In the past few decades, al-Madinah, the first city of Islam, has experienced tremendous changes — more than during centuries of its previous history. The increase of pilgrim numbers provoked by modern transport facilities, as well as the expansion of the permanent settlement (from around 60,000 in 1950 to around 350,000 in 1980) and the corresponding increase in vehicular traffic have exerted immense pressure on the old urban fabric. As growth and change were not controlled, this has resulted in the successive demolition of 3/4 of the old city between 1952 and 1978.

It is clear that this change has to be accepted to a certain extent, specially as the increase of prayer space around the Prophet's Mosque represents an absolute necessity. However, the issue of the Mosque enlargement, when first tackled, was not treated in an integrated manner: large spaces were cleared and complete traditional quarters were demolished without a clear concept of how to deal with the city centre as a whole and how to heal the scars inflicted to the traditional urban fabric. The results are problematic:

- The mosque was isolated from its urban context.
- The new covered prayer space with its prefabricated aluminium roofs looks rather inappropriate for its noble purpose.
- Large empty surfaces have been established around the Holy Precinct, and the vacuum has been filled by parking lots.
- Intense vehicular traffic in the immediate surroundings of the Sanctuary conflicts with the pedestrian flows and creates congestion all over the central area, specially during prayer times.
- The remaining "fragments" of the old city are rapidly decaying due to lack of care and maintenance, and due to missing rehabilitation policies.
- Land speculation in the central area has gone out of control, generating immense redevelopment pressures and corresponding townscape problems, with more and more western style high-rise buildings being erected in the immediate vicinity of the Haram.
- Green areas within the city, once representative for al-Madinah's character as an oasis, have disappeared at an alarming rate, with the effect that hardly a few trees are left in the central area which used to be full of palm gardens. In 1979/1980, a chance arose to resolve these problems, when a new masterplan for Madinah al-Munawarah was commissioned to the Saudi firm of Shaker, Moussali and Mandily. On behalf of the Hajj Research Centre in Jedda, the author of this article was advising on general planning strategies (with special regard to the Central Area) and was later responsible for developing a new planning and urban design concept for the Haram Area, including the extension of the Prophet's Mosque. This work has been integrated into the masterplan as a special Action Area Report, submitted to the Authorities in 1982.

One should have thought that the masterplan was the ideal occasion to review and improve the structural problems of the city and to set a basis for integrated solutions. Indeed, a considerable effort was undertaken to provide the city with consistent planning concepts. Yet, it seems somewhat doubtful, whether their implementation will succeed. There are several reasons for this, one of them being the lack of continuity in planning, and another one being the lack of coordination between decision makers involved at various governmental levels. Generally speaking, Municipalities in Saudi-Arabia don't have, as yet, enough qualified staff to follow up masterplan proposals, and their policy of immediate commissioning of detail execution projects is often incompatible with a more complex planning approach.

However, regardless whether the masterplan proposals will be im-
implemented or not, it may be of a certain interest to present the general concepts worked out for the Central Area, the most crucial sector of al-Madinah.

In the eyes of the Muslims the structure of al-Madinah was traditionally determined by the image of a sanctuary embedded in the cluster of surrounding houses, the large courtyard of the Prophet's Mosque serving as the centre of the whole urban structure which was considered itself as part of the Haram. Today, outer conditions have changed, but nevertheless it seems appropriate that modern planning should respect as much as possible this powerful image.

The present central area of al-Madinah corresponds to the surface previously occupied by the historic city *infra muros*. Its boundaries were recently defined by the construction of the first ringroad, which separates the urban nucleus from the outer areas. During the planning process it was realised that the question of how to utilise the ringroad would be decisive for the future of the central area: if it was merely used as a distributor of vehicular traffic into the Haram area, it would increase congestion and promote further destruction of the environment. If, on the other hand, it could serve for intercepting the radial traffic flows which converge on the sanctuary, it would provide a device for protecting the Haram from traffic pressure. Thus it would open new opportunities for the suitable redevelopment of the most sensitive parts of the central area, while preserving the integrity of the Haram area.

