

## Turning Downtown 'Ammān into a Tourist Destination through the Exposure of the Roman Baths at Al Hāshimī Street

### Urban Morphology from Philadelphia to 'Ammān

The city that is today the capital of Jordan has been called 'Ayn GHazāl, Rabbath Ammon, Philadelphia, and 'Ammān. Its theater was built in AD 138–161, and its acropolis and castle set the cornerstone of its development.

With the accelerating urbanization, the 'Ammān River or water stream (*Sayl*), with its fluctuating levels, turned from a blessing to a curse, flooding in winter and becoming a health hazard in summer. The lack of flat land within a mountainous area encouraged the municipality to divert the water to an underground culvert. Nobody ever imagined that 'Ammān of the 1960s, with an urban area of about five square kilometers, would grow five hundred times within a century. The valley became filled with arterial roads collecting rainwater from a 103 square kilometer catchment area pouring into the downtown.

Decisions were made in the 20<sup>th</sup> century to convert the valleys to roads and divert the surface-running seasonal water into an underground box culvert that cut through archaeological layers and determined 'Ammān's urban development for centuries to come.

### *Urbanization in Philadelphia in the 2<sup>nd</sup> Century*

Philadelphia was established between two valleys (*i.e.*, two streets). All the main public buildings (large Theater; small theater or Odeon<sup>1</sup>; forum or agora; Nymphaeum) were centered in the wider and longer of the two valleys (Bennet 1979: 151; Brunnow and Von Domaszewski 1905: 216–220; Butler 1907: 34–62; Conder 1889: 16–64).

The Theater is a constant, and its levels are fixed. The East-West Road or

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<sup>1</sup> Both "Odeon" and "Odeum" are used in literature for the small, 500-seat theater, built in the 2<sup>nd</sup> century AD next to the large Roman Theater of 'Ammān.

Colonnaded Avenue (*decumanus*) set the city's development directions. The Theater was built on the natural southern hill, which provided a sloped ground (Jabal Al Jawfah) that allowed for the construction of 5,000 seats. The Citadel (Jabal Al Qala'ah) occupies the northern side of the valley.

This natural setup forced an axial formation: a northeast–southwest axis (*decumanus*) along the valley was used for transportation and traffic, while the northwest–southeast axis (*cardo*) was dedicated for residential uses. The valley is about 40–100 meters wide, which forced the expansion to spread along the valleys. The city has limited development options because of its hilly topography.

The large Theater constitutes the heart of the city center, oriented northwards toward the main colonnaded street, and faces the forum. The combination of these buildings with the Odeon forming a single unit is unique in the entire eastern Mediterranean and even in the Western Roman Empire (Segal 1995: 10).

Evidently, the two theaters and the Forum were erected as part of a single urban spatial plan (Segal 1995: 20). Philadelphia was a comprehensive city with all buildings needed for residential, commercial, cultural recreational, *etc.* purposes. Good personal hygiene conditions was highly important to the Romans. Therefore, they erected public and private baths with running water.

The baths, as one of the emblematic structures of the Roman world, represent an elaborate architectural complex, which, by means of its facilities, also had an important socio-cultural role, unique in the ancient times. Baths were erected in cities (*urbes*), towns, and smaller settlements (*vici, pagi*), inns (*mansiones*), and military fortifications

(*castra, castella, burgi*); they are also found as parts of city (*villa urbana*) or country (*villa rustica*) villas, as well as imperial or gubernatorial palaces (*palatium*) (Novovic *et al.* 2019).

Sayl 'Ammān divides the *wadi* bed down below the acropolis to the south into two long narrow strips of land on which were built streets, public buildings, and a forum. Along the north bank of the *Sayl* ran a colonnaded street, and across it on the east end was a *propylaeum*, which must have led up to the temple on the hill. South of the *Sayl* were situated the forum, the *odeum*, the Theater, and the Nymphaeum. The hills on both sides of the forum area slope deeply from an elevation of 850 masl at the summit down to about 743 masl in the *wadi* bed. This sharp slope causes a considerable amount of wash to be carried down the hills to the forum each winter. Moreover, during wintertime heavy rains cause the *Sayl's* waters to rise so much that the forum gets flooded, and thus silt accumulates in considerable quantities. In Roman times, these problems were solved by covering the stream with a series of arches and vaults, as well as by installing a network of underground channels and conduits (Hadidi 1992: 296).

#### *Urbanization in 'Ammān from the 19<sup>th</sup> Century Onward*

The Circassian refugees who settled near the Roman Theater ruins starting in 1864 awakened 'Ammān. Then it witnessed an accelerating development, which can be divided into the following four phases:

Phase I: 'Ammān Village (1880–1920).

