

**City
Maysem**



MAYASEM
مياسم

مدينة متكاملة
مياسم



SURROUNDED
BY GREAT
NEIGHBOR

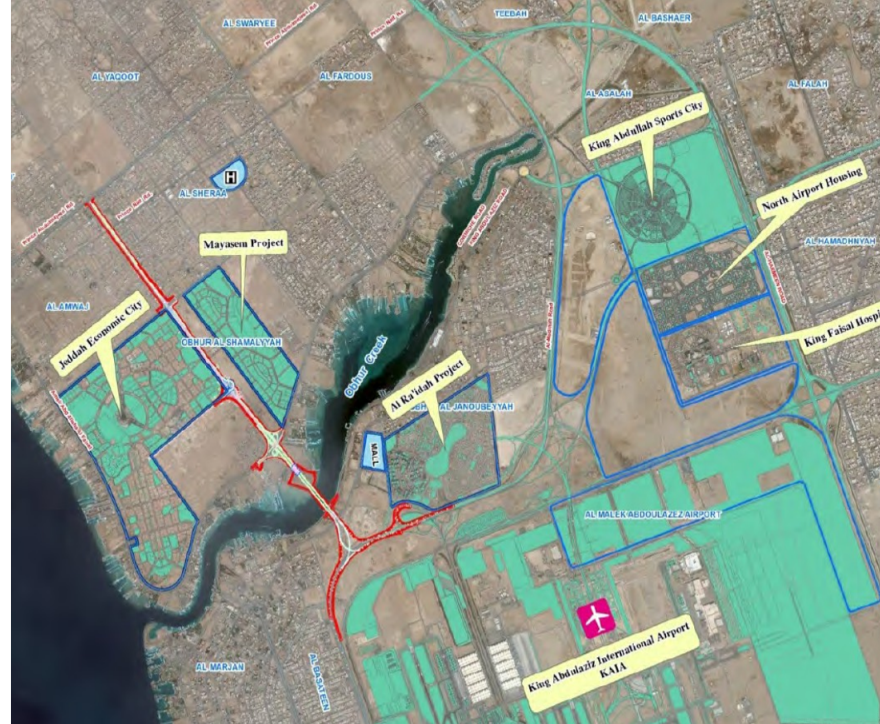
- **Entertainment**
 1. Dor Al Alaroods Development
 2. Jeddah City Center
 3. Salman Bay Developmet
 4. Jeddah Tower Mall
 5. Albouhairat Development
 6. North Cornish Publich Beach
- **Commercial**
 1. Jeddah International Airport
 2. King Abdullah Sport City
- **Education**
 1. Batterjee University
- **Hospitality**
 1. SEDCO Resort Development
- **Residential/Commercial**
 1. AlReyadah Development
 2. Jeddah Hills Development
 3. Asfan Road Development
 4. Red Sea Village Development



37
500



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2.4 km
Esplanade

78,000
sqm
Crystal
Lagoon

37,000
Visitors

5
MINUTES
WALKING

Crystal
Lagoon





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76,000^{sqm}
Landscaping

15,000
Trees

200
Plant
Species

3
MINUTES
WALKING

Mayasem Gardens





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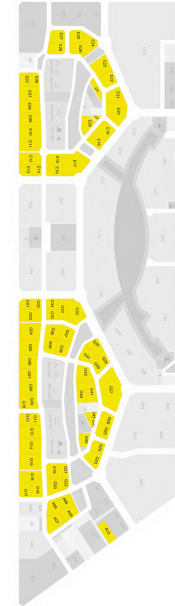
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GFA
zone E

653,000
sqm
GFA
zone G

4,200
Residential
Units



Residential Projects



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GFA
zone D

1,200
Residential
Units



Smart housing

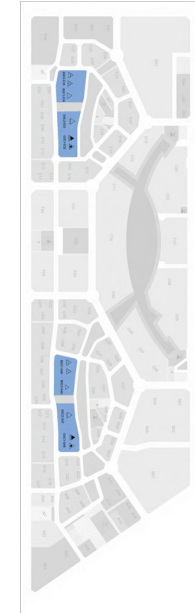


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4,600
Students

3
MINUTES
WALKING



EDU. Compounds



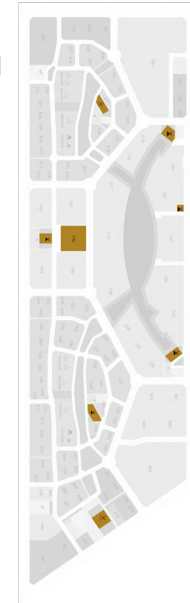
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1
Science and
Technology
Museum