Accordingly, the masterplan suggested to "envelop" the Haram area within a specially treated pedestrian zone, which would cover large parts of the central area. This protective mantle would be surrounded in turn by a zone of limited vehicular access, covering the rest of the central area and forming a buffer zone with respect to the area outside the first ringroad. Inside this transition zone, only residents' vehicles, public transport and service trips would be allowed, while through-traffic would be discouraged by a specially designed circulation system. This would consist of "loops" and "cul-de-sacs" combined with appropriate car parking facilities strategically located near the first ringroad. Thus, the first ringroad would act like a "city-wall", vehicular traffic would be filtered and adequate accessibility would be offered to the Haram zone and to the residential quarters in the corners of the central area. In special cases, such as for dignitaries, emergencies and handicapped people, the pedestrian area could still be entered by cars.

The above planning concept had an important repercussion on the broader masterplan context, as it was instrumental in restructuring the whole circulation network: it was felt that the predominant radial traffic flows converging in the Haram area should be changed for they not only threaten pedestrians and affect the environmental quality of the Haram area, but are also inefficient in their own terms because of the congestion caused in the city centre. It was therefore recommended to reinforce the circular patterns by introducing an intermediate ringroad which would intercept and distribute the radial traffic streams before arriving at the inner ringroad. Transit traffic could thus become more efficient by bypassing the central area.

This solution would provide optimal conditions for creating an attractive pedestrianised Haram area and for the future extension of the Mosque. Walking distances from the main drop-off-points to the Prophet's Mosque would not exceed 200—300 metres. The routes could lead through the new extension buildings or they could be treated in a way as to become pleasant and attractive pedestrian paths provided with shade, gardens and commercial facilities. At the same time, the concept would grant a balanced traffic scheme and offer good peripheral access, thus avoiding present congestion in the central area. Accessibility could be improved by the use of public transport and mini-buses which would service the pedestrian area penetrating its fringes.

Before going into more details concerning the urban design proposal for the central area, it is necessary to provide a few basic data which may explain the very special conditions the project had to take into account:

In al-Madinah, the pilgrimage season has a lower peak than in Makkah, since pilgrims flock in before and after the very days of the Hajj and are therefore distr-
were left between the last day of the al-Madinah. From the aerial view for this calculation because a few days visitors who would desire to move to within and around the Mosque was computed at approximately 105,000 persons (assuming a gross area of one square metre per person and deducting the non-occupied surfaces in the courtyard). This would correspond to about 5 to 6 per cent of the total number of pilgrims participating in the Hajj during the same year.

Statistical data is not available to determine the maximum number of pilgrims staying in al-Madinah on the same day. However, a fairly accurate indication can be drawn by interpreting aerial views of the Haram area on the first Friday after the Hajj — the date which attracts the highest concentration of pilgrims to the city. The year 1401 H. was convenient for this calculation because a few days were left between the last day of the Hajj and the following Friday, enough for visitors who would desire to move to al-Madinah. From the aerial view at prayer time, the maximum amount of pilgrims assembling at the same time within and around the Mosque was computed at approximately 105,000 persons (assuming a gross area of one square metre per person and deducting the non-occupied surfaces in the courtyard). This would correspond to about 5 to 6 per cent of the total number of pilgrims participating in the Hajj during the same year.

Applying this ratio to the forecasted pilgrim numbers for 1410 H. and 1415 H. a maximum number of 170,000, respectively 205,000 simultaneous visitors in al-Madinah would result for the future. Given the impact of economic and political conditions, it seems however extremely difficult to predict the development of pilgrim numbers 10 to 20 years in advance. The statistics of the past 20 years have shown that growth was by no means regular, although a marked total increase has taken place.

For the Authorities, it might appear a tempting idea to provide now the space for many years to come; yet, an over-sized extension would have disadvantages such as increasing the disfigurement from which al-Madinah is already suffering. Therefore the pace of change should not be further accelerated. On the contrary, the city structure should rather be rebalanced and consolidated before undertaking new large-scale redevelopment. Also, it seems that an opportunity should be left to coming generations to decide according to their unknown needs and convictions. Therefore, a certain amount of flexibility is indicated in dealing with the extension.

