# Problem Statement: Metropolis City Corporation

The Metropolis City Corporation has been carrying out various maintenance activities on roads across the city during the past few months because of the reduced volume of traffic. During the maintenance activities the whole street maybe closed for traffic for a day or in some cases single lane traffic maybe allowed.

As people are expected to slowly return to their normal schedule in the coming weeks, the corporation is looking to open a website solely for the purpose of listing the scheduled activities.

They expect the following pages on the website and the features the pages should have

* Home Page
  + An aesthetically pleasing home page with images, citizen guidelines, and operating hours of the corporation.
  + Contact information comprising of the address, email, and multiple phone numbers must be shown.
* Maintenance Activities
  + A page which lists the activities for the current and upcoming five days.
  + The activity name, street name, type of maintenance (Periodic/Emergency), and name of the alternative street which can be used must be displayed.
  + It must also be indicated whether the street is completely closed, or single lane traffic is allowed.
  + The list must be sorted alphabetically based on the street name and ascending order of the day.
  + The activities for which streets are completely closed must appear on top of the list.
* Add a Maintenance Activity
  + A page which allows adding an activity with all the details that need to be displayed in the listing page and the date on which the activity will be performed.
  + It should be possible to specify whether the entire street will be closed.
  + The name of the activity must be unique for the day.
  + Only a maximum of 15 activities can be performed in a day, of which only a maximum of 6 can have the streets to be completely closed.
  + This page must only be accessible by authorised personnel of the corporation with their email and provided password.
* Edit or Delete an Activity
  + A page which allows editing the details of an existing activity.
  + An option must be provided to delete the activity as well.
  + This page must only be accessible by authorised personnel of the corporation with their email and provided password.

# Questions

Described above is a problem statement and relative use cases. If your team has been assigned the task of building a web application which can cater to the use cases, then:

1. Analyse the possible classes, their attributes and types, operations, the relationships among objects and build a class diagram to represent the system.
2. a) Provided that you are going to use a relational database, list out the tables, their relationships, constraints, and indices.   
   b) Build SQL queries for creating the same.
3. With the aim of building a RESTful API service, define the possible API endpoints, their purpose and HTTP request methods.