2010 SCoPM Performance Excellence Award Application Cover Sheet

Team Name	**Dynamic Message Sign (DMS) Retrofit Team**
Date Team Operating from	**September 2008 to present**
Organization Name	**Maryland State Highway Administration**
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The following information is an overview of the project and, if selected for recognition, will be used for publicity. This part of the application is note scored; however, the narrative is used as background information for the application. By submitting this application, the organization agrees to publication of award winning applications.

Team Purpose:

A team was formed to upgrade the existing DMS (Dynamic Message Sign) displays that were using antiquated Flip Disk technology to state of the art LED (Light Emitting Diode) technology. Our goal was to acquire the necessary funding and use it in the most cost effective manner while improving the visibility, functionality, and reliability of the DMS signs in the most heavily traveled Baltimore-DC Metro area.

Impact of Team's Improvement(s):

The team decided to use existing sign structures instead of installing new structures. Only the display itself would be upgraded, allowing us to upgrade twice as many signs with the funds provided. It also produced a much more legible sign message to the traveling public. The retrofit also cut down on maintenance and downtime issues by getting rid of persistent mechanical failures. This related to the Agency's Performance Plan of response and repair times.

Category 1 - Customer Focus

This Category focuses on how the team gains information about and from customers. A common phrase used is to listen to the voice of the customer. Customers have requirements and expectations. It is important for the team to know and understand these requirements and expectations because customer needs should drive the activities of the team.

1.1. List the key customers of the team

1.1a. Deputy Administrator
1.1b. Traveling Public
1.1c. Governor's Task Force through the EmPower MD Initiative.

1.2. Explain **why** you determined that these were key customers

1.2a The Deputy Administrator set Performance goals on the operational percentage of devices that were to be operating at any given time.
1.2b. The motoring public relies on these signs for real time travel conditions, delays, and road closures.
1.2c. Senate Bill 267 required each State Agency to reduce energy consumption by 10% in 2010.

1.3. Explain **how** the team listened to and collected information from the key customers

1.3a. Information from Senior Staff Meetings was relayed down through Divisional staff meetings on the expectations that the Deputy Administrator set.
1.3b. We used our Customer Care Management System (CCMS) to track motorist's complaints. We also gathered information received from phone calls and e-mails within the Administration.
1.3c. Meetings were held with the StateStat Committee which included Governor's Chief of Staff to set initiatives to look at ways of reducing electric consumption.

1.4. Explain **how** the team turned information collected from the customers into requirements

1.4a. We used our device maintenance tracking database to track the status of devices. Information was gathered to see when devices failed and the time it took to respond to and repair the devices.
1.4b. We required our supervisors for each region to respond to device complaints within the 24 hour response time.
1.4c. We looked at ways within the Division to cut energy consumption. One of the ways identified was the energy used by devices we maintained. We found we could cut costs by upgrading the DMS signs.

1.5. Explain **how** the team determined both customer satisfaction and dissatisfaction

1.5a. By tracking the device percentages it was apparent whether or not goals were being met.
1.5b. By using the CCMS system customers responded with favorable or unfavorable responses.
1.5c. Updates were provided monthly to the State Stat team on how we were doing in referencing to account information. Once the accounts were correct we could use the utility bill to look at the savings.

Category 2 - Process Management

This Category focuses on how the team created customer value in a product or service related to the team's purpose. Your response should explain how better management of the processes yielded a higher value to the customer(s) identified in Item 1.1. There should also be some linkage between the processes identified and Item 1.4 as it relates to customer requirements.

2.1. List the process(es) applicable to the team purpose and performance expectations

2.1a The key goal was to have a certain percentage of operational devices working at any given time. By using our Device Maintenance Tracking System (DMTS) DMTS database we could provide the Deputy Administrator with the operational percentages. The DMTS database in use was giving corrupt and incorrect data. We hired a consultant to produce a much more accurate and user friendly database. Training key people to maintain the database resulted in having more accurate data. We could then focus on the repair times.