The available ground floor space of the existing mosque and its present extension amounts to approximately 78,000 square metres, which allow for a maximum of approximately 80,000 visitors within their boundaries. An easy extension possibility would exist to the south of the existing sheds in the empty Shunah area now occupied by car parks. This would, however, imply that the imam’s position would have to be shifted from his present place to the southern edge of the Shunah site, at least during Hajj time. It seems doubtful whether such a change in tradition would be acceptable to the religious Authorities.

If the present qibla wall is to be kept, other extension possibilities would only exist to the north and northeast of the present complex. This would concern the row of buildings between Sahah and Suheimi Streets and the commercial premises north of King Abdul Aziz Street which do not represent any historical or architectural values. In this case, compensation for demolished shops, hotels and restaurants could be provided in the Shunah area.

Clearly, one of the major problems in the urban design of the new Haram-area is scale, i.e. the problem how to relate the enormous volumes of the needed prayer spaces to the surrounding urban texture and to the standards of human perception. In order to understand the dimensions involved, the site map of the Haram was superposed of both the Islamic and the western world at the same scale. These overlays made it evident, that treating the new extension as one single monumental block would create a threat to the original mosque and would make virtually impossible any type of integrated treatment of the urban environment. The result would probably be a monstrous isolated building with vast empty spaces around it — an approach hardly suitable for the most significant mosque of the Islamic world.

Accordingly, a different conceptual approach was chosen: The proposal starts from the idea of breaking down the huge...
space into a number of interconnected units thus forming an architectural complex which is in scale with the existing building. The predominance of the Prophet's Mosque is emphasized by the fact that its two symmetry axes are used as the "backbones" of the whole composition, and that a series of courtyards enhances its most important front sides.

Since one of the objectives of the project was to re-establish a continuous urban fabric in the central area and to link the Haram extension with the surrounding structures, great importance was attached to the development of pedestrian interconnections. Thus the streets of Zaqqat-Tayyar and Bab al-Majidi were continued as major entries into the holy precinct.

The new development of the Shunah area (southwest of the mosque) plays a major role in restoring the urban fabric and in creating attractive pedestrian zones. Its layout is determined by a new spine leading from the small Ghamama-Mosque to Bab as-Salam, focussed on the landmarks of the dome and the southern minarets. In order to enhance the vista and to create a certain surprise effect, there is a bent transition from Ghamama Square into this axis. At the end of the street, on the corner opposite Bab as-Salam, an Islamic Conference Centre is suggested. The irregular square in front of it contrasts with the rectangular forms of the mosque extension and establishes a junction between the new diagonal approach and the old Bab as-Salam Street which runs along the qibla front and may also be used for ceremonial purposes. On the southern side of the diagonal axis, a system of secondary commercial streets with small interposed courtyards leads to Darb al-Jana'iz Street and into the remaining old quarter of al-Aghawat. On the north side, intermediate links with Bab as-Salam Street are established, making use of some larger planted courtyards where date palms and fruit trees would provide shade.

In the southern part of the Shunah area, accessible through Darb al-Jana'iz Street, a taxi and bus station has been located from which the visitors can easily penetrate the Haram area. Other drop-offs are on the end of Anbariya Street, with special entries into the holy precinct through the pedestrianised zone of Ghamamah. From there, pilgrims can proceed to the former Manakhah Street, now pedestrianised and planted with groups of palm trees; or they can reach the Haram by crossing the Shunah area and choosing between the formal access or some more informal approaches, one of them leading through the old Bab as-Masi. In this area, covered passages, courtyards and arcades provide opportunities to create an attractive environment for meeting, shopping, eating and relaxing in the vicinity of the sanctuary.

Further important public transport accesses to the Haram are provided by the two northern loops and their drop-offs, one close to the little garden of Sufiat Bani Saida, and one near the cemetery (Bakkiayah). From there, shaded arcades lead to the main entries of the Haram complex.

The old Sahah Street has been kept as a major pedestrian axis, which leads to the large northern courtyard of the extension and is then continued through the complex until it reaches the entrance from Abu Dharr Street. As in the other major pedestrian approaches, the rhythmical sequence of spaces is stressed by a series of gateways and pedestrian bridges.