Phase II: 'Ammān, Capital of Transjordan (1921–1946).

Phase III: 'Ammān, Capital of the Hashemite Kingdom of Jordan, before

construction of the culvert (1946–1964).

Phase IV: 'Ammān, Capital of the Hashemite Kingdom of Jordan, after construction of the culvert (1964–present).

#### PHASE I: 'Ammān Village (1880–1920)

Where there is water, there is life. This is the general concept upon which civilization is built. There was almost nothing on both sides of the *Sayl* except archaeological remains and native Bedouins herding sheep. Political events accelerated development of the human settlements in this area. The city began expanding starting from the ancient city of “Philadelphia” as a focal point, which was, in the early 20<sup>th</sup> century, the Roman Theater.

The Ottoman Empire’s war with Russia led to the loss of large areas of the Balkans, which forced a lot of the region’s Muslim population to flee (Barbir 1980). According to the Berlin Agreement of 1878, the Ottoman government was forced to transfer the Circassians from the Balkans to the Asian provinces and avoid their relocation to Russian Caucasus.

The Circassian immigrants revived 'Ammān, which became very quickly a destination for merchants from the Levant, who gathered along the *Sayl* and around the Roman Theater, where water was abundant and the land was fertile. Extensive ruins and water drew the attention of the new settlers, and it was no wonder that the Department of Antiquities (DoA) was one of the first official institutions established in 1923 as part of the Department of Antiquities of Mandatory Palestine. 'Ammān’s Theater and Citadel set the cornerstone of its development. The river running in its valleys revived it. Al Mahattah railway

station<sup>2</sup>, which is located about 3.5km northeast of the Theater, increased the importance of 'Ammān and facilitated its regional connectivity.

#### PHASE II: 'Ammān, Capital of Transjordan (1921–1946)

On 11 April 1921, the British protectorate established the Emirate of Transjordan, with Abdullah bin Al-Hussein as its administrator. Three years later, King Abdullah I ordered the construction of Raghadān Palace on Tahtūr<sup>3</sup> Hill, which hosts the 'Ammān Citadel (the Acropolis) and faces the Theater. The area became the city center, which by the 1920s and with the arrival of cars needed paved roads for transportation.

'Ammān had an approximate city footprint of about 2km<sup>2</sup> in 1930<sup>4</sup>. During these 25 years (1921–1946), 'Ammān started expanding from its historical center in all directions, through the *wadis* and the hills upward. In 1921, 'Ammān became the capital of the new state of Transjordan. Its population was estimated to be 10,500 in 1930 and 45,000 in the early 1940s, with the city extending over an area of some 2.5km<sup>2</sup> by 1947 (Potter *et al.* 2009: 118).

It can also be concluded that urbanization was axial, east-west along the river, and when it became crowded, the expansion went upward to the hills.

People deal with nature by making use of its benefits and avoiding its

<sup>2</sup> The Hejaz Railway was a 1.05m narrow-gauge railway that ran from Damascus to Medina. Twelve of its stations are located in Jordan. The 'Ammān station is located east of the Roman Theater, 222km away from the starting station in Damascus.

<sup>3</sup> *Tahtūr* in Arabic refers to the masses of large stones that were left on the Acropolis, later called Jabal Al Husayn, after Sharif Hussein Bin Ali, the initiator of the Great Arab Revolt in 1916.

<sup>4</sup> 'Ammān’s area in 2022 is about 800sq km. This is an increase of about 400 times in less than 100 years.

hazards. However, to which extent could the Ammonites tolerate their moody river? With the city getting bigger and bigger, and the riverbanks getting more and more crowded, it was time to find a model for coexistence. Either the buildings had to respect the river's right of way or the river had to be diverted away from the buildings. The year 1943 revealed that there was a water stream running in each valley/*wadi* and they gathered to form a real river. Floods reached higher levels, even getting to the Abdaliah School, which was and still is located at a level of 795masl (for comparison, the nearest *wadi* level is 780masl). It was in that year that the idea of getting rid of the river emerged.

Roads were built on the same route of the valleys, so congestion occurred due to the limited widths of the valleys/roads. The city was as it had never been before. Changes were real and deep in people's lives (Rafieh 2011, vol. 3).

These were natural valleys, which were turned into main roads leading to downtown 'Ammān. Therefore, it seems that the city had planted the seeds of congestion since the days when valleys had been transformed into arterial roads. Direction for development was limited: either to the right or to the left of the Theater (the same orientation as the *Decumanus Maximus*) simply because it ran along the valley, avoiding the hills.

Certain ruins and core buildings, such as the Nymphaeum and the Al Husaynī Mosque, could not be avoided simply because their ruins were apparent. However, what about the remainder of the Roman city ruins in between—were they to be covered with roads and buildings?

