



*Interior of the mausoleum during restoration, showing the ribbed inner dome, built in brick.*

## TIMUR SHAH'S MAUSOLEUM AND THE AFGHAN FUNERARY BUILDING TRADITION

Mausoleums for spiritual and military/political leaders are an important part of the architectural heritage of the region, and in many cases were the largest and most permanent structures within settlements at the time. Such buildings were not only expressions of power or piety, but also strove to demonstrate the cultural achievements of those who sponsored them, through the use of the best of contemporary craftsmen.

In commissioning a mausoleum in memory of his father, Zaman Shah drew on the Central Asian tradition of mausoleums set in formal gardens, as later continued by the Mughals and their successors. Among the early examples are the 11th-century brick-domed mausoleum in Ghazni, erected for Sultan Mahmood in one of his favourite gardens in the city that was his capital, and the 15th-century mausoleum of Gawarshad, outside Herat. The exquisite glazed tiles and elaborate calligraphic decoration around the dome of the mausoleum of Gawarshad – a part of the *madrasa* complex that she dedicated in 1447 and that was destroyed in a British raid in 1883 – demonstrate how important the visibility of funerary structures came to be.

A more direct architectural comparison might, however, be drawn between Timur Shah's Mausoleum in Kabul and the one that he built for his own father, Ahmad Shah Durrani, in Qandahar. Similar in plan and section, the elaborate internal stucco and painted decoration of Ahmad Shah's Mausoleum gives an idea of the possible intentions of Zaman Shah for his father's mausoleum, had it been completed as planned. Further stylistic similarities exist in the mausoleum that Nader Shah built in the early 20th century over the grave, near Qandahar, of Mirwais Hotak, who declared Qandahar's independence from Persian rule in 1709. The style of the facing brick elevations and the decorated parapets on Timur Shah's Mausoleum suggest that alterations were made to the monument in Kabul around this time.

## THE ARCHITECTURE OF TIMUR SHAH'S MAUSOLEUM

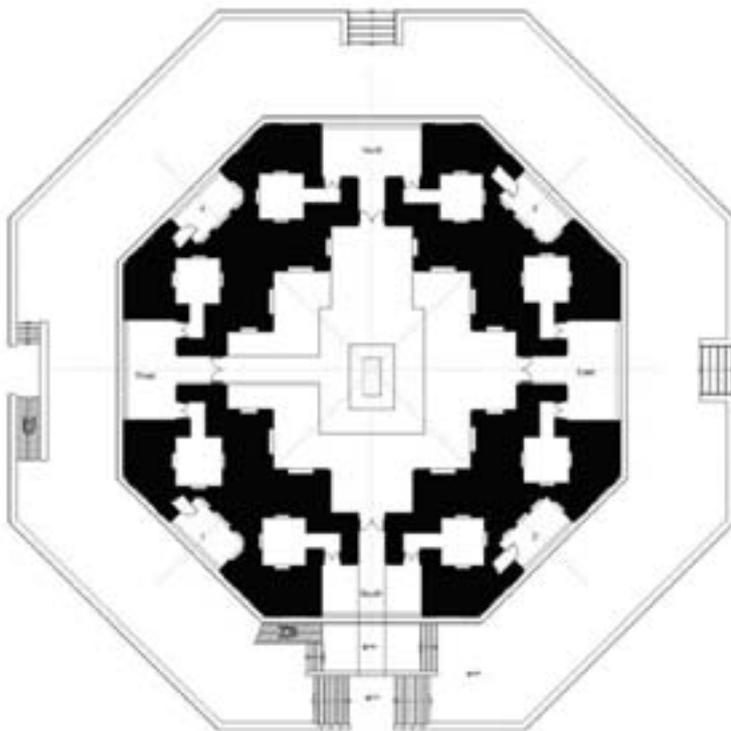
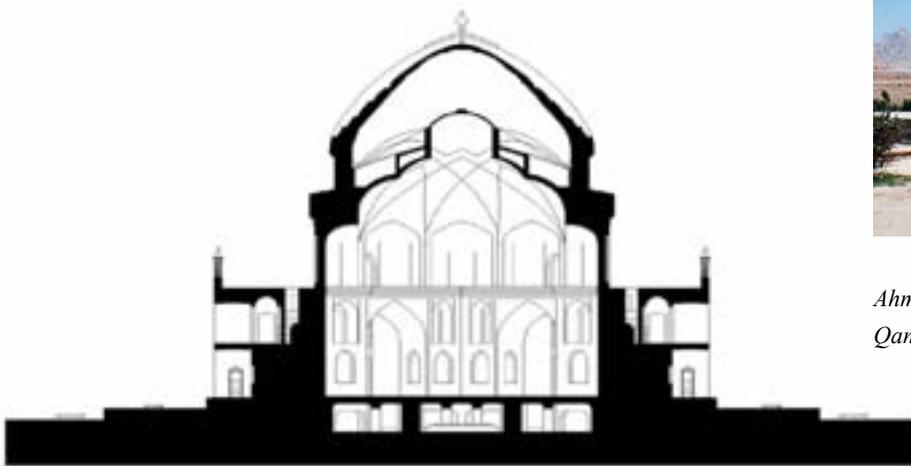
The mausoleum in its current state comprises an octagonal structure with two intersecting cross-axes organised on six distinct levels, and built of fired brick. Following an Iranian and Central Asian tradition, it features an outer dome constructed on a high drum sitting above a ribbed inner dome. The underground crypt of the mausoleum is where Timur Shah is buried. Accessible through a low brick-vaulted corridor

