

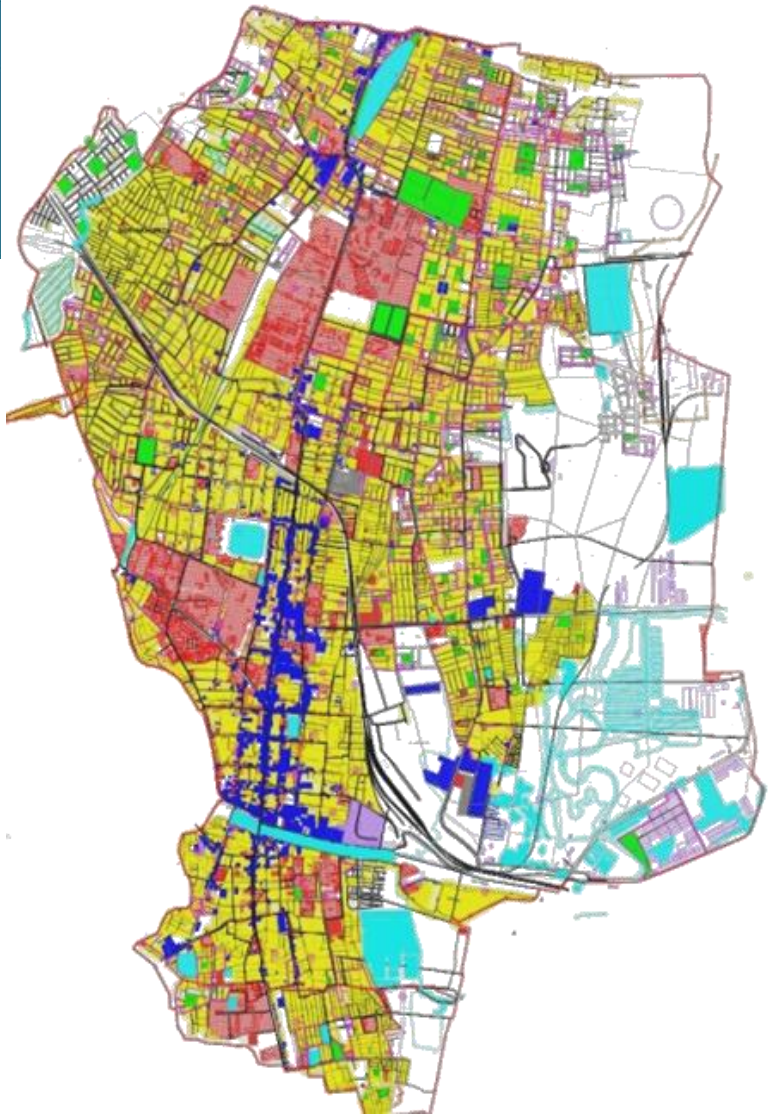
## Workshop on Digital Integrated Command & Control Centers under Smart Cities Mission

