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**Report on mission  
to report on the impact of subway construction  
on the World Heritage values of  
THE HISTORIC AREAS OF ISTANBUL (TURKEY)**

**21–24 May 2001**

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World Heritage values of the Historic Areas of Istanbul (Turkey)  
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**Executive Summary**

The construction of the subway between Taksim and Yenikapi has progressed to the point where 90% of the tunnel construction between Taksim and the Golden Horn crossing, and over 60% on the historic peninsula between Unkapani and Yenikapi, is complete. The Istanbul No 1 Committee for Protecting Antiquities and Cultural Heritage is the regional committee from which the Municipality of Greater Istanbul must get permission to proceed with the detailed project. The No 1 Committee agreed in principle to the draft proposals for the route but not to the detailed proposals.

The tunnel construction between Taksim and Sishane caused some damage to a building in the French Consulate and archaeological remains of which the construction consortium should have been aware were revealed in a cut-and-cover section of the tunnel at Aksaray. Other than these no other major impact on historic or cultural remains has occurred. The remaining proposed construction sites, including the viaduct crossing the Golden Horn, tunnel entrances, and Sehzadebasi Station, are those that will have an impact on the World Heritage site.

Construction works on these sites should not proceed without the approval of the Istanbul No 1 Committee for Protecting Antiquities and Cultural Heritage.

# 1 INTRODUCTION

## 1.1 Occasion for the mission

ICOMOS was requested by the World Heritage Committee to carry out a mission to assess the impact of the subway construction on the World Heritage values of the Historic Areas of Istanbul, Turkey (World Heritage List 356). The mission took place between 21 and 24 May 2001.

## 1.2 Conduct of the mission

One expert from ICOMOS spent four working days on the mission, three days of which were in the company of Ms Mine Kangal of the Turkish Ministry of Culture, who kindly arranged meetings with the relevant organizations and accompanied the expert on site visits. The arrangements throughout were well organized, friendly, and hospitable.

## 1.3 Methodology

The mission consisted of semi-formal discussion and site visits. Both were preceded the study of the contents of the nomination dossier and of further documentary material, a report, and construction drawings, provided during the course of the mission.

The majority of the time was spent visiting the surface route of the proposed new Subway in order to assess both the buried archaeological and the built cultural environment along the route. The site visits were mostly carried out in the company of the representative of the Turkish Ministry of Culture.

## 1.4 Reactive monitoring mission

The brief of the monitoring mission was issued by the World Heritage Committee at the twenty-fourth session (Cairns, November–December 2000). It requested that ICOMOS carry out a mission to assess the impact of the subway construction on the World Heritage values of the Historic Areas of Istanbul (Turkey) and to report to the twenty-fifth session of the Bureau in June 2001.

A previous report (Yerasimos and Pinon: November 2000) provides an initial assessment of the impact of the ongoing construction of the Istanbul subway. It considers the damage to the French General Consulate building on the Taksim to Yenikapi section of the route which resulted from the construction activity and identifies concerns about the future protection of archaeological remains, particularly in the vicinity of the site of the new station at Sehzadebasi. This section of the route is the section that passes through the historic areas of Istanbul, particularly the section from Sishane station to Yenikapi where the route passes close to the walled historic settlement on the north side of the Golden Horn, crosses the strait and passes through the historic peninsula.

### 1.4.1 Itinerary

- Monday 21 May

Informal walk through the Suleymaniye Conservation Area, Eminonu, and Beyazit to familiarize oneself with the World Heritage Site.

- Tuesday 22 May

Meet the representative of the Turkish Ministry of Culture.

Visit the offices of the Main Contractors of the Subway Construction, Yuksel Proje - Louis Berger.

Receive a presentation of the history and progress of the subway project.

Receive a report and some construction drawings of the scheme.

Visit some sites along the route of the Subway, the Sehzadebasi station site, the access shaft and tunnels at Yenikapi and the cut and cover section of the route at Aksaray where archaeological remains were discovered during construction work. The subsequent archaeological investigation and recording of the remains was carried out by the Istanbul Archaeology Museum.

Go up the Galata Tower to get a perspective on the World Heritage site and visualize the impact of the Subway construction.

Meet the Leader of the Secretariat of the Greater Municipality of Istanbul.

Meet with the President and other members of the ICOMOS Turkish National Committee at Istanbul Technical University.

- Wednesday 23 May

Walk the route of the section of Subway between Sehzadebasi station and Unkapani station with the representative from the Turkish Ministry of Culture.

Meet with Istanbul No 1 Committee for Protecting Antiquities and Cultural Heritage at the office of the Ministry of Culture.

Walk around the Zeyrek Conservation Area to assess the visual perspective of construction on the Golden Horn.

Identify some documents that would assist the mission and request copies be made available by the construction consortium.