leading from the southeast, the crypt is dominated by four massive brick piers, between which span shallow arches and domes, supporting the main floor of the central space. On four sides of the crypt are deep recesses, from which ventilation ducts lead up to the main external *iwans* on the level above.

At the centre of the raised ground floor of the mausoleum is a square central space, surrounded by a brick-masonry structure with an octagonal



*Ahmad Shah Durrani Mausoleum in Qandahar, photographed in 1971.*



*Left: Ground-floor plan and section of the Mausoleum of Timur Shah.*



*Sections of the damaged upper dome were removed during conservation works. All materials were manually carried to the upper levels up a temporary timber stair.*

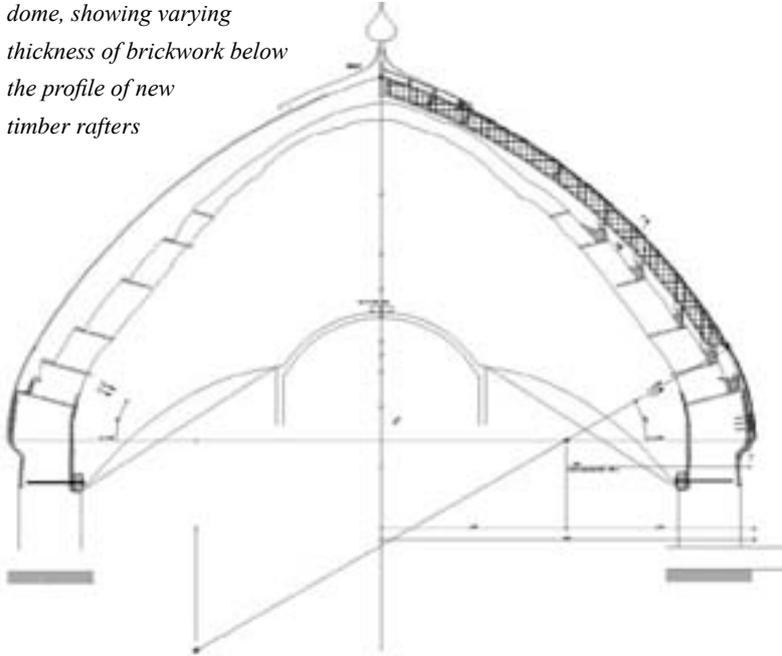
plan on its exterior. This structure has four deep, double-height *iwans* on both the inside and outside of the main elevations, and a series of smaller openings in the secondary facades, with eight rooms and four staircases set in to the corners of the massive brick masonry. The floor of this level is about 1.2 metres above ground, with a continuous marble string-course below elevations of fired facing bricks.



