC-E-PM	3.00	0.5	0.0	SC-E-D
				0.30	0.4	0.0	ELEC
				0.06	0.4	0.0	TS-3
				2.70	0.0	2.0	SC-E-R
				1.32	0.0	1.6	ELEC
				0.19	0.0	1.3	TS-3

Table K-10: Resource Needs for Generic Matrix Display Unit.

local cable and wiring.

K.1.9 Generic Video Imaging Field Unit

Cameras and video detectors have unique maintenance needs based on the need to maintain clean images. One of the most significant elements in maintaining such units is the difficulty of access, especially for surveillance cameras mounted over an urban freeway. It is anticipated that future generations of cameras will allow for easier access in order to reduce the time spent on maintenance activities. Table K-9 shows the resource needs estimated for generic video imaging field units.

K.1.10 Generic Matrix Display Unit

Variable message signs, whether portable or permanent, have common maintenance characteristics. The signs need regular inspection and testing to ensure that messages are displayed accurately. Repair maintenance may be necessary due to environmental damage, vandalism, or matrix elements that stick. Improved sign design in the future, including increasing use of self-diagnostic capability and modular elements, will reduce the time spent on maintenance in the future. Estimated resource needs for generic matrix display units are provided in Table K-10.

K.1.11 Generic Radio Communications Maintenance

From an ITS perspective, the maintenance needs associated with radio systems are fairly minimal, because maintenance of the overall radio infrastructure is beyond the scope of this plan. Annual inspection and testing is recommended for various radio field units, including consoles located at TOCs, hand-held units in incident response vehicles, and radio-activated changeable message signs. Repair maintenance is seldom recommended, because, on rare occasions that component failure occurs, it may be cheaper to replace than to repair. Table K-11 indicates the estimated resource needs for maintaining generic radio communications devices.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	0.5	IS-5R	0.25	1.0	0.0	SC-I-D
				0.08	0.8	0.0	IS-5R
				0.02	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.05	0.0	2.4	IS-5R
				0.03	0.0	2.2	IS-6R
future	1.00	0.5	IS-5R	0.20	1.0	0.0	SC-I-D
				0.02	0.8	0.0	IS-5R
				0.00	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.09	0.0	2.4	IS-5R
				0.01	0.0	2.2	IS-6R

Table K-11: Resource Needs for Generic Radio Communications Maintenance.

K.2 Device-by-Device Resource Estimates

The following pages include a series of tables for each ITS device summarizing their maintenance needs. For each device, the following information is provided.

- Inventory. Existing inventory reflects the best estimates of device deployment through August 1999. Inventory estimates under the STIP and Strategic Plan reflect the best understanding of likely deployment levels and locations in the future. For devices that have TOC elements and field elements – such as RWIS – separate inventory estimates are prepared for each.
- Component maintenance needs. For each of the six ITS device component types – sensors, communications, field processor/controller, software, center sub-systems and information delivery – a description is provided describing appropriate maintenance activities, along with a table quantifying those needs.
- Summary of staffing needs. On a per-device level, these tables show the annual number of visits and hours per visit for each staff classification involved in that device’s maintenance.
- Travel time. For some devices, unique travel time assumptions are made outside of those developed in Appendix J.
- Staffing needs. Applying the inventory estimates to per-device maintenance estimates and the travel time assumptions, regional estimates are developed for staffing needs by classification for each device.

K.2.1 Data Collection

K.2.1.1 Automatic Traffic Recorders

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	26	26	26	23	26	127
STIP	1	4	2	1	0	8
Existing + STIP	27	30	28	24	26	135
Strategic Plan	2	16	3	2	3	26
Existing + Strat	29	46	31	26	29	161
<u>Sensors</u>						
Inductive loops: Used to record traffic actuations. Maintenance covered under existing procedures.						
<u>Communications</u>						
Local cable and wiring: Maintenance covered under existing procedures.						
Dial-up modems: Maintenance covered under existing procedures.						
<u>Field Processor/Controller</u>						
Type 170 field controller with local firmware: Maintenance covered under existing procedures.						
Controller cabinet: Maintenance covered under existing procedures.						
<u>Software</u>						
Polling software: Maintenance covered under existing procedures.						
<u>Center Sub-Systems</u>						
No other center sub-system applications.						
<u>Information Delivery</u>						
No unique information delivery components.						
<u>Staffing Needs (FTE)</u>						
No new staffing needs						

K.2.1.2 Speed Zone Monitoring Stations

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	4	8	4	9	9	34
STIP	0	0	0	0	0	0
Existing + STIP	4	8	4	9	9	34
Strategic Plan	0	0	0	0	0	0
Existing + Strat	4	8	4	9	9	34
Sensors						
Inductive loops: Used to record traffic actuations. Maintenance covered under existing procedures.						
Communications						
Local cable and wiring: Maintenance covered under existing procedures.						
Dial-up modems: Maintenance covered under existing procedures.						
Field Processor/Controller						
Type 170 field controller with local firmware: Maintenance covered under existing procedures.						
Controller cabinet: Maintenance covered under existing procedures.						
Software						
No software applications.						
Center Sub-Systems						
No center sub-system components.						
Information Delivery						
No unique information delivery components.						
Staffing Needs (FTE)						
No new staffing needs						

K.2.1.3 Closed-Circuit Television Surveillance

Inventory Table							
<i>Camera Field Units</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	39	5	1	10	1	56	
STIP	7	2	0	5	17	31	
Existing + STIP	46	7	1	15	18	87	
Strategic Plan	73	38	40	25	13	189	
Existing + Strategic Plan	119	45	41	40	31	276	
<i>Regional Servers</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	1	0	0	1	0	2	
STIP	0	0	0	0	0	0	
Existing + STIP	1	0	0	1	0	2	
Strategic Plan	0	0	0	0	0	0	
Existing + Strategic Plan	1	0	0	1	0	2	
<i>Real-Time</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	1	0	0	0	0	1	
STIP	0	0	0	0	0	0	
Existing + STIP	1	0	0	0	0	1	
Strategic Plan	0	0	0	0	0	0	
Existing + Strategic Plan	1	0	0	0	0	1	
<i>Sensors</i>							
Dome camera: Preventative maintenance includes lens cleaning, visual inspection, testing of pan-tilt-zoom capabilities. Repair includes component replacement.							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	job class	
				diag.	repair		
current	2.00	3.0	ELEC	0.50	2.0	0.0	SC-E-D
				0.15	1.6	0.0	ELEC
				0.03	1.4	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	2.00	2.0	ELEC	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	1.5	SC-E-R
				0.22	0.0	1.2	ELEC
				0.03	0.0	1.0	TS-3

Rainwise: These weather indicators are only included at rural locations as a supplement to the still camera image. Annual preventative maintenance would essentially be a visual inspection. Repair work is recommended to be sent to the vendor.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	0.5	SC-E-PM	0.00	0.0	0.0	
future	1.00	0.5	SC-E-PM	0.00	0.0	0.0	

Communications

Fiber optic network: Connects cameras to TMOG for Region 1 cameras. Same network as used for ramp meters. Maintenance considered under Communications Networks device.
 Radio network: Some rural camera locations use ODOT's radio network to transmit images. Maintenance is already covered under existing procedures.

Field Communications: Modems, routers and other devices (RealCam, Kantronix, Lantronix, character generators) may be used in getting the image from the field to the TOC. Most devices are solid state and seldom have problems except as caused by power supply problems and weather damage. Preventative maintenance may be necessary to insure timely replacement of components.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Field Processor/Controller

No field processors are in use.

Software

Allegiant software: May be used to access video switch (urban), although cameras may be used through other means. Maintenance includes periodic upgrades.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

Various systems are used in Regions 1 and 4 for video image processing, including video switch (Reg. 1), frequency agile demodulator, sequential switcher and video processor (Reg. 4). Preventative maintenance focuses on occasional systematic tests to ensure that all channels are functioning acceptably. Repair maintenance would be handled through vendors.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	2.00	4.0	SC-I-D	0.00	0.0	0.0	
future	2.00	2.0	SC-I-D	0.00	0.0	0.0	

Camera server: Needs preventative diagnostics and database management activities, as well as hardware replacement.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery

Video display wall at TMOC: Preventative maintenance is cleaning, assumed to be done by building maintenance staff. Repair maintenance would involve periodic replacement of monitors as they break (assumed one every three months).

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.00	0.0		4.00	1.0	0.0	SC-E-D
				1.20	0.8	0.0	ELEC
				0.24	0.7	0.0	TS-3
				2.80	0.0	2.0	SC-E-R
				2.36	0.0	1.6	ELEC
				0.48	0.0	1.3	TS-3
future	0.00	0.0		4.00	1.0	0.0	SC-E-D
				0.40	0.8	0.0	ELEC
				0.08	0.7	0.0	TS-3
				3.60	0.0	2.0	SC-E-R
				1.76	0.0	1.6	ELEC
				0.26	0.0	1.3	TS-3

Summary						
<i>Field units</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.18	1.3	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	2.0	SC-E-D
	0.00	0.0	SC-E-R	0.35	3.0	SC-E-R
	1.00	0.5	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.15	2.5	IS-5N
	0.00	0.0	IS-6N	0.03	2.3	IS-6N
	2.00	3.0	ELEC	0.30	3.2	ELEC
	0.00	0.0	TS-3	0.06	2.6	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.23	1.3	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.45	1.5	SC-E-R
	1.00	0.5	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.11	1.7	IS-5N
	0.00	0.0	IS-6N	0.02	1.7	IS-6N
	2.00	2.0	ELEC	0.22	1.4	ELEC
	0.00	0.0	TS-3	0.03	1.2	TS-3
<i>Regional Servers</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	2.00	4.0	SC-I-D	0.00	0.0	SC-I-D
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	2.00	2.0	SC-I-D	0.00	0.0	SC-I-D

<i>Real-Time</i>						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>current</i>	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	4.00	1.0	SC-E-D
	0.00	0.0	SC-E-R	2.80	2.0	SC-E-R
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N
	0.00	0.0	ELEC	2.36	2.0	ELEC
	0.00	0.0	TS-3	0.48	1.6	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	4.00	1.0	SC-E-D
	0.00	0.0	SC-E-R	3.60	2.0	SC-E-R
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N
	0.00	0.0	ELEC	1.76	1.8	ELEC
	0.00	0.0	TS-3	0.26	1.5	TS-3

Travel Time

Reduce by 50 percent for preventative maintenance of field units because of widespread device deployment.

Staffing Needs (FTE)

Support Coordinator / IS-Diag (SC-I-D) - DAS #

SC-I-D

	Region					State
	1	2	3	4	5	Total
Existing	0.05	0.01	0.00	0.03	0.00	0.08
Existing + STIP	0.06	0.01	0.00	0.04	0.03	0.14
Existing + Strategic Plan	0.13	0.06	0.06	0.09	0.06	0.40

Support Coordinator / IS-Repair (SC-I-R) - DAS #

SC-I-R

	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.00	0.00	0.01	0.00	0.04
Existing + STIP	0.02	0.00	0.00	0.02	0.02	0.06
Existing + Strategic Plan	0.07	0.04	0.04	0.06	0.04	0.25

Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.08	0.01	0.00	0.03	0.00	0.12
Existing + STIP	0.09	0.01	0.00	0.04	0.04	0.18
Existing + Strategic Plan	0.18	0.08	0.08	0.10	0.07	0.51
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.06	0.01	0.00	0.04	0.00	0.12
Existing + STIP	0.07	0.02	0.00	0.05	0.06	0.20
Existing + Strategic Plan	0.15	0.09	0.09	0.13	0.09	0.54
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.05	0.01	0.00	0.03	0.00	0.09
Existing + STIP	0.06	0.01	0.00	0.04	0.04	0.16
Existing + Strategic Plan	0.15	0.08	0.09	0.12	0.08	0.53
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.04	0.01	0.00	0.02	0.00	0.07
Existing + STIP	0.04	0.01	0.00	0.03	0.04	0.12
Existing + Strategic Plan	0.11	0.06	0.06	0.09	0.06	0.39
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.00	0.00	0.01	0.00	0.04
Existing + STIP	0.02	0.00	0.00	0.02	0.02	0.06
Existing + Strategic Plan	0.04	0.02	0.02	0.03	0.02	0.13
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.00	0.02

Info Services 7 - Software (IS-7S) - DAS #1487						IS-7S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.24	0.04	0.01	0.10	0.01	0.39
Existing + STIP	0.28	0.05	0.01	0.15	0.16	0.66
Existing + Strategic Plan	0.51	0.25	0.24	0.32	0.22	1.54
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.02
Existing + STIP	0.01	0.00	0.00	0.01	0.01	0.03
Existing + Strategic Plan	0.01	0.00	0.01	0.01	0.01	0.04

K.2.1.4 Video Detectors

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	4	0	0	0	4
STIP	0	1	0	1	0	2
Existing + STIP	0	5	0	1	0	6
Strategic Plan	100	0	0	0	0	100
Existing + Strategic Plan	100	5	0	1	0	106

Sensors

Video detection camera: Based on conversation with vendor, maintenance needs for video detectors are minimal. Preventative maintenance will occur once a year requiring one half-hour per location to clean the camera lens. Repair maintenance is very rare; it is assumed to occur one-half as often as repairs for cameras.

	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	1.00	1.0	ELEC	0.25	2.0	0.0		SC-E-D
				0.08	1.6	0.0		ELEC
				0.02	1.4	0.0		TS-3
				0.18	0.0	3.0		SC-E-R
				0.15	0.0	2.4		ELEC
				0.03	0.0	1.9		TS-3
future	1.00	1.0	ELEC	0.25	1.0	0.0		SC-E-D
				0.03	0.8	0.0		ELEC
				0.01	0.7	0.0		TS-3
				0.23	0.0	1.5		SC-E-R
				0.11	0.0	1.2		ELEC
				0.02	0.0	1.0		TS-3

Communications

Local cable and wiring: Maintenance needs covered under sensors.

Fiber optics (Region 1 only): Uses the same fiber network as ramp meters, cameras and travel time estimation. Maintenance needs covered under Communications Networks device.

Field Processor/Controller

Type 170 Controller: Same controller as used at ODOT signals and ramp meters. Additional controllers needed if there are freeway deployments. Assume half of the maintenance of a field PC.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
<i>current</i>	1.00	3.0	ELEC	0.25	2.0	0.0	SC-E-D
				0.08	1.6	0.0	ELEC
				0.02	1.4	0.0	TS-3
				0.18	0.0	3.0	SC-E-R
				0.15	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3
<i>future</i>	1.00	2.0	ELEC	0.25	1.0	0.0	SC-E-D
				0.03	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.23	0.0	1.5	SC-E-R
				0.11	0.0	1.2	ELEC
				0.02	0.0	1.0	TS-3

Software

No software applications.

Center Sub-Systems

No center sub-system components.

Information Delivery

No information delivery components.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
<i>current</i>	0.00	0.0	SC-E-D	0.25	4.0	SC-E-D
	0.00	0.0	SC-E-R	0.18	6.0	SC-E-R
	1.00	4.0	ELEC	0.15	6.4	ELEC
	0.00	0.0	TS-3	0.03	5.3	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
<i>future</i>	0.00	0.0	SC-E-D	0.25	2.0	SC-E-D
	0.00	0.0	SC-E-R	0.23	3.0	SC-E-R
	1.00	3.0	ELEC	0.11	2.8	ELEC
	0.00	0.0	TS-3	0.02	1.4	TS-3

Travel Time

Assume 75 percent reduction in travel time in Region 1 under Strategic Plan due to widespread device deployment.

Staffing Needs (FTE)						
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.01	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.01	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.08	0.01	0.00	0.00	0.00	0.08
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.01	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.08	0.01	0.00	0.00	0.00	0.09
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.02	0.00	0.00	0.00	0.02
Existing + STIP	0.00	0.03	0.00	0.01	0.00	0.04
Existing + Strategic Plan	0.25	0.02	0.00	0.01	0.00	0.28
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.1.5 Road and Weather Information System

Inventory Table						
<i>Field Units</i>						
	Region					State
	1	2	3	4	5	Total
Existing	6	4	1	8	1	20
STIP	3	5	3	7	19	37
Existing + STIP	9	9	4	15	20	57
Strategic Plan	5	15	20	22	9	71
Existing + Strategic Plan	14	24	24	37	29	128
<i>Regional Servers</i>						
	Region					State
	1	2	3	4	5	Total
Existing	1	1	1	1	1	5
STIP	0	0	0	0	0	0
Existing + STIP	1	1	1	1	1	5
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	1	1	1	1	1	5
<i>Central Server</i>						
	Region					State
	1	2	3	4	5	Total
Existing	0	1	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	0	1	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	1	0	0	0	1

Sensors

Wind sensors: Replace bearings annually.
 Air temperature and relative humidity sensors: Humidity sensor needs to be cleaned and wetted annually.
 Precipitation sensors: Lenses need to be cleaned annually.
 Pavement surface sensors: Sensor needs to be wiped off so it will accurately show dry vs. wet pavement.
 All sensors need to be cleaned, tested and calibrated annually. Lightning strikes, re-paving other factors may necessitate sensor replacement.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	diag.	hours per visit repair	job class
current	1.00	3.0	ELEC	0.25	1.0	0.0	SC-E-D
				0.08	0.8	0.0	ELEC
				0.02	0.7	0.0	TS-3
				0.18	0.0	4.0	SC-E-R
				0.15	0.0	3.2	ELEC
				0.03	0.0	2.6	TS-3
future	1.00	3.0	ELEC	0.25	1.0	0.0	SC-E-D
				0.03	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.23	0.0	4.0	SC-E-R
				0.11	0.0	3.2	ELEC
				0.02	0.0	2.6	TS-3

Communications

Routers, Modems, Communications: Preventative maintenance includes annual inspection. Repair maintenance includes component replacement to restore communications. Repairs will occur more frequently in the short-term due to problem maintenance components (e.g. Lantronix).

