



The Aga Khan Award for Architecture

CLIENT'S RECORD

CONFIDENTIAL

I. IDENTIFICATION

Project Title KING FAHD EXPRESSWAY CORRIDOR

Street Address _____

City Arriyadh Postal Code _____ Country Saudi Arabia

Telephone _____ Facsimile _____ Telex _____

II. PERSONS RESPONSIBLE

A. Architect/Planner

Name Zahir Othman

Mailing Address P. O. Box: 495

City Arriyadh Postal Code 11411 Country Saudi Arabia

Telephone 966-1-4883331 Facsimile 966-1-4829331 Telex 401190

B. Client

Name Arriyadh Development Authority

Mailing Address P. O. Box: 495

City Arriyadh Postal Code 11411 Country Saudi Arabia

Telephone 966-1-4883331 Facsimile 966-1-4829331 Telex 401190

C. Consultants (e.g. Engineers, Economists, Sociologists, Historians, etc.)

Name Rhein-Ruhr Ingenieur-Gesellschaft

Mailing Address P. O. Box: 103332

City Dortmund 1 Postal Code D-4600 Country Germany

Telephone 49-231-548275 Facsimile 49-231-575556 Telex 822190

D. Master Craftsman/Contractor

Name DUMEZ

Mailing Address P. O. Box: 7157

City Arriyadh Postal Code 11462 Country Saudi Arabia

Telephone 465-4692 Facsimile _____ Telex _____

III. USEA. Specify type(s) of use Vehicular and pedestrian traffic and recreational use.

B. User(s) or Occupant(s)

1. Occupation/Profession N/A

2. Income Level (check one) _____ High _____ Medium _____ Low _____ Mixed

C. Specify any change(s) between planned and actual use:

N/A**IV. PROJECT TIMETABLE**

(Please specify year and month)

A. Design: Commencement April 1985 Completion September 1985B. Construction: Commencement May 1987 Completion January 1991C. Date of Project Occupancy January 1991**V. PROJECT ECONOMICS**

(Please specify amount, currency and date of transaction)

	Amount	Currency	Date
A. Total Initial Budget	<u>370 Million</u>	<u>S.R.</u>	<u>1987</u>
B. Cost of Land	<u>N/A</u>		
C. Analysis of Actual Costs			
1. Infrastructure	<u>330 Million</u>	<u>"</u>	<u>"</u>
2. Labour	<u>140 Million</u>	<u>"</u>	<u>"</u>
3. Materials	<u>190 Million</u>	<u>"</u>	<u>"</u>
4. Landscaping	<u>31 Million</u>	<u>"</u>	<u>"</u>
5. Professional Fees			
6. Other <u>Prelims</u>	<u>9 Million</u>	<u>"</u>	<u>"</u>
D. Total Actual Costs (without land)	<u>370 Million</u>	<u>"</u>	<u>"</u>
E. Actual Cost per sq.m.			
F. Cost Comparison			

Please indicate how the costs of this project relate to typical building costs in the country (check one):

_____ Average _____ Above Average X _____ Below Average

G. Sources of Funds

1. Please indicate the percentage of funds that came from:

0% Private Sources 100% Public Sources

2. If funding was public, what percentage was from:

_____ Local Sources X _____ National Sources _____ International Sources

VI. CONSTRUCTION DETAILS

A. Site and Building Area (please indicate in square metres)

1. Total Site Area 500,000
2. Total Ground Floor Area N/A
3. Total Combined Floor Area N/A
(including basement(s), ground floor(s) and all upper floors)

B. Construction and Technology

Describe the structural system and the basic method of construction. For restoration projects, please describe the techniques used in the conservation of the original structure.

Depressed expressway using reinforced concrete retaining walls.
Service Roads running parallel on existing ground level.
5 intersection bridges crossing the expressway.
1 3-level intersection
6 elevated pedestrian crossings.

C. Description of Materials

(please also indicate if locally produced or imported and whether fabricated on-site or elsewhere)

1. Foundations

Reinforced concrete, laid in-situ (locally produced).
Precast concrete cappings, laid in-situ (locally produced).

2. Principal Structural Members

Bridges made of: 1 - reinforced concrete laid in-situ (local)
2 - prestressed steel reinforcing (imported)

3. Infill

4. Rendering of Facades or Exterior Finishes

5. Floors

6. Ceilings

7. Roofing

8. Other elements (please specify)

* Please see reverse.

D. Type of Labour Force (please indicate percentage)

 Skilled Workers Unskilled Workers

E. Origin of Labour Force

5% Domestic 95% Foreign

1. Electrical Utilities:

Generators Imported

Co-axial cable for transmission of TV - Imported

High & low voltage cable - locally produced.

Telephone network - locally produced.

Lighting poles filling - locally produced.

2. Landscaping:

All plant species, top soiling - locally produced

3. Groundwater Drainage System:

a. 2 Pumping Stations

Basic Reinforced Concrete Walls

Suspended Ceilings

Pumps - imported.

b. Pipe System - locally produced.

4. Surfacing, Signs & Road Markings:

Asphalt concrete - locally produced.

A1A backfill material - locally produced.

Signs - locally produced.

Ceramic Road Markers - locally produced.

VII. GENERAL GEOGRAPHY AND CLIMATE

Please describe the local climatic and geographic characteristics and the extent to which these have been taken into consideration in the design process.

VIII. EVOLUTION OF DESIGN CONCEPTS

Please describe the history of the project, from its conception to its final construction and actual use.

The King Fahd Expressway Corridor used to be just a major arterial through the Central Arriyadh Area. However, with the increase in traffic, delay and number of accidents, it was upgraded to an expressway with parallel service roads.