7
Cultural
Hubs

3
MINUTES
WALKING



Cultural Areas



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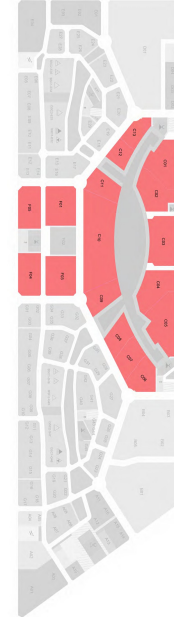


16,000
Job
Opportunities

1,200
Commerical
Stores

250
Restaurants
& Cafes

5
5
MINUTES
WALKING
Vital Area





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400
Hospital
Bed

7
MINUTES
WALKING

Medical services





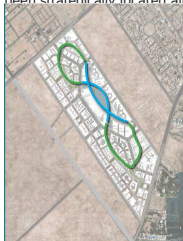


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OPEN SPACE NETWORK

The landscape strategy aims to create a distinctive atmosphere, in order to offer a range of neighborhoods, which would then appeal to wide variety of residents and visitors. Infinity Loop. One of the main planning principles has been to create a continuous linkage between districts through pedestrian and open spaces. Taking the opportunity of the overall design review and particularly the reconfiguration of the central zone, the original concept of the spine park has been extended and developed into an "infinite loop" of connected landscaped spaces. As this loop crosses through different zones, the nature and usage of its spaces adjusts to the surrounding urban fabric. Residential zones feature landscaped parks with green recreational areas while the space around the lagoon is more urban with landscaping that supports the active and animated surrounding land-uses. Public facilities including community centers have been strategically located along the

facilitate linkage.



UTILITIES & FACILITIES

Providing a series of technical utilities and facilities within its premises, the implementation of these utilities requires a sensitive and mitigative approach to minimize their negative impact on the surrounding.

The following utilities are provided within Mayasem:

- One (1) Sewage Treatment Plant
- One (1) District Cooling Plant
- Two (2) Electrical Sub Stations
- One (1) RO Plant

Requirements:

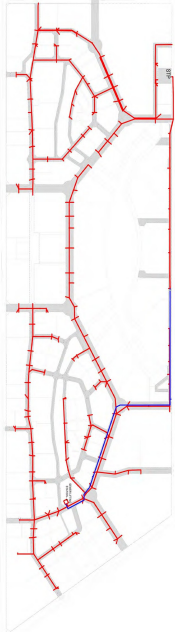
- Utilities are required to be shielded from the public by green buffers which include low and medium high planting.
- Maintenance access to utilities shall be provided at low-impact areas so that utility trucks do not have to utilize the internal road network.
- Where utilities can be placed inside closed buildings, facade treatment shall ensure that these buildings integrate into their surrounding.



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SEWAGE



SITE CONDITIONS

There is an existing sewage public line on the north side of the property. The sewage line/network has been constructed recently. However, the line is not connected to a sewage treatment plant and none exists currently. Tentatively, it is assumed that a new public sewage treatment plant will be operational in the year 2020. Accordingly, the development plans to use is temporary Sewage Treatment Plant (STP) until the public sewage treatment plant is completed.

PROPOSED NETWORK

The proposed network was developed based on the National Water Company (NWC) guidelines. The site is split into two catchment areas, north and south. The north segment utilizes a gravity system with two connection points to the public line. The south segment utilizes a lift station and a force main line connecting to the east service road gravity system. The gravity sewage line on the east service road flows to an existing sewer manhole in the northeast corner of the site.