2.1b. The CCMS database was also upgraded and training was given to all employees on its use. Key personnel were given the responsibility of responding to customer complaints in a 24 hour time period. By tracking repairs and customer feedback, repeating complaints on the same device were evident.

2.1c. Due dates were given by StateStat on the collection of information. By meeting these deadlines we were able to account for a high percentage of the service at each device. We were then able to get the utility bill to see the actual usage of the device and do actual cost comparisons.

2.2. Describe the steps taken to achieve the purpose of the team

2.2a. The Deputy Administrator had set performance expectations for the devices. As the devices became outdated and unreliable, approval was sought for the funding to retrofit the devices.
2.2b. As more complaints came in from the traveling public and the media was gaining the attention of key political people, the need was stressed to make the signs more reliable and legible. Approval was given to retrofit the signs.
2.2c. As more of the account numbers and utilities were matched and verified we could began to show the savings of utility costs.

2.3. Explain how the steps taken to achieve the purpose of the team affected efficiency, effectiveness, quality, and/or customer satisfaction attributes

2.3a. After the funding was allocated, the kits were ordered. We then produced a schedule to place priority on the signs that were highly used and giving the most problems. As the kits were installed the services calls and down times were beginning to drop and the operational percentages were beginning to rise.
2.3b. Complaints from the motoring public were beginning to drop as the project got underway. Signs were more reliable and legible.
2.3c. As more signs were upgraded the utility costs began to drop. It also showed accounts that were no being used and still being billed. These accounts were cancelled leading to additional savings.

2.4. Explain how the team gathered data, analyzed it, and the tools used to make decisions
2.4.a. Explain how you gathered the data and how you analyzed it.

2.4.a.a. The Deputy Administrator would set performance goals on expectations of the operational percentage of devices. The team used our internal DMTS program to track the operational efficiency of our devices. We found that because of the unreliability of the DMS's, due to mechanical failures, the best way was to convert them to the newer technologies that existed today. We found that the replacement of the whole sign was not necessary and we could use the existing structure to do an upgrade. A retrofit kit was 50% of the cost of a complete sign replacement. Goals were set on the funding available to retrofit a determined number of signs that could be done in a calendar year. A schedule was set and an Excel spreadsheet was developed to track the progress. As the team became more efficient and issues were resolved, we found a greater number of signs would be done. The team analyzed the costs of using contractor support and state employees. Using both, we were able to use the most cost effective and efficient means necessary. We quickly found that we were ahead of schedule and below estimated costs. As time went by we were able to view our operational percentages and saw they were rising to expectations.

2.4.a.b We used the CCMS database to track our complaints from the traveling public. Since the complaints coming in were dropping we knew that the retrofits were effective.

2.4.a.c. We gathered costs from the utility bills to calculate our actual savings.

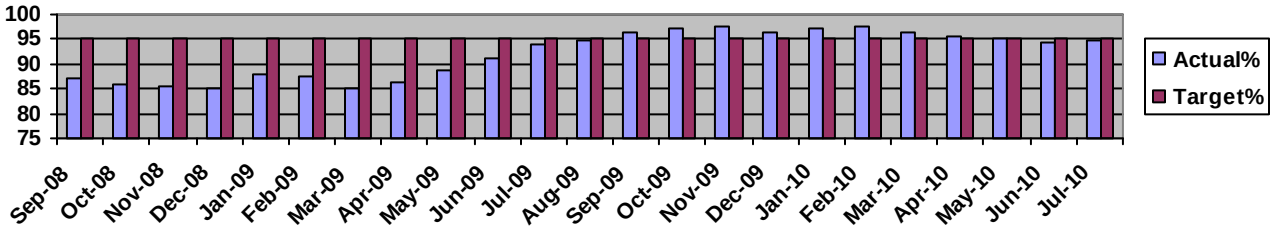
2.4.b. Identify the tools you used from this list: Pareto Chart, Flowchart, Cause and Effect Analysis, Check Sheet, Control Chart, Histogram, and Scatter Diagram

2.4.b.a. By using the DMTS database we were able to provide charts that showed the operational percentages of the devices.

