Birthplace of Jesus: Church of the Nativity and the Pilgrimage Route, Bethlehem  Ref. 1433, Palestine

2020 | State of conservation report
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Please follow this link (https://mega.nz/folder/sxBTTaCZ#x71hzCb0DLrBrnzG_ZNjDw) to download the annexes listed below:

**Annex no. 1:** The Palestinian Presidential Committee for the Restoration of the Church of the Nativity/Brief Construction Progress Report (September 15, 2013 – May 16, 2020)

**Annex no. 2:** Nativity Church Restoration Program-The Palestinian Presidential Committee For the Restoration of the Church of Nativity – Bethlehem/ progress report #96( May 16,2020)

**Annex no. 3:** Marketing policies and plan for the purpose of revitalize and bring back to life / the Star Street / old core town/ Bethlehem - Palestine.

**Annex no. 4:** Mobility Study – Transport and Mobility Strategy for the Conurbation of Bethlehem/ Final report- phase III- Action plan.

The World Heritage Property (WHP), “Birthplace of Jesus: Church of the Nativity and the Pilgrimage Route, Bethlehem” (Ref. 1433), was inscribed on the World Heritage List in 2012 following an emergency nomination in accordance with criteria (IV) and (VI). The property was immediately inscribed on the List of World Heritage in Danger due to the lack of repair of the roof structure of the Church of the Nativity and the consequent threat to the roof timbers, roof covering, and the interior wall surfaces from water ingress.

During its 43 session (Baku, 2019), the World Heritage Committee adopted the Decision “43 COM 7A. 28-item 10” to remove the Property from the List of the World Heritage in Danger after the State of Palestine had achieved the desired state of conservation and the corrective measures set for the removal of the property from the list of World Heritage in Danger.

As per article 10 of the above-mentioned decision, this report was prepared by Bethlehem Municipality (BM) in close cooperation with the Ministry of Tourism and Antiquities (MoTA), the Palestinian Presidential Committee for the Restoration of the Church of the Nativity (PCRCN) and the Centre for Cultural Heritage Preservation (CCHP).
1. Executive Summary

The State of Palestine is highly appreciated the World Heritage Committee and its decision (43 COM 7A.28) for the removal of the World Heritage Property, "Birthplace of Jesus: The Church of the Nativity and the Pilgrimage Route, Bethlehem", from the List of World Heritage in Danger. This decision was taken after the state Party had accomplished the Desired of state of conservation and its corrective measures set for the property, as well as to the high quality of restoration works that have been implemented at the Church of the Nativity since September 2013. These works targeted restoration of the roof and windows of the Church, the Narthex and its eastern wooden door, the external stone façades, internal wall plastering, whole wall mosaics, Basilica metal doors, wooden architraves, installation of lighting and smoke detection systems, the restoration of fifty Basilica stone columns with their paintings, and the restoration of ten capitals. Moreover, the restoration works included the floor mosaic, the marble floor at transept north and south and Bema in front of the Greek Orthodox wooden iconostasis and the restoration of the Baptismal font. The State Party also finalized the Conservation and management plan for the entire Property, meanwhile cancelling the Manger Square Tunnel, which was proposed in front of the Church of the Nativity (See annex no.1).

Currently a specialized team of restorers and historians are working on the assessment of the front yard of the Church in order to evaluate the existing conditions and specify the state of conservation of the stone tiles, the ancient water reservoirs and the yard subgrade layers. In addition to the restoration and treatment of the Greek Orthodox gilded wood carved iconostasis and the treatment of the wooden elements. (See annex no.1).

Since March 2020, Bethlehem City, as the whole world, has testified exceptional circumstances due to the outbreak of Coronavirus (COVID-19) pandemic. The Palestinian Government has declared the emergency state and imposed restrictions on the citizens including social distancing and home quarantine as protective measure to embrace the pandemic. All tourists have been evacuated from Palestine since the beginning of the pandemic as a procedure to reduce Coronavirus Transmission Globally.