DESIGN CRITERIA

Sewer Flow - Maximum discharge is based on the following Master Plan occupancies:

• Residential 180 L/person/day • Transient 40 L/person/day Total Estimated Discharge: 13,000 M3 approximately

Peaking Factor: The network is considered a municipal system. A peaking factor is used based on a variation of Babbitt formula.

Pipe Gradient: Pipe gradients will achieve the minimum cleansing velocity. Pipe Materials: Pipe materials and roughness coefficients are per NWC standards.

The lift station is designed to handle the ultimate peak flow from the south segment of Mayasem's development.

TEMPORARY SEWAGE TREATMENT PLANT

A temporary Sewage Treatment Plant will be designed to handle up to 70% of the development's sewage flow. The use of Moving Bed Biofilm Reactor (MBBR) is recommended. The Sewage Treatment Plant will be constructed in stages to accommodate the flow from the phased construction of the development. The STP will be located in Zone D.

CONNECTION TO PUBLIC SYSTEM

The sewage network will be, ultimately, connected to the public sewer lines in the road north of the property.

SUSTAINABILITY MEASURES

The development will use the Treated Sewage Effluent (TSE) for irrigation and firefighting. The building designers will be encouraged to investigate the use of grey water.



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005

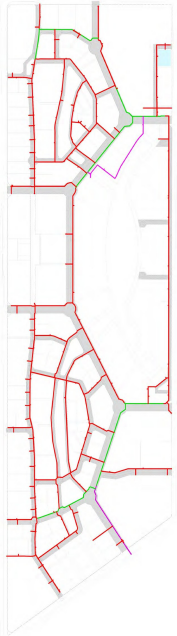




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PORTABLE WATER



SITE CONDITIONS

The National Water Company (NWC) is the supplier of potable water in Jeddah. Currently NWC does not have the infrastructure for capacity to supply the development's potable water needs. Mechanisms for future supply of potable water will be negotiated with NWC.

The proposed network was developed based on the calculated domestic water demand using the projected population size and the assumed water demand for the different types of occupancies identified in the Master Plan. The following demand criteria was used in the calculations:

- Residential 200 l/day
- Transient 45 l/day

The total estimated domestic water demand is approximately 13,000 M3/day.

The following criteria was used for the design of the potable water network: Maximum Pipeline Velocities: 1.0 m/sec for distribution lines

1.5 m/sec for transmission lines

Minimum Pressure: 1 bar at the highest point of transmission network

Maximum Pressure: 4 bars at lowest point of the transmission network

Hydraulic Design: Hydraulic design is based on Hazen-Williams formula. A

35% allowance was used to cover losses due to bends, tees, valves and other appurtenances as per the International Institute for Environmental Engineering and Research (IHE)

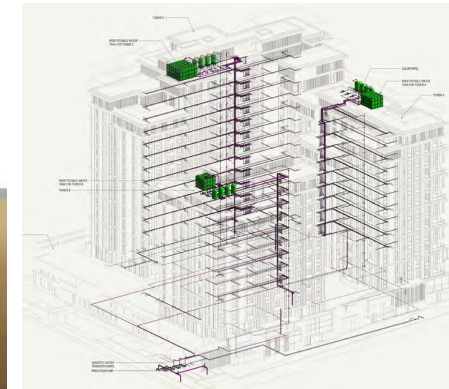
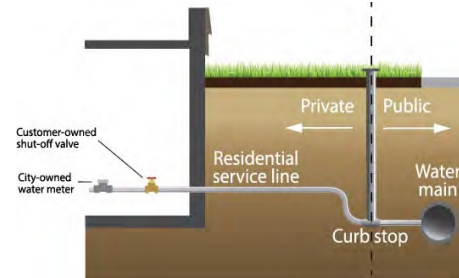
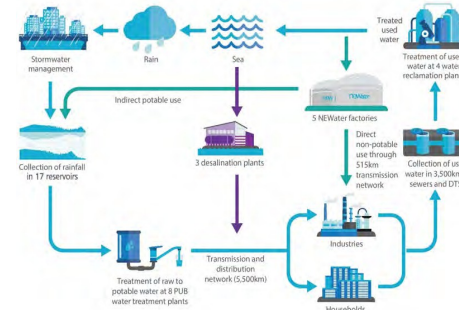


GENERAL FEATURES

A loop system was used in the network layout. The network is sectionalized, through use of isolation valves, to allow localized maintenance without major disruptions.