Narrow brick stairs lead up from the four secondary external niches to the first floor of the mausoleum, housing sixteen brick-vaulted spaces of varying size, encircling the central space. The smaller rooms lie at the main axes of the building, and give onto both the external double-height *iwans* and internal niches, while the larger spaces give only to the outside.

Three of the original four flights of stairs now lead up to a second floor, comprising a flat roof around the 16-sided drum supporting the domes. The brick masonry of this drum has four arched openings on the main

*Cross-section of the upper dome, showing varying thickness of brickwork below the profile of new timber rafters*



elevations of the mausoleum and four blind arches in the internal corners, which form the transition between the square central chamber and the springing of the inner ribbed dome. The zone between the springing of the lower and upper domes is made up of a cylindrical upper drum of masonry that is more than a metre thick. Access to the upper surface of the lower dome, which is made up of a series of vaults between structural brick ribs, is by means of a single arched opening to the south.

The upper dome rises from the cylindrical drum, where a number of horizontal timber ties were found within the brick masonry. With evidence of extensive repair, the dome is of varying thickness, narrowing towards the apex. A structure of timber joists had been erected over the upper dome, supporting a protective outer layer of iron sheets.

## TECHNICAL APPROACHES IN CONSERVATION OF THE MAUSOLEUM

The mausoleum was in poor state of repair when surveys were begun in the spring of 2002. Part of the upper brick dome had collapsed, due to war-related damage and lack of maintenance. Rainwater had penetrated parts of the drum of the upper dome, where several small trees had taken root in the brick masonry. The flat roof around the lower drum was also in poor condition, and ingress of rainwater had damaged the masonry vaults below. Accumulation of earth and waste in and around the base of the building had contributed to rising damp from the poorly



*Prior to removal of unstable brick masonry, the damaged upper dome was propped.*

*The interior of the upper dome shows signs of having been built in stages.*





*The drum of the upper dome was temporarily strapped during repairs to the masonry, for which specially fired bricks (below) were set in lime mortar.*



drained site. A complete survey was only possible after clearance of accumulated waste, and re-location of several of the container-shops that had occupied the site, abutting the monument.

One of the first issues to be addressed in the conservation of the mausoleum was repair of the upper brick dome, whose partial collapse was affecting the structural integrity of the building. Initial structural assessments undertaken in the autumn of 2002 confirmed that the damaged section of the dome could indeed be re-built. It appeared that the dome had been constructed in stages, using 'skins' of brick masonry laid in relatively weak lime mortar, which had subsequently been repaired in parts. In order to plan for conservation, it was necessary to establish how the force from these layers of brickwork was transmitted to the supporting drum, which was cracked in a number of places.

The removal of the damaged roof sheeting and timber structure, as well as the mud plaster that had been applied to help waterproof the damaged structure, allowed for a detailed inspection and measurement of the upper surface of the dome. This exercise confirmed that the dome had been built over a period of time, and that the masons seemed to have had difficulty in completing it, as it weathered and deflected, distorting its geometry.

In order to access the damaged masonry, a bamboo platform was erected over the lower dome, using apertures that had been left in the inner face of the drum at the time of the original construction. Traces were found of two timber ring-ties, virtually destroyed by dry rot, laid within the brick masonry of the drum. In order to maintain the stability of the undamaged brick masonry, two temporary belts were installed and tensioned around the outside of the drum. A reinforced concrete beam was then poured (at a height of 15.5 metres above ground) on the inside ledge of the drum, and anchored into the brick masonry with 48 stainless steel anchors, tensioned to 20 tons.