On 25 May 1946, the Emirate gained its independence as the Hashemite Kingdom of Transjordan, renamed as the Hashemite Kingdom of Jordan on 17

June 1946. The city of 'Ammān hosted the creation of this state, became its capital, and coexisted with the river, the *Sayl* of 'Ammān, for the next eighteen years.

### PHASE III: 'Ammān, Capital of the Hashemite Kingdom of Jordan, before Construction of the Culvert (1946–1964)

We can imagine the tremendous pressure that municipality<sup>5</sup> officials were facing to deal with the necessity of solving the traffic problems in the city and the need for extra commercial land to ease the pressure on King Talāl Street, keeping in mind that they were working in and between the old city ruins. Any wrong excavation might endanger the archaeological heritage of an 8,000-year-old city extending from the time of Rabat Ammoun, then Philadelphia, and then 'Ammān.

It is understood that the new state needed to attract investments for its capital center to flourish. The Philadelphia Hotel was constructed on a strategically located plot, which happened to be the same location as the Roman Forum. Construction works were undertaken with very little attention to the history buried below the surface. It is understood that the level of the valley has changed with time, as the ongoing accumulation of sediments covered the old city ruins (FIG. 1).

City councils prioritized construction of buildings and roads along the wadi, neglecting preparations for future

<sup>5</sup> The first municipal council in 'Ammān was established in 1909 with Isma'il Babouq as its first mayor. The country was under British mandate. A municipality council headed by a municipality head governed 'Ammān. From 1909 until 1950, 'Ammān had 19 mayors. During 1953–1986, 'Ammān had 10 Secretaries of the Capital, and thereafter the position was renamed as "Mayor of the Amman Greater Municipality" (1986–present).

city expansion. The options were limited, so a one-way direction was adopted around Al Husaynī Mosque, southward along King Talāl Street, and back along Quraysh Street.

When *wadis* became roads, the city's urban morphology was determined. Roads are for vehicle traffic, and its pavements were built to serve shops. As for the city center, shops were opened along these roads. Logically, the inhabitants lived next to their businesses in apartments above the commercial spaces, forming the first mixed-use setup in the city, combining shops, housing, and offices. Residential houses were climbing the hills: Jabal Al Qala'ah (Citadel), Jabal Al Husayn, Jabal Al Luwaybidah, Jabal 'Ammān, Jabal An Nadhīf, Jabal Al Ashrafiyyah, Jabal At Tāj, and Jabal Al Jawfah. They were accessible through stairs and narrow roads with inclinations exceeding 15%.

On the one hand, rivers and water streams revive cities; on the other hand, they require sustainability. At the river, a different cycle of life in the city was emerging; for example, river cafes rearrange tables and chairs and clean additional spaces that separate them from the river<sup>6</sup> (Rafieh 2011: 195).

Commercial and social outcry stimulated thoughts of getting rid of the *Sayl* and its burden. Therefore, the initial thoughts of building an underground culvert emerged.

The controversial decision to cover the *wadi* (*Sayl 'Ammān*) that flows parallel to King Talāl Street to create a ring road was discussed in six municipality councils from 1948 to 1962. Finally, a decision was made to construct a box culvert consisting of two sections, each 8x4m, creating a 16-meter-wide road, which was ideal for the usage as a commercial road.

<sup>6</sup> All English translations of Rafieh's works in Arabic are by Dr. Raya Kalaldehy.

The Zamancom website<sup>7</sup> has published an article from a 1970 issue of the newspaper *Al Rai* detailing the culvert project<sup>8</sup>. The capital's mayor mentioned several reasons that made the Municipality decide to cover the *Sayl*. These were:

- Bad hygiene conditions caused by breeding flies and mosquitoes;
- The gathering of low-class citizens on the *Sayl's* banks;
- The aggressiveness of the *Sayl* in winter, when it might wash away kiosks and vulnerable walls and flood houses; and
- The availability of additional space that would enable one-way traffic.

'Ammān, Capital of the Hashemite Kingdom of Jordan, after Construction of the Culvert (1964–Present)

Roads are the most important item in the infrastructure of any city. They connect regions and places and create the base from which to incorporate further infrastructure (Kalaldehy 2004: 54). The idea of considering one-way traffic instead of two-way was emerging, but this needed an exit. The city council at the time was headed by Ahmad Fawzi. The plan was to erect a box culvert in stages to cover the *wadi*, thus gaining about 1,000 *dunums* (1,000,000m<sup>2</sup>). This area was ideal for investments that the municipality needed desperately.