CONNECTION TO PUBLIC SYSTEM

Mayasem's network will be connected to the future public network to be constructed by the National Water Company. Two feeds are assumed, on the north and south sides. These connection points should be coordinated with the National Water Company. To cater for the demands of the Phase 1 development, a (temporary) RO plant is planned to be developed in Zone D in adjacency of the Sewage Treatment Plant and the District Cooling Plant.



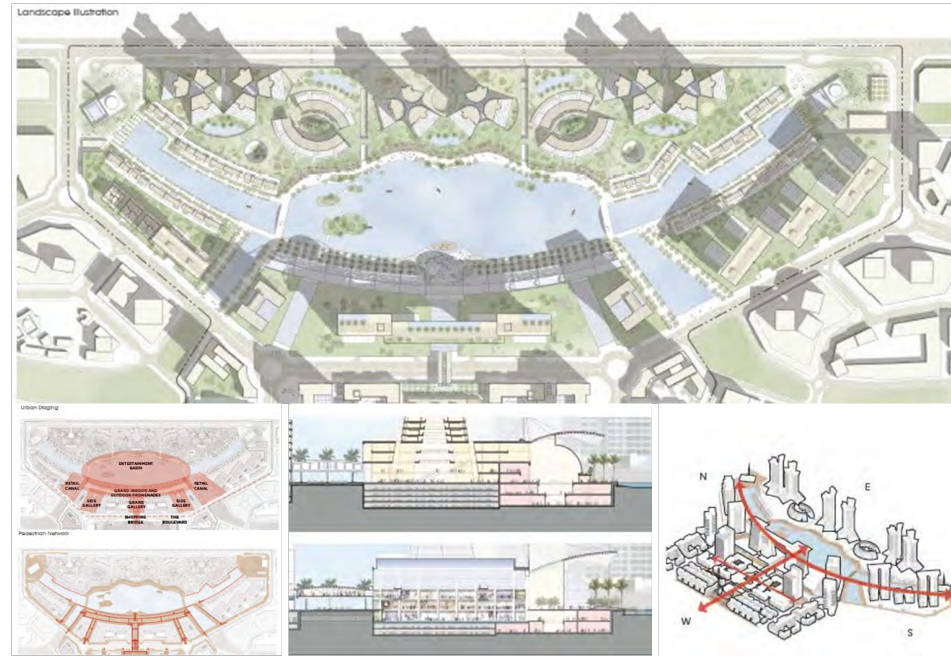
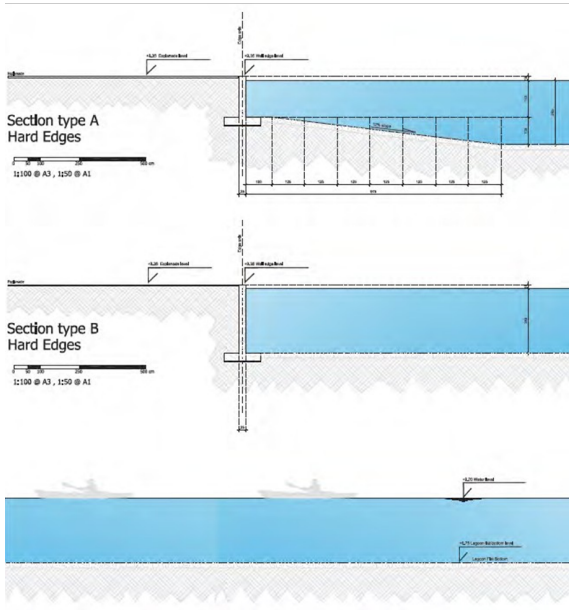