The COVID-19 pandemic has its tremendous impact on the World Heritage Property. The Church of the Nativity, the center of pilgrimage and tourism in Palestine, was completely closed for eighty-two days. It has also affected all aspects of life, including commercial, cultural, educational, tourist and religious activities. The event of "Bethlehem the Capital of Arab Culture 2020", designed to demonstrate the cultural Heritage life of the city, has been delayed.

This report sheds light on the conducted restoration works inside the Church of the Nativity and the Pilgrimage Route after its removal from the List of World Heritage Properties in danger. Actually, the restorers took the enclosure of the Church due to COVID-19 Pandemic, as an advantage to accomplish uncompleted restoration works, mainly restoration of marble floor tiles within the framework of the restoration program and the current restoration of iconostasis (See annex no.1)

Based on the recommendations of the ICOMOS Advisory Mission conducted in 2016, the Municipality carried out several rehabilitation and restoration works in the Historic Center, especially the Star Street (the Pilgrimage Route) and its branches. These interventions have contributed to revitalize the route, provide services for the community, promote cultural tourism, and raise public awareness on the multiple benefits of the World Heritage property for locals’ economy, society, and culture. Moreover, Bethlehem Municipality has worked on other projects to revitalize and promote its Historic Center, such as the Transport and Mobility Master Plan for Bethlehem Governorate (See annex no.4), and the Marketing plan for the Star Street (See annex no.3). The latter, promotes the Star Street to be an attractive destination for locals and visitors as a social and commercial vein of the Historic Center with an aim of creating sustainable jobs for inhabitants and locals in diverse fields, improving the traditional local handcrafts and soft industries.

In 2019, the Management and Conservation Plan for the WHP was finalized and endorsed by all related Partners. It has become the main tool to sustainably manage and conserve all activities inside the WHP. The MB has also conducted other initiatives to enforce the cultural and tourist services within the World Heritage Property, such as reinventing public spaces in Bethlehem city, erecting identification signage in all historical sites, 3D Bethlehem, rehabilitation and adaption of historic buildings to serve as residential and guesthouses. In addition to preparing an emergency health clinic at the Bethlehem Peace Center to serve the visitors of the World Heritage property and the preparation for Public electronic library.
2. The restoration works at the Church of the Nativity

Recently different successful restoration works were completed at the Church of the Nativity to improve the state of conservation of the Church, the following actions have been performed according to the restoration program of the Church based on available funds from different donors and the final recommendations (See annex no. 1&2)

2.1 The restoration of the marble tiles

According to the available funds, the Presidential Committee completed the restoration works of the most damaged marble tiles located at transept north in June 2019, the Bema area in December 2019 while completed the restoration process for damaged tiles located at south transept in May 2020, simultaneously with the closure of the Church due to (COVID-19) pandemic.

The general scope of work is to restore, protect and preserve as much as possible the existing tiles by restoring the cracks and other medium damages. Fortunately, restorers have succeeded to restore even the heavy damaged marble tiles. At the end of the restoration process, all marble tiles surface was protected using proper materials.

2.2 The restoration of the floor mosaic

The floor of the Church is currently tiled with local hard red stone. At some spots about 80 cm below it, visible under protective wooden covers the remains of the marvelous mosaic floor of Constantine's Church, which in a great carpet of geometrical forms, covered the nave and aisles. The restoration program aims to restore the existing exposed floor mosaic, also to excavate, uncover and restore portions of the mosaic carpet indicated in the report of the archeological excavation made in 1935.

The last two areas are located in the Central nave and the other portions are located in the southern part of the nave near the baptism font have been completely restored in June 2019. While the other parts of the floor mosaic areas located in diverse parts of the Church; the Central Nave beside the Bema, North Transept beside the stairs leading to the Bema and the North side of the central nave were completely restored in December 2018.

2.3 The restoration of the stone columns

The Church has fifty Corinthian reddish limestone columns, thirty-three of them carry Crusader paintings of saints, kings, the Virgin and the Child while aging and lighting conditions make them hard to see.

Based on the available funds, the restoration works were implemented in stages and completed in April 2019 which included; analysis, cleaning, consolidation and protection for both the columns surfaces and the related paintings, this achievement enabled the Church pilgrims and visitors to enjoy the beauty of the restored columns and their paints, graffiti and ancient inscriptions.

2.