Such a project needed an enormous amount of public funds, so it was executed in phases. The first section, measuring 200m, was created in 1964, and then an extra 400m in 1965, 200m

<sup>7</sup> An online newspaper managed by anthropologist Ahmad Abu Khalil, which publishes historical documents from the beginning of the 20<sup>th</sup> century to the 1980s.

<sup>8</sup> The authors contacted the Municipality to obtain a copy of the design drawings, without success.

in 1966, and 500 m in 1969 between Al Hammām bridge and Al Muhājirīn. A further 200m was built in Al Mahattah (‘Ammān Hijazi Railway Station). Construction works continued, taking down any obstacles, until it became a road above an underground culvert (FIG. 2).

It is understood that the excavation reached a depth of at least six meters and penetrated archaeological layers along its horizontal alignment. The absence of social media and the desire not to interrupt construction works caused the concealment of the discovery of archaeological finds, if there were any. However, what about the DoA? Did they follow up excavations works and apply the already existing Jordanian Antiquities Law<sup>9</sup>?

### Archaeological Excavations in Downtown ‘Ammān

The DoA took advantage of the ongoing downtown revival project done in the early 1960s and began excavation in the Forum area, which is located between the Roman Theater and Odeon.

These remains survived natural and human destruction. Therefore, they are of a high value that gives the modern city of ‘Ammān a benefit that many contemporary cities lack. At the same time, they add constraints that have to be dealt with because of the change in topography due to accumulation of sediments and erosion. City morphology developed as a spiderweb, with the Forum as its focal point.

#### *Excavation at the Forum*

The first three systematic excavations, which were undertaken by the Department of Antiquities of Jordan in ‘Ammān, were excavations of the Roman Forum in the lower section of

the ancient city under the direction of Dr. Adnan Hadidi (Hadidi 1974).

In the northwest quadrant, which abuts the western line of the colonnade of the Forum next to the sidewalk of the Municipality building, a very similar stratigraphic picture is found. The first five *loci*<sup>10</sup> consist of disturbed layers that contain mixed Roman, Byzantine, Islamic, and modern sherds (Hadidi 1964: 83). *Locus* 8 is about 1.20m thick and consists of loose, gray earth, pebbles, and several fallen columns and other architectural members. To this locus also belongs a stairway, which leads down to the central area of the Forum. The steps are built on sterile fill of small irregular blocks of limestone and mortar. A terracotta pipe drain was laid alongside and slightly lower than the lowest step. Second-century AD sherds associated with this drain make it contemporary with the Roman scheme for the construction of the Forum. Both FIG. 4 and FIG. 5 *loci* show that the virgin soil was reached (see FIG. 3) (Hadidi 1974).

Dr. Hadidi and his team took advantage of the Municipality plans to convert the area in downtown ‘Ammān into a city park to revive the buried Roman Forum. It was bound by the Roman Theater on the south, the Roman Odeum on the east, the Philadelphia Hotel<sup>11</sup> on the

<sup>10</sup> A term used in Hadidi’s excavation methodology to highlight a particular location. The term “layer” refers to the vertical profile.

<sup>11</sup> It was built in phases, first in 1926, followed by two wings in 1935 at a strategic location between the southern shore of the river and the Roman Theater. It was acquired by the ‘Ammān Municipality during the mayorship of Maen Abu-Nouar (1976–1979) and was demolished in 1986 during Abed Al-Raouf Al-Rawabdeh’s time as mayor (1983–1989). The author interviewed His Excellency Dr. Rawabdeh on 22 March 2022 and asked him about the justification of its demolition. He answered that the hotel had been left empty for almost eight years and had become a burden and a health risk, and, in addition to that, it blocked the view toward the Roman Theater.

<sup>9</sup> In 1934, Antiquities Law No. 24 of 1934 was issued, which was the first such law to be enacted in Jordan. Source: Department of Antiquities website Brief History (<http://doa.gov.jo>) accessed on 27 July 2022.

north, and the Municipality building on the west. The DoA executed excavations from 14 November 1964 to 1 January 1967, reaching Roman and Hellenistic levels in all squares that were opened in the Forum area (FIGS. 4–5).

The solid hatched area in FIG. 4 shows the surface of the paved modern street that connects Al Hāshimī Street with Jabal Al Jawfah. The modern concrete sewer underneath is also visible on the same figure at the lower level of a manhole, between *loci* 4–5. Both served the Philadelphia Hotel, which was opened in 1928 in the location of the Roman Forum. FIG. 5 shows the excavation profile done in the southwest square of the Forum, where we can see the level of the colonnaded Forum, which is near the Municipality Downtown District building.

