# Projected Google Maps API usage & cost report

## Introduction

We are planning to make use of two Google Maps services:

Dynamic Maps to display the user an interactive map, showing hospitals/ health centres as clickable pins.

Geocoding to determine the users’ location in coordinates, this would be used for distance calculations & displaying the users’ location on the map mentioned above.

## Dynamic Maps

A load occurs every time a user loads a map on the page.

We could delay map load until the user clicks on a map icon to help keep performance & costs down, this may require implementation of a loading spinner for the first map load during a session depending on map loading speeds.

We can currently assume that there would be a maximum of 1 map load per ‘search’ a user performs, this would number would fall if we were to restructure our program architecture to use an API for search requests, rather than re-rendering the page on the server with the results every time a search is made. (Difference here is requesting data from website & inserting into the current page rather than requesting a new page)

|  |  |  |
| --- | --- | --- |
| Cost | If < 100,000 requests | If > 100,000 requests |
| Cost for 1 load | $0.007/load | $0.0056/load |
| Cost for 10,000 loads\* (~330/day (~14/hour)) | $70/month |  |

## Geocoding

With a bit more research, we expect to be able to store the locations of all the hospitals in the database. If we manage this, it will allow us to exclusively use geocoding for converting addresses received as input from users to determine their location. This would result in a single request for the user’s session, as their location data would be stored in a cookie on the server (for the length of their session).

If we assume that the majority of users will use the geolocation feature (automatic location detection if users consent to using it), there shouldn’t be a significant cost incurred here. We could always disable the option to manually input an address, but this would make search results inaccurate for people using the service when they are away from home.

|  |  |  |
| --- | --- | --- |
| Cost | If < 100,000 requests | If > 100,000 requests |
| Cost per user location request | $0.005/request | $0.004/request |
| Cost for 5000 requests\* (~180/day (~7/hour)) | $50/month |  |

## Assumptions made/ Important notes:

For these costs we have assumed that there will be roughly 10,000 searches a month, as we don’t really have an idea of what the expected user scope of the project is this could be an inaccurate number. We hope that you can provide some insight into the expected number of users. (This plan can be updated according to your expectations for next week)

We made the assumption that ‘most’ users will use the location function to enable distances to be shown on results. We have also said that approximately half these users will be providing their location using Geolocation, with the other half entering their address/zip code manually. Actual usage patterns of these features can only be an estimate until the project goes live. A system tracking their usage would also need to be implemented.

Google offers users of its various Maps API’s $200 of free credit/month. This means that if the above estimates are correct, usage of Google Maps features would be free up to at least 15 000 searches/month. If this free credit runs out, the maps feature could either be disabled for the rest of the month (not ideal) or you would be charged the above usage rates (for the usage over $200)

Google offers free usage of Dynamic Maps when using these from within iOS and Android apps. It could be interesting to branch out into a mobile application for users in the eventual future. Mobile apps also generally support easy usage of geolocation, this would also limit the number of Geocoding requests. (assuming Google doesn’t change its pricing policy)

## Source

<https://cloud.google.com/maps-platform/pricing/sheet/>