- Thursday 24 May

Meet the representative of the Ministry of Culture at their Istanbul office to receive the documents requested on the previous day.

Visit the office of the construction consortium to collect a document inadvertently not supplied with the others requested. View the archaeological records delivered on the day of the remains investigated and recorded at Aksaray.

Walk the route of the viaduct on the north side of the Golden Horn up to Yenikapi in the Genoese wall.

#### *1.4.2 The Understood Planning Procedure*

Following the preparation of the feasibility studies for the Istanbul Subway (4th Levent – Yenikapi) at Central Government level by the Ministry of Transportation, Railway, Airport and Seaport Construction General Directorate, the preferred route was selected following consultation with all other Ministries. The subway project was considered along with other transportation projects to provide an integrated transport network to improve the transport network in and around Istanbul.

The responsibility for the advancement of the approved project passed to the Municipality of Metropolitan Istanbul as the project was located within the boundary of the City of Istanbul for which the Municipality has jurisdiction.

To gain approval for all aspects of the route in relation to the Cultural Heritage of Istanbul, details of the subway scheme have to be submitted by the Municipality of Metropolitan Istanbul to the Istanbul No 1 Committee for Protecting Antiquities and Cultural Heritage.

#### *1.4.3 Construction Progress on the Istanbul Subway*

The 4<sup>th</sup> Levent to Taksim section of the Istanbul Subway is in operation. The proposed continuation of the route from Taksim to Yenikapi was put out to tender in two separate stages:

Stage 1 – Taksim to Unkapani (March 1998)

Stage 2 – Unkapani – Yenikapi (October 1998)

Both stages of this section of the route can be readily identified as those with the potential to have the greatest impact, both visually and structurally, on the Historic Areas of Istanbul.

At the time of the monitoring mission (21–25 May 2001) tunnel construction from Taksim towards Unkapani was virtually complete to a point approximately 70m from the exit point where the viaduct across the Golden Horn begins (see Appendix 1). Sishane station is under construction. Strengthening works continue on the section of the tunnel beneath the French consulate, where subsidence occurred when the crown of the tunnel cut through a low-lying area of fill material, possibly an old stream bed, that had cut a deep channel into the bedrock.

On the historic peninsula about 60% of the tunnel construction has been completed in three separate sections. Between Sehzadebasi Station and Unkapani Station the tunnels are completed to a point approximately 70m from the tunnel exit on to Unkapani Station for a distance of 520m towards Sehzadebasi Station.

Between Sehzadebasi Station and Yenikapi Station over 660m of the west tunnel has been constructed and 312m of the east tunnel, along with the access shaft and two connecting shafts between the tunnels, is complete.

Beyond Yenikapi Station 384m of tunnels have been constructed along with the access shaft.

Work has not commenced on Yenikapi or Sehzadebasi Stations although preliminary archaeological investigations on the Sehzadebasi site are imminent.

Also within the scope of the Yenikapi-Unkapani section of the route is a 600m connection between the existing Aksaray Station on the Light Rail Transport System and Yenikapi Station. In the vicinity of Vatan Street a cut-and-cover section of tunnel was designed. Contiguous piles were inserted along the along the sides of the tunnel to provide support for the excavation of the interior. When the excavation of the internal deposits was started by the construction workers they immediately exposed archaeological remains less than 2m below the ground surface. The construction excavation stopped and archaeologists from Istanbul Archaeology Museum investigated and recorded the remains of a 15th century bath house which in turn lay over four phases of large masonry buildings of the Byzantine/Roman periods. The base of the excavation was over 5m below ground level and all the building remains have been retained *in situ*, although it is thought that some localized damage has been caused as a result of the piling operations. The report of the results of the archaeological investigations was in preparation during the monitoring visit and construction work has stopped pending a decision on how to proceed.

#### 1.4.4 Summary

Apart from the construction work currently in progress at Sishane Station and Aksaray, the completed construction works have been tunnelling works at depths that do not have any visual impact on the historic areas of Istanbul and below the levels at which archaeological remains could be encountered.

From the walk-over survey, there was no obvious indication, particularly in the completed section passing to the south-west of the Suleymaniye complex beneath the Suleymaniye Conservation Area, of damage to the buildings on the surface as a result of vibration from the tunnelling works. However, it should be noted that the walk-over survey was only cursory and did not examine any specific buildings in detail. In the vicinity of the surviving block of Ottoman houses identified as historic buildings in the Suleymaniye Conservation Area, the roof of the tunnel is less than 13m below modern ground level.

At Aksaray, the discovery of the archaeological remains in the cut-and-cover section of the tunnel has been summarized in 1.4.3 above. The archaeological remains clearly lay in the route of the tunnel, the Ottoman phase of which should have been recognized from the archaeological study of the route. The preservation *in situ* of the five phases of archaeological remains is now clearly in doubt unless an alternative suitable route for the tunnel can be agreed on.