#### *Excavation at the Nymphaeum*

Romans took advantage of the water current and erected, in the 2<sup>nd</sup> century, a nymphaeum (fountains and baths) about 300m east of the theaters. From 1996 to 2002, comprehensive archaeological excavations were conducted in the Roman Nymphaeum under the direction of M. Waheeb. Excavation of the lower parts of the structure was hindered by the fact that the deeper the excavation probed, the more forceful and active the flow of water became (Waheeb and AlGhazawi 2013: 134).

Among all civilizations that existed or flourished in the old 'Ammān area, the Roman ruins remain the most distinctive and important in comparison to all other ancient material found at the site. As a result of the establishment of Provincia Arabia, the paving of the *Via Nova Traiana*, and peace with the Parthians, 'Ammān, like other cities, flourished in the 2<sup>nd</sup> century AD, and most of its buildings were built

then (Jones 1937: 293; Bowersock 1971: 219–242; Bowersock 1982: 76–89).

#### *Excavation at the Culvert*

Nobody ever imagined that the 'Ammān of the 1960s, with an urban area of about 5km<sup>2</sup>, would grow to four hundred times that within less than a century. The downtown valley became an arterial road collecting rainwater from a 105km<sup>2</sup> catchment area that, on 28 February 2019, received a registered<sup>12</sup> rainfall intensity of 8–12ml/hour for 24 hours. Although the Engicon report (on which the Technical Committee Report was based) concluded that obstacles in the box culvert had caused water to flood beyond the culvert, we can see that the streets within the 105km<sup>2</sup> (about 13% of 'Ammān's Metropolitan area) incline toward the Roman Theater. On 28 February 2019, the orchestra of the Theater and the adjacent Hashemite Yard were flooded.

Romans also had to deal with seasonal floods, but they did not construct a culvert because they had smartly chosen the location and orientation of the colonnaded street parallel to the valley in which water flows.

In September 2020, the Greater Amman Municipality (GAM) started an expansion project of the water drainage network, which was built in the 1960s, by adding a secondary network (FIG. 6) consisting of branches that ease the pressure on the main line along Quraysh Street. Contractors assigned by the GAM started construction of a concrete box culvert parallel to the existing one at the tourist bus station (yellow line in FIG. 6) upward to the GAM downtown district building (FIG. 7), where suddenly red bricks started to appear at a

<sup>12</sup> Technical Committee report made by Engicon to the Prime Ministry in March 2019: "Ammān Downtown Flood on 28/2/2019."

depth of about 3m below the paved road surface, indicating the presence of archaeological layers beneath (FIG. 8).

The Department of Antiquities was asked by the GAM to investigate the location and verified the findings to be parts of a Roman bath. The DoA thus asked that excavation for the drainage network to be stopped, to give its employees and specialist more time to undertake the needed surveys along Al Hāshimī Street (FIG. 9).

Officials from the DoA and GAM had to make a quick decision on how to proceed. Options were limited: either excavations would continue as planned along Al Hāshimī Street until the Al Husaynī Mosque intersection (see red line on FIG. 6) or work would be stopped in this section.

In this time of open media, the event became public, and concerned citizens and specialists took a stand that influenced the final decision<sup>13</sup>.

On Monday, 14 December 2020, Murad Kalaldeh, a professor of architecture and urban planning at Al-Balqa' Applied University, stressed that the site should be preserved, arguing all excavations and attempts to remove the bathhouse should stop. He told Roya News that the site is part of history and separating it from its original location would make it “lose its soul” (Osborne 2020).

On Thursday, 7 January 2021, a joint declaration was released by the Jordanian Ministry of Tourism and Antiquities and GAM to stop the work on the box culvert and along the last

section of Al Hāshimī Street (red line in FIG. 6).

The statement noted that the Department of Antiquities, in cooperation with the Hashemite University, carried out a geophysical survey of the remaining path of the box-culvert project for a distance of approximately 300m, based on one of the recommendations of the Advisory Committee. The results of the survey confirmed the presence of many archaeological remains in the path and down the street, and that these represent architectural features of vaults, walls, and floors that required long-term archaeological excavations and studies. This will need financial assets and a trained team with technical capabilities<sup>14</sup>.

Apparently, the discovered Roman baths are part of a wider range of archaeological material, as mentioned in the Hashemite University report, and, just for comparison, the author assumes that it might be similar to the Roman Baths built in Gerasa/Jarash in the same period of time as that of Philadelphia, in the 2<sup>nd</sup> century AD.