Traditionally, commercial activities and social facilities were closely related to the Mosque and functions such as education and jurisdiction were even located within the holy precinct, thus creating a dead area during the rest of the year. Accordingly, an attempt was made to surround the extension with appropriate commercial activities (books, perfumes, prayer carpets etc.). Ablution facilities were dispersed into many small units along the northern edge of the extension and among the adjacent buildings in order to avoid congestion and to offer a maximum of well-located opportunities. In the northwestern corner of the extension, a traditional Qur'anic university, using this part of the prayer hall as public lecturing place, was suggested. The upper floor and the buildings across Sahah Street could contain supporting administrative and educational facilities and eventually accommodation for students and teachers in the upper floors. Thus the tradition of the madrasah would be revived within the Haram and an appropriate use of the large prayer halls would be made throughout the year.

The new building volumes between Sahah and Suheimi Streets have been treated in such a way as to establish a transition between the formal Haram structure and the northern part of the urban fabric. The corresponding structures are assumed to have an open ground floor plan, so that this space can be used for prayer during peak seasons without becoming a dead area during the rest of the year.

Concerning architectural features, only the major principles, such as the distribution of volumes, the relation between solids and voids, and the interaction with the urban fabric were considered. It seems obvious that the extension would have to be conceived in a style compatible with the present mosque building. This would imply that the maximum distances between columns should stay within a reasonable range (7
to 8 metres) in order to allow for suitable proportions of arches and arcades.

Shading the courtyards during the summer season would have to be a matter of special attention. Therefore, some of the larger courtyards have been provided with central pavilions which could include covered fountains. These structures would be attractive as places of rest and coolness; they could also serve to attach canvas awnings which would span the space between the edges of the pavilions and the surrounding arcades.

The total prayer surface within the boundaries of the new extension building amounts to approximately 160,000 square metres. By using the intermediate buildings and the pedestrian streets outside the extension, this number can be increased to 240,000 square metres, which correspond to at least 240,000 persons, meeting the previously analysed needs.

Besides aesthetic considerations, one of the main reasons for designing the Haram extension as a composition of interrelated individual buildings is to grant optimum flexibility for future planning and implementation. It would thus be possible to detail and to realise the project step by step without giving the impression of a fragmentary realisation. The suggested phasing and the approximate capacity of the corresponding buildings are schematically represented on this page.

The diagram shows that the building can have a "complete" character at each stage of development. The advantage of such a step by step approach are obvious with regard to the necessary demolition and replacement of existing buildings.

According to the character of a masterplan, the above design scheme was not intended to provide an architectural proposal, but rather conceptual guidelines which should enable a future, more detailed project to fit harmoniously into the total development of the central area. The prime concern of the study was to increase the awareness of decision makers with regard to the specific qualities that will be needed when designing for one of the most significant places in the Islamic World.

At the same time, an effort was made to convince the Authorities of the need for a sensitive restoration and rehabilitation of the remaining architectural heritage of the Prophet’s City. Here, the main problem was to overcome the prevailing prejudice that historic areas must necessarily look shabby and that they should
be abandoned altogether in favour of modern redevelopment. As the masterplan proposal for the central area implies the rehabilitation and integration of the few surviving parts of the old city into the new scheme, it was important to demonstrate what could be the effects of restoring the buildings and upgrading the area, combined with corresponding traffic policies and environmental improvements. The very function of the city as a “guest-house” of the Islamic World, the desire of many Islamic communities to have a permanent “home” in the Holy City, near the Prophet’s Mosque, and eventually their willingness to participate in a joint venture would offer all opportunities for realising an unique rehabilitation project. The future will show whether the Authorities are prepared to act in such a generous way, which would enhance their noble role as the responsible Guardians of the Holy Cities of Islam.

View of alley in the quarter of al-Aghawat after proposed rehabilitation.

Dr. Stefano Bianca is a practicing architect and urban designer who has specialized on planning and conservation in the Islamic World. Beside his work in al-Madinah he has directed projects in Fez, Aleppo, Cairo and Baghdad and has published a number of books and articles on the subject of Arab Cities. He was visiting professor for urban design at ETH in Zürich and has widely lectured in Europe and the Middle East.