## Presentation on Kakinada Integrated Command & Control Centre (ICT Solutions)





# Profile of Kakinada



**Municipal Area**  
31.39 sq.km



**Population**  
(2011 Census):  
3,25,985



**Literacy Rate**  
72% (AP: 67%)



**Budget (FY 2016-17)**  
~ Rs. 265.58 Cr.



**Internal Revenue**  
~ Rs. 74.67 Cr.

**Slum Population**  
(2011 census)

1,32,185



**101 slums**  
~ 40% population



**Water Supply**  
105 lpcd



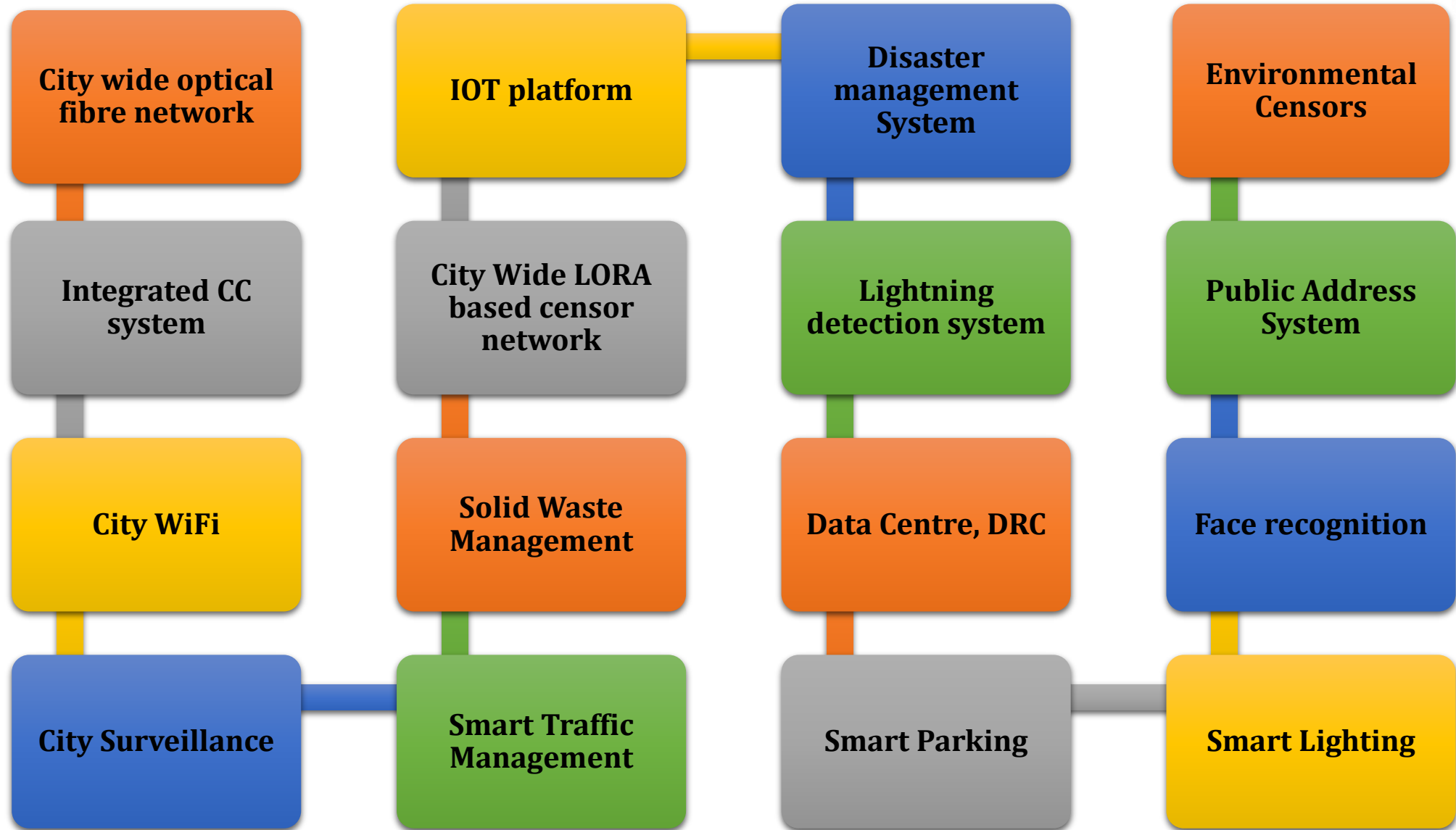
**Wastewater management**  
**Absent**



**67 Govt. Schools with**  
12,105 students



# Smart Solutions



# CCC Components

Public Address System: 30  
 Disaster Management with 25 Emergency Call Box

VMD: 5

Smart Pole: 10

School

CCTVs: 350

School

### 10 Smart Poles

- LoRA BTS
- Environmental Sensors
- Public address system