#### *1.4.5 Potential impact of the remaining construction works on the World Heritage site*

Sishane Station–Golden Horn (drawings UT-K-GZ-003, UT-K-GZ-002): After leaving Sishane Station the northbound and southbound tunnels converge to the south of the station at the start of the proposed crossing point, by viaduct, of the Golden Horn. The route follows the line of a narrow side road Yolcuzade Sokak that connects Terzane Caddesi with Yanik Kapi Sokak and Harup Sokak, less than 20m to the west of the Genoese City Wall and Yanik Kapi Gate itself. The wall still stands to approximately 8m high above the Yanik Kapi Gate and four-storey timber buildings fill the gap between the route of the viaduct and the Gate. At this point the rails are projected to be 2m above current ground level, based on fill material. At a point 90m to the south, the viaduct (rail level) will be 8m above Terzane Sokak. Located at the junction of Terzane Caddesi and Yolcuzade Sokak are two other historic buildings, the Yesildirek Hamam and a fountain. Undoubtedly, the viaduct in the section between the tunnel exit and Terzane Sokak will have a major visual impact, potential impact by damage from the construction processes on the Genoese Walls, wooden buildings the Yesildirek Hamam and the fountain, and possible impact on below-ground archaeological remains.

On the south of Terzane Caddesi (drawing UT-K-GZ-002), the viaduct will cross the narrow strip of land between the road and the water's edge on piled columns. The viaduct will have a visual impact and potentially physical impact on three historic and cultural monuments. They are a short surviving section of the Genoese city wall that will be less than 5m to the east of the line of the viaduct, the Sokullu Mehmetpasa Mosque, built by the architect Sinan in 1577, and a nearby fountain. The mosque and fountain are bounded immediately to the west by the approach to the Ataturk Bridge which rises to approximately 7m above the Golden Horn. The construction of the proposed viaduct, which will be 14m above the Golden Horn and located as little as 55m to the east of the Mosque, will effectively enclose it in a very small confined area and ruin its setting. The only remaining unobstructed view will be from the opposite bank of the Golden Horn between the two bridges.

The viaduct structure will not cause any physical damage as it crosses over the Golden Horn. The piled support columns will be located in the sediments accumulated in the deep channel that forms the Golden Horn. The water is up to 8m deep with up to a further 40m depth of sediments over bedrock. The engineering consortium explained that the depth of water and soft sediment within the Golden Horn was the reason that a tunnel could not be constructed in order to keep the subway below ground. In order to maintain the shallow angle of slope to allow the railway to operate, the tunnel would have to pass through soft sediment, not solid bedrock, which was technically not feasible. Five viaduct designs were prepared and the preferred structure was the viaduct with the slenderest, least obtrusive profile. The base of the viaduct bed is between 8m and 10m above the water and it will be approximately twice the height of the nearby Ataturk road bridge. On the northern bank the subway, viaduct and Ataturk bridge will be 120m apart, diverging southwards to 285m apart where they cross the south bank.

The principal impact of the viaduct as it crosses over the Golden Horn is the visual impact on the entire surrounding area. The presence of a 14m high viaduct further contracts a relatively open expanse of water that separates the two main historic and cultural areas of Istanbul. From low level it will obscure views along the Golden Horn and the shoreline and from elevated viewpoints it will appear as another major structure subdividing the space between the two existing bridges, the Ataturk and Galata Bridges which are only 1500m apart.

An alternative scheme was considered as a result of concerns expressed about the impact of building a new viaduct in this location. This scheme considered combining both the rail and the road traffic on the Ataturk Bridge. In order to accommodate both facilities the existing bridge would have to be enlarged. Whereas this could be achieved relatively easily on the south side of the Golden Horn there were major constraints on the northern side. The bridge could not be

widened to the east because it was already very close to Azapkapi Mosque built by Sinan, and immediately to the west lay the historic dockyard founded during the reign of Suleyman, the docks within which were subsequently enlarged during following centuries. This proposal appears to have been rejected because of the impact the enlarged bridge would have on the historic monuments on the north side of the Golden Horn.

Unkapani Station (Drawings UT-K-GZ-001, YU-K-GZ-004) will be built on the viaduct and extend from the shoreline for a distance of 180m into the historic peninsula crossing over Ragip Gumuspata Cadesi and Kucuk Pazar Caddesi, and terminating near the top of Bodrum Sokak. The station construction and short length of track before the tunnel entrance does not intrude into the Suleymaniye Conservation Area but stops at the limit of the zone. There are, however, a number of timber houses that will be demolished on Bodrum Caddesi and Saatci Yokusu to make way for the viaduct and station and others that will potentially be affected by the construction works.