According to our present knowledge, the bath building originates not earlier than the mid-2<sup>nd</sup> century AD. The ruined structures, which are visibly impressive today, occupy a vast terrain of approximately 9,000m<sup>2</sup>, occupying a full *insula* lined by the streets running over the southern *decumanus* and the Artemis *propylon* bridges. From the north and the south, entry was made possible via monumental doorways, one of which was studied by French teams prior its destruction. The estimated full length of the compound amounts to 204m, and its maximum width approximately 116m, thus covering an area of at least 23,000m<sup>2</sup>. The four barrel-vaulted bathing halls, partly preserved and

<sup>13</sup> The author was interviewed many times on local TV stations, and his point of view was published by several international news outlets, including Roya News and Al-Monitor. For the latter, see: <https://www.al-monitor.com/originals/2020/12/jordan-amman-roman-ruins-baths-archeology-excavation.html>.

<sup>14</sup> Translated from Arabic by the author.

visible today, still rise to a height of 11m (FIG. 9) (Lepaon 2012: 197–199).

Roman baths are usually built beside a body of running water, such as a river, stream, or spring. The large eastern thermal complex is the only monument of Gerasa remaining on the eastern bank of the modern Wādī Jarash, called Chrysorrhoeas in antiquity. This “Golden Stream” is fed by the Karawan spring, which guaranteed from ancient times until today the abundant water supply necessary for the city. In antiquity, the Great Eastern Baths served daily hygiene, leisure needs, and social life of the indigenous population (Lepaon 2012).

The GAM stresses the necessity of keeping the daily rhythm at downtown 'Ammān intact, while the author and many other specialists see a potential to turn downtown into an open-air museum in certain parts of the city and revive its deteriorating network of streets and buildings, which will generate tourist traffic and refresh commercial business.

### Potential Archaeological Discoveries

The GAM has successfully managed the traffic circulation during the execution of the box culvert project by diverting the traffic away from Al Hāshimī Street (green line in FIG. 10) to the adjacent Ash SHabsūgh Street, down to King Faysal Square along the green line in FIG. 10.

The 310m-long last section of Al Hāshimī Street (red line in FIG. 10) is to be converted to a pedestrian street with partial exposure of archaeological elements upon the recommendations of the DoA.

### Findings and Recommendation

#### Findings

1. The paved road on Al Hāshimī Street, which was built 1,750 years

after the construction of the Roman Theater, is 748.08masl, which makes it 4m higher than the level of the Theater. The level of the street causes it to submerge during flooding.

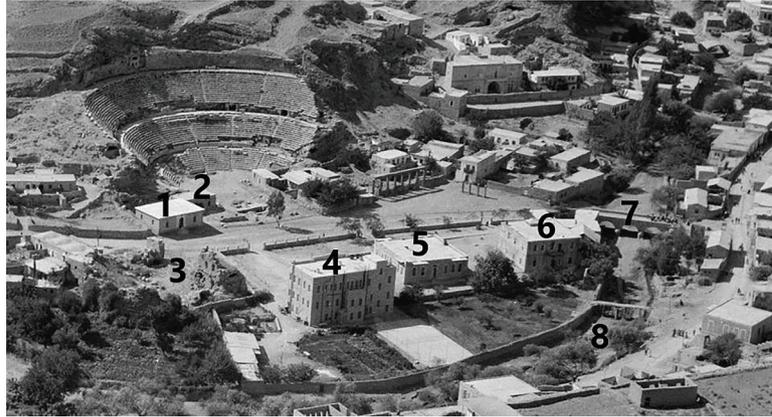
2. The Romans could not have erected the Theater at a level lower than the adjacent river; otherwise, it would have become flooded.
3. A closer look at available photographs during the period of 1900–1920 shows that the Theater and its vicinity are at almost the same level, which can be attributed to the accumulating sediments over time.
4. The culvert was built on almost the same route as *Sayl* 'Ammān but at a higher level due to the sediments accumulated over 1,750 years.
5. Continuous urbanization in the 20<sup>th</sup> century and later increased the amount of water running in the box culvert to the point that it exceeded its capacity. The existing culvert could not cope with greater quantities of water due to the extensive urbanization in 'Ammān, which widened the catchment area to 103km<sup>2</sup>.
6. The two major collector roads, Quraysh and King Talāl, will be subject to flooding until the culvert can process a greater quantity of water. Flooding can reach the Roman Theater because its level is lower than that of the culvert and the road above it.
7. The Roman Colonnaded Street needed no surface water discharge in antiquity simply because it was constructed on the riverbank and water thus ran directly into the *Sayl*.
8. The Romans had also to deal with seasonal floods, but they did not construct a culvert because they smartly chose the location of the