Based on an analysis of the structure, it was decided to remove the unstable edges of the damaged section of the upper dome and part of the masonry drum, and re-build these in a manner that as closely as possible matched the original. Newly made bricks of the same size (20 × 20 × 3.5 centimetres) as the originals, fired to a relatively low temperature (in order to match the strength of the surviving masonry) were laid in lime mortar prepared with putty from local sources that had been slaked for a minimum of eight weeks. The geometry of the new section also needed to match the existing masonry, which comprised of six layers of brickwork at the springing, reducing to two at the apex. The

repairs were further complicated by the fact that ring forces on which such structural membranes would normally rely on for equilibrium could not be transferred between old and new brick masonry. Experienced masons from Herat were engaged to undertake the repairs, and were made familiar with the distorted geometry and unusual characteristics of the original masonry, in order to ensure a good match.

The damaged sections of the masonry were closed at the end of October 2003, after which the exposed dome was temporarily covered for the winter. Upon inspection in the spring of 2004, joints around those bricks that had loosened due to shrinkage were again filled with lime mortar.

Given that the metal-sheet roof and its supporting timber structure that had been removed from the damaged dome were not part of the original scheme, a range of alternatives were considered for the final covering, which also needed to provide an appropriate external profile. Although the team considered the construction of an upper covering dome, as exists in other mausoleums, this would have significantly increased the weight of the structure, whose performance in future earthquakes would be difficult to predict.

In order to determine an appropriate profile for the final covering, a harmonic curve was identified to match the geometry and proportions of the structure below. This geometry formed the basis for the fabrication of composite timber rafters that support a new 'shell' roof, which effectively spans over the repaired dome and transfers horizontal forces only to the newly reinforced masonry at the top of the drum. A series of concrete upstands were constructed on the upper surface of the dome in order to provide a level base for positioning a total of thirty-two timber rafters, of varying lengths, supporting the shell roof. The tensioning belts that had been used around the drum during the dome repairs were repositioned around three of the upstands, to ensure compression between the old and new sections of brick masonry on the upper dome.

The design and fabrication of this lightweight structure was subject to a degree of trial and error, as it was necessary to explore the potential of locally available materials and fixings. The rafters themselves were built of Russian pine boards laid at right angles, screwed and glued, with attached timber webs. All rafters, the largest of which measures some 13 metres long, were hoisted by hand to the top of the building, as no crane with adequate reach was available in Kabul at that time. Once aligned and fixed in place, timber boarding was screwed in a circumferential pattern over the rafters, as a base for the fixing of galvanised sheeting.



*New brickwork being laid to match the coursing of the original dome.*

*Fixing timber planking to the radial rafters, before galvanised iron sheeting was laid over the dome.*