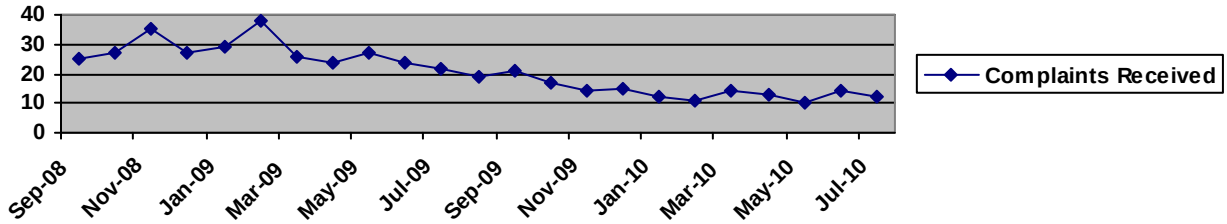
2.4.b.b. Being able to track complaints through CCMS allowed us to use a Cause and Effect Analysis by seeing how many complaints were being received from the motoring public.

2.4.b.c. We used Cause and Effect Analysis by reviewing the utility bills to show the actual energy usage reduction.

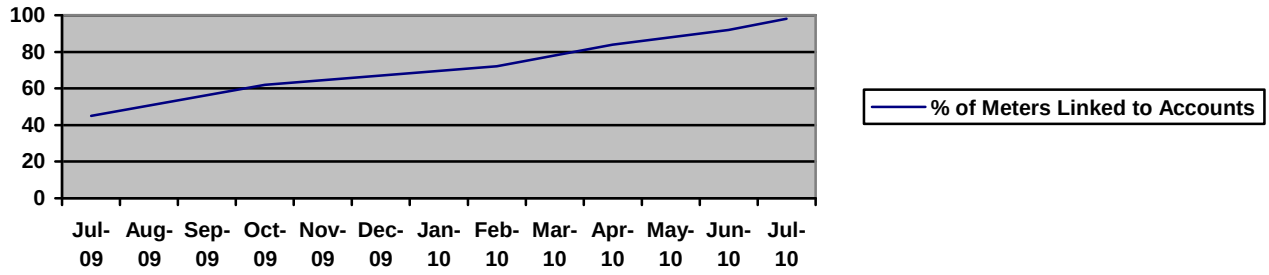
Category 3 – Results (this section is worth 450 of 1000 point total)Provide one page of graphical results



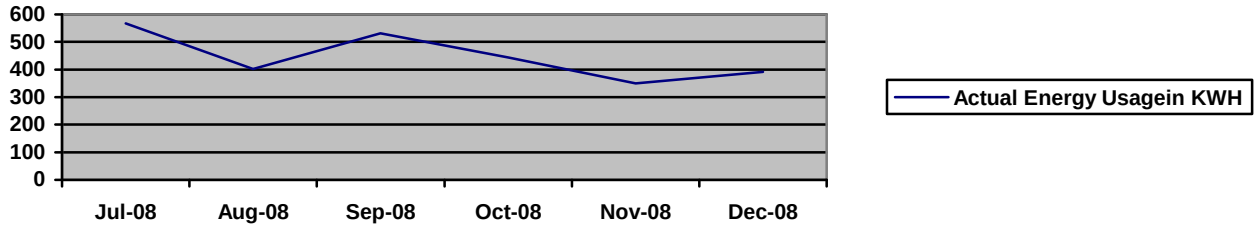
a. This graph represents the operational percentages as the project was begun. The percentages went up as the kits were installed.



b. This graph represents the complaints received per month on DMS's. Generally the office only received complaints on devices that weren't working properly.



c. This graph represents the percentages of utility meter information that was tied to the accounts allowing us to track energy usage



d. This graph shows the actual KWH usage on the first sign that was retrofitted on September 24, 2008.