- baths and the orientation of the colonnaded street, parallel to the valley in which water flows.
9. Comparing the location of the box culvert with the location of the Roman *Decumanus Maximus*, which was built about 1,800 years before, shows that they are aligned and layered. The oldest is beneath.
  10. The lack of flat land within a mountainous area encouraged the municipality to divert water to an underground culvert, creating in its first phase an area of about one million square meters ideal for real estate development. This decision planted the seeds of flooding and traffic congestion in downtown 'Ammān.
  11. The decision to construct a box culvert was made in the early 1960s, and construction began in 1962, according to the existing levels without reaching the virgin soil, which is about 13m lower, at 735masl. Many archaeological layers were penetrated during this process.
  12. The decision to cover the *Sayl* 'Ammān was and still is controversial. On the one hand, it provided additional investment area in the middle of the city and limited flooding; on the other hand, it deprived the city of its river.
  13. Not only have the last three generations remodeled the city downtown, but they have also built above some of its valuable archaeological structures.

#### *Recommendations*

1. The revival of *Sayl* 'Ammān by opening the box-culvert deck in some locations and developing the area along an open ditch with the riverbank.
2. Resume archaeological excavation in the location of the Roman Baths, reconstruct its missing parts, and expose it to the public with the help of virtual-reality techniques to demonstrate bathing practices during Roman times.
3. Turning Al Hāshimī Street into a pedestrian street with vehicle access limited to deliveries for commercial shops.
4. Allocation of the GAM library building for use of the Ministry of Tourism and Antiquities, which will raise the importance of the location and enable direct supervision of this valuable historical part of the city.
5. Gradual regeneration of heritage buildings in downtown 'Ammān through incentives made to owners.

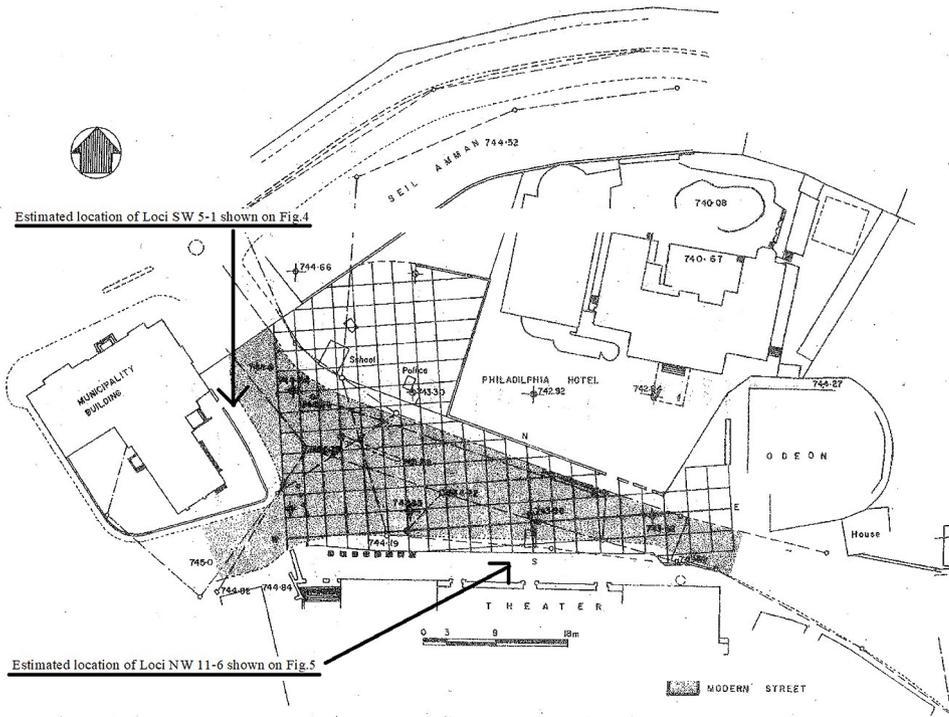
TURNING 'AMMAN DOWNTOWN INTO A TOURIST DESTINATION



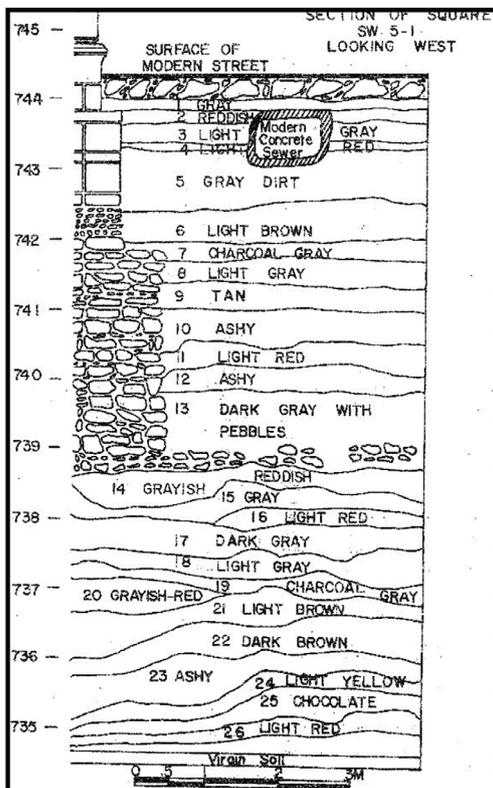
1. 1: Prime Ministry; 2: Post Office; 3: Roman Odeon; 4: Philadelphia Hotel; 5: Prince Court; 6: Asbali School; 7: Asbali bridge; 8: *Sayl 'Ammān*. Estimated date: 1950s (photo courtesy of the National Library, edited by the author).