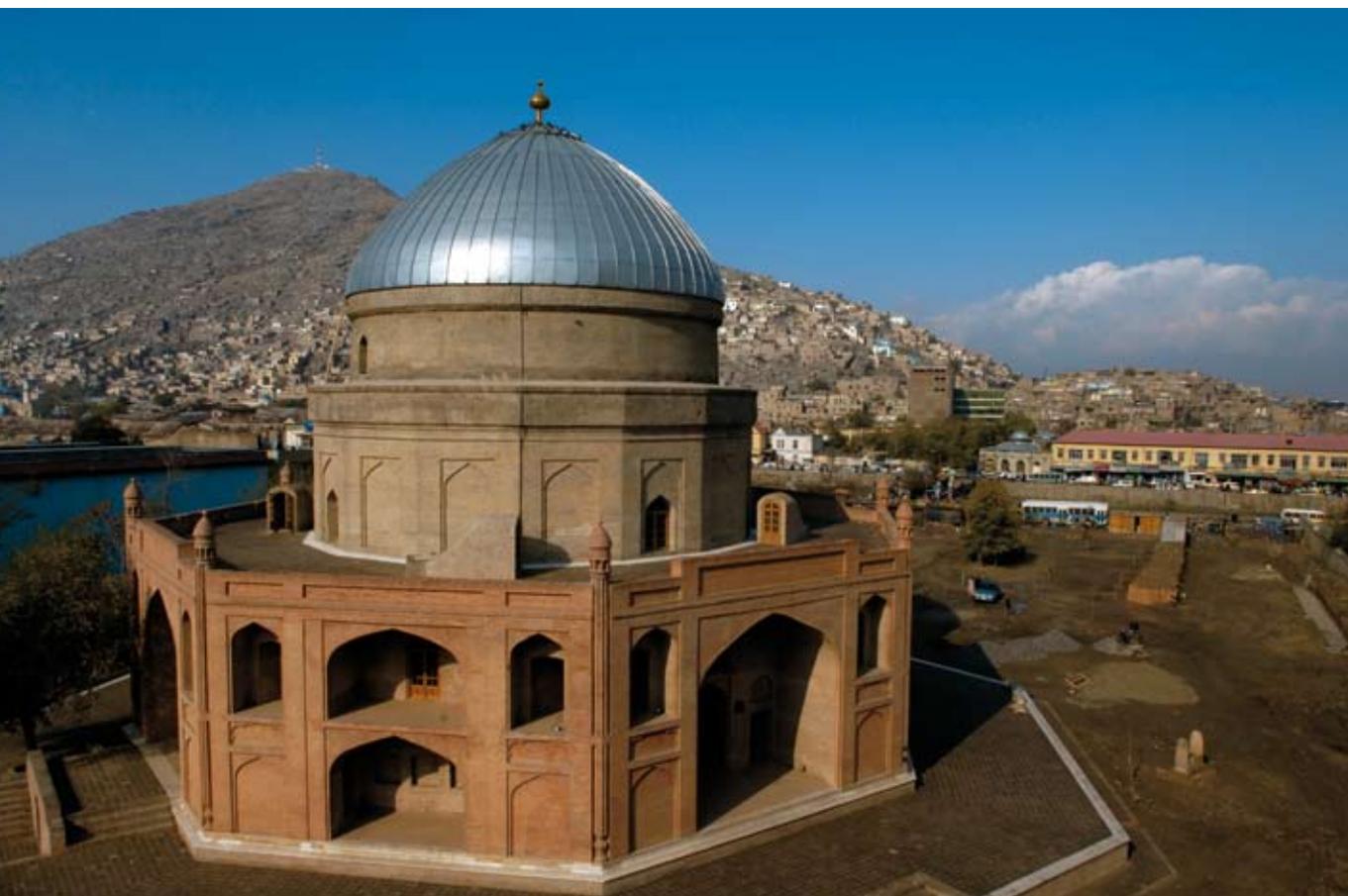




*The repaired finial being raised to the apex of the dome and, below, the restored mausoleum with its new terrace at ground level.*

A batten seam system of galvanised iron sheeting, which was familiar to local craftsmen, formed the final weatherproof covering of the dome. The lower edge of the shell roof was extended below the base of the rafters by means of timber boards that were bent, glued and screwed to the required radius, and fixed back to the drum masonry. This enabled protection of the drum masonry, while providing for ventilation around the entire lower edge of the roof.

In parallel with repairs to the main dome, earth was removed from the flat section of the mausoleum roof, and the two masonry vaults that had begun to collapse as a result of moisture penetration were propped and repaired. The spaces between the vaults were re-filled with crushed bricks, stabilised with cement slurry, over which a layer of lime concrete topped with waterproof isolation was laid, before finishing with brick paviors laid to falls. The existing internal downpipes were repaired and lined with PVC pipe, leading under the new platform to the garden. The decorative brick finials that had been subsequently added to the



building were repaired, and a new parapet built of brick masonry, replacing damaged concrete elements that were added in the 1960s.

The elevations of the lower section of the mausoleum had at some stage been finished with facing bricks, which were replaced where necessary. While the reveals of several of the external *iwans* retained traces of gypsum plaster, it was decided to remove this in order to expose the high-quality brickwork, which was re-pointed in places.