- Wi-Fi
- LED Lights

DC/CCC and DR/NOC with GIS & ERP Integrations with server, storage, routers

City Fibre 120 Km & GSM Connectivity

Wi-Fi: 470  
 Bus stops Schools  
 71 Govt. offices



Smart Light: 640 lights

ATCS 4 junction  
 RLVD 10  
 ANPR 20 | FRS: 10

Env. Sensors: 12

Smart Parking: 100

2 slots available

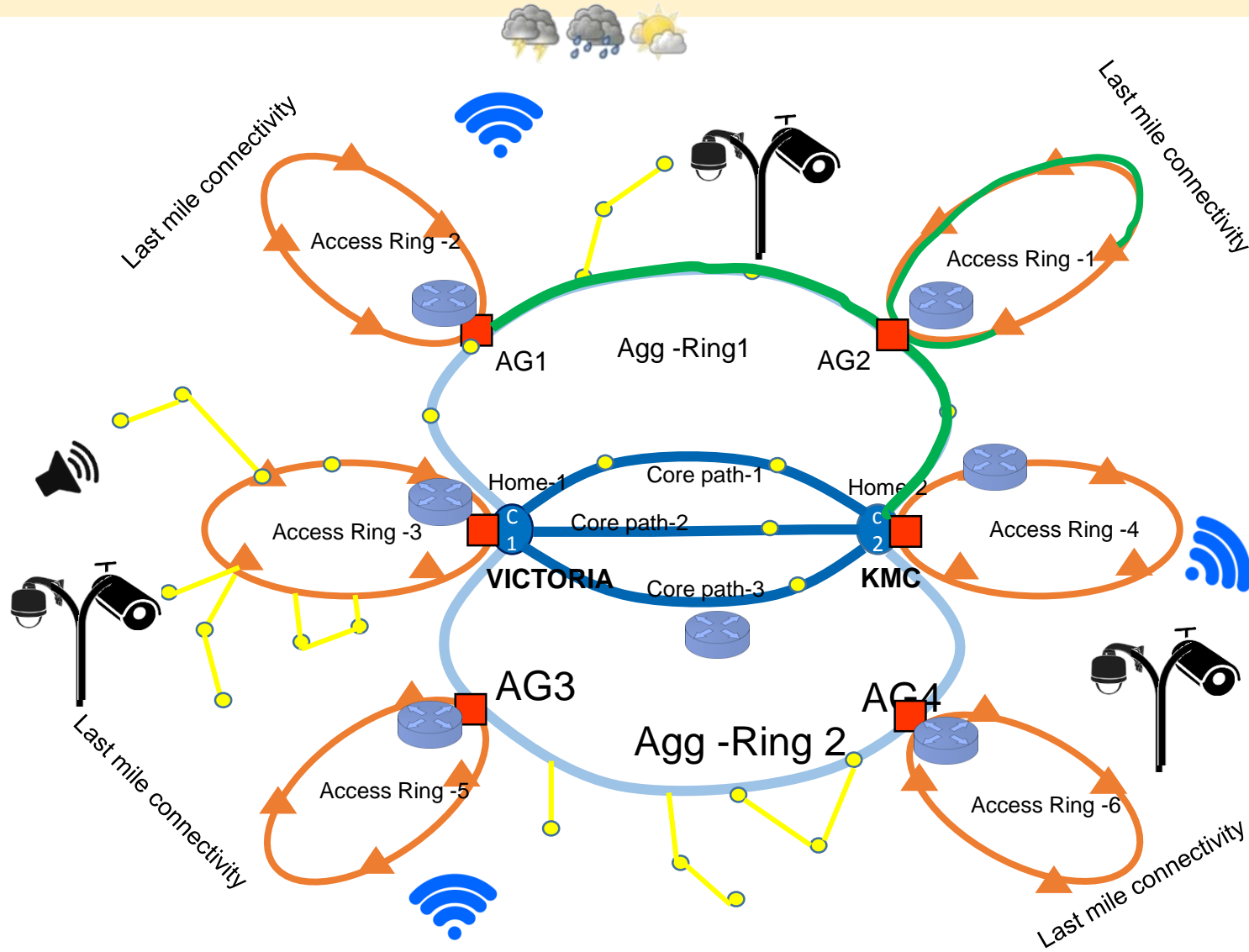
IoT Platform

Smart Waste Mgmt: 110 bins

# CCC Components



# Network Architecture



## Core & Aggregation layers:

Routers running on IP/MPLS protocols, with capacity in multiple of 10G (2 Core and 6 Aggression routers)

## Access Layer:

Modular temperature hardened Chassis running IP/MPLS based transport with capacity of 10G (24 Access routers)

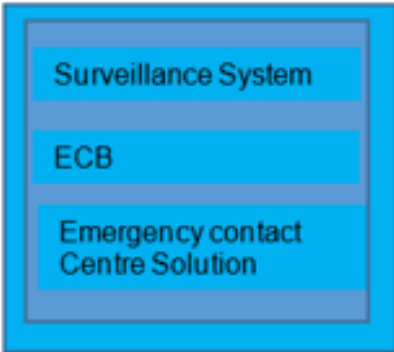
## Last mile connectivity:

Street layer switches will be connected to pre Aggregation layer with 1G capacity. (Around 200 Switches)

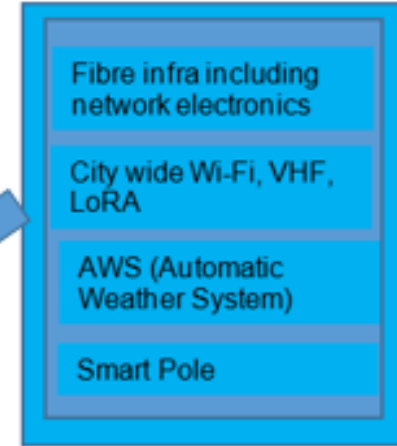
All wired Smart Elements like Camera, WiFi, ANPR, RLVD, ECB, IP PA, FRS, ATCS, LoRa BTS.

# Network Architecture with elements integration

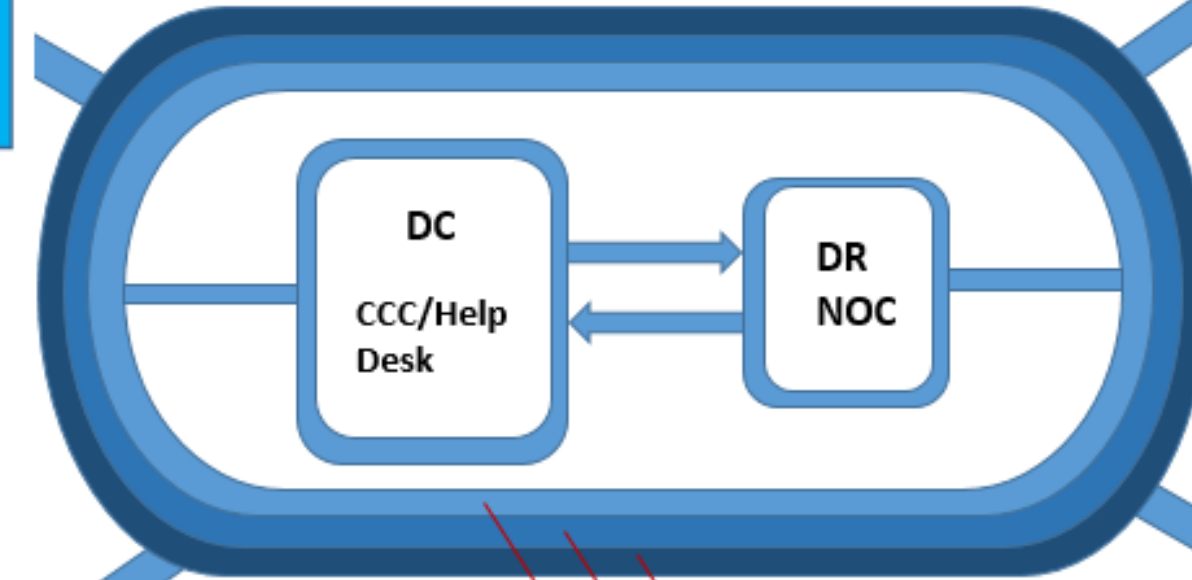
## Smart Response & Incident Management System