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	diag.	hours per visit repair	job class
current	1.00	1.0	SC-I-PM	0.50	3.8	0.0	SC-I-D
				0.15	3.0	0.0	IS-5N
				0.03	2.7	0.0	IS-6N
				0.35	0.0	1.3	SC-I-R
				0.30	0.0	1.0	IS-5N
				0.06	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Local cable and wiring: The most common repair need for the field device is the cable connecting the sensors to the RPU.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Field Processor / Controller

Remote processing unit: Needs regular re-booting and inspection. Repair maintenance will involve emergency re-starts and replacing weather-damaged components.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	6.00	1.0	SC-I-PM	1.00	2.0	0.0	SC-I-D
				0.30	1.6	0.0	IS-5N
				0.06	1.4	0.0	IS-6N
				0.70	0.0	1.0	SC-I-R
				0.59	0.0	0.8	IS-5N
				0.12	0.0	0.7	IS-6N
future	6.00	1.0	SC-I-PM	1.00	2.0	0.0	SC-I-D
				0.10	1.6	0.0	IS-5N
				0.02	1.4	0.0	IS-6N
				0.90	0.0	1.0	SC-I-R
				0.44	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N

Software

RPU software: Software installed at RPU to collect sensor data and send it to database. Upgrades necessary only rarely - every five years.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Database applications: Vendor is responsible for database support. ODOT maintenance includes developing SQL queries.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

SCAN software: Developed and maintained by vendor; no maintenance necessary.

Center Sub-Systems

Regional Servers: Servers need regular re-booting. Occasional repair focuses on hardware replacement or upgrading.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

RWIS Server: Similar maintenance needs as the regional servers.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery

No unique information delivery components.

Summary						
<i>Field Units</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.70	1.6	SC-I-R
	6.00	1.5	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	2.0	SC-E-D
	0.00	0.0	SC-E-R	0.35	5.0	SC-E-R
	1.00	2.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.59	2.9	IS-5N
	0.00	0.0	IS-6N	0.12	2.6	IS-6N
	1.00	3.0	ELEC	0.30	4.8	ELEC
	0.00	0.0	TS-3	0.06	3.9	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	2.9	SC-I-D
	0.00	0.0	SC-I-R	0.90	1.3	SC-I-R
	6.00	1.5	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	2.0	SC-E-D
	0.00	0.0	SC-E-R	0.45	5.0	SC-E-R
	1.00	2.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.44	1.6	IS-5N
	0.00	0.0	IS-6N	0.06	1.6	IS-6N
	1.00	3.0	ELEC	0.22	4.4	ELEC
	0.00	0.0	TS-3	0.03	3.7	TS-3
<i>Regional Server</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N

<i>Central Server</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N
Travel Time						
Reduce by 50 percent for preventative maintenance due to widespread device deployment.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.03	0.03	0.01	0.07	0.01	0.15
Existing + STIP	0.04	0.06	0.03	0.13	0.15	0.41
Existing + Strategic Plan	0.05	0.13	0.14	0.29	0.20	0.81
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.04	0.01	0.08
Existing + STIP	0.02	0.03	0.01	0.07	0.09	0.22
Existing + Strategic Plan	0.03	0.09	0.10	0.23	0.15	0.60
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.09	0.11	0.05	0.17	0.05	0.47
Existing + STIP	0.12	0.17	0.08	0.30	0.35	1.02
Existing + Strategic Plan	0.16	0.35	0.34	0.68	0.49	2.03

Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.03	0.00	0.05
Existing + STIP	0.01	0.02	0.01	0.05	0.06	0.16
Existing + Strategic Plan	0.02	0.05	0.06	0.13	0.09	0.36
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.03	0.00	0.05
Existing + STIP	0.02	0.02	0.01	0.05	0.06	0.15
Existing + Strategic Plan	0.03	0.07	0.07	0.15	0.11	0.43
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.03	0.00	0.05
Existing + STIP	0.02	0.02	0.01	0.05	0.06	0.15
Existing + Strategic Plan	0.03	0.06	0.06	0.12	0.08	0.34
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.04	0.01	0.08
Existing + STIP	0.02	0.03	0.01	0.07	0.08	0.22
Existing + Strategic Plan	0.02	0.05	0.05	0.11	0.08	0.31
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.01	0.00	0.01	0.02	0.04
Existing + Strategic Plan	0.00	0.01	0.01	0.02	0.01	0.04
Info Services 7 - Software (IS-7S) - DAS #1487						IS-7S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.02	0.01	0.05	0.01	0.11
Existing + STIP	0.03	0.04	0.02	0.10	0.12	0.31
Existing + Strategic Plan	0.05	0.10	0.11	0.21	0.15	0.62
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.01	0.03
Existing + Strategic Plan	0.00	0.00	0.01	0.01	0.01	0.03

K.2.1.6 Travel Time Estimation

Inventory Table							
<i>Field units</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	0	0	0	0	
STIP	0	0	0	0	0	0	
Existing + STIP	0	0	0	0	0	0	
Strategic Plan	80	0	0	0	0	80	
Existing + Strategic Plan	80	0	0	0	0	80	
<i>Server</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	0	0	0	0	
STIP	0	0	0	0	0	0	
Existing + STIP	0	0	0	0	0	0	
Strategic Plan	1	0	0	0	0	1	
Existing + Strategic Plan	1	0	0	0	0	1	
<i>Sensors</i>							
<p>Digital camera and infrared light source: Preventative maintenance to clean lens; repairs due to knockdowns and replacing light source. Power supply may need some maintenance as well. Preventative maintenance will be as frequent as it is for CCTV, but should take considerably less time because of the simplicity of the equipment and easy access. Repairs will take half as long as normal cameras because of "black box" technology.</p>							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	2.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	1.5	SC-E-R
				0.30	0.0	1.2	ELEC
				0.06	0.0	1.0	TS-3
future	2.00	1.0	SC-E-PM	0.50	0.5	0.0	SC-E-D
				0.05	0.4	0.0	ELEC
				0.01	0.4	0.0	TS-3
				0.45	0.0	0.8	SC-E-R
				0.22	0.0	0.6	ELEC
				0.03	0.0	0.5	TS-3
<i>Communications</i>							
<p>Fiber network: Connects field RPU's with TOC, where observations are processed. Maintenance needs are addressed under Communications Network device.</p>							

Modems: Each field RPU will be connected to the fiber network. Annual preventative maintenance is recommended; repair maintenance will be fairly rare.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Field Processor/Controller

Controller: Reads vehicle actuations, activates camera and light source.

RPU: Reads plates, runs OCR software. Upgrades are not necessary that often because the RPU's operating demands will stay fairly constant.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	6.00	1.0	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.15	1.6	0.0	IS-5N
				0.03	1.4	0.0	IS-6N
				0.35	0.0	1.0	SC-I-R
				0.30	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N
future	6.00	1.0	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.05	1.6	0.0	IS-5N
				0.01	1.4	0.0	IS-6N
				0.45	0.0	1.0	SC-I-R
				0.22	0.0	0.8	IS-5N
				0.03	0.0	0.7	IS-6N

Software

RPU software: Optical character recognition software may requires upgrades to improve success in reading plates.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Travel time software: Database application requires upgrades and database management (i.e. pruning).

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

Travel time server: Compiles readings from various field RPUs to estimate travel times. Basic server maintenance is required.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery

No new information delivery systems.

Summary

Field units

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
current	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.35	1.6	SC-I-R
	6.00	1.5	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.35	1.5	SC-E-R
	2.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.30	2.9	IS-5N
	0.00	0.0	IS-6N	0.06	2.6	IS-6N
	0.00	0.0	ELEC	0.30	1.6	ELEC
	0.00	0.0	TS-3	0.06	1.3	TS-3

	Preventative Maintenance			Repair Maintenance		
<i>future</i>	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.45	1.6	SC-I-R
	6.00	1.5	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	0.5	SC-E-D
	0.00	0.0	SC-E-R	0.45	0.8	SC-E-R
	2.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.22	2.0	IS-5N
	0.00	0.0	IS-6N	0.03	2.0	IS-6N
	0.00	0.0	ELEC	0.22	0.7	ELEC
	0.00	0.0	TS-3	0.03	0.6	TS-3
<i>Server</i>						
	Preventative Maintenance			Repair Maintenance		
<i>current</i>	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N
	Preventative Maintenance			Repair Maintenance		
<i>future</i>	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N
Travel Time	Reduce by 75 percent for preventative maintenance because of wide device deployment.					
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.17	0.00	0.00	0.00	0.00	0.17

Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.10	0.00	0.00	0.00	0.00	0.10
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.62	0.00	0.00	0.00	0.00	0.62
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.09	0.00	0.00	0.00	0.00	0.09
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.08	0.00	0.00	0.00	0.00	0.08
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.15	0.00	0.00	0.00	0.00	0.15
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.05	0.00	0.00	0.00	0.00	0.05

Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.00	0.01
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.04	0.00	0.00	0.00	0.00	0.04
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.00	0.01

K.2.1.7 Automatic Vehicle Location

(includes Incident Response Vehicle system)								
<u>Inventory Table</u>								
<i>Equipped Vehicles</i>								
	Region					State		
	1	2	3	4	5	Total		
Existing	7	0	0	0	0	7		
STIP	0	4	0	40	0	44		
Existing + STIP	7	4	0	40	0	51		
Strategic Plan	100	100	100	60	100	460		
Existing + Strategic Plan	107	104	100	100	100	511		
<i>AVL Servers</i>								
	Region					State		
	1	2	3	4	5	Total		
Existing	1	0	0	0	0	1		
STIP	0	1	0	1	0	2		
Existing + STIP	1	1	0	1	0	3		
Strategic Plan	0	0	1	0	1	2		
Existing + Strategic Plan	1	1	1	1	1	5		
<u>Sensors</u>								
Maintenance activity sensors: Sensors will track the extent of chemical use, plowing activity, and similar maintenance functions. Preventative maintenance includes calibration and cleaning of sensors.								
	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	1.00	1.0	ELEC	0.20	1.0	0.0	0.0	SC-E-D
				0.06	0.8	0.0	0.0	ELEC
				0.01	0.7	0.0	0.0	TS-3
				0.14	0.0	4.0	0.0	SC-E-R
				0.12	0.0	3.2	0.0	ELEC
				0.02	0.0	2.6	0.0	TS-3
future	1.00	1.0	ELEC	0.20	1.0	0.0	0.0	SC-E-D
				0.02	0.8	0.0	0.0	ELEC
				0.00	0.7	0.0	0.0	TS-3
				0.18	0.0	4.0	0.0	SC-E-R
				0.09	0.0	3.2	0.0	ELEC
				0.01	0.0	2.6	0.0	TS-3

Communications

GPS satellites: Maintained by vendor.

In-vehicle unit: Maintained by vendor.

Low-band radio: No preventative maintenance is recommended. Repair maintenance will be fairly infrequent.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.00	0.0		0.25	1.0	0.0	SC-I-D
				0.08	0.8	0.0	IS-5R
				0.02	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.15	0.0	2.4	IS-5R
				0.03	0.0	2.2	IS-6R
future	0.00	0.0		0.20	1.0	0.0	SC-I-D
				0.02	0.8	0.0	IS-5R
				0.00	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.09	0.0	2.4	IS-5R
				0.01	0.0	2.2	IS-6R

Radio towers and facilities: Maintenance of the supporting infrastructure is covered under existing procedures.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.00	0.0		0.00	0.0	0.0	
future	0.00	0.0		0.00	0.0	0.0	

Field Processor/Controller

No field processors/controllers.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.00	0.0		0.00	0.0	0.0	
future	0.00	0.0		0.00	0.0	0.0	

Software

Tracking software at TOC: Upgrades provided by vendor, installed by ODOT. Upgrades are provided annually.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	4.0	SC-I-PM	0.00	0.0	0.0	
future	1.00	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

AVL server: Used to track COMET vehicle locations. Requires database management (preventative) and basic server maintenance (repair) activities.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery

No unique information delivery devices.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.00	0.0		0.00	0.0	0.0	
future	0.00	0.0		0.00	0.0	0.0	

Summary

Vehicles

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
current	0.00	0.0	SC-I-D	0.25	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	0.00	0.0	SC-E-D	0.20	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.14	4.0	SC-E-R
	0.00	0.0	IS-5R	0.15	2.8	IS-5R
	0.00	0.0	IS-6R	0.03	2.5	IS-6R
	1.00	1.0	ELEC	0.12	3.6	ELEC
	0.00	0.0	TS-3	0.02	2.9	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.20	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	0.00	0.0	SC-E-D	0.20	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.18	4.0	SC-E-R
	0.00	0.0	IS-5R	0.09	2.6	IS-5R
	0.00	0.0	IS-6R	0.01	2.4	IS-6R
	1.00	1.0	ELEC	0.09	3.4	ELEC
	0.00	0.0	TS-3	0.01	2.8	TS-3

AVL Servers

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>current</i>	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.1	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.1	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N

Travel Time

Reduce by 90 percent for preventative maintenance because of wide device deployment. Assume for repair maintenance that vehicles are brought into the shop whenever problems occur, so only one round-trip is necessary.

Staffing Needs (FTE)

	Support Coordinator / IS-Diag (SC-I-D) - DAS #					SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.01	0.01	0.00	0.05	0.00	0.06
Existing + Strategic Plan	0.04	0.06	0.07	0.10	0.08	0.35

Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.04	0.00	0.05
Existing + Strategic Plan	0.06	0.08	0.08	0.11	0.10	0.42
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.03	0.00	0.00	0.00	0.00	0.03
Existing + STIP	0.03	0.03	0.00	0.03	0.00	0.10
Existing + Strategic Plan	0.03	0.03	0.03	0.03	0.03	0.17
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.04	0.00	0.04
Existing + Strategic Plan	0.04	0.06	0.06	0.09	0.08	0.33
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.04	0.00	0.04
Existing + Strategic Plan	0.07	0.09	0.09	0.12	0.11	0.47
Info Services 5 - Radio Technician (IS-5R) - DAS #1485						IS-5R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.03	0.00	0.04
Existing + Strategic Plan	0.03	0.03	0.04	0.05	0.04	0.19
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

Info Services 6 - Radio Technician (IS-6R) - DAS #1486						IS-6R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.01	0.01	0.01	0.03
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.01	0.01	0.00	0.07	0.00	0.08
Existing + Strategic Plan	0.11	0.12	0.13	0.15	0.14	0.66
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.01	0.01	0.01	0.03

K.2.2 Traffic Management

K.2.2.1 Ramp Metering

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	64	0	0	0	0	64
STIP	26	0	0	0	0	26
Existing + STIP	90	0	0	0	0	90
Strategic Plan	60	65	35	0	0	160
Existing + Strategic Plan	150	65	35	0	0	250
<u>Sensors</u>						
Inductive loops: Used to record traffic actuations. Maintenance covered under existing procedures.						
<u>Communications</u>						
Local cable and wiring: Maintenance covered under existing procedures.						
Fiber optic network: Connects ramp meters to TMOC for Region 1 camreas. Same network as used for cameras. Maintenance considered under Communications Networks device.						
<u>Field Processor/Controller</u>						
Type 170 field controller with local firmware: Maintenance covered under existing procedures.						
Controller cabinet: Maintenance covered under existing procedures.						
<u>Software</u>						
ATMS interfaces with ramp meters: Maintenance covered under ATMS.						
<u>Center Sub-Systems</u>						
No unique center sub-systems components.						
<u>Information Delivery</u>						
Traffic signal heads: Maintenance covered under existing procedures.						
<u>Staffing Needs (FTE)</u>						
No new staffing needs						

K.2.2.2 Traffic Signal Preemption for Emergency Vehicles

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	206	104	59	51	23	443
STIP	0	0	0	0	0	0
Existing + STIP	206	104	59	51	23	443
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	206	104	59	51	23	443
Sensors						
Mast-mounted infrared sensor: Maintenance covered under existing procedures.						
In-vehicle unit: Maintenance covered under existing procedures.						
Communications						
Local cable and wiring: Connects mast-mounted sensor to controller cabinet. Maintenance covered under existing procedures.						
Field Processor/Controller						
Uses existing intersection control; no additional maintenance.						
Software						
Additional firmware required for controller: Maintenance covered under existing procedures.						
Center Sub-Systems						
No center sub-system components.						
Information Delivery						
No new information delivery components.						
Staffing Needs (FTE)						
No new staffing needs						

K.2.2.3 Preferential Signal Treatment for Transit Vehicles

<u>Inventory Table</u>						
	Region					State
	1	2	3	4	5	Total
Existing	17	0	0	0	0	17
STIP	0	0	0	0	0	0
Existing + STIP	17	0	0	0	0	17
Strategic Plan	0	100	0	0	0	100
Existing + Strategic Plan	17	100	0	0	0	117
<u>Sensors</u>						
Mast-mounted infrared sensor: Maintenance covered under existing procedures.						
In-vehicle unit: Maintenance covered under existing procedures.						
<u>Communications</u>						
Local cable and wiring: Connects mast-mounted sensor to controller cabinet. Maintenance covered under existing procedures.						
<u>Field Processor/Controller</u>						
Uses existing intersection control; no additional maintenance.						
<u>Software</u>						
Additional firmware required for controller: Maintenance covered under existing procedures.						
<u>Center Sub-Systems</u>						
No center sub-system components.						
<u>Information Delivery</u>						
No new information delivery components.						
<u>Staffing Needs (FTE)</u>						
No new staffing needs						

K.2.2.4 Advanced Traffic Management System

<u>Inventory Table</u>						
<i>Regional Deployment</i>						
	Region					State
	1	2	3	4	5	Total
Existing	1	0	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	1	0	0	0	0	1
Strategic Plan	0	1	1	1	1	4
Existing + Strategic Plan	1	1	1	1	1	5
<i>Workstations</i>						
	Region					State
	1	2	3	4	5	Total
Existing	20	0	0	0	0	20
STIP	1	0	0	0	0	1
Existing + STIP	21	0	0	0	0	21
Strategic Plan	0	6	6	6	6	24
Existing + Strategic Plan	21	6	6	6	6	45
For regions 2-5, assume the following computers for each region: 2 operator consoles, 2 ATMS support machines, 2 computers (1 desktop, 1 laptop) for TOC manager.						
<i>Software Applications</i>						
	Region					State
	1	2	3	4	5	Total
Existing	0	1	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	0	1	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	1	0	0	0	1
<u>Sensors</u>						
No independent sensors.						