In order to protect the damaged lower sections of masonry, and to facilitate public access, an octagonal brick platform was built extending some seven metres around the mausoleum, with stairs or ramps introduced on four sides, including the entrance to the vault leading to the crypt on the eastern elevation.

In recognition of the unfinished state of the interior of the mausoleum, repairs were restricted to conservation of the single small dome that showed traces of plastering, re-pointing of the soffits of masonry domes and vaults, and the brushing of accumulated dust from the wall surfaces. Internal floors were re-surfaced with brick paviors of similar dimensions to the originals.

Although there were traces of fixings for frames in only a few external openings, glass doors and windows were designed, manufactured from hardwood and fitted throughout the mausoleum, in order to render the building more useable. In addition, a network of electrical conduits was laid throughout beneath the new floor finish, on which switches and sockets were installed internally.

## THE CONTEMPORARY USES OF THE MAUSOLEUM

Being an important funerary structure, the uses to which the restored mausoleum can be put are clearly limited. Its location between the riverbank and the busy commercial thoroughfares of Mandawi and Jade Maiwand, however, suggests that appropriate public events might be held on the main floor of the mausoleum. Indeed, during the last stages of the conservation, the central space was the setting for a series of weekly lectures and seminars, aimed at introducing students of architecture and engineering to new ideas about building and urbanism. As of late 2005, the central space has been used on a regular basis for meetings of the Kabul Old City Commission, a group of Afghan experts who have been given responsibility to oversee safeguarding and planning initiatives in the area. Since its completion, the restored



*The ribbed brickwork on the inner side of the lower dome.*

*Restored plasterwork in the first-floor ambulatory of the mausoleum.*





*Recessed bays in the new brick perimeter wall around the reclaimed park.*

*Right page: Computer model of the scheme for an arcaded market on both sides of the reclaimed park area and a perimeter wall along the riverfront.*

mausoleum has received many Afghan and international visitors, and it is envisaged that it might be used for exhibitions or appropriate public and cultural events. Now that they are partially serviced, some of the first-floor spaces are temporarily being used as site offices and could, in time, house municipal staff engaged in providing services for the population of the old city area.

#### AREA DEVELOPMENT INITIATIVES AROUND THE TIMUR SHAH MAUSOLEUM

In a situation where public or private investment in the rehabilitation of war-damaged property and the upgrading of basic services is limited, where pressure on city-centre land is intense and where a coherent vision for urban development in Kabul is yet to emerge, the conservation of such a landmark monument must be matched by physical rehabilitation and adapted socio-economic development initiatives addressing its wider urban context.

Today, the mausoleum stands in an environment that leaves no traces of the *châhâr bagh* in which it was originally built. The residential quarters that encroached on the south-western end of the garden around the mausoleum have in turn fallen into disrepair, and are now largely used for small-scale manufacturing (primarily of sweets) and commercial storage. Despite being earmarked in the 1964 Master Plan for comprehensive redevelopment, access is still through a network of narrow alleys and streets, which presents very real problems for the commercial activities that now predominate in the area. The prevailing ban on all new construction has not deterred owners from erecting large corrugated-iron roofs over their property, before tearing down the existing buildings and, in some cases, constructing new premises beneath them.

In order to better understand the process of transformation that was taking place in the Timur Shah area, a series of physical surveys and consultations were undertaken during 2003 in the immediate surroundings of the mausoleum and on both sides of the riverfront. This exercise enabled the AKTC team to identify key issues that needed to be addressed as part of the efforts towards revitalisation of the area. Although the results of this diagnostic process were made available to counterparts, it proved difficult to gain acceptance for a locally based, participatory approach from civil servants who had only ever dealt with centralised processes of ‘master planning’.