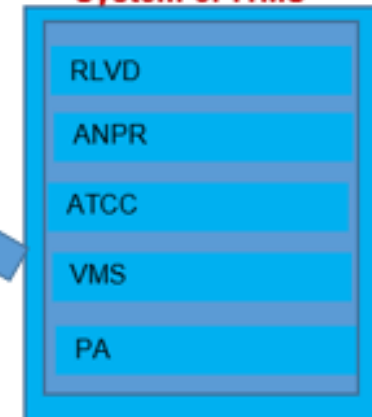
## Communication Network



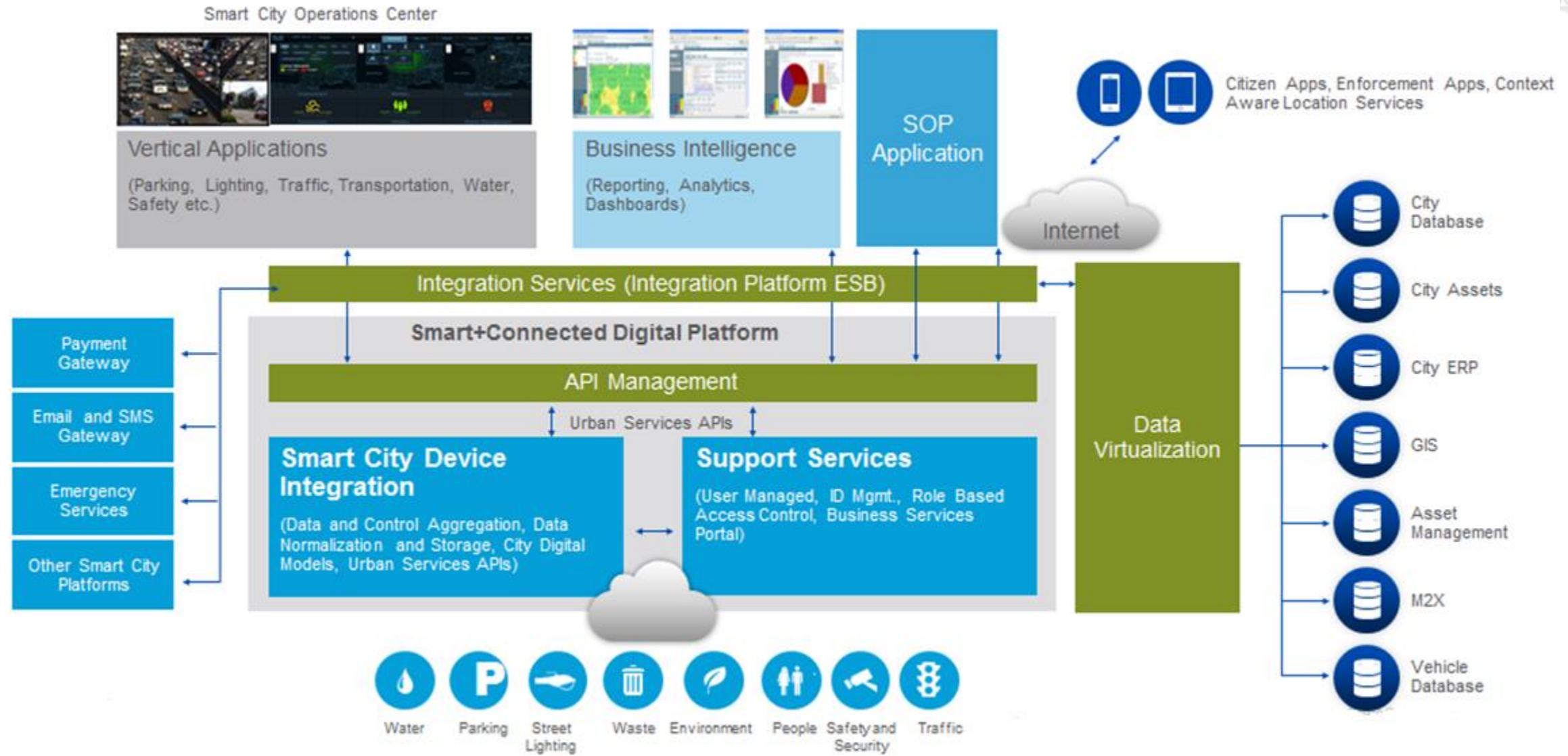
## Disaster Management