Communications

Communications into TOC: Maintenance covered under other respective devices.

Communications within TOC: Preventative maintenance includes looking for and replacing worn cabling. Repair maintenance focuses on emergency communications breakdowns within the TOC. It is assumed that such breakdowns would be infrequent.

	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	1.00	2.0	SC-I-PM	0.50	1.5	0.0	0.0	SC-I-D
				0.15	1.2	0.0	0.0	IS-5N
				0.03	1.1	0.0	0.0	IS-6N
				0.35	0.0	3.0	0.0	SC-I-R
				0.30	0.0	2.4	0.0	IS-5N
				0.06	0.0	1.9	0.0	IS-6N
future	1.00	2.0	SC-I-PM	0.50	1.5	0.0	0.0	SC-I-D
				0.05	1.2	0.0	0.0	IS-5N
				0.01	1.1	0.0	0.0	IS-6N
				0.45	0.0	3.0	0.0	SC-I-R
				0.22	0.0	2.4	0.0	IS-5N
				0.03	0.0	1.9	0.0	IS-6N

Field Processor/Controller

Workstations: Many computers are included in each TOC for various ATMS-related tasks. Each computer is assumed to have similar maintenance needs. Excluded from these workstations are dedicated servers, such as the AVL server, RWIS regional servers, or the camera server.

	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	12.00	1.0	SC-I-PM	2.00	2.0	0.0	0.0	SC-I-D
				0.60	1.6	0.0	0.0	IS-5N
				0.12	1.4	0.0	0.0	IS-6N
				1.40	0.0	1.0	0.0	SC-I-R
				1.18	0.0	0.8	0.0	IS-5N
				0.24	0.0	0.7	0.0	IS-6N
future	12.00	1.0	SC-I-PM	2.00	2.0	0.0	0.0	SC-I-D
				0.20	1.6	0.0	0.0	IS-5N
				0.04	1.4	0.0	0.0	IS-6N
				1.80	0.0	1.0	0.0	SC-I-R
				0.88	0.0	0.8	0.0	IS-5N
				0.13	0.0	0.7	0.0	IS-6N

Software

ATMS software development: It is assumed that ODOT staff will devote some time to ATMS software modifications to enhance capability or reflect additional deployments. This will require specialized support because it is a UNIX application. It is assumed that improvements developed for one region would be applicable to the other ODOT regions. It is assumed that re-writes will require an average of 8 hours per week. Emergency de-bugging will occur every couple of months as a repair need.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	8.0	IS-6S	6.00	4.0	0.0	IS-6S
				1.20	3.6	0.0	IS-7S
				4.80	0.0	2.0	IS-6S
				1.68	0.0	1.8	IS-7S
future	52.00	8.0	IS-6S	6.00	4.0	0.0	IS-6S
				1.20	3.6	0.0	IS-7S
				4.80	0.0	2.0	IS-6S
				1.68	0.0	1.8	IS-7S

ATMS software upgrades: Software changes developed need to be installed in each of the regions. This will be done annually.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Database management: Preventative maintenance includes database pruning tasks, which may be done remotely in Salem. These may be done daily, although the amount of time expended per task is very small. Repair maintenance may include some reprogramming and upgrades.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Center Sub-Systems

Servers: Portland has a graphical user interface server and a database/communications server, each of which is assumed to have generic server maintenance needs. It is assumed that each of the other regions would also have two servers in order to allow for expandable operations.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	2.0	SC-I-PM	2.00	6.0	0.0	SC-I-D
				0.60	4.8	0.0	IS-5N
				0.12	4.3	0.0	IS-6N
				1.40	0.0	2.0	SC-I-R
				1.18	0.0	1.6	IS-5N
				0.24	0.0	1.4	IS-6N
future	52.00	2.0	SC-I-PM	2.00	6.0	0.0	SC-I-D
				0.20	4.8	0.0	IS-5N
				0.04	4.3	0.0	IS-6N
				1.80	0.0	2.0	SC-I-R
				0.88	0.0	1.6	IS-5N
				0.13	0.0	1.4	IS-6N

Information Delivery

No unique information delivery components.

Summary

Regional Deployment

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
current	0.00	0.0	SC-I-D	2.00	9.4	SC-I-D
	0.00	0.0	SC-I-R	1.40	3.8	SC-I-R
	52.00	3.1	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	1.18	6.8	IS-5N
	0.00	0.0	IS-6N	0.24	6.0	IS-6N

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
future	0.00	0.0	SC-I-D	2.00	9.4	SC-I-D
	0.00	0.0	SC-I-R	1.80	3.8	SC-I-R
	52.00	3.1	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.88	4.7	IS-5N
	0.00	0.0	IS-6N	0.13	4.7	IS-6N

<i>Workstations</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	2.00	2.0	SC-I-D
	0.00	0.0	SC-I-R	1.40	1.0	SC-I-R
	12.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	1.18	1.6	IS-5N
	0.00	0.0	IS-6N	0.24	1.4	IS-6N
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	2.00	2.0	SC-I-D
	0.00	0.0	SC-I-R	1.80	1.0	SC-I-R
	12.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.88	1.2	IS-5N
	0.00	0.0	IS-6N	0.13	1.2	IS-6N
<i>Software Applications</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	52.00	8.0	IS-6S	6.00	5.6	IS-6S
	0.00	0.0	IS-7S	1.68	4.4	IS-7S
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	52.00	8.0	IS-6S	6.00	5.6	IS-6S
	0.00	0.0	IS-7S	1.68	4.4	IS-7S
Travel Time						
No travel time will be necessary for maintenance, since the wide-area network can be used to work on software issues remotely.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.06	0.00	0.00	0.00	0.00	0.06
Existing + STIP	0.06	0.00	0.00	0.00	0.00	0.06
Existing + Strategic Plan	0.06	0.03	0.03	0.03	0.03	0.17

Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.00	0.00	0.00	0.00	0.02
Existing + STIP	0.02	0.00	0.00	0.00	0.00	0.02
Existing + Strategic Plan	0.03	0.01	0.01	0.01	0.01	0.07
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.25	0.00	0.00	0.00	0.00	0.25
Existing + STIP	0.25	0.00	0.00	0.00	0.00	0.25
Existing + Strategic Plan	0.25	0.14	0.14	0.14	0.14	0.82
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.03	0.00	0.00	0.00	0.00	0.03
Existing + STIP	0.03	0.00	0.00	0.00	0.00	0.03
Existing + Strategic Plan	0.02	0.01	0.01	0.01	0.01	0.04
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.01	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01
Info Services 6 - Software (IS-6S) - DAS #1486						IS-6S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.28	0.00	0.00	0.00	0.28
Existing + STIP	0.00	0.28	0.00	0.00	0.00	0.28
Existing + Strategic Plan	0.00	0.28	0.00	0.00	0.00	0.28
Info Services 7 - Software (IS-7S) - DAS #1487						IS-7S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.3 Incident Detection

K.2.3.1 Callboxes

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	0	0	4	0	0	4
STIP	0	0	0	0	0	0
Existing + STIP	0	0	4	0	0	4
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	0	4	0	0	4

Sensors						
Telephone callboxes: Maintenance needs are fairly limited. Vendor recommends testing every three to four weeks to ensure the system works. Due to specialized components, repair maintenance would need to be handled by the vendor.						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	job class
current	12.00	0.1	SC-P	0.00	0.0	0.0
future	12.00	0.1	SC-P	0.00	0.0	0.0

Communications						
Land-based telephone lines: No preventative maintenance is necessary. Rarely, the line will be dug into, requiring partial replacement, but this will not be ODOT responsibility.						

Field Processor/Controller						
No field processor/controller.						

Software						
No unique software application.						

Center Sub-Systems						
No unique center sub-system components.						

Information Delivery						
No unique information delivery component.						

Summary						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	12.00	0.1	SC-P	0.00	0.0	SC-P

	Preventative Maintenance			Repair Maintenance		
<i>future</i>	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
	12.00	0.1	SC-P	0.00	0.0	SC-P
Travel Time						
Reduce all travel times to	0.25	hrs because of close location of TOC to callboxes.				
Staffing Needs (FTE)						
Support Coordinator / Program Technician (SC-P) - DAS #						SC-P
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.02	0.00	0.00	0.02
Existing + STIP	0.00	0.00	0.02	0.00	0.00	0.02
Existing + Strategic Plan	0.00	0.00	0.02	0.00	0.00	0.02

K.2.3.2 Cellular Call-In

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	0	0	0	0	0	0
Existing + STIP	0	0	0	0	0	0
Strategic Plan	0	1	0	0	0	1
Existing + Strategic Plan	0	1	0	0	0	1
Sensors						
Cellular phones: Maintenance covered by phone users through contract.						
Communications						
Cellular tower infrastructure: Maintenance covered by phone users through contract.						
Field Processor/Controller						
Static signs: Maintenance covered as part of normal sign maintenance; marginal additional maintenance anticipated.						
Software						
No applicable software.						
Center Sub-Systems						
Call processing center: No new infrastructure needed for cellular call-in.						
Information Delivery						
No applicable center sub-system.						
Staffing Needs (FTE)						
No new staffing needs						

K.2.3.3 Regional Incident Detection System

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	1	0	0	0	0	1
Existing + STIP	1	0	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	1	0	0	0	0	1

Sensors

Loop Detectors: Maintenance needs outside of this plan.

Video Detectors: Maintenance needs considered elsewhere in this plan.

Communications

Provided by fiber optics network. Maintenance covered under Communications Networks device.

Field Processor/Controller

No field processors/controllers would be used.

Software

TOC-Based Algorithm: Needs updating and refining to reduce false alarms and missed incidents.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

Incident detection server: A server would be devoted to polling field detectors and synthesizing information to detect incidents.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery						
No unique information delivery system.						
Summary						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N
Travel Time						
No travel time for preventative maintenance on incident detection server.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.01	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.00	0.01
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.03	0.00	0.00	0.00	0.00	0.03
Existing + Strategic Plan	0.03	0.00	0.00	0.00	0.00	0.03

Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.3.4 Intersection-Based Incident Detection System

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	0	1	0	1	0	2
Existing + STIP	0	1	0	1	0	2
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	1	0	1	0	2

Sensors

Loop Detectors: Maintenance needs outside of this plan.

Video Detectors: Maintenance needs considered elsewhere in this plan.

Communications

The RPU dials out to the TOC whenever an incident is detected. Maintenance is covered under field processor/controller.

Local cable and wiring: Maintenance covered under existing procedures.

Field Processor/Controller

Remote processing unit: Collects detector data, runs algorithm to detect incidents, and sends dispatch to TOC if incident is detected. Due to limited variety of applications / usage conditions, upgrades will be necessary at most every other year.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	6.00	1.0	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.15	1.6	0.0	IS-5N
				0.03	1.4	0.0	IS-6N
				0.35	0.0	1.0	SC-I-R
				0.30	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N
future	6.00	1.0	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.05	1.6	0.0	IS-5N
				0.01	1.4	0.0	IS-6N
				0.45	0.0	1.0	SC-I-R
				0.22	0.0	0.8	IS-5N
				0.03	0.0	0.7	IS-6N

Software

Algorithm: Needs updating and refining to reduce false alarms and missed incidents.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

This application can be run "in background" on existing systems; no additional maintenance

Information Delivery

No unique information delivery system.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>current</i>	0.00	0.0	SC-I-D	0.50	2.0	SC-I-D
	0.00	0.0	SC-I-R	0.35	1.0	SC-I-R
	6.00	1.3	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.30	1.6	IS-5N
	0.00	0.0	IS-6N	0.06	1.4	IS-6N
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.50	2.0	SC-I-D
	0.00	0.0	SC-I-R	0.45	1.0	SC-I-R
	6.00	1.3	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.22	1.2	IS-5N
	0.00	0.0	IS-6N	0.03	1.2	IS-6N

Staffing Needs (FTE)

Support Coordinator / IS-Diag (SC-I-D) - DAS #

SC-I-D

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01

Support Coordinator / IS-Repair (SC-I-R) - DAS #

SC-I-R

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #

SC-I-PM

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.02	0.00	0.03	0.00	0.05
Existing + Strategic Plan	0.00	0.02	0.00	0.03	0.00	0.05

Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.4 Incident Management and Response

K.2.4.1 Computer-Aided Dispatch

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	5	2	2	0	9
STIP	0	0	0	0	0	0
Existing + STIP	0	5	2	2	0	9
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	5	2	2	0	9

Sensors

No applicable sensors.

Communications

Communications from central OSP to dispatch center: Responsibility of OSP.

Communications within dispatch center: Check all connections; replace cables and components as necessary. Time to repair is half of generic communications equipment.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	0.5	SC-I-PM	0.25	1.9	0.0	SC-I-D
				0.08	1.5	0.0	IS-5N
				0.02	1.4	0.0	IS-6N
				0.18	0.0	0.6	SC-I-R
				0.15	0.0	0.5	IS-5N
				0.03	0.0	0.5	IS-6N
future	1.00	0.5	SC-I-PM	0.25	1.9	0.0	SC-I-D
				0.03	1.5	0.0	IS-5N
				0.01	1.4	0.0	IS-6N
				0.23	0.0	0.6	SC-I-R
				0.11	0.0	0.5	IS-5N
				0.02	0.0	0.5	IS-6N

Field Processor/Controller

No applicable field processor/controllers.

Software

CAD software: Periodic upgrades on workstations are necessary.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

Operator workstations: Limited preventative maintenance is required. Repair maintenance is necessary to bring downed terminals back up.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	12.00	1.0	SC-I-PM	2.00	2.0	0.0	SC-I-D
				0.60	1.6	0.0	IS-5N
				0.12	1.4	0.0	IS-6N
				1.40	0.0	1.0	SC-I-R
				1.18	0.0	0.8	IS-5N
				0.24	0.0	0.7	IS-6N
future	12.00	1.0	SC-I-PM	2.00	2.0	0.0	SC-I-D
				0.20	1.6	0.0	IS-5N
				0.04	1.4	0.0	IS-6N
				1.80	0.0	1.0	SC-I-R
				0.88	0.0	0.8	IS-5N
				0.13	0.0	0.7	IS-6N

Information Delivery

Already covered under center sub-systems

Summary

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
current	0.00	0.0	SC-I-D	2.00	2.2	SC-I-D
	0.00	0.0	SC-I-R	1.40	1.1	SC-I-R
	12.00	1.2	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	1.18	1.8	IS-5N
	0.00	0.0	IS-6N	0.24	1.6	IS-6N

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
future	0.00	0.0	SC-I-D	2.00	2.2	SC-I-D
	0.00	0.0	SC-I-R	1.80	1.1	SC-I-R
	12.00	1.2	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.88	1.3	IS-5N
	0.00	0.0	IS-6N	0.13	1.3	IS-6N

Staffing Needs (FTE)

Support Coordinator / IS-Diag (SC-I-D) - DAS #

SC-I-D

	Region					State
	1	2	3	4	5	Total
	Existing	0.00	0.01	0.01	0.01	0.00
Existing + STIP	0.00	0.01	0.01	0.01	0.00	0.02
Existing + Strategic Plan	0.00	0.01	0.01	0.01	0.00	0.02

Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.01	0.00	0.00	0.00	0.01
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.04	0.02	0.02	0.00	0.08
Existing + STIP	0.00	0.04	0.02	0.02	0.00	0.08
Existing + Strategic Plan	0.00	0.04	0.02	0.02	0.00	0.08
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.01	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.01	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.4.2 Incident Response Vehicles

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	7	0	0	0	0	7
STIP	0	4	0	0	0	4
Existing + STIP	7	4	0	0	0	11
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	7	4	0	0	0	11

Sensors

No unique sensors.

Communications

Cellular phone equipment: Infrastructure and maintenance provided by others.

CB radio: ODOT radio technicians maintain units and consoles. Maintenance addressed under dual radio systems.

Low-band (800 MHz) radio: ODOT buys units through City of Portland; City of Portland is also responsible for maintenance.

High-band (VHF) radio: ODOT radio technicians maintain units, consoles and infrastructure. Maintenance addressed under dual radio systems.

Automatic vehicle location (AVL) communications: Covered under Automatic Vehicle Location device.