The surveys made it clear that dealing with the historic buildings of the area only was not sufficient and that wider environmental improvement

strategies were needed. The ‘park’ around the mausoleum had gradually been occupied by cloth-sellers and tailors, some 200 of whom had set up informal businesses in containers and stalls on the site. Consultations were held with these informal traders during the conservation work, which initially required the re-location of containers and stalls that abutted the mausoleum. Although the occupation of public open space is illegal, most shopkeepers enjoyed tacit protection of municipal staff and the local police.

In recognition of the contribution that such informal commercial activities make to the urban economy, surveys were conducted to assess the options for enhancing the livelihoods of this community, either through re-location or some form of appropriate development. During these surveys, it emerged that the entire block to the east of the mausoleum is owned by various ministries, and that (apart from the Ayesha Durrani school) most of the property is in fact derelict. This led to a proposal



*The arcaded wall on the north-west side, screening the park from the busy riverside street.*





*The Andarabi Mosque with its roof restored, in 2004.*

for consolidation of ownership of this commercially valuable land, to enable comprehensive redevelopment of the area, including construction of low-rise, high-density commercial premises and improvements in services and access. While the response to this proposal, which envisaged a public-private partnership, was generally positive, no action was taken by the government to assess the status of their property or to realise the scheme.

As part of this redevelopment proposal, a design for reclaiming the Timur Shah Park was prepared, framing the park with lines of new commercial premises, which, it was proposed, might house a proportion of the existing small-scale businesses, along with others, on the site. Comprising two arcades of shops, inspired in part by the traditional covered bazaars that existed in the old city, this proposal was initially accepted by the municipality who would in time derive an additional income from leases in the new premises. After protracted negotiations about management of the development, the mayor resolved that no construction should take place on an area designated as a park, which he proposed instead should be entirely reclaimed as a public green space. To this end, municipal staff removed all containers and stalls from the park area in autumn 2005.

In response to this reclamation of the public park around the Timur Shah Mausoleum, whose frontage to the Kabul River became again visible, a programme of landscaping was initiated in late 2005. This began with the clearance of significant amounts of waste, followed by extensive levelling and re-planting, principally with mulberry trees. Although the extent of the new park is but a fraction of the original *châhâr bagh* that once surrounded the mausoleum, reference has been made to historic photographs of the site. A network of stone pathways is being laid to follow the important north-south pedestrian route between the banks of the Kabul River and the busy commercial area of Mandawi behind it. In order to protect from future encroachments, and ensure a degree of tranquillity in this busy city-centre environment, a brick masonry wall was constructed around the perimeter of the park, which will be re-opened to the public in the summer of 2007.

While revealing the pace of transformations in the urban surroundings of the Timur Shah Mausoleum, physical surveys have also enabled the identification of buildings that merit immediate safeguarding, in the light of widespread illegal development. Having assessed a range of options, support was provided for repairs to the distinctive domed roof of the Andarabi community mosque, located directly across the Kabul River from the mausoleum. Along with the Shah do Shamshara

Mosque to the south, it forms part of the architectural ensemble that was constructed along both banks of the river in the early 20th century, but which suffered damage during the recent conflict.

This double-storey range of riverfront buildings, with workshops over shops on the street level, is an important vestige of the introduction of western concepts of urbanism to Kabul. In recognition of this, the entire frontage was surveyed, damage assessed and the ownership of the various shops and workshops registered during 2004. Support was provided in 2005 for the repair of one of the central bays, both as demonstration of the potential of the building and as a deterrent to municipal planners, whose proposals for widening of the street envisaged wholesale demolition of the historic frontage.

The restoration of the Timur Shah Mausoleum and the improvement of the surrounding areas are the physical outcomes of a protracted process of analysis and exploration, negotiation and action, from which important lessons have been learned for AKTC's work elsewhere in Kabul, and in Herat. Despite the challenging physical and institutional environment in which the works were undertaken, the project stands an example of how an important historic monument can act as a fulcrum for a wider process of regeneration in a fast-changing urban setting.



*Early 20th-century facades along the Kabul River, adjoining the Timur Shah Mausoleum, have been renovated.*