## Smart Traffic Management System or ITMS

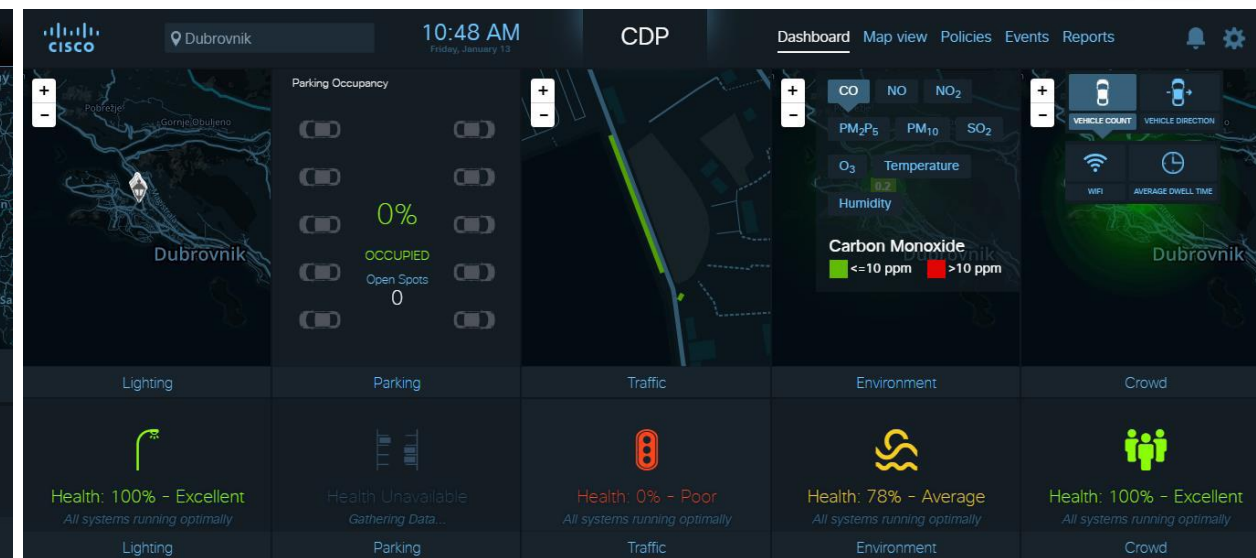
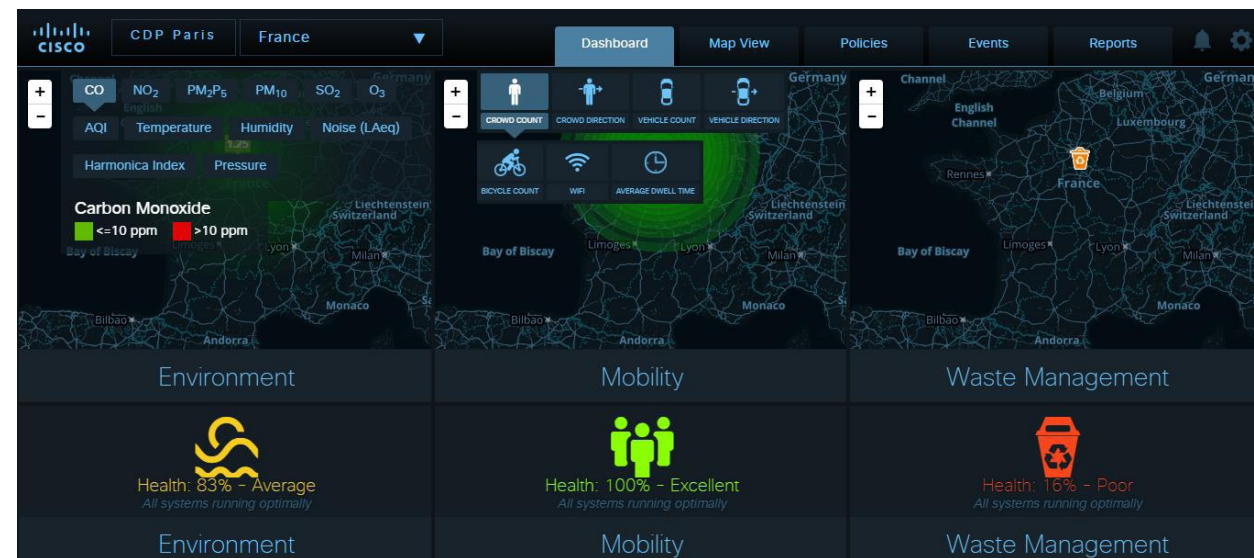