Field Processor/Controller

Laptop computer: From ITS perspective, used primarily to update VMS messages beyond canned messages. Similar maintenance to generic workstation, except that no preventative maintenance activity is recommended.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	0.00	0.0		2.00	2.0	0.0	SC-I-D
				0.60	1.6	0.0	IS-5N
				0.12	1.4	0.0	IS-6N
				1.40	0.0	1.0	SC-I-R
				1.18	0.0	0.8	IS-5N
				0.24	0.0	0.7	IS-6N
future	0.00	0.0		2.00	2.0	0.0	SC-I-D
				0.20	1.6	0.0	IS-5N
				0.04	1.4	0.0	IS-6N
				1.80	0.0	1.0	SC-I-R
				0.88	0.0	0.8	IS-5N
				0.13	0.0	0.7	IS-6N

Software

AVL software: Maintenance and upgrades provided by vendor, installed by ODOT (repair). This is covered under Automatic Vehicle Location device category.

Center Sub-Systems

AVL server: Used to track COMET vehicle locations. Requires database management (preventative) and basic server maintenance (repair) activities. This is covered under Automatic Vehicle Location device category.

Information Delivery

On-board VMS: Flip-disk signs (used on the majority of existing vehicles) require regular disk cleaning and have a history of power supply problems. These signs will be phased out and replaced by signs requiring less preventative maintenance and having more reliable power. It is assumed that maintenance will require less time than permanent VMS because of easier access.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	2.00	3.0	SC-E-PM	3.00	1.0	0.0	SC-E-D
				0.90	0.8	0.0	ELEC
				0.18	0.7	0.0	TS-3
				2.10	0.0	2.0	SC-E-R
				1.77	0.0	1.6	ELEC
				0.36	0.0	1.3	TS-3
future	2.00	3.0	SC-E-PM	3.00	0.5	0.0	SC-E-D
				0.30	0.4	0.0	ELEC
				0.06	0.4	0.0	TS-3
				2.70	0.0	1.3	SC-E-R
				1.32	0.0	1.1	ELEC
				0.19	0.0	0.9	TS-3

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	0.00	0.0	SC-I-D	2.00	2.0	SC-I-D
	0.00	0.0	SC-I-R	1.40	1.0	SC-I-R
	0.00	0.0	SC-E-D	3.00	1.0	SC-E-D
	0.00	0.0	SC-E-R	2.10	2.0	SC-E-R
	2.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	1.18	1.6	IS-5N
	0.00	0.0	IS-6N	0.24	1.4	IS-6N
	0.00	0.0	ELEC	1.77	2.0	ELEC
	0.00	0.0	TS-3	0.36	1.6	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	2.00	2.0	SC-I-D
	0.00	0.0	SC-I-R	1.80	1.0	SC-I-R
	0.00	0.0	SC-E-D	3.00	0.5	SC-E-D
	0.00	0.0	SC-E-R	2.70	1.3	SC-E-R
	2.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.88	1.2	IS-5N
	0.00	0.0	IS-6N	0.13	1.2	IS-6N
	0.00	0.0	ELEC	1.32	1.2	ELEC
	0.00	0.0	TS-3	0.19	1.0	TS-3

Travel Time

No travel time is generally necessary because drivers can transport vehicles to wherever maintenance is performed.

Staffing Needs (FTE)

Support Coordinator / IS-Diag (SC-I-D) - DAS #

SC-I-D

	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.00	0.00	0.00	0.00	0.02
Existing + STIP	0.02	0.01	0.00	0.00	0.00	0.03
Existing + Strategic Plan	0.02	0.01	0.00	0.00	0.00	0.03

Support Coordinator / IS-Repair (SC-I-R) - DAS #

SC-I-R

	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.01	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.00	0.01

Support Coordinator / Elec-Diag (SC-E-D) - DAS #

SC-E-D

	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.01	0.01	0.00	0.00	0.00	0.02
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.00	0.01

Support Coordinator / Elec-Repair (SC-E-R) - DAS #

SC-E-R

	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.00	0.00	0.00	0.00	0.02
Existing + STIP	0.02	0.01	0.00	0.00	0.00	0.03
Existing + Strategic Plan	0.02	0.01	0.00	0.00	0.00	0.02

Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.03	0.00	0.00	0.00	0.00	0.03
Existing + STIP	0.03	0.01	0.00	0.00	0.00	0.04
Existing + Strategic Plan	0.03	0.01	0.00	0.00	0.00	0.04
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.01	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.00	0.00	0.00	0.00	0.02
Existing + STIP	0.02	0.01	0.00	0.00	0.00	0.02
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.00	0.01
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.4.3 Pre-planned Detour Routes

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	0	0	0	0	0	0
Existing + STIP	0	0	0	0	0	0
Strategic Plan	500	100	100	50	0	750
Existing + Strategic Plan	500	100	100	50	0	750
Sensors						
Not applicable.						
Communications						
Will be necessary to enforce pre-planned detour routes; this is covered under other devices.						
Field Processor/Controller						
No field processor or controller present.						
Software						
Preventative maintenance would ensure that routes would be selected appropriately, and are coordinated appropriately with other TOC systems.						
Maintenance would be done for all of a region's routes simultaneously.						
Development of new detour routes or revision of existing routes would be an operational function.						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag. repair	job class
current	1.00	4.0	SC-I-PM	0.00	0.0	0.0
future	1.00	4.0	SC-I-PM	0.00	0.0	0.0
Center Sub-Systems						
ATMS would be used to select detour routes; no new maintenance required.						
Information Delivery						
No new information delivery devices, since detour routes would likely use existing signage.						
Summary						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	1.00	4.0	SC-I-PM	0.00	0.0	SC-I-PM
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
future	1.00	4.0	SC-I-PM	0.00	0.0	SC-I-PM

Travel Time						
No travel time is necessary.						
Staffing Needs (FTE)						
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01

K.2.4.4 Hazardous Material Response

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	0	0	0	0	0	0
Existing + STIP	0	0	0	0	0	0
Strategic Plan	0	1	0	0	0	1
Existing + Strategic Plan	0	1	0	0	0	1

Sensors

Includes no independent sensors.

Communications

Dial-up connections would be used by HazMat carriers to access database. Maintenance for dial-up connections is same as maintenance for generic computer without performing preventative maintenance.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Field Processor/Controller

No field processors/controllers are involved.

Software

Database application would need to be installed and updated (repair maintenance).

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

Server: HazMat server with database would need regular maintenance, and occasional hardware replacement.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery

No unique information delivery components.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
current	0.00	0.0	SC-I-D	1.00	6.9	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.3	SC-I-R
	52.00	1.1	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.7	IS-5N
	0.00	0.0	IS-6N	0.12	4.2	IS-6N
	future	0.00	0.0	SC-I-D	1.00	6.9
0.00		0.0	SC-I-R	0.90	2.3	SC-I-R
52.00		1.1	SC-I-PM	0.00	0.0	SC-I-PM
0.00		0.0	IS-5N	0.44	3.1	IS-5N
0.00		0.0	IS-6N	0.06	3.2	IS-6N

Travel Time

No travel time is necessary.

Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.03	0.00	0.00	0.00	0.03
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.5 Pre-Trip Traveler Information

K.2.5.1 Alphanumeric Paging

Inventory Table							
	Region					State	
	1	2	3	4	5	Total	
Existing	1	0	0	0	0	1	
STIP	0	0	0	0	0	0	
Existing + STIP	1	0	0	0	0	1	
Strategic Plan	0	0	0	0	0	0	
Existing + Strategic Plan	1	0	0	0	0	1	
<u>Sensors</u>							
No unique sensors.							
<u>Communications</u>							
Paging devices: Provided and maintained by vendor. Paging service infrastructure: Provided and maintained by vendor.							
<u>Field Processor/Controller</u>							
No unique field processors.							
<u>Software</u>							
Software provided by vendor, but must be installed by ODOT.							
	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
<u>Center Sub-Systems</u>							
No unique center sub-systems.							
<u>Information Delivery</u>							
Pagers: Covered under communications.							
<u>Summary</u>							
	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hrs per	job	
<i>current</i>	per yr	visit	class	per yr	visit	class	
	0.50	4.0	SC-I-PM	0.00	0.0	SC-I-PM	
	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hrs per	job	
<i>future</i>	per yr	visit	class	per yr	visit	class	
	0.50	4.0	SC-I-PM	0.00	0.0	SC-I-PM	

Travel Time

No travel time is necessary for this device.

Staffing Needs (FTE)

Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #

SC-I-PM

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.5.2 Highway Travel Conditions Reporting System

Inventory Table							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	0	0	0	0	
STIP	0	1	0	0	0	1	
Existing + STIP	0	1	0	0	0	1	
Strategic Plan	0	0	0	0	0	0	
Existing + Strategic Plan	0	1	0	0	0	1	
Sensors							
No unique sensors.							
Communications							
No unique communications system.							
Field Processor/Controller							
No unique field processors.							
Software							
HTCRS development: This is an in-house application that will need continual refinement. Debugging "repairs" are expected to occur, on average, every two months.							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit		job class
					diag.	repair	
current	52.00	10.0	IS-6S	6.00	4.0	0.0	IS-6S
				1.20	3.6	0.0	IS-7S
				4.80	0.0	2.0	IS-6S
				1.68	0.0	1.8	IS-7S
future	52.00	10.0	IS-6S	6.00	4.0	0.0	IS-6S
				1.20	3.6	0.0	IS-7S
				4.80	0.0	2.0	IS-6S
				1.68	0.0	1.8	IS-7S

Database support: Travel conditions database will need regular cleaning and pruning for more efficient operations. The database may need some re-programming from time-to-time to permit additional deployments or yield different information.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
<i>current</i>	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
<i>future</i>	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Center Sub-Systems

No unique center sub-systems.

Information Delivery

Information is output to 800-number and TripCheck Internet package; maintenance needs considered separately under those device headings.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
<i>current</i>	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N
	52.00	10.0	IS-6S	6.00	5.6	IS-6S
	0.00	0.0	IS-7S	1.68	4.4	IS-7S
<i>future</i>	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N
	52.00	10.0	IS-6S	6.00	5.6	IS-6S
	0.00	0.0	IS-7S	1.68	4.4	IS-7S

Travel Time						
No travel time is necessary for this device.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.03	0.00	0.00	0.00	0.03
Existing + Strategic Plan	0.00	0.03	0.00	0.00	0.00	0.03
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Software (IS-6S) - DAS #1486						IS-6S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.34	0.00	0.00	0.00	0.34
Existing + Strategic Plan	0.00	0.34	0.00	0.00	0.00	0.34

Info Services 7 - Software (IS-7S) - DAS #1487						IS-7S
	Region					State Total
	1	2	3	4	5	
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.5.3 800-number Information

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	1	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	0	1	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	1	0	0	0	1

Sensors

No unique sensors.

Communications

Communications lines into the center are provided by others. For communications within the center, some preventative maintenance is recommended to identify and replace worn cabling. Repair maintenance would be necessary on rare emergencies to replace cabling.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Field Processor/Controller

No field processors / controllers.

Software

Voice translation software: Not in place yet. When installed, this will allow data from the Highway Travel Conditions Reporting System to be translated into simulated-voice messages.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Phone server software: This is used to take incoming calls and distribute them to each machine, and to provide the appropriate information to each caller. Weekly maintenance is necessary for upgrading and debugging.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	5.0	IS-6S	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-6S
				0.06	4.3	0.0	IS-7S
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-6S
				0.12	0.0	1.4	IS-7S
future	52.00	5.0	IS-6S	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-6S
				0.02	4.3	0.0	IS-7S
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-6S
				0.06	0.0	1.4	IS-7S

Center Sub-Systems

Five interconnected servers: Five servers are used to handle all the different telephone lines. Because they act in concert, they are treated as one generic server in terms of preventative maintenance and two generic servers in terms of repair maintenance.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
future	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery

Voice recording: Solid-state, digitally-developed messages are encoded using software; maintenance needs covered under software.

<u>Summary</u>						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>current</i>	0.00	0.0	SC-I-D	1.00	12.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	4.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.5	SC-E-D
	0.00	0.0	SC-E-R	0.35	3.0	SC-E-R
	1.00	2.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N
	52.00	5.0	IS-6S	0.59	4.0	IS-6S
	0.00	0.0	IS-7S	0.12	3.6	IS-7S
	0.00	0.0	ELEC	0.30	3.0	ELEC
	0.00	0.0	TS-3	0.06	2.5	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	1.00	12.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	4.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.5	SC-E-D
	0.00	0.0	SC-E-R	0.45	3.0	SC-E-R
	1.00	2.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N
	52.00	5.0	IS-6S	0.44	2.7	IS-6S
	0.00	0.0	IS-7S	0.06	2.8	IS-7S
	0.00	0.0	ELEC	0.22	2.7	ELEC
	0.00	0.0	TS-3	0.03	2.3	TS-3
<u>Travel Time</u>						
No travel time necessary; all equipment is centrally located in Salem.						
<u>Staffing Needs (FTE)</u>						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.01	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.01	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.01	0.00	0.00	0.00	0.01

Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.03	0.00	0.00	0.00	0.03
Existing + STIP	0.00	0.03	0.00	0.00	0.00	0.03
Existing + Strategic Plan	0.00	0.03	0.00	0.00	0.00	0.03
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Software (IS-6S) - DAS #1486						IS-6S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.16	0.00	0.00	0.00	0.16
Existing + STIP	0.00	0.16	0.00	0.00	0.00	0.16
Existing + Strategic Plan	0.00	0.16	0.00	0.00	0.00	0.16
Info Services 7 - Software (IS-7S) - DAS #1487						IS-7S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.5.4 Internet Access

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	1	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	0	1	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	1	0	0	0	1

Sensors

There are no unique sensors.

Communications

No unique communications links.

Field Processor/Controller

There are no field processors / controllers.

Software

ITS application server software. This may need continual updating to reflect new devices and deployments. This is estimated to require someone working approximately half-time.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	12.00	80.0	IS-6S	0.00	0.0	0.0	
future	12.00	80.0	IS-6S	0.00	0.0	0.0	

Center Sub-Systems

ITS application server: This machine pulls data for TripCheck from various remote servers (including RWIS and cameras). The server will need regular re-booting and occasional repair activities.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	52.00	1.0	IS-6S	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-6S
				0.06	4.3	0.0	IS-7S
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-6S
				0.12	0.0	1.4	IS-7S
future	52.00	1.0	IS-6S	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-6S
				0.02	4.3	0.0	IS-7S
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-6S
				0.06	0.0	1.4	IS-7S

Information Delivery						
There are no unique information delivery systems.						
Summary						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	19.5	IS-6S	0.59	4.0	IS-6S
	0.00	0.0	IS-7S	0.12	3.6	IS-7S
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	19.5	IS-6S	0.44	2.7	IS-6S
	0.00	0.0	IS-7S	0.06	2.8	IS-7S
Travel Time						
No travel time is necessary for maintenance.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Software (IS-6S) - DAS #1486						IS-6S
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.62	0.00	0.00	0.00	0.62
Existing + STIP	0.00	0.62	0.00	0.00	0.00	0.62
Existing + Strategic Plan	0.00	0.62	0.00	0.00	0.00	0.62

Info Services 7 - Software (IS-7S) - DAS #1487						IS-7S
	Region					State Total
	1	2	3	4	5	
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.5.5 Kiosks

Inventory Table							
<i>Kiosks</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	0	0	0	0	
STIP	0	0	0	0	0	0	
Existing + STIP	0	0	0	0	0	0	
Strategic Plan	117	30	30	30	30	237	
Existing + Strategic Plan	117	30	30	30	30	237	
<i>Kiosk Servers</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	0	0	0	0	
STIP	0	0	0	0	0	0	
Existing + STIP	0	0	0	0	0	0	
Strategic Plan	0	1	0	0	0	1	
Existing + Strategic Plan	0	1	0	0	0	1	
<u>Sensors</u>							
User interface: Touch screen will need regular cleaning, and occasional replacement due to vandalism. Maintenance included as part of field processor/controller.							
<u>Communications</u>							
Network: Telephone lines used to provide regular updates of data on machine, as well as allow for real-time downloading of latest information. No applicable preventative maintenance. Repair maintenance includes replacing cables and network components such as routers and modems. It is assumed problems are more frequent at kiosks, due to unforeseen cabinet relocation.							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	1.00	1.0	IS-K	0.50	3.8	0.0	IS-K
				0.15	3.0	0.0	IS-5N
				0.03	2.7	0.0	IS-6N
				0.35	0.0	1.3	IS-K
				0.30	0.0	1.0	IS-5N
				0.06	0.0	0.9	IS-6N
future	1.00	1.0	IS-K	0.50	3.8	0.0	IS-K
				0.05	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.45	0.0	1.3	IS-K
				0.22	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N

Field Processor/Controller

Local RPU: Includes Web interface, user interface. Regular cleaning and visual inspection of components is recommended for preventative maintenance. Repair needs will be replacement of components due to failure and/or vandalism, as well as occasional re-setting.