The tunnel entrance site is a modern six-storey concrete building with no heritage or cultural merit. Just beyond the tunnel entrance the tunnel will be constructed immediately beneath two historic wooden buildings on Hayriye Hanim Sokak and very close to recently renovated wooden building at the junction of Hoca Giyaseddin Sokak and Hayriye Hanim Sokak. In this area the rails of the subway are approximately 10.5m below ground level and the roof of the tunnel less than 5m below. Thirty metres further to the south the tunnel passes directly beneath a well preserved block of fourteen historic timber houses, probably the finest group of such buildings in the Suleymaniye Conservation Area. The top of the tunnel is 16–17 metres below the buildings in an area where there is a 7m depth of fill accumulated over the bedrock. The impact from construction, particularly vibration from boring the tunnel and the subsequent traffic, is a long-term concern for the protection of these buildings. Beyond this point to the south the tunnel has been constructed to a point immediately to the north of the Roman Aqueduct of Valens (drawing YU-K-GZ-003).

The tunnel construction beneath the aqueduct will be 38m below modern ground level. No information was available on the depth of the foundations of the aqueduct at the time of the monitoring visit. The above-ground dimensions of the aqueduct indicate the foundations will be substantial. The tunnel construction could have an impact on the aqueduct structure and an assessment of the aqueduct foundations should be made in advance of construction work commencing to ensure no damage to the aqueduct will result from the construction works.

Beyond the aqueduct, Sezahdebasi Station, which is located within the Sulemaniye Conservation Area, is the next major construction site. From previous studies it had been recognised that this was an important archaeological site, within which the remains of a *medrese* associated with Kalender Hane mosque should survive as well as earlier remains. As a result a ground-penetrating radar (GPR) survey was carried out on the site in an attempt to identify the extent of any archaeological structures that might be present on site. The results were interpreted by an archaeologist and areas identified where structural remains appear to survive. These will be investigated by Istanbul Archaeology Museum. During discussions with the representative of the construction consortium it was evident that emphasis was placed only on those areas of the site where the ground-penetrating radar indicated structural remains survived and that all other areas were of no value. In archaeological terms this approach is not valid. Structural remains provide only part of the evidence for the past activities on any site and on the basis that a GPR survey indicates there are no structural remains present does not mean they are not archaeologically important. Other archaeological techniques in known historic areas, such as trial trenching, should be used to determine the previous activities that occurred on the site throughout all periods of occupation. On this particular site which is cleared of buildings, trial trenches should be investigated across the available area and not isolated to the part of the site where structural remains were identified by GPR.

Beyond Sezahdebasi Station, the construction of the subway and Yenikapi Station does not appear to have a significant impact on the historical and cultural heritage of the World Heritage Site.

## **2 Conclusions**

- 1 The construction works that were completed up to the date of the monitoring mission, apart from the subsidence beneath the French Consulate and the presence of archaeological remains at Aksaray, do not appear to have had a major impact, either visually or physically, on the World Heritage Site or other historic areas of Istanbul. The sites with the greatest potential impacts are those awaiting construction.
- 2 As a result of independently meeting and discussing the project with the construction consortium, ICOMOS Turkey, and No 1 Committee for Protecting Antiquities and Cultural Heritage, it is clear there is a difference of views on the level of approvals within the urban planning framework the project has received in order to allow it to proceed. The construction consortium has submitted many documents and design proposals for the Taksim–Yenikapi section of the route for No 1 Committee for Protecting Antiquities and Cultural Heritage to consider. The No 1 Committee have agreed the project in principle but have not approved all the details on the Taksim–Yenikapi section of the route. In essence, the No 1 Committee considers this section of the project to have proceeded without their permission. The major problem the No 1 Committee now foresees is, because most of the below-ground construction of the tunnels has been completed, there will be strong resistance to altering the route because of the level of resources already expended on the completed works. This will have an adverse impact on historical and cultural remains within the World Heritage site. Although the construction consortium have been responsible and involved the Istanbul Archaeology Museum to monitor the construction works and carry out the archaeological investigation at Aksaray, this must be seen as a reactive rather than a proactive action. Preferably, all the details of the impacts on the cultural heritage along this section of the route would have been considered and approved by the Committee prior to any construction commencing. This would have reduced the risk of unanticipated archaeological remains being revealed, such as those at Aksaray (the presence of these remains should have been anticipated if the 1977 Wiener–Muller survey had been included in the archaeological study), or other impacts on the historical and cultural heritage arising.

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**Appendix 1 – Construction Progress 26-03-2001**

**Appendix 2 – Istanbul Metrosu, Taksim–Yenikapi Arasi Metro Isaati, Guzergah Plan - Profili**