# CCC Architecture Overview





# Screen Layout in CCC



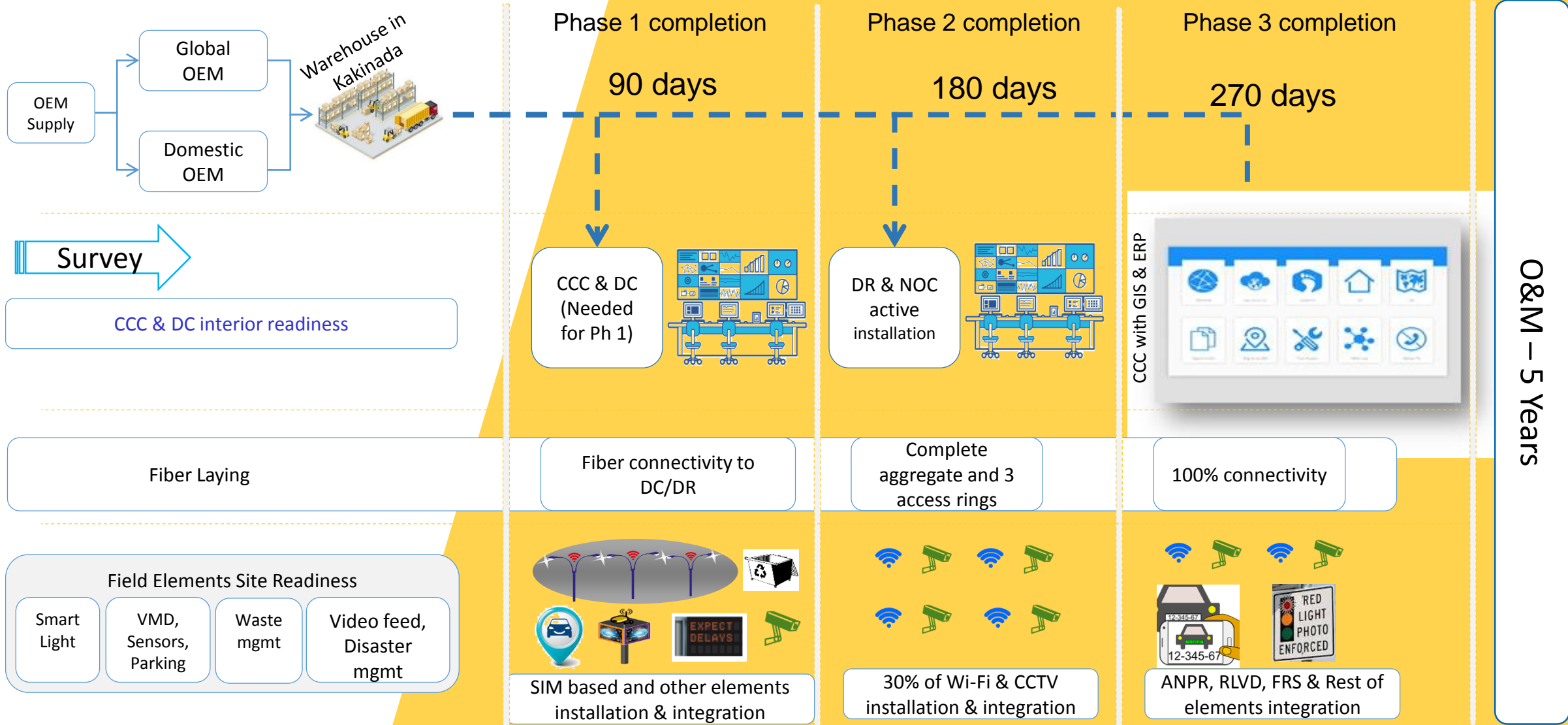
- Collect, Co-Relate and Response are the main 3 functions of CCC
- Monitoring and control of dynamic activities
- Real-time video feeds
- Data integration with different elements
- Various data and alert signals
- Simplifying control room operation

- Rapid decision-making
- Displays sensor, map on a single layout and on video wall
- Management of transportation
- Crime prevention
- Disaster recovery

# Cost Analysis

S. No	Component	Cost (Rs. In Crores)
1	Infrastructure and Installation Cost (CAPEX - Capital Expenditure)	66,48,74,880
2	Operations & Maintenance (OPEX – Operational Expenditure)	28,40,48,546
	Total Cost	94,89,23,426

# Implementation Timelines



# Project Progress Status

Solutions	Material @ WH	Route/Location	Design approval
P1	Fibre (Core/Agre)	● (32 Kms)	NA
	Smart Light (617/640)	● (392)	NA
	Env. Sensors	●	●
	Disaster mgmt.	●	NA
	VMD	●	● (3 in progress)
	Control Centre	●	● (In progress)
	SWM	●	●
P2	Smart Parking	●	NA
	Wi-Fi	15 <sup>th</sup> Oct 2017	●
	CCTV		●
DR-NOC	●		
P3	Other elements: ANPR, RLVD, ATCS, PA, ECB	30 <sup>th</sup> Dec 2017	●
	GIS Integration APIs		NA
	ERP Integration		NA