Thermal printer: Preventative maintenance includes filling paper and checking print quality. Repair maintenance includes fixing paper jams, toner, and printer replacement as necessary.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	12.00	0.2	IS-K	1.00	2.0	0.0	IS-K
				0.30	1.6	0.0	IS-5N
				0.06	1.4	0.0	IS-6N
				0.70	0.0	1.0	IS-K
				0.59	0.0	0.8	IS-5N
				0.12	0.0	0.7	IS-6N
future	12.00	0.2	IS-K	1.00	2.0	0.0	IS-K
				0.10	1.6	0.0	IS-5N
				0.02	1.4	0.0	IS-6N
				0.90	0.0	1.0	IS-K
				0.44	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N

Software

Local software: May need upgrades. Debugging could be done centrally with updates applied as needed.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	IS-K	0.00	0.0	0.0	
future	0.50	4.0	IS-K	0.00	0.0	0.0	

Polling software: May need upgrades.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

Dedicated kiosk server: Used to provide information access to kiosks and to poll kiosks to see if they are working.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
<i>current</i>	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.30	4.8	0.0	IS-5N
				0.06	4.3	0.0	IS-6N
				0.70	0.0	2.0	SC-I-R
				0.59	0.0	1.6	IS-5N
				0.12	0.0	1.4	IS-6N
<i>future</i>	52.00	1.0	SC-I-PM	1.00	6.0	0.0	SC-I-D
				0.10	4.8	0.0	IS-5N
				0.02	4.3	0.0	IS-6N
				0.90	0.0	2.0	SC-I-R
				0.44	0.0	1.6	IS-5N
				0.06	0.0	1.4	IS-6N

Information Delivery

Display covered under field controller/processor.

Summary

Kiosks	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
<i>current</i>	12.00	0.5	IS-K	1.00	5.0	IS-K
	0.00	0.0	IS-5N	0.59	2.9	IS-5N
	0.00	0.0	IS-6N	0.12	2.6	IS-6N

<i>future</i>	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
	12.00	0.5	IS-K	1.00	5.3	IS-K
	0.00	0.0	IS-5N	0.44	2.0	IS-5N
	0.00	0.0	IS-6N	0.06	2.0	IS-6N

Kiosk Server

<i>current</i>	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.70	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.59	4.0	IS-5N
	0.00	0.0	IS-6N	0.12	3.6	IS-6N

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	1.00	6.0	SC-I-D
	0.00	0.0	SC-I-R	0.90	2.0	SC-I-R
	52.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.44	2.7	IS-5N
	0.00	0.0	IS-6N	0.06	2.8	IS-6N
Travel Time						
Reduce by 75 percent for preventative maintenance because of wide device deployment.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.03	0.00	0.00	0.00	0.03
Info Services - Kiosk Specialist (IS-K) - DAS #1484						IS-K
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	1.42	0.49	0.53	0.74	0.65	3.83

Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.16	0.06	0.06	0.10	0.08	0.46
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.02	0.01	0.01	0.01	0.01	0.07

K.2.6 En-Route Traveler Information

K.2.6.1 Icy Bridge Warning CMS

Inventory Table							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	1	0	0	1	
STIP	0	0	0	0	0	0	
Existing + STIP	0	0	1	0	0	1	
Strategic Plan	0	0	0	0	0	0	
Existing + Strategic Plan	0	0	1	0	0	1	
<u>Sensors</u>							
No sensors in use.							
<u>Communications</u>							
Local cable and wiring: Repair maintenance necessary rarely.							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Field Processor/Controller

Sign motor: Activated by remote switch. Preventative maintenance includes annual test.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
<i>current</i>	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
<i>future</i>	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Software

No applicable software.

Center Sub-Systems

No center sub-system components.

Information Delivery

Sign: Maintenance covered under field processor/controller.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>current</i>	0.00	0.0	SC-E-D	0.50	2.5	SC-E-D
	0.00	0.0	SC-E-R	0.35	6.0	SC-E-R
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	ELEC	0.30	5.8	ELEC
	0.00	0.0	TS-3	0.06	4.7	TS-3
<i>future</i>	0.00	0.0	SC-E-D	0.50	2.5	SC-E-D
	0.00	0.0	SC-E-R	0.45	6.0	SC-E-R
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	ELEC	0.22	5.3	ELEC
	0.00	0.0	TS-3	0.03	4.4	TS-3

Staffing Needs (FTE)						
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.2 Tunnel Lane Closure CMS

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	1	0	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	1	0	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	1	0	0	0	0	1

Sensors						
No sensors in use.						

Communications						
Local cable and wiring: Repair maintenance necessary rarely.						

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Field Processor/Controller

Sign motor: Activated by remote switch. Preventative maintenance includes annual test.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Software

No applicable software.

Center Sub-Systems

No center sub-system components.

Information Delivery

Sign: Maintenance covered under field processor/controller.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	0.00	0.0	SC-E-D	0.50	2.5	SC-E-D
	0.00	0.0	SC-E-R	0.35	6.0	SC-E-R
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	ELEC	0.30	5.8	ELEC
	0.00	0.0	TS-3	0.06	4.7	TS-3
future	0.00	0.0	SC-E-D	0.50	2.5	SC-E-D
	0.00	0.0	SC-E-R	0.45	6.0	SC-E-R
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	ELEC	0.22	5.3	ELEC
	0.00	0.0	TS-3	0.03	4.4	TS-3

Staffing Needs (FTE)						
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.3 Radio-Controlled Snow Zone CMS

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	4	0	4
STIP	0	0	0	0	0	0
Existing + STIP	0	0	0	4	0	4
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	0	0	4	0	4

Sensors

No sensors used.

Communications

Assume that radio communications is used. Annual inspections are recommended along with repair as needed.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	0.5	IS-5R	0.25	1.0	0.0	SC-I-D
				0.08	0.8	0.0	IS-5R
				0.02	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.15	0.0	2.4	IS-5R
				0.03	0.0	2.2	IS-6R
future	1.00	0.5	IS-5R	0.20	1.0	0.0	SC-I-D
				0.02	0.8	0.0	IS-5R
				0.00	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.09	0.0	2.4	IS-5R
				0.01	0.0	2.2	IS-6R

Field Processor/Controller

No unique field processor/controller.

Software

No applicable software.

Center Sub-Systems

No applicable center sub-systems.

Information Delivery

Static sign with rotating drum: Annual preventative maintenance is recommended to test operations. Repair maintenance may be necessary only rarely if sign fails to function when required to.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Summary

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.25	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.35	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.5	IS-5R	0.15	2.8	IS-5R
	0.00	0.0	IS-6R	0.03	2.5	IS-6R
	0.00	0.0	ELEC	0.30	2.8	ELEC
	0.00	0.0	TS-3	0.06	2.3	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.20	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.45	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.5	IS-5R	0.09	2.6	IS-5R
	0.00	0.0	IS-6R	0.01	2.4	IS-6R
	0.00	0.0	ELEC	0.22	2.6	ELEC
	0.00	0.0	TS-3	0.03	2.1	TS-3

Travel Time

Reduce by 50 percent for preventative maintenance because of concentration of devices at Mt.

Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Info Services 5 - Radio Technician (IS-5R) - DAS #1485						IS-5R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01

Info Services 6 - Radio Technician (IS-6R) - DAS #1486						IS-6R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.01	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.4 Telephone-Activated Snow Zone CMS

Inventory Table							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	0	0	8	8	
STIP	0	0	0	0	0	0	
Existing + STIP	0	0	0	0	8	8	
Strategic Plan	0	0	0	0	0	0	
Existing + Strategic Plan	0	0	0	0	8	8	
Sensors							
No sensors.							
Communications							
Dial-up modem: Needs occasional repair maintenance.							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Field Processor/Controller

Controller: Rotates the drum and activates beacon depending upon signal from modem. Firmware will need no reprogramming. Preventative maintenance would focus on annual testing and cleaning. Repair maintenance may involve environmental exposure.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Software

No software application.

Center Sub-Systems

No center sub-system components.

Information Delivery

Sign: Rotating drums need to be cleaned, motors need to be tested. Maintenance for this is included under field controller/processor.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
current	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.18	1.3	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.35	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.15	2.5	IS-5N
	0.00	0.0	IS-6N	0.03	2.3	IS-6N
	0.00	0.0	ELEC	0.30	2.8	ELEC
	0.00	0.0	TS-3	0.06	2.3	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.23	1.3	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.45	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.11	1.7	IS-5N
	0.00	0.0	IS-6N	0.02	1.7	IS-6N
	0.00	0.0	ELEC	0.22	2.6	ELEC
	0.00	0.0	TS-3	0.03	2.1	TS-3
Travel Time						
Reduce by 75 percent due to concentration of signs.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.01	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.01	0.01
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.01	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.01	0.01
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.01	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.01	0.01
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.02	0.02
Existing + STIP	0.00	0.00	0.00	0.00	0.02	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.02	0.02

Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.02	0.02
Existing + STIP	0.00	0.00	0.00	0.00	0.02	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.02	0.02
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.01	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.01	0.01
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.01	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.01	0.01
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.02	0.02
Existing + STIP	0.00	0.00	0.00	0.00	0.02	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.01	0.01
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.01	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.5 Oversize Vehicle Restriction CMS

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	1	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	0	1	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	1	0	0	0	1

Sensors

No sensors are in use.

Communications

Assume that radio communications is used. Annual inspections are recommended along with repair as needed.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	0.5	IS-5R	0.25	1.0	0.0	SC-I-D
				0.08	0.8	0.0	IS-5R
				0.02	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.15	0.0	2.4	IS-5R
				0.03	0.0	2.2	IS-6R
future	1.00	0.5	IS-5R	0.20	1.0	0.0	SC-I-D
				0.02	0.8	0.0	IS-5R
				0.00	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.09	0.0	2.4	IS-5R
				0.01	0.0	2.2	IS-6R

Field Processor/Controller

No field processors / controllers.

Software

No applicable software.

Center Sub-Systems

No applicable software systems.

Information Delivery

Various display mechanisms: May be neon, rotating drum, or other display type. Maintenance needs are assumed to be similar to standard flashing beacon due to mechanical simplicity. However, repairs would be necessary more frequently due to age of deployments.

	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	1.00	1.0	SC-E-PM	1.00	1.0	0.0		SC-E-D
				0.30	0.8	0.0		ELEC
				0.06	0.7	0.0		TS-3
				0.70	0.0	3.0		SC-E-R
				0.59	0.0	2.4		ELEC
				0.12	0.0	1.9		TS-3
future	1.00	1.0	SC-E-PM	1.00	1.0	0.0		SC-E-D
				0.10	0.8	0.0		ELEC
				0.02	0.7	0.0		TS-3
				0.90	0.0	3.0		SC-E-R
				0.44	0.0	2.4		ELEC
				0.06	0.0	1.9		TS-3

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	0.00	0.0	SC-I-D	0.25	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	0.00	0.0	SC-E-D	1.00	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.70	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.5	IS-5R	0.15	2.8	IS-5R
	0.00	0.0	IS-6R	0.03	2.5	IS-6R
	0.00	0.0	ELEC	0.59	2.8	ELEC
	0.00	0.0	TS-3	0.12	2.3	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
future	0.00	0.0	SC-I-D	0.20	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	0.00	0.0	SC-E-D	1.00	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.90	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.5	IS-5R	0.09	2.6	IS-5R
	0.00	0.0	IS-6R	0.01	2.4	IS-6R
	0.00	0.0	ELEC	0.44	2.6	ELEC
	0.00	0.0	TS-3	0.06	2.1	TS-3

Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 5 - Radio Technician (IS-5R) - DAS #1485						IS-5R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

Info Services 6 - Radio Technician (IS-6R) - DAS #1486						IS-6R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.6 Permanent Variable Message Signs

Inventory Table								
<i>Signs</i>								
	Region					State		
	1	2	3	4	5	Total		
Existing	12	5	2	1	5	25		
STIP	4	4	0	0	5	13		
Existing + STIP	16	9	2	1	10	38		
Strategic Plan	16	0	0	0	8	24		
Existing + Strategic Plan	32	9	2	1	18	62		
Note: ODOT is assumed to have no maintenance responsibility over CSEPP signs (Region 5 only) until after STIP expires, although they can currently be used for operations. It is assumed, as a worst case scenario, that ODOT would take over maintenance for all eight CSEPP-related VMS.								
<i>Centers</i>								
	Region					State		
	1	2	3	4	5	Total		
Existing	1	1	1	1	1	5		
STIP	0	0	0	0	0	0		
Existing + STIP	1	1	1	1	1	5		
Strategic Plan	0	0	0	0	0	0		
Existing + Strategic Plan	1	1	1	1	1	5		
<i>Sensors</i>								
No applicable sensors.								
<i>Communications</i>								
Routers, Modems, Communications: Preventative maintenance includes annual inspection. Repair maintenance includes component replacement to restore communications.								
	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	0.0	SC-I-D
				0.08	3.0	0.0	0.0	IS-5N
				0.02	2.7	0.0	0.0	IS-6N
				0.18	0.0	1.3	0.0	SC-I-R
				0.15	0.0	1.0	0.0	IS-5N
				0.03	0.0	0.9	0.0	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	0.0	SC-I-D
				0.03	3.0	0.0	0.0	IS-5N
				0.01	2.7	0.0	0.0	IS-6N
				0.23	0.0	1.3	0.0	SC-I-R
				0.11	0.0	1.0	0.0	IS-5N
				0.02	0.0	0.9	0.0	IS-6N

Field Processor/Controller

Field processor is designed to display information. Maintenance needs are covered under information display.

Software

Software is used to translate and transmit messages from TOC console to the sign display. Software upgrades are rarely necessary, except for NTCIP compliance. Assume an average of three manufacturers per region, and each software package would be updated every ten years. Software is fairly unsophisticated, and would take half as long to install as other software packages.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

No center sub-systems.

Information Delivery

Sign: Preventative maintenance includes cleaning, checking display modules, inspection, etc. Repair maintenance is assumed to be easier in the future because of improved self-diagnostic capabilities. Repair frequency is expected to decrease in the future as lower-maintenance technologies are implemented on a greater scale.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	2.00	5.0	ELEC	3.00	1.0	0.0	SC-E-D
				0.90	0.8	0.0	ELEC
				0.18	0.7	0.0	TS-3
				2.10	0.0	3.0	SC-E-R
				1.77	0.0	2.4	ELEC
				0.36	0.0	1.9	TS-3
future	2.00	5.0	ELEC	1.00	0.5	0.0	SC-E-D
				0.10	0.4	0.0	ELEC
				0.02	0.4	0.0	TS-3
				2.70	0.0	2.0	SC-E-R
				1.32	0.0	1.6	ELEC
				0.19	0.0	1.3	TS-3

Summary						
<i>Field Units</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.18	1.3	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	3.00	1.0	SC-E-D
	0.00	0.0	SC-E-R	2.10	3.0	SC-E-R
	0.00	0.0	IS-5N	0.15	2.5	IS-5N
	0.00	0.0	IS-6N	0.03	2.3	IS-6N
	2.00	5.0	ELEC	1.77	2.8	ELEC
	0.00	0.0	TS-3	0.36	2.3	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.23	1.3	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	1.00	0.5	SC-E-D
	0.00	0.0	SC-E-R	2.70	2.0	SC-E-R
	0.00	0.0	IS-5N	0.11	1.7	IS-5N
	0.00	0.0	IS-6N	0.02	1.7	IS-6N
	2.00	5.0	ELEC	1.32	1.6	ELEC
	0.00	0.0	TS-3	0.19	1.3	TS-3
<i>Operation Centers</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.50	4.0	SC-I-PM	0.00	0.0	SC-I-PM
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.50	4.0	SC-I-PM	0.00	0.0	SC-I-PM
Travel Time						
Reduced by 50 percent for preventative maintenance in Regions 1, 2 and 5 due to widespread device deployment.						

Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.00	0.01	0.03
Existing + STIP	0.02	0.01	0.00	0.00	0.02	0.05
Existing + Strategic Plan	0.03	0.01	0.00	0.00	0.03	0.08
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.01	0.02
Existing + STIP	0.01	0.01	0.00	0.00	0.01	0.03
Existing + Strategic Plan	0.02	0.01	0.00	0.00	0.02	0.05
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.01	0.01	0.01	0.01	0.05
Existing + STIP	0.02	0.02	0.01	0.01	0.02	0.07
Existing + Strategic Plan	0.04	0.02	0.01	0.01	0.04	0.11
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.09	0.06	0.03	0.02	0.09	0.28
Existing + STIP	0.12	0.10	0.03	0.02	0.17	0.44
Existing + Strategic Plan	0.07	0.03	0.01	0.01	0.10	0.21
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.09	0.05	0.02	0.02	0.07	0.26
Existing + STIP	0.12	0.10	0.02	0.02	0.15	0.40
Existing + Strategic Plan	0.27	0.11	0.03	0.02	0.31	0.73
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.00	0.00	0.00	0.00	0.02
Existing + STIP	0.01	0.01	0.00	0.00	0.01	0.03
Existing + Strategic Plan	0.01	0.00	0.00	0.00	0.01	0.03

Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.16	0.09	0.04	0.03	0.11	0.43
Existing + STIP	0.22	0.15	0.04	0.03	0.22	0.66
Existing + Strategic Plan	0.36	0.12	0.03	0.02	0.32	0.85
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.01	0.00	0.02	0.05
Existing + STIP	0.02	0.01	0.01	0.00	0.04	0.08
Existing + Strategic Plan	0.02	0.01	0.00	0.00	0.04	0.06

K.2.6.7 Portable Variable Message Signs

Inventory Table							
<i>Signs</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	1	19	0	3	0	23	
STIP	0	0	0	2	0	2	
Existing + STIP	1	19	0	5	0	25	
Strategic Plan	60	80	100	97	100	437	
Existing + Strategic Plan	61	99	100	102	100	462	
<i>Centers</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	1	1	0	1	0	3	
STIP	0	0	0	0	0	0	
Existing + STIP	1	1	0	1	0	3	
Strategic Plan	0	0	1	0	1	2	
Existing + Strategic Plan	1	1	1	1	1	5	
<i>Sensors</i>							
No unique sensors.							
<i>Communications</i>							
Cellular modems: No unique PM for communications is recommended because problems should be evident during weekly operational tests and periodic checks by electricians. Repair maintenance is expected to be more frequent than other communications systems based on ODOT experience with the effects of transport on cellular modems, although it is expected to take less time. Repair should be less frequent in the future.							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	0.00	0.0		2.00	3.8	0.0	SC-I-D
				0.60	3.0	0.0	IS-5N
				0.12	2.7	0.0	IS-6N
				1.40	0.0	1.3	SC-I-R
				1.18	0.0	1.0	IS-5N
				0.24	0.0	0.9	IS-6N
future	0.00	0.0		1.00	3.8	0.0	SC-I-D
				0.10	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.90	0.0	1.3	SC-I-R
				0.44	0.0	1.0	IS-5N
				0.06	0.0	0.9	IS-6N

Field Processor/Controller

Weekly operational tests are recommended to ensure sign is ready to be dispatched immediately. This may reveal repair needs which can be addressed quickly. These may done remotely.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	52.00	0.3	SC-P	0.00	0.0	0.0	
future	52.00	0.3	SC-P	0.00	0.0	0.0	

Software

Software to program messages onto signs: May need to be upgraded on a rare occasion. Upgrades should occur rarely - i.e. at same frequency as permanent VMS.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

No unique center sub-systems.