2. Site visit by Crown Prince Hassan Bin Talal (center, in white shirt; to his left, 'Ammān's Mayor, Eng. Ahmad Fawzi, during the construction of the culvert on 11 May 1967 (photo courtesy of the National Library Archive).

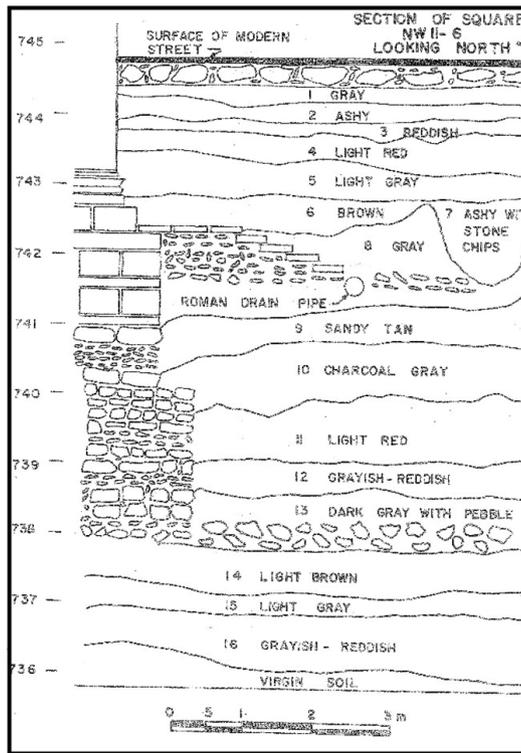


3. Paved road connecting Al Hashimī St. with Jabal Al Jawfah, built above the ruins of the Roman Forum (from Hadidi 1974: 75, fig. 3; edited by the author).



4. Section of Square SW 5-1, looking west (from Hadidi 1974: 81, fig. 5).

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5. Section of Square NW II-6 (from Hadidi 1974: 84, fig. 6).



6. Water culvert execution phases: blue: existing; red: planned branch along Al Hāshimī Street to be connected with the light blue branch (image courtesy of the Greater Amman Municipality).

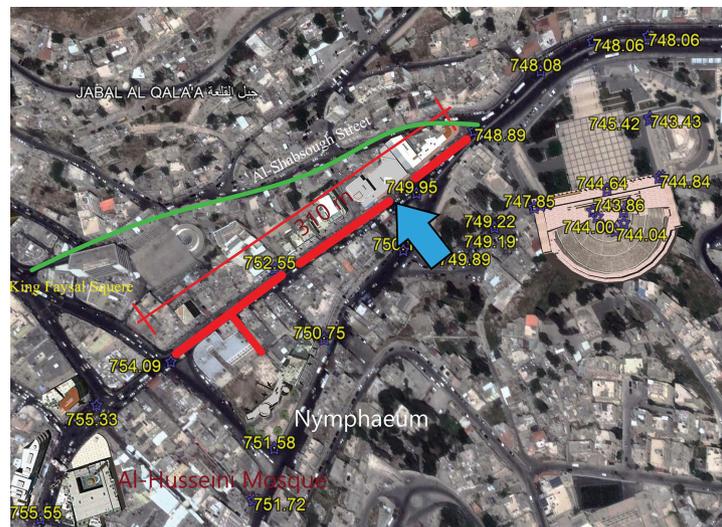


7. Culvert branching (shown in light blue in FIG. 6) toward Al Ḥusaynī Mosque at the end of Al Ḥāshimī Street (photo by M. Kalaldeh).



8. Parts of the *caldarium* of the uncovered Roman Baths (photo by M. Kalaldeh).

9. Schematic disposition of the two phases of structural development of the Great Eastern Baths at Gerasa: Phase 1 (above) and Phase 2 with the added northern hall (below) (from Lepaon *et al.* 2012: 15, fig. II.6).



10. The part of Al Hashimī Street proposed to be converted to a pedestrian street with partial exposure of archaeological buildings (image produced by M. Kalaldehy).

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