



**NAVAL
POSTGRADUATE
SCHOOL**

**U.S. COAST GUARD
PREVENTION OFFICER ASSIGNMENTS
EXECUTIVE SUMMARY**

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Network Flows and Graph (OA4202)**

Background

The purpose of this study is to find a more efficient and feasible way to complete assignments for Prevention Officer, specifically for the Junior Officers account, Lieutenants (O3), Lieutenants Junior Grade (O2) and Ensigns (O1). Over the years the Assignment Officer has been issuing orders based on various performance factors. Although one of those factors was “needs of the service”, fiscal needs did not play a big role into the assignments. For years, having a diverse assignment history has been considered beneficial to the service and the member. Ideally the Coast Guard would like members to experience different geographical locations throughout their careers. Although geographical diversity is still considered beneficial, the Coast Guard must find a way to provide geographical diversity at a lower cost, currently the average PCS cost around \$25,000. On average around 1000 Junior Officers transfer every year, so that’s over \$25,000,000 for Junior Officers alone. Our goal is to reduce PCS cost without losing the expertise needed.

Our main concerns are the budget cuts that are currently taking place. If budget cuts continue we will be forced to reduce the distance between departing and arriving units in order to lower PCS costs. Although we are confident that we can continue to operate under this mandate we want to make sure that we maintain an optimal level of expertise within the officer core.

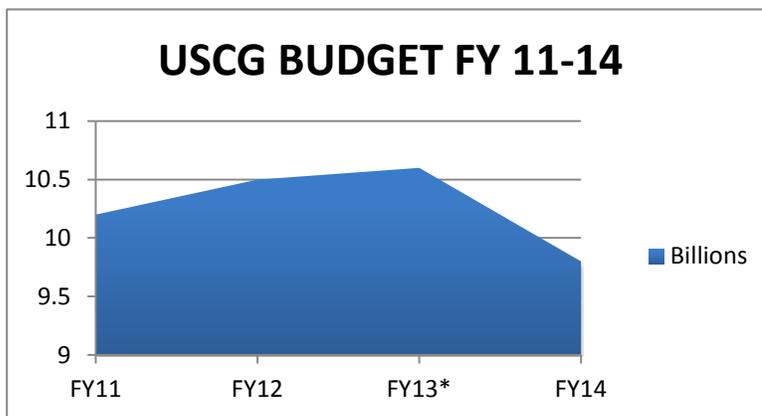


Figure 1: U. S. Coast Guard Budget from FY11 to FY14. FY13 Budget is prior to sequestration and FY14 is the amount requested by the Coast Guard. Using the latest know figure, FY12, we are looking at a budget cut of around 7% Coast Guard wide.

Over the years, the needs of the service coupled with members assignment preferences have accomplished the goal of having the most qualify person available in each job. But sometimes this can carry a cost that we might not be able to afford in years to come. Figure 2 shows an example of a member assignment history over the last 12 years.

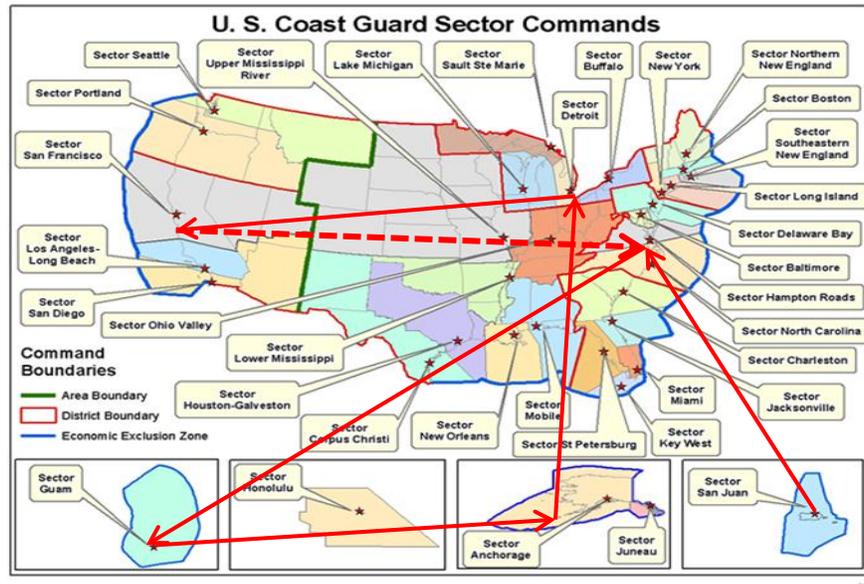


Figure 2: This member went from Puerto Rico to DC, from DC to Guam, from Guam to Alaska, from Alaska to Ohio and from Ohio to California. Although a member with this assignment history can provide the service with a great deal of expertise, we must study if the same outcome can be achieved by relocating members from units that are near instead of moving members across the country.