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CONCEPT AND STAGING

A principal civic gesture of the Mayasem urban realm is the outdoor Lagoon Promenade and the indoor Lagoon Galleria. Organized along the 7.5 hectare lagoon, the promenade and galleria to which it is linked create a vibrant public space that flows seamlessly between indoor and outdoor, air conditioned and open areas. A unique destination along the waterfront, the combination of these features establishes a strong integration of the water edge and recreation with a grand multi-level retail arcade. Ground-level restaurant and retail outlets are arranged to straddle and connect the indoor retail shopping with the shaded outdoor waterfront promenade, allowing a seamless connection both physically and visually between the shopping and entertainment areas and the outdoor recreation. Just as in historic city centers, the lagoon promenade is punctuated by grand piazzas and civic squares. At the culmination of the central axis at the center of the lagoon promenade, a grand public piazza is integrated into the plan providing a venue for major public events, centered on the lagoon. Further along the promenade to the east and west, smaller civic piazzas organize the intersection of secondary retail axes linking the promenade and waterfront to the boulevard to the west. The lagoon organizes this entire district. The central lagoon is the focus of the major public activities and will be the scene of large-scale festivals and celebrations. Flanking the lagoon, smaller scale canals provide for more intimate walking and entertainment environments. Across the lagoon from the gallery promenade, bridges connect to the inviting promenade park. The entire lagoon district provides the public with a wide variety of experiences and possibilities to enjoy the waterfront, day and night.





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Currently there is no central gas network in the area. The National Gas and Industrial Company (GASCO) advised that no service is planned for the near future. Recognizing the value of a central gas system for the development, infrastructure that allows for the future installation of the system will be included in the project.

PROPOSED NETWORK

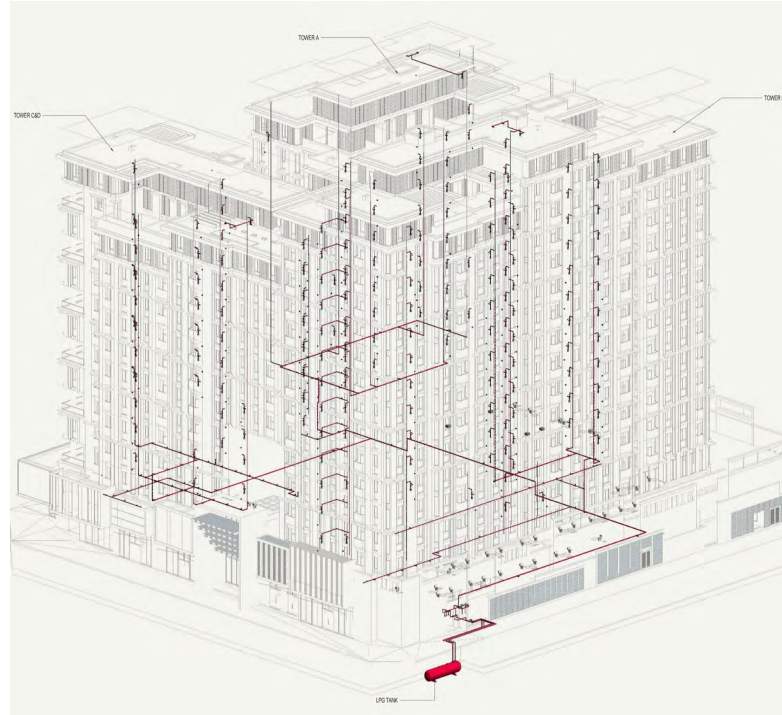
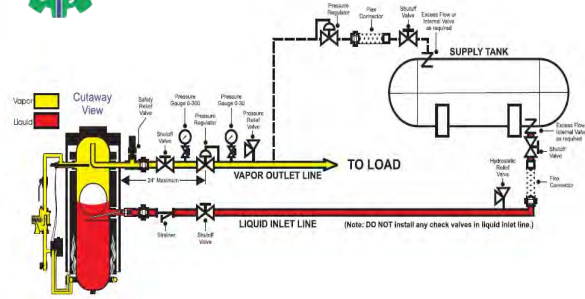
A network of conduits/sleeves will be installed in the roads. The system will be used by GASCO to provide central gas supply in the future.

SHORT TERM GAS SUPPLY

All buildings will be designed with gas storage tanks as required to supply the calculated building demand.