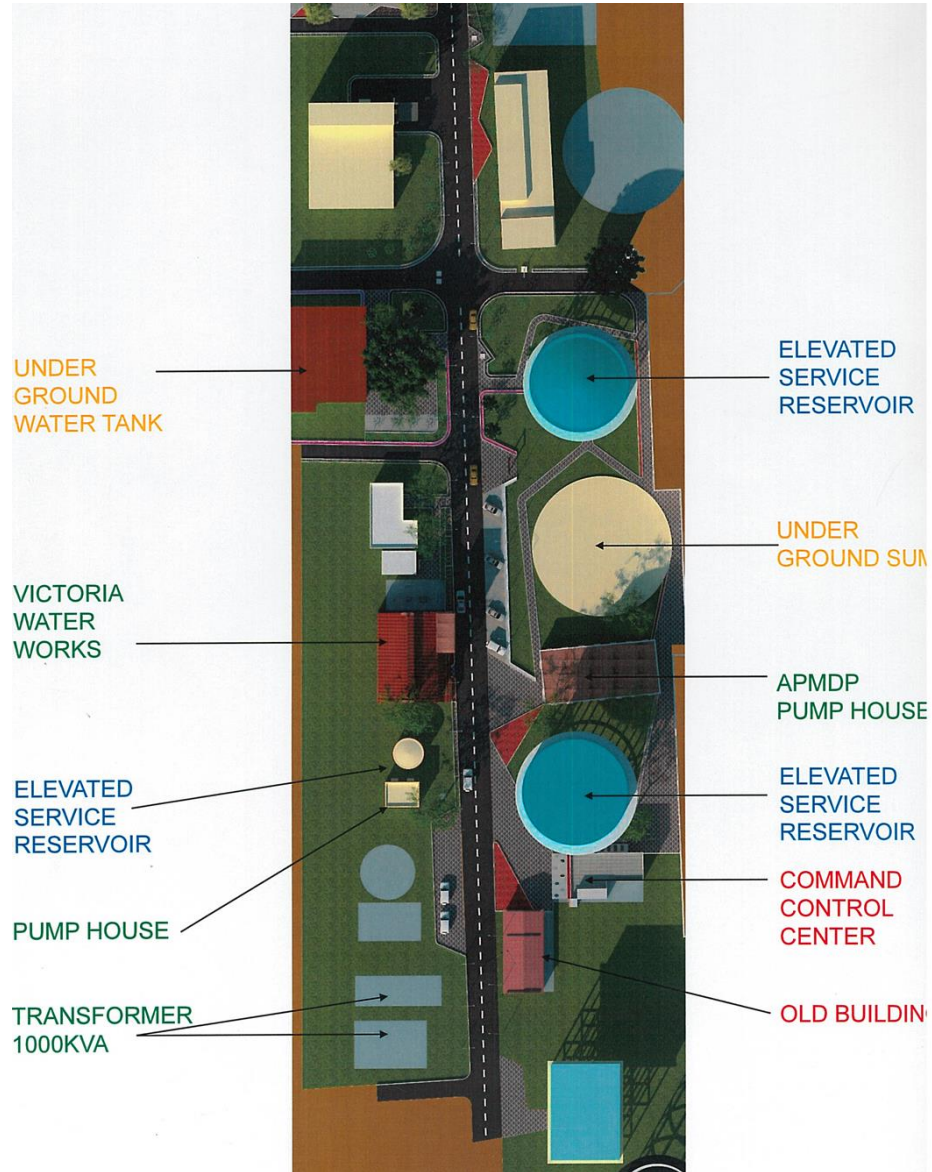
● Done

● Partially done

● Pending

# CCC Elevation

Birds View



Front View



# Work in progress at CCC building



# Optical Fibre Cable laying & Smart Light Installation

Optical fibre cable laying



Smart street light installation



# VMD construction, Smart Traffic and Parking

VMD Sub structure construction is in progress



Joint site survey with Police Department for locations of Smart Traffic elements & Smart parking