Information Delivery

Sign display: Preventative maintenance recommended to check for corrosion, leakage, etc. Repair maintenance may include replacement of some boards. PM will be more frequent but less time-consuming than PM for overhead VMS due to greater environmental exposure but easier access. Repair maintenance will be less frequent than overhead VMS. Repair maintenance in the future will be less frequent still due to better protection against vibration.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	4.00	1.3	SC-E-PM	2.00	1.0	0.0	SC-E-D
				0.60	0.8	0.0	ELEC
				0.12	0.7	0.0	TS-3
				1.40	1.0	0.0	SC-E-R
				1.18	0.8	0.0	ELEC
				0.24	0.7	0.0	TS-3
future	4.00	1.3	SC-E-PM	1.00	0.5	0.0	SC-E-D
				0.10	0.4	0.0	ELEC
				0.02	0.4	0.0	TS-3
				0.90	0.5	0.0	SC-E-R
				0.44	0.4	0.0	ELEC
				0.06	0.4	0.0	TS-3

Summary						
<i>Field units</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	2.00	3.8	SC-I-D
	0.00	0.0	SC-I-R	1.40	1.3	SC-I-R
	0.00	0.0	SC-E-D	2.00	1.0	SC-E-D
	0.00	0.0	SC-E-R	1.40	1.0	SC-E-R
	4.00	1.3	SC-E-PM	0.00	0.0	SC-E-PM
	52.00	0.3	SC-P	0.00	0.0	SC-P
	0.00	0.0	IS-5N	1.18	2.5	IS-5N
	0.00	0.0	IS-6N	0.24	2.3	IS-6N
	0.00	0.0	ELEC	1.18	1.2	ELEC
	0.00	0.0	TS-3	0.24	1.1	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	1.00	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.90	1.3	SC-I-R
	0.00	0.0	SC-E-D	1.00	0.5	SC-E-D
	0.00	0.0	SC-E-R	0.90	0.5	SC-E-R
	4.00	1.3	SC-E-PM	0.00	0.0	SC-E-PM
	52.00	0.3	SC-P	0.00	0.0	SC-P
	0.00	0.0	IS-5N	0.44	1.7	IS-5N
	0.00	0.0	IS-6N	0.06	1.7	IS-6N
	0.00	0.0	ELEC	0.44	0.5	ELEC
	0.00	0.0	TS-3	0.06	0.5	TS-3
<i>Centers</i>						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.50	4.0	SC-I-PM	0.00	0.0	SC-I-PM
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.50	4.0	SC-I-PM	0.00	0.0	SC-I-PM
Travel Time						
No travel time for preventative maintenance; it is assumed that operational tests can be done without additional travel time, and that preventative maintenance would be performed when maintenance staff are performing other functions in the area.						

Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.21	0.00	0.05	0.00	0.27
Existing + STIP	0.01	0.21	0.00	0.08	0.00	0.30
Existing + Strategic Plan	0.25	0.55	0.60	0.85	0.74	2.98
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.11	0.00	0.03	0.00	0.14
Existing + STIP	0.00	0.11	0.00	0.05	0.00	0.16
Existing + Strategic Plan	0.14	0.36	0.40	0.62	0.53	2.05
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.15	0.00	0.04	0.00	0.19
Existing + STIP	0.00	0.15	0.00	0.07	0.00	0.22
Existing + Strategic Plan	0.13	0.35	0.40	0.64	0.54	2.06
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.10	0.00	0.03	0.00	0.13
Existing + STIP	0.00	0.10	0.00	0.05	0.00	0.15
Existing + Strategic Plan	0.12	0.31	0.36	0.58	0.48	1.85
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.06	0.00	0.01	0.00	0.07
Existing + STIP	0.00	0.06	0.00	0.02	0.00	0.08
Existing + Strategic Plan	0.19	0.30	0.31	0.31	0.31	1.42

Support Coordinator / Program Technician (SC-P) - DAS #						SC-P
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.18	0.00	0.03	0.00	0.22
Existing + STIP	0.01	0.18	0.00	0.05	0.00	0.24
Existing + Strategic Plan	0.58	0.95	0.96	0.98	0.96	4.43
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.11	0.00	0.03	0.00	0.14
Existing + STIP	0.00	0.11	0.00	0.04	0.00	0.16
Existing + Strategic Plan	0.08	0.19	0.21	0.32	0.27	1.05
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.02	0.00	0.01	0.00	0.03
Existing + STIP	0.00	0.02	0.00	0.01	0.00	0.03
Existing + Strategic Plan	0.01	0.03	0.03	0.05	0.04	0.15
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.09	0.00	0.02	0.00	0.12
Existing + STIP	0.00	0.09	0.00	0.04	0.00	0.13
Existing + Strategic Plan	0.06	0.15	0.18	0.28	0.24	0.91
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.01	0.00	0.01	0.00	0.02
Existing + STIP	0.00	0.01	0.00	0.01	0.00	0.02
Existing + Strategic Plan	0.01	0.02	0.04	0.04	0.06	0.17

K.2.6.8 Highway Advisory Radio

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	0	0	1	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	0	0	1	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	0	1	0	0	1

Sensors						
No applicable sensors.						

Communications						
Radio transmitter: Annual maintenance check reviews power level.						

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	0.5	IS-5R	0.25	1.0	0.0	SC-I-D
				0.08	0.8	0.0	IS-5R
				0.02	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.15	0.0	2.4	IS-5R
				0.03	0.0	2.2	IS-6R
future	1.00	0.5	IS-5R	0.20	1.0	0.0	SC-I-D
				0.02	0.8	0.0	IS-5R
				0.00	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.09	0.0	2.4	IS-5R
				0.01	0.0	2.2	IS-6R

Field Processor/Controller

Recorder / player unit: Maintenance needs assumed to be similar to communications equipment (i.e. modems)

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Software

No software.

Center Sub-Systems

No applicable center sub-systems.

Information Delivery

Static sign: Maintenance covered by existing procedures.

Flashing beacons: Annual testing and bulb replacement.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

<u>Summary</u>						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>current</i>	0.00	0.0	SC-I-D	0.25	4.8	SC-I-D
	0.00	0.0	SC-I-R	0.18	4.3	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.35	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.5	IS-5R	0.15	2.8	IS-5R
	0.00	0.0	IS-5N	0.15	2.5	IS-5N
	0.00	0.0	IS-6R	0.03	2.5	IS-6R
	0.00	0.0	IS-6N	0.03	2.3	IS-6N
	0.00	0.0	ELEC	0.30	2.8	ELEC
	0.00	0.0	TS-3	0.06	2.3	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.25	4.6	SC-I-D
	0.00	0.0	SC-I-R	0.23	3.7	SC-I-R
	1.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.0	SC-E-D
	0.00	0.0	SC-E-R	0.45	3.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.5	IS-5R	0.09	2.6	IS-5R
	0.00	0.0	IS-5N	0.11	1.7	IS-5N
	0.00	0.0	IS-6R	0.01	2.4	IS-6R
	0.00	0.0	IS-6N	0.02	1.7	IS-6N
	0.00	0.0	ELEC	0.22	2.6	ELEC
	0.00	0.0	TS-3	0.03	2.1	TS-3
<u>Travel Time</u>						
All travel times are	1.5	hrs.				
<u>Staffing Needs (FTE)</u>						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 5 - Radio Technician (IS-5R) - DAS #1485						IS-5R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Radio Technician (IS-6R) - DAS #1486						IS-6R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.9 Icy Bridge Detectors

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	1	0	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	1	0	0	0	0	1
Strategic Plan	4	4	4	4	4	20
Existing + Strategic Plan	5	4	4	4	4	21

Sensors

Air temperature and relative humidity sensors: Humidity sensor needs to be cleaned and wetted annually.

Precipitation sensors: Lenses need to be cleaned annually.

Pavement surface sensors: Sensor needs to be wiped off so it will accurately show dry vs. wet pavement.

All sensors need to be cleaned, tested and calibrated annually. Lightning strikes, re-paving other factors may necessitate sensor replacement.

Will take approximately 3/4 of time as full RWIS.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	2.3	ELEC	0.19	1.0	0.0	SC-E-D
				0.06	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.13	0.0	4.0	SC-E-R
				0.11	0.0	3.2	ELEC
				0.02	0.0	2.6	TS-3
future	1.00	2.3	ELEC	0.19	1.0	0.0	SC-E-D
				0.02	0.8	0.0	ELEC
				0.00	0.7	0.0	TS-3
				0.17	0.0	4.0	SC-E-R
				0.08	0.0	3.2	ELEC
				0.01	0.0	2.6	TS-3

Communications

Routers, Modems, Communications: Preventative maintenance includes annual inspection. Repair maintenance includes component replacement to restore communications.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Field Processor/Controller

RPU: Maintenance needs are half of RWIS RPU because of seasonal usage. Preventative maintenance should take half as long as typical RPUs due to fewer diagnostic needs.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	3.00	0.5	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.15	1.6	0.0	IS-5N
				0.03	1.4	0.0	IS-6N
				0.35	0.0	1.0	SC-I-R
				0.30	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N
future	3.00	0.5	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.05	1.6	0.0	IS-5N
				0.01	1.4	0.0	IS-6N
				0.45	0.0	1.0	SC-I-R
				0.22	0.0	0.8	IS-5N
				0.03	0.0	0.7	IS-6N

Software

Local software: Used to collect sensor data and transmit data to regional server.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Database applications: Assume that this system could use existing RWIS database. No additional maintenance would be required.

Center Sub-Systems

Regional servers: Assume that this would utilize existing RWIS servers. No additional maintenance would be required.

Information Delivery

Static sign with flashing beacon: Annual preventative maintenance includes testing, bulb replacement. Assumed to be identical to HAR flashing beacon.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.35	1.6	SC-I-R
	3.00	1.5	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.4	SC-E-D
	0.00	0.0	SC-E-R	0.35	4.5	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.30	2.9	IS-5N
	0.00	0.0	IS-6N	0.06	2.6	IS-6N
	1.00	2.3	ELEC	0.30	4.2	ELEC
	0.00	0.0	TS-3	0.06	3.4	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.45	1.6	SC-I-R
	3.00	1.5	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.4	SC-E-D
	0.00	0.0	SC-E-R	0.45	4.5	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.22	2.0	IS-5N
	0.00	0.0	IS-6N	0.03	2.0	IS-6N
	1.00	2.3	ELEC	0.22	3.9	ELEC
	0.00	0.0	TS-3	0.03	3.2	TS-3
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.01	0.01	0.02	0.01	0.07
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.01	0.01	0.01	0.01	0.05
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.01	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.03	0.04	0.04	0.06	0.05	0.22
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.01	0.01	0.01	0.01	0.05

Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.01	0.01	0.02	0.01	0.06
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.01	0.01	0.02	0.02	0.07
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.01	0.02
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.02	0.02	0.02	0.03	0.03	0.11
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.10 Oversize Load Detector

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	0	0	0	5	0	5
Existing + STIP	0	0	0	5	0	5
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	0	0	5	0	5

Sensors

Wind sensors: Replace bearings annually.

Pavement surface sensors: Sensor needs to be wiped off so it will accurately show dry vs. wet pavement.

All sensors need to be cleaned, tested and calibrated annually. Lightning strikes, re-paving other factors may necessitate sensor replacement.

Will take approximately 1/2 time of full RWIS.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.5	ELEC	0.25	1.0	0.0	SC-E-D
				0.08	0.8	0.0	ELEC
				0.02	0.7	0.0	TS-3
				0.18	0.0	4.0	SC-E-R
				0.15	0.0	3.2	ELEC
				0.03	0.0	2.6	TS-3
future	1.00	1.5	ELEC	0.25	1.0	0.0	SC-E-D
				0.03	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.23	0.0	4.0	SC-E-R
				0.11	0.0	3.2	ELEC
				0.02	0.0	2.6	TS-3

Communications

Routers, Modems, Communications: Preventative maintenance includes annual inspection. Repair maintenance includes component replacement to restore communications.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Field Processor/Controller

RPU: Needs preventative maintenance and repairs typical for a field RPU. Repair maintenance will be necessary half as often as other RPUs due to use of single-application without need for hardware upgrades. Preventative Maintenance will require less time due to fewer diagnostic needs.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	6.00	0.5	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.15	1.6	0.0	IS-5N
				0.03	1.4	0.0	IS-6N
				0.35	0.0	1.0	SC-I-R
				0.30	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N
future	6.00	0.5	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.05	1.6	0.0	IS-5N
				0.01	1.4	0.0	IS-6N
				0.45	0.0	1.0	SC-I-R
				0.22	0.0	0.8	IS-5N
				0.03	0.0	0.7	IS-6N

Software

Local software: Used to collect sensor data and transmit data to regional server.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Database applications: Assume that this system could use existing RWIS database. No additional maintenance would be required.

Center Sub-Systems

Regional servers: Assume that this would utilize existing RWIS servers. No additional maintenance would be required.

Information Delivery

Static sign with flashing beacon: Annual preventative maintenance includes testing, bulb replacement. Assumed to be identical to HAR flashing beacon.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.35	1.6	SC-I-R
	6.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.5	SC-E-D
	0.00	0.0	SC-E-R	0.35	5.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.30	2.9	IS-5N
	0.00	0.0	IS-6N	0.06	2.6	IS-6N
	1.00	1.5	ELEC	0.30	4.6	ELEC
	0.00	0.0	TS-3	0.06	3.7	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.45	1.6	SC-I-R
	6.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.5	SC-E-D
	0.00	0.0	SC-E-R	0.45	5.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.22	2.0	IS-5N
	0.00	0.0	IS-6N	0.03	2.0	IS-6N
	1.00	1.5	ELEC	0.22	4.3	ELEC
	0.00	0.0	TS-3	0.03	3.5	TS-3

Travel Time

Reduce travel time for preventative maintenance by 50 percent due to expected concentration of devices.

Staffing Needs (FTE)

Support Coordinator / IS-Diag (SC-I-D) - DAS #

SC-I-D

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.02	0.00	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.02	0.00	0.02

Support Coordinator / IS-Repair (SC-I-R) - DAS #

SC-I-R

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.02	0.00	0.02

Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #

SC-I-PM

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.08	0.00	0.08
Existing + Strategic Plan	0.00	0.00	0.00	0.08	0.00	0.08

Support Coordinator / Elec-Diag (SC-E-D) - DAS #

SC-E-D

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.02	0.00	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.02	0.00	0.02

Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.02	0.00	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.02	0.00	0.02
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.00	0.01
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.03	0.00	0.03
Existing + Strategic Plan	0.00	0.00	0.00	0.02	0.00	0.02
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.6.11 Variable Speed Limit Systems

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	0	0	0	0	0	0
Existing + STIP	0	0	0	0	0	0
Strategic Plan	2	3	5	5	5	20
Existing + Strategic Plan	2	3	5	5	5	20

Sensors

Wind sensors: Replace bearings annually.

Visibility sensors: Clean annually.

Precipitation sensors: Lenses need to be cleaned annually.

Pavement surface sensors: Sensor needs to be wiped off so it will accurately show dry vs. wet pavement.

All sensors need to be cleaned, tested and calibrated annually. Lightning strikes, re-paving other factors may necessitate sensor replacement.

Preventative maintenance is expected to require 1/2 time of RWIS.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.5	ELEC	0.25	1.0	0.0	SC-E-D
				0.08	0.8	0.0	ELEC
				0.02	0.7	0.0	TS-3
				0.18	0.0	4.0	SC-E-R
				0.15	0.0	3.2	ELEC
				0.03	0.0	2.6	TS-3
future	1.00	1.5	ELEC	0.25	1.0	0.0	SC-E-D
				0.03	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.23	0.0	4.0	SC-E-R
				0.11	0.0	3.2	ELEC
				0.02	0.0	2.6	TS-3

Communications

Routers, Modems, Communications: Preventative maintenance includes annual inspection. Repair maintenance includes component replacement to restore communications.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Field Processor/Controller

RPU: Preventative maintenance includes regular re-booting. It will take less time than other field RPUs due to fewer diagnostic tests. Repair maintenance includes replacement of weathered or damaged components. Upgrades will be seldom necessary.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	6.00	0.5	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.15	1.6	0.0	IS-5N
				0.03	1.4	0.0	IS-6N
				0.35	0.0	1.0	SC-I-R
				0.30	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N
future	6.00	0.5	SC-I-PM	0.50	2.0	0.0	SC-I-D
				0.05	1.6	0.0	IS-5N
				0.01	1.4	0.0	IS-6N
				0.45	0.0	1.0	SC-I-R
				0.22	0.0	0.8	IS-5N
				0.03	0.0	0.7	IS-6N

Software

Local software: Used to collect sensor data and transmit data to regional server.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Database applications: Assume that this system could use existing RWIS database. No additional maintenance would be required.