In an effort to find a solution we used assignment year 2013 (AY13) data. During AY13 there were 56 positions open for Junior Officers, we will focused in the top nine positions. Given the fact that these positions must be either filled by somebody outside the unit or the incumbent can stay in the same position we have over 80 ways to complete this task. As we all know not every person is fitting for every job, so in order to simplify our problem we will assume that all Officers are equally qualified. Also, there are other factors that we must take into account in order to get accurate results that can be implemented in real life besides the distance. We each member will be assign a score based on the assignments factors currently used by assignment officers, i.e. rank, evaluations, qualifications, etc.

After will be basically be exploring 5 main scenarios:

- Modified Performance Based, which it doesn't take distance into account.
- Performance Based, it gives more weight to performance than distance.
- Must PCS – Every member must complete a PCS.
- Distance based – Decisions are made with more weight given to the distance.
- Extensions Allowed – we allowed to members to stay at current location.

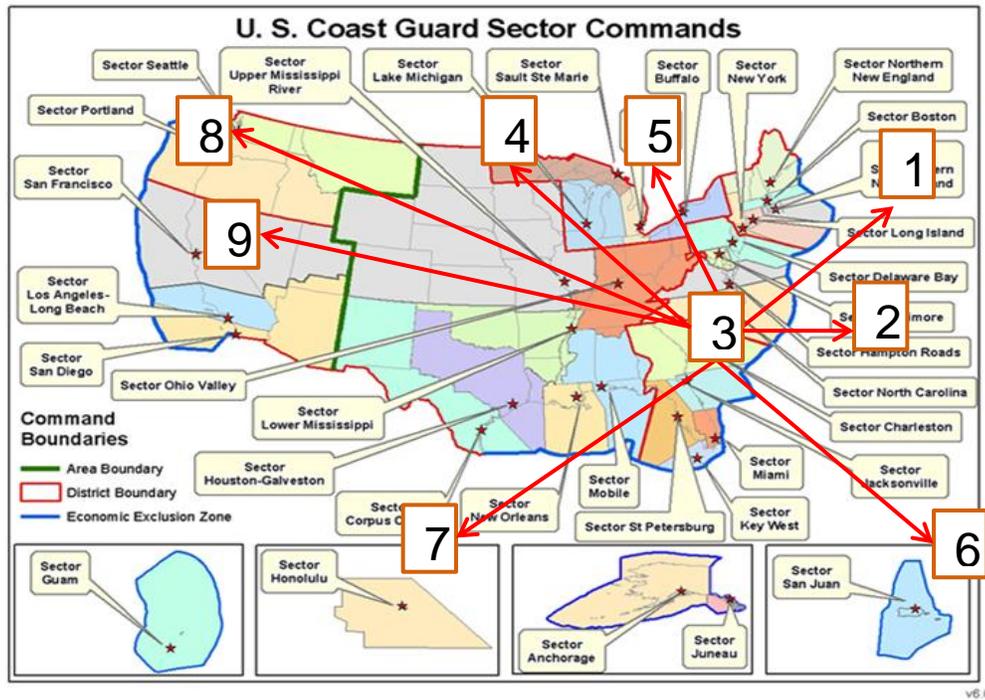


Figure 3: The above map shows all the available options for the Junior Officers in job number 3.

After exploring all options we can see that by just paying minimal attention to the distance we can see savings of 30%, Figure 4. If on top of that we allowed two people to stay at current position, which is more realistic due to other assignment factors we can see savings of over 50%.

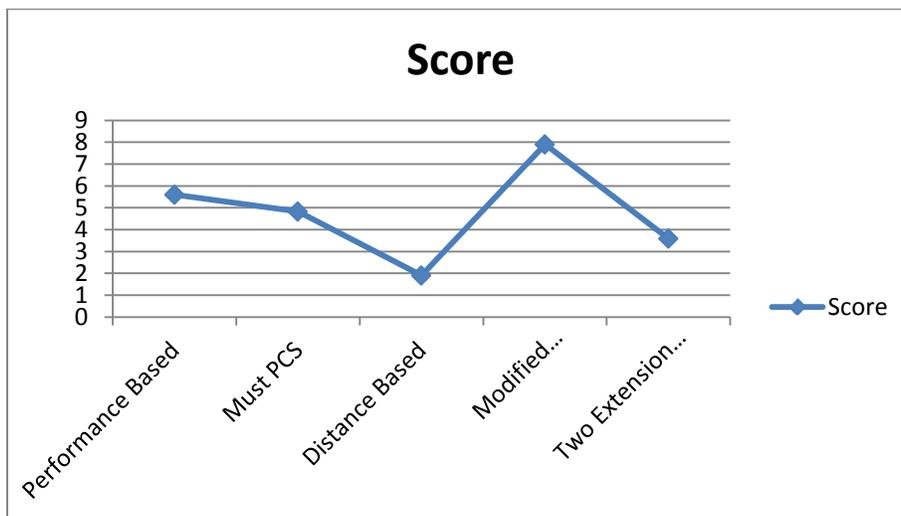


Figure 4: Comparison of all five scenarios.

We conclude that in order to meet the needs of the service of assigning qualified people while reducing cost doesn't require much compromise. We can put qualified people at every job for a lower cost as long as we keep budgetary constraints in mind.