Planning the corridor took in consideration the characteristics of the area and the balance between the through traffic and that destined to the boundaries of the expressway. As such, the corridor was designed in two levels: a depressed main carriageway to serve the through traffic and a system of at-grade service roads to provide access to the City Center and serve the local traffic. The interaction between these two systems was provided by a number of entry and exit ramps that were designed to respond to the origins and destinations of the traffic. The design of these ramps was unique in that the entering traffic to the expressway does not weave with the exiting one, thus greatly improving traffic performance and safety in addition to providing easy access from and egress to the main cross streets.

At an other level, the design of the corridor took into consideration some urban design factors such as pedestrian movements, landscaping, noise and air pollution that were discussed in Section IX. There is currently a program to encourage the development of the corridor's surroundings within a predefined land-use policy that takes into consideration the existing infrastructure.

The implementation of the project was faced with some constraints of great importance. The two most challenging of these, other than traffic management during construction, were the lowering of the ground water table and the reallocation of the general utilities conduits along the corridor, especially that no clear indication of their previous location was available.

After the opening of the corridor, field surveys and simulation models showed that this project caused the reduction of 800,000 driven kilometers per day and about 100,000 driven hours per day in the whole City. These facts reflect the magnitude of the improvements in air pollution, noise pollution and other environmental and economic aspects.

(continued on overleaf)

The corridor was equipped with communication devices that set the stage for implementing an Intelligent Vehicle-Highway System (state of the art urban freeway traffic management system) that would be the first of its kind in the Middle-East.

IX. PROJECT SIGNIFICANCE AND IMPACT

In what way is this project important ? Please describe the aspects of the project which represent a particular achievement (for example the technical, economic, or social achievement, or its response to culture, climate, etc.).

King Fahd Expressway Corridor is one of the main three axes of roadway traffic in the capital city of Arriyadh, and it is the main north-south corridor through the Central Business District. The newly upgraded section is about 5.1 km long and 95 m wide. The corridor is composed of a depressed expressway with three traffic lanes in each direction and a service road on each side with a minimum of three traffic lanes in each direction. These characteristics provide a high capacity and a good level of service for motorists which translate into travel time reduction and better access to the different parts of the City. The current daily flow on the expressway is 142,000 vehicles per day. By easing the access to the City Center, the KFEC plays a major role in revitalizing the CBD, the principal political, administrative and commercial center of the City. In particular, the newly renovated Kasr Al-Hokm District (Justice Palace District) is well served.

King Fahd Expressway Corridor's cutting through the City Center had to be considered in light of many technical, environmental and social aspects. The freeway was redesigned as a depressed expressway, mostly eight meters below ground level, to avoid splitting the City into two sections which would have minimized the historic and social interactions between them. In addition, by adopting this option, noise and air pollution, emitted by the high speed traffic, were minimized. To further reduce noise and air pollution and improve the look of the corridor, a considerable effort of landscaping was carried out. A 12,000 square meter plaza was designed on top of a tunnel and was equipped with fountains, walkways, benches and picnic areas. In addition, ten small recreational areas, equipped with playgrounds and gardens, were located on both sides of the corridor. A total of about 8,000 trees were used in these projects. Moreover, pedestrian traffic was also taken into consideration by providing six pedestrian bridges that cross the corridor between the intersections and pedestrian walkways along the service roads and at the different grade separated intersections.

One of the great achievements of the project was the lowering of the ground water table which was very close to the ground level at some locations in the City Center. More than 1,000 wells were dug to absorb the ground water which is then conveyed to two water treatment plants. A good portion of this recycled water was used to water the landscaping in the project area. This was new concept at the City level and set forth a leading example. The capacity of this system is about 700,000 cubic meters per day.

Another major achievement was the reallocation of the general utilities conduits that used to be under the old roadway. This proved to be a very challenging task especially because of the nature of the area - one of the oldest parts in the City.

X. PRESENTATION REQUIREMENTS

- A. The materials described below are the minimum requirements for project presentation. These materials will be used in the preparation of standardised presentations to be constituted by the Award office and reviewed by the Master Jury. Subsequently, they will form part of the permanent Award archives and may be made available for public consultation.

The submission materials should be clearly identified and should not be bound or mounted. For slides and photographs, a list of captions should be provided for each image; the name(s) of photographer(s) and date(s) of photography should also be specified.

1. Map indicating location of project in city, community, neighbourhood, or landscape.
 2. Ten (10) photographs; preferred and maximum size for A4 presentation (18 x 24 centimetres).
 3. Twenty (20) slides; 24 x 36 millimetres.
 4. Drawings; preferred and maximum size for A3 format presentation (29,7 x 42 centimetres).
Site, Roof, and Massing Plans;
Floor Plan(s);
Elevations;
Sections.
 5. Curriculum Vitae, or Firm's Prospectus.
- B. The submission of additional materials is encouraged. Please specify any appended materials not listed above.

Enclosed is the project's brochure in Arabic.

- C. Please indicate other sources of information on the project(s), e.g. publications, personal contacts, etc.

Please note: The submission of this Record is a prerequisite to candidacy for the Award. All information contained in and submitted with the Record will be kept strictly confidential until announcement of the Award is made. Subsequently, such material may be made available by the Aga Khan Award for Architecture and you hereby grant the Aga Khan Award for Architecture a non-exclusive licence for the duration of the legal term of copyright (and all rights in the nature of copyright) in the Material submitted to reproduce the Material or licence the reproduction of the same throughout the world.

Signature _____

Name (please print) ZAHIR OTHMAN

Date NOV. 26, 1991

All materials should be forwarded to:

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