Center Sub-Systems

Regional servers: Assume that this would utilize existing RWIS servers. No additional maintenance would be required.

Information Delivery

Static sign with flashing beacon: Annual preventative maintenance includes testing, bulb replacement. Assumed to be identical to HAR flashing beacon.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.35	1.6	SC-I-R
	6.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.5	SC-E-D
	0.00	0.0	SC-E-R	0.35	5.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.30	2.9	IS-5N
	0.00	0.0	IS-6N	0.06	2.6	IS-6N
	1.00	1.5	ELEC	0.30	4.6	ELEC
	0.00	0.0	TS-3	0.06	3.7	TS-3

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.50	3.9	SC-I-D
	0.00	0.0	SC-I-R	0.45	1.6	SC-I-R
	6.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	0.50	1.5	SC-E-D
	0.00	0.0	SC-E-R	0.45	5.0	SC-E-R
	1.00	1.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.22	2.0	IS-5N
	0.00	0.0	IS-6N	0.03	2.0	IS-6N
	1.00	1.5	ELEC	0.22	4.3	ELEC
	0.00	0.0	TS-3	0.03	3.5	TS-3
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.01	0.02	0.02	0.02	0.07
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.01	0.01	0.02	0.01	0.05
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.02	0.05	0.09	0.14	0.12	0.42
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.01	0.01	0.02	0.01	0.05

Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.01	0.02	0.02	0.02	0.07
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.01	0.02	0.02	0.02	0.07
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.01	0.01	0.01	0.02
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.01	0.01	0.02	0.03	0.03	0.11
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01

K.2.6.12 Queue Detection System

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	1	0	0	0	1
STIP	0	0	0	0	0	0
Existing + STIP	0	1	0	0	0	1
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	0	1	0	0	0	1

Sensors

Inductive Loops: Maintenance covered under existing procedures.

Communications

Local cable and wiring: Cable replacement may be necessary rarely.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Field Processor/Controller

Timer: Annual preventative maintenance should ensure the timer is functioning properly. Repair may be necessary occasionally. It is assumed that due to the simplicity of the device that no escalation would be necessary beyond the electrician.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	0.2	ELEC	0.50	0.2	0.0	SC-E-D
				0.15	0.2	0.0	ELEC
				0.35	0.0	2.0	SC-E-R
				0.33	0.0	1.6	ELEC
future	1.00	0.2	ELEC	0.50	0.2	0.0	SC-E-D
				0.05	0.2	0.0	ELEC
				0.45	0.0	2.0	SC-E-R
				0.23	0.0	1.6	ELEC

Software
 No software is used.

Center Sub-Systems
 No center sub-system components.

Information Delivery
 Static sign: Maintenance covered by existing procedures.
 Flashing beacons: Annual testing and bulb replacement.

	Preventative Maintenance			Repair Maintenance				
	visits per yr	hrs per visit	job class	visits per yr	hours per visit	diag.	repair	job class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0		SC-E-D
				0.15	0.8	0.0		ELEC
				0.03	0.7	0.0		TS-3
				0.35	0.0	3.0		SC-E-R
				0.30	0.0	2.4		ELEC
				0.06	0.0	1.9		TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0		SC-E-D
				0.05	0.8	0.0		ELEC
				0.01	0.7	0.0		TS-3
				0.45	0.0	3.0		SC-E-R
				0.22	0.0	2.4		ELEC
				0.03	0.0	1.9		TS-3

Summary

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
current	0.00	0.0	SC-E-D	0.50	2.7	SC-E-D
	0.00	0.0	SC-E-R	0.35	8.0	SC-E-R
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.2	ELEC	0.33	7.0	ELEC
	0.00	0.0	TS-3	0.06	4.7	TS-3
future	0.00	0.0	SC-E-D	0.50	2.7	SC-E-D
	0.00	0.0	SC-E-R	0.45	8.0	SC-E-R
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	1.00	0.2	ELEC	0.23	6.7	ELEC
	0.00	0.0	TS-3	0.03	4.4	TS-3

Staffing Needs (FTE)						
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.2.7 Commercial Vehicle Operations

K.2.7.1 Weigh-in-Motion Systems

Inventory Table						
	Region					State
	1	2	3	4	5	Total
Existing	0	2	4	0	5	11
STIP	5	1	0	4	0	10
Existing + STIP	5	3	4	4	5	21
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	5	3	4	4	5	21

Sensors							
<p>Various sensors: Sensors associated with WIM include axle sensors, automatic vehicle identification (AVI), automatic vehicle classification (AVC), and loop detectors. Preventative maintenance includes visual inspection and calibration. Repair maintenance includes sensor replacement. Maintenance activities are anticipated to occur twice as often as other sensor systems due to importance of calibration and sensor complexity.</p>							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	2.00	5.0	ELEC	2.00	1.0	0.0	SC-E-D
				0.60	0.8	0.0	ELEC
				0.12	0.7	0.0	TS-3
				1.40	0.0	4.0	SC-E-R
				1.18	0.0	3.2	ELEC
				0.24	0.0	2.6	TS-3
future	2.00	5.0	ELEC	2.00	1.0	0.0	SC-E-D
				0.20	0.8	0.0	ELEC
				0.04	0.7	0.0	TS-3
				1.80	0.0	4.0	SC-E-R
				0.88	0.0	3.2	ELEC
				0.13	0.0	2.6	TS-3

Communications

Routers, Modems, Communications: Preventative maintenance includes annual inspection. Repair maintenance includes component replacement to restore communications.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Local cable and wiring: There are significant landline connections between the various sensors and the scalehouse. This wiring need to be regularly inspected.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Field Processor/Controller

Supervisory computer: Computer preceded WIM; maintenance is covered under existing procedures.

Software

Supervisory Computer Software: Some software is owned by ODOT; some is jointly managed between ODOT and vendor. Assume upgrades are applied four times per year to each machine.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Motor Carrier Database: Existed before weigh-in-motion systems; no maintenance necessary.							
<u>Center Sub-Systems</u>							
Motor Carrier Server: Existed before weigh-in-motion system; maintenance covered under existing procedures.							
<u>Information Delivery</u>							
Red-light/Green-light: System reports to transponder-equipped vehicles whether they need to pull into the weigh station. Maintenance needs are similar to flashing beacons.							
	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.15	0.8	0.0	ELEC
				0.03	0.7	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	1.0	SC-E-PM	0.50	1.0	0.0	SC-E-D
				0.05	0.8	0.0	ELEC
				0.01	0.7	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3
<u>Summary</u>							
	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hrs per	job	
<i>current</i>	per yr	visit	class	per yr	visit	class	
	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D	
	0.00	0.0	SC-I-R	0.18	1.3	SC-I-R	
	1.00	3.0	SC-I-PM	0.00	0.0	SC-I-PM	
	0.00	0.0	SC-E-D	2.00	1.6	SC-E-D	
	0.00	0.0	SC-E-R	1.40	5.5	SC-E-R	
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM	
	0.00	0.0	IS-5N	0.15	2.5	IS-5N	
	0.00	0.0	IS-6N	0.03	2.3	IS-6N	
	2.00	5.0	ELEC	1.18	5.1	ELEC	
	0.00	0.0	TS-3	0.24	4.1	TS-3	

	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	0.25	3.8	SC-I-D
	0.00	0.0	SC-I-R	0.23	1.3	SC-I-R
	1.00	3.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	2.00	1.6	SC-E-D
	0.00	0.0	SC-E-R	1.80	5.5	SC-E-R
	1.00	3.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.11	1.7	IS-5N
	0.00	0.0	IS-6N	0.02	1.7	IS-6N
	2.00	5.0	ELEC	0.88	4.7	ELEC
	0.00	0.0	TS-3	0.13	3.9	TS-3

Travel Time

Reduce by 50 percent for preventative maintenance because of wide device deployment.

Staffing Needs (FTE)

Support Coordinator / IS-Diag (SC-I-D) - DAS #

SC-I-D

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.01	0.00	0.01	0.02
Existing + STIP	0.01	0.00	0.01	0.01	0.01	0.03
Existing + Strategic Plan	0.01	0.00	0.01	0.01	0.01	0.03

Support Coordinator / IS-Repair (SC-I-R) - DAS #

SC-I-R

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.01	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.01	0.01	0.02

Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #

SC-I-PM

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.01	0.01	0.00	0.02	0.04
Existing + STIP	0.01	0.01	0.01	0.02	0.02	0.07
Existing + Strategic Plan	0.01	0.01	0.01	0.02	0.02	0.07

Support Coordinator / Elec-Diag (SC-E-D) - DAS #

SC-E-D

	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.02	0.04	0.00	0.06	0.12
Existing + STIP	0.03	0.03	0.04	0.06	0.06	0.21
Existing + Strategic Plan	0.03	0.03	0.04	0.06	0.06	0.21

Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.02	0.04	0.00	0.06	0.12
Existing + STIP	0.04	0.03	0.04	0.05	0.06	0.22
Existing + Strategic Plan	0.05	0.04	0.05	0.07	0.08	0.28
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.01	0.01	0.00	0.02	0.04
Existing + STIP	0.01	0.01	0.01	0.02	0.02	0.07
Existing + Strategic Plan	0.01	0.01	0.01	0.02	0.02	0.07
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.02
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.03	0.07	0.00	0.10	0.19
Existing + STIP	0.07	0.05	0.07	0.08	0.10	0.36
Existing + Strategic Plan	0.06	0.04	0.06	0.07	0.08	0.31
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.01	0.00	0.01	0.03
Existing + STIP	0.01	0.00	0.01	0.01	0.01	0.04
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.01	0.02

K.2.7.2 Downhill Speed Advisory System

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	1	1
STIP	0	0	1	0	0	1
Existing + STIP	0	0	1	0	1	2
Strategic Plan	0	4	7	7	6	24
Existing + Strategic Plan	0	4	8	7	7	26

Sensors

Various sensors: Same sensors as WIM, including axle sensors, automatic vehicle identification (AVI), automatic vehicle classification (AVC), and loop detectors. Preventative maintenance includes visual inspection and calibration. Repair maintenance includes sensor replacement. Maintenance activities are anticipated to occur twice as often as other sensor systems due to importance of calibration and sensor complexity.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	2.00	5.0	ELEC	2.00	1.0	0.0	SC-E-D
				0.60	0.8	0.0	ELEC
				0.12	0.7	0.0	TS-3
				1.40	0.0	4.0	SC-E-R
				1.18	0.0	3.2	ELEC
				0.24	0.0	2.6	TS-3
future	2.00	5.0	ELEC	2.00	1.0	0.0	SC-E-D
				0.20	0.8	0.0	ELEC
				0.04	0.7	0.0	TS-3
				1.80	0.0	4.0	SC-E-R
				0.88	0.0	3.2	ELEC
				0.13	0.0	2.6	TS-3

Communications

Routers, Modems, Communications: Preventative maintenance includes annual inspection. Repair maintenance includes component replacement to restore communications.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.08	3.0	0.0	IS-5N
				0.02	2.7	0.0	IS-6N
				0.18	0.0	1.3	SC-I-R
				0.15	0.0	1.0	IS-5N
				0.03	0.0	0.9	IS-6N
future	1.00	1.0	SC-I-PM	0.25	3.8	0.0	SC-I-D
				0.03	3.0	0.0	IS-5N
				0.01	2.7	0.0	IS-6N
				0.23	0.0	1.3	SC-I-R
				0.11	0.0	1.0	IS-5N
				0.02	0.0	0.9	IS-6N

Local cable and wiring: There are significant landline connections between the various sensors and the scalehouse. This wiring need to be regularly inspected.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.15	1.2	0.0	ELEC
				0.03	1.1	0.0	TS-3
				0.35	0.0	3.0	SC-E-R
				0.30	0.0	2.4	ELEC
				0.06	0.0	1.9	TS-3
future	1.00	2.0	SC-E-PM	0.50	1.5	0.0	SC-E-D
				0.05	1.2	0.0	ELEC
				0.01	1.1	0.0	TS-3
				0.45	0.0	3.0	SC-E-R
				0.22	0.0	2.4	ELEC
				0.03	0.0	1.9	TS-3

Field Processor/Controller

RPU: Used to process vehicle data, calculate vehicle speed, develop message for VMS and transmit message to VMS. Assume that this will require similar maintenance as a generic field RPU.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	6.00	0.5	SC-I-PM	1.00	2.0	0.0	SC-I-D
				0.30	1.6	0.0	IS-5N
				0.06	1.4	0.0	IS-6N
				0.70	0.0	1.0	SC-I-R
				0.59	0.0	0.8	IS-5N
				0.12	0.0	0.7	IS-6N
future	6.00	0.5	SC-I-PM	1.00	2.0	0.0	SC-I-D
				0.10	1.6	0.0	IS-5N
				0.02	1.4	0.0	IS-6N
				0.90	0.0	1.0	SC-I-R
				0.44	0.0	0.8	IS-5N
				0.06	0.0	0.7	IS-6N

Software

Software at RPU may need upgrading or debugging on an occasional basis.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

No unique sub-systems.

Information Delivery

Sign: Preventative maintenance includes cleaning, checking display modules, inspection, etc. Repair maintenance is assumed to be easier in the future because of improved self-diagnostic capabilities.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	2.00	5.0	SC-E-PM	3.00	1.0	0.0	SC-E-D
				0.90	0.8	0.0	ELEC
				0.18	0.7	0.0	TS-3
				2.10	0.0	3.0	SC-E-R
				1.77	0.0	2.4	ELEC
				0.36	0.0	1.9	TS-3
future	2.00	5.0	SC-E-PM	3.00	0.5	0.0	SC-E-D
				0.30	0.4	0.0	ELEC
				0.06	0.4	0.0	TS-3
				2.70	0.0	2.0	SC-E-R
				1.32	0.0	1.6	ELEC
				0.19	0.0	1.3	TS-3

<u>Summary</u>						
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>current</i>	0.00	0.0	SC-I-D	1.00	2.9	SC-I-D
	0.00	0.0	SC-I-R	0.70	1.3	SC-I-R
	6.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	3.00	1.9	SC-E-D
	0.00	0.0	SC-E-R	2.10	6.2	SC-E-R
	2.00	6.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.59	2.2	IS-5N
	0.00	0.0	IS-6N	0.12	2.0	IS-6N
	2.00	5.0	ELEC	1.77	5.7	ELEC
	0.00	0.0	TS-3	0.36	4.7	TS-3
	Preventative Maintenance			Repair Maintenance		
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
<i>future</i>	0.00	0.0	SC-I-D	1.00	2.9	SC-I-D
	0.00	0.0	SC-I-R	0.90	1.3	SC-I-R
	6.00	1.0	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	SC-E-D	3.00	1.4	SC-E-D
	0.00	0.0	SC-E-R	2.70	5.2	SC-E-R
	2.00	6.0	SC-E-PM	0.00	0.0	SC-E-PM
	0.00	0.0	IS-5N	0.44	1.6	IS-5N
	0.00	0.0	IS-6N	0.06	1.6	IS-6N
	2.00	5.0	ELEC	1.32	4.4	ELEC
	0.00	0.0	TS-3	0.19	3.6	TS-3
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.01	0.00	0.01	0.01
Existing + Strategic Plan	0.00	0.02	0.04	0.05	0.05	0.17
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.01	0.03	0.04	0.04	0.13

Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.02	0.02
Existing + STIP	0.00	0.00	0.02	0.00	0.02	0.04
Existing + Strategic Plan	0.00	0.07	0.15	0.19	0.17	0.58
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						SC-E-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.02	0.02
Existing + STIP	0.00	0.00	0.01	0.00	0.02	0.03
Existing + Strategic Plan	0.00	0.05	0.11	0.14	0.12	0.43
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						SC-E-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.02	0.02
Existing + STIP	0.00	0.00	0.02	0.00	0.02	0.03
Existing + Strategic Plan	0.00	0.07	0.15	0.17	0.16	0.55
Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						SC-E-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.01	0.01
Existing + STIP	0.00	0.00	0.01	0.00	0.01	0.03
Existing + Strategic Plan	0.00	0.05	0.10	0.11	0.10	0.35
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.01	0.02	0.02	0.02	0.06
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01

Electrician (ELEC) - DAS #4213						ELEC
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.03	0.03
Existing + STIP	0.00	0.00	0.02	0.00	0.03	0.05
Existing + Strategic Plan	0.00	0.07	0.16	0.18	0.16	0.57
Traffic Signal Technician 3 (TS-3) - DAS #3411						TS-3
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.01	0.01	0.02	0.04

K.2.8 Communications Systems

K.2.8.1 Fiber Optic Networks

Inventory Table							
	Region					State	
	1	2	3	4	5	Total	
Existing	0	0	0	0	0	0	
STIP	80	0	0	0	0	80	
Existing + STIP	80	0	0	0	0	80	
Strategic Plan	0	0	0	0	0	0	
Existing + Strategic Plan	80	0	0	0	0	80	
Sensors							
No applicable sensors.							
Communications							
Fiber-optics communications: A dedicated fiber optics network in Region 1 is used to connect CCTV, ramp meters, travel time estimation RPU's and video detectors to TMOC.							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	0.50	2.0	IS-F	0.50	0.3	0.0	IS-F
				0.50	0.0	1.3	IS-F
future	0.50	2.0	IS-F	0.50	0.3	0.0	IS-F
				0.50	0.0	1.3	IS-F
Field Processor/Controller							
No applicable field processors/controllers.							
Software							
No special software is required.							
Center Sub-Systems							
No applicable center sub-systems.							
Information Delivery							
No unique information delivery systems.							
Summary							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class	
current	0.50	2.0	IS-F	0.50	1.7	IS-F	