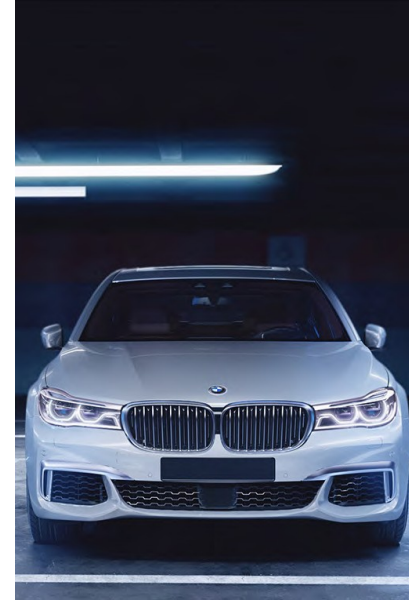
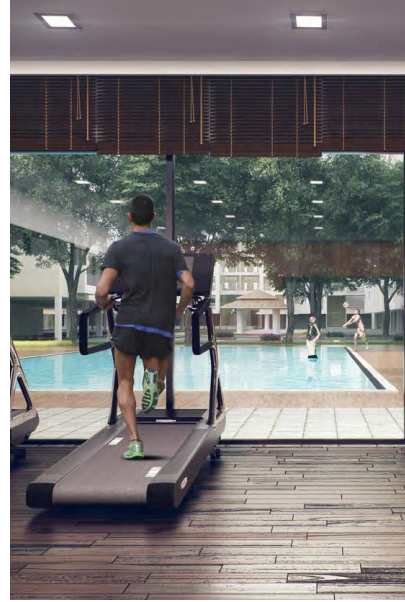


شركة الغاز والتصنيع الأهلية
National Gas & Indust.Co.





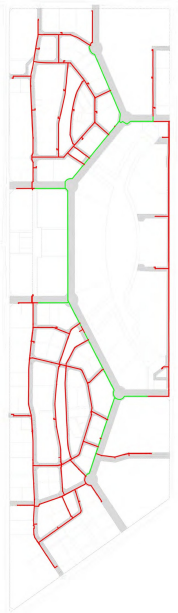
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Street fire hydrant systems in Jeddah are under jurisdiction of the General Directorate of Civil Defense and Local Municipality. Currently the roads around the site are not fully developed and fire water supply and street hydrants have not been installed.

A dedicated fire hydrant system is designed to provide proper pressure and flow to fight street fires. The system consists of a looped network of 150mm 250mm and 300mm HDPE pipes. A central storage tank and pumping station provides the required water, adequate flow and pressure. Each building or block will be responsible for providing its own firefighting system. This will be accomplished through the use of onsite fire water reservoir and fire pumps.



The criteria used for the design should be in accordance with the National Fire Protection Association, USA (NFPA) and the General Directorate of Civil Defense Regulations.

Maximum Hydrant Spacing:
152M (per NFPA) 100 to 150M (per NWC)

Fire Duration: 2 hours

Number of Simultaneous Fires:
2 fires (per Civil Defense and NFPA)

requirements, a storage holding tank is provided for the required volume of firefighting water. The water will be distributed in a pressurized network complying with NFPA's criteria for minimum flow rate residual pressure.





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CENTRAL COOLING



SITE CONDITIONS

The current development plan includes a central District Cooling Plant to serve Zones C & E. The District Cooling Plant will be located in Zone D with an area of 7500 m².

PROPOSED NETWORK

The central District Cooling Plant and the piping network will be constructed in phases associated with the development of the serviced buildings. The piping network will be located under the sidewalks and will be simultaneously constructed with the adjacent building basements. Culverts/ducts will be located in Phase 1 Roads as required.

DESIGN CRITERIA

The central District Cooling Plant will be designed with the refrigeration required to meet the cooling load of the serviced buildings.

COOLING LOAD RATE (One TR/Area in m²)

• Office: 25	• Hotel: 23	• Civic: 25
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Currently the calculated cooling load is 35,000 cooling tons.

ENERGY AND COST EFFICIENCIES

Central District Cooling Plants are used to reduce energy use and achieve lower operational and maintenance cost.

ENERGY AND COST EFFICIENCIES

District Cooling Plants are more durable than traditional systems. Their projected operational life is approximately twice that of traditional systems. The use of hightech industrial units, with back-up, reduces the possibility of disruption of services.