	Preventative Maintenance			Repair Maintenance		
<i>future</i>	visits per yr	hrs per visit	job class	visits per yr	hrs per visit	job class
	0.50	2.0	IS-F	0.50	1.7	IS-F
Travel Time						
Reduce by 50 percent for preventative maintenance because of concentrated location of fiber network.						
Staffing Needs (FTE)						
Info Services - Fiber Optic Technician (IS-F) - DAS #						IS-F
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.19	0.00	0.00	0.00	0.00	0.19
Existing + Strategic Plan	0.19	0.00	0.00	0.00	0.00	0.19

K.2.8.2 Radio Communications

Inventory Table							
<i>Radio Consoles</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	4	5	2	2	0	13	
STIP	0	0	0	0	0	0	
Existing + STIP	4	5	2	2	0	13	
Strategic Plan	0	0	0	0	2	2	
Existing + Strategic Plan	4	5	2	2	2	15	
<i>In-Vehicle Units</i>							
	Region					State	
	1	2	3	4	5	Total	
Existing	7	0	0	0	0	7	
STIP	0	4	0	40	0	44	
Existing + STIP	7	4	0	40	0	51	
Strategic Plan	100	100	100	60	100	460	
Existing + Strategic Plan	107	104	100	100	100	511	
<u>Sensors</u>							
No applicable sensors.							
<u>Communications</u>							
Radio consoles: Requires twice as much servicing time as radio units for preventative maintenance. Repair maintenance is expected to occur twice as frequently as radio units due to higher cost of device of replacement, and the corresponding resistance to "replace over repair".							
	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	repair	job class
current	1.00	1.0	IS-5R	0.50	1.0	0.0	SC-I-D
				0.15	0.8	0.0	IS-5R
				0.03	0.7	0.0	IS-6R
				0.35	0.0	3.0	SC-I-R
				0.30	0.0	2.4	IS-5R
				0.06	0.0	2.2	IS-6R
future	1.00	1.0	IS-5R	0.40	1.0	0.0	SC-I-D
				0.04	0.8	0.0	IS-5R
				0.01	0.7	0.0	IS-6R
				0.36	0.0	3.0	SC-I-R
				0.18	0.0	2.4	IS-5R
				0.03	0.0	2.2	IS-6R

Radio units: Require annual inspection and testing. Repairs are seldom recommended due to relative cost of repair compared to unit replacement.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
current	1.00	0.5	IS-5R	0.25	1.0	0.0	SC-I-D
				0.08	0.8	0.0	IS-5R
				0.02	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.15	0.0	2.4	IS-5R
				0.03	0.0	2.2	IS-6R
future	1.00	0.5	IS-5R	0.20	1.0	0.0	SC-I-D
				0.02	0.8	0.0	IS-5R
				0.00	0.7	0.0	IS-6R
				0.18	0.0	3.0	SC-I-R
				0.09	0.0	2.4	IS-5R
				0.01	0.0	2.2	IS-6R

Radio towers: Maintenance covered under existing procedures.

Field Processor/Controller

No applicable field processor/controllers.

Software

No applicable software.

Center Sub-Systems

No center sub-systems.

Information Delivery

No applicable information delivery systems.

Summary

Radio consoles

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
current	0.00	0.0	SC-I-D	0.50	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.35	3.0	SC-I-R
	1.00	1.0	IS-5R	0.30	2.8	IS-5R
	0.00	0.0	IS-6R	0.06	2.5	IS-6R

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
future	0.00	0.0	SC-I-D	0.40	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.36	3.0	SC-I-R
	1.00	1.0	IS-5R	0.18	2.6	IS-5R
	0.00	0.0	IS-6R	0.03	2.4	IS-6R

Radio units						
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>current</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.25	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	1.00	0.5	IS-5R	0.15	2.8	IS-5R
	0.00	0.0	IS-6R	0.03	2.5	IS-6R
	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
<i>future</i>	per yr	visit	class	per yr	visit	class
	0.00	0.0	SC-I-D	0.20	1.0	SC-I-D
	0.00	0.0	SC-I-R	0.18	3.0	SC-I-R
	1.00	0.5	IS-5R	0.09	2.6	IS-5R
	0.00	0.0	IS-6R	0.01	2.4	IS-6R
Travel Time						
Reduce by 50 percent for preventative maintenance because of concentrated deployment in TOCs. No travel time for in-vehicle units because vehicles can travel to technicians as needed.						
Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.01	0.00	0.03
Existing + STIP	0.01	0.01	0.00	0.01	0.00	0.03
Existing + Strategic Plan	0.02	0.02	0.02	0.02	0.02	0.09
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.01	0.00	0.01	0.00	0.03
Existing + STIP	0.01	0.01	0.00	0.02	0.00	0.04
Existing + Strategic Plan	0.04	0.04	0.04	0.04	0.04	0.20
Info Services 5 - Radio Technician (IS-5R) - DAS #1485						IS-5R
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.02	0.01	0.01	0.00	0.05
Existing + STIP	0.01	0.02	0.01	0.03	0.00	0.07
Existing + Strategic Plan	0.06	0.06	0.05	0.05	0.05	0.27

Info Services 6 - Radio Technician (IS-6R) - DAS #1486						IS-6R
	Region					State Total
	1	2	3	4	5	
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01

K.2.9 Maintenance Coordination

Inventory Table	Region					State
	1	2	3	4	5	Total
Existing	0	0	0	0	0	0
STIP	1	1	1	1	1	5
Existing + STIP	1	1	1	1	1	5
Strategic Plan	0	0	0	0	0	0
Existing + Strategic Plan	1	1	1	1	1	5

Maintenance Coordination

It is assumed coordination time (for logging, hand-offs, etc.) will require a small percentage (5 percent) of field/travel time spent in device repairs and diagnostics. For vendor-based activities, half as much time would be required for coordination.

Coordination Time

	Region					State
	1	2	3	4	5	Total
Existing	0.09	0.15	0.02	0.06	0.05	0.37
Existing + STIP	0.13	0.20	0.04	0.14	0.13	0.63
Existing + Strategic Plan	0.45	0.45	0.40	0.57	0.52	2.39

Sensors

No sensors.

Communications

No unique communications infrastructure.

Field Processor/Controller

No field processor/controllers.

Software

Tracking software: Needs upgrades, database management.

	Preventative Maintenance			Repair Maintenance			
	visits per yr	hrs per visit	job class	visits per yr	hours per visit diag.	hours per visit repair	job class
current	0.50	4.0	SC-I-PM	0.00	0.0	0.0	
future	0.50	4.0	SC-I-PM	0.00	0.0	0.0	

Center Sub-Systems

Assume lap-top computer is made available for each support coordinator. These computers will have generic maintenance needs.

	Preventative Maintenance			Repair Maintenance			
	visits	hrs per	job	visits	hours per visit		job
	per yr	visit	class	per yr	diag.	repair	class
<i>current</i>	12.00	1.0	SC-I-PM	2.00	2.0	0.0	SC-I-D
				0.60	1.6	0.0	IS-5N
				0.12	1.4	0.0	IS-6N
				1.40	0.0	1.0	SC-I-R
				1.18	0.0	0.8	IS-5N
				0.24	0.0	0.7	IS-6N
<i>future</i>	12.00	1.0	SC-I-PM	2.00	2.0	0.0	SC-I-D
				0.20	1.6	0.0	IS-5N
				0.04	1.4	0.0	IS-6N
				1.80	0.0	1.0	SC-I-R
				0.88	0.0	0.8	IS-5N
				0.13	0.0	0.7	IS-6N

Information Delivery

No new information delivery components.

Summary

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
<i>current</i>	0.00	0.0	SC-I-D	2.00	2.0	SC-I-D
	0.00	0.0	SC-I-R	1.40	1.0	SC-I-R
	12.00	1.2	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	1.18	1.6	IS-5N
	0.00	0.0	IS-6N	0.24	1.4	IS-6N

	Preventative Maintenance			Repair Maintenance		
	visits	hrs per	job	visits	hrs per	job
	per yr	visit	class	per yr	visit	class
<i>future</i>	0.00	0.0	SC-I-D	2.00	2.0	SC-I-D
	0.00	0.0	SC-I-R	1.80	1.0	SC-I-R
	12.00	1.2	SC-I-PM	0.00	0.0	SC-I-PM
	0.00	0.0	IS-5N	0.88	1.2	IS-5N
	0.00	0.0	IS-6N	0.13	1.2	IS-6N

Travel Time

Coordination time requires no travel.

Staffing Needs (FTE)						
Support Coordinator / IS-Diag (SC-I-D) - DAS #						SC-I-D
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01
Support Coordinator / IS-Repair (SC-I-R) - DAS #						SC-I-R
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.01
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						SC-I-PM
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.01	0.01	0.01	0.01	0.01	0.04
Existing + Strategic Plan	0.01	0.01	0.01	0.01	0.01	0.04
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						IS-5N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00
Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						IS-6N
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	0.00	0.00	0.00	0.00	0.00	0.00

K.3 Resource Needs Estimates by Staff Classification

Support Coordinator / Coordination (SC-C) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.09	0.15	0.02	0.06	0.05	0.37
Existing + STIP	0.13	0.20	0.04	0.14	0.13	0.63
Existing + Strategic Plan	0.45	0.45	0.40	0.57	0.52	2.39
Support Coordinator / IS-Diag (SC-I-D) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.19	0.29	0.03	0.17	0.05	0.74
Existing + STIP	0.23	0.36	0.06	0.36	0.24	1.24
Existing + Strategic Plan	0.81	0.95	0.99	1.50	1.27	5.53
Support Coordinator / IS-Repair (SC-I-R) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.08	0.15	0.02	0.09	0.03	0.36
Existing + STIP	0.10	0.18	0.03	0.23	0.13	0.66
Existing + Strategic Plan	0.52	0.68	0.73	1.17	0.97	4.07
Support Coordinator / IS-Preventative Maintenance (SC-I-PM) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.47	0.22	0.09	0.22	0.12	1.12
Existing + STIP	0.58	0.38	0.15	0.53	0.47	2.11
Existing + Strategic Plan	1.41	0.99	0.93	1.51	1.16	5.99
Support Coordinator / Elec-Diag (SC-E-D) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.18	0.25	0.07	0.14	0.19	0.84
Existing + STIP	0.26	0.33	0.09	0.32	0.39	1.40
Existing + Strategic Plan	0.62	0.68	0.79	1.27	1.13	4.49
Support Coordinator / Elec-Repair (SC-E-R) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.18	0.20	0.07	0.11	0.18	0.74
Existing + STIP	0.27	0.28	0.09	0.27	0.34	1.26
Existing + Strategic Plan	0.88	0.81	0.86	1.30	1.37	5.23

Support Coordinator / Elec-Preventative Maintenance (SC-E-PM) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.08	0.09	0.02	0.07	0.05	0.31
Existing + STIP	0.11	0.12	0.04	0.14	0.14	0.54
Existing + Strategic Plan	0.52	0.52	0.57	0.71	0.62	2.95
Support Coordinator / Program Technician (SC-P) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.01	0.18	0.02	0.03	0.00	0.24
Existing + STIP	0.01	0.18	0.02	0.05	0.00	0.26
Existing + Strategic Plan	0.59	0.95	0.98	0.98	0.96	4.45
Info Services - Kiosk Specialist (IS-K) - DAS #1484						
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.00	0.00	0.00	0.00	0.00	0.00
Existing + Strategic Plan	1.42	0.49	0.53	0.74	0.65	3.83
Info Services 5 - Radio Technician (IS-5R) - DAS #1485						
	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.02	0.01	0.02	0.00	0.07
Existing + STIP	0.02	0.02	0.01	0.08	0.00	0.13
Existing + Strategic Plan	0.08	0.10	0.09	0.11	0.10	0.48
Info Services 5 - Networks / Servers (IS-5N) - DAS #1485						
	Region					State
	1	2	3	4	5	Total
Existing	0.08	0.14	0.01	0.08	0.03	0.34
Existing + STIP	0.10	0.17	0.03	0.16	0.13	0.58
Existing + Strategic Plan	0.39	0.35	0.38	0.61	0.51	2.24
Info Services 6 - Radio Technician (IS-6R) - DAS #1486						
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.00	0.00	0.01	0.00	0.02
Existing + Strategic Plan	0.01	0.01	0.01	0.01	0.01	0.04

Info Services 6 - Networks / Servers (IS-6N) - DAS #1486						
	Region					State
	1	2	3	4	5	Total
Existing	0.02	0.03	0.00	0.02	0.01	0.07
Existing + STIP	0.02	0.03	0.01	0.03	0.03	0.11
Existing + Strategic Plan	0.06	0.05	0.06	0.09	0.08	0.33
Info Services 6 - Software (IS-6S) - DAS #1486						
	Region					State
	1	2	3	4	5	Total
Existing	0.00	1.06	0.00	0.00	0.00	1.06
Existing + STIP	0.00	1.40	0.00	0.00	0.00	1.40
Existing + Strategic Plan	0.00	1.40	0.00	0.00	0.00	1.40
Info Services 7 - Software (IS-7S) - DAS #1487						
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.01	0.00	0.00	0.00	0.01
Existing + STIP	0.00	0.01	0.00	0.00	0.00	0.01
Existing + Strategic Plan	0.00	0.01	0.00	0.00	0.00	0.01
Info Services - Fiber Optic Technician (IS-F) - DAS #						
	Region					State
	1	2	3	4	5	Total
Existing	0.00	0.00	0.00	0.00	0.00	0.00
Existing + STIP	0.19	0.00	0.00	0.00	0.00	0.19
Existing + Strategic Plan	0.19	0.00	0.00	0.00	0.00	0.19
Electrician (ELEC) - DAS #4213						
	Region					State
	1	2	3	4	5	Total
Existing	0.46	0.29	0.12	0.21	0.26	1.35
Existing + STIP	0.63	0.44	0.16	0.51	0.64	2.38
Existing + Strategic Plan	1.47	0.93	0.95	1.34	1.38	6.07
Traffic Signal Technician 3 (TS-3) - DAS #3411						
	Region					State
	1	2	3	4	5	Total
Existing	0.03	0.03	0.02	0.02	0.05	0.14
Existing + STIP	0.04	0.04	0.02	0.05	0.09	0.23
Existing + Strategic Plan	0.06	0.04	0.09	0.09	0.16	0.44

Total	Region					State
	1	2	3	4	5	Total
Existing	1.89	3.10	0.51	1.24	1.01	7.74
Existing + STIP	2.68	4.14	0.75	2.86	2.73	13.15
Existing + Strategic Plan	9.46	9.40	8.34	12.02	10.87	50.11

K.4 Resource Needs Estimates by Skill Set

Coordination						
	Region					State
	1	2	3	4	5	Total
Existing	0.10	0.33	0.04	0.09	0.05	0.61
Existing + STIP	0.14	0.38	0.05	0.18	0.13	0.88
Existing + Strategic Plan	1.04	1.40	1.37	1.55	1.48	6.83
Electrical / Electronics - Diagnostics						
	Region					State
	1	2	3	4	5	Total
Existing	0.26	0.31	0.10	0.18	0.25	1.09
Existing + STIP	0.36	0.41	0.12	0.41	0.51	1.82
Existing + Strategic Plan	0.73	0.76	0.87	1.38	1.26	4.99
Electrical / Electronics - Repair						
	Region					State
	1	2	3	4	5	Total
Existing	0.38	0.33	0.13	0.20	0.31	1.34
Existing + STIP	0.52	0.47	0.17	0.49	0.64	2.28
Existing + Strategic Plan	1.48	1.19	1.29	1.88	2.02	7.86
Electrical / Electronics - Preventative Maintenance						
	Region					State
	1	2	3	4	5	Total
Existing	0.30	0.23	0.08	0.17	0.17	0.94
Existing + STIP	0.42	0.33	0.12	0.39	0.45	1.71
Existing + Strategic Plan	1.34	1.04	1.10	1.46	1.39	6.33
Information Services - Diagnostics						
	Region					State
	1	2	3	4	5	Total
Existing	0.24	0.38	0.04	0.21	0.07	0.93
Existing + STIP	0.34	0.48	0.07	0.45	0.30	1.64
Existing + Strategic Plan	1.40	1.23	1.26	1.89	1.60	7.38
Information Services - Repair						
	Region					State
	1	2	3	4	5	Total
Existing	0.14	0.26	0.03	0.16	0.05	0.64
Existing + STIP	0.26	0.33	0.05	0.39	0.22	1.25
Existing + Strategic Plan	1.27	1.15	1.22	1.93	1.60	7.18

Information Services - Preventative Maintenance						
	Region					State
	1	2	3	4	5	Total
Existing	0.48	1.26	0.09	0.24	0.12	2.19
Existing + STIP	0.64	1.75	0.16	0.55	0.47	3.57
Existing + Strategic Plan	2.21	2.63	1.23	1.93	1.53	9.54
Total	Region					State
	1	2	3	4	5	Total
Existing	1.89	3.10	0.51	1.24	1.01	7.74
Existing + STIP	2.68	4.14	0.75	2.86	2.73	13.15
Existing + Strategic Plan	9.46	9.40	8.34	12.02	10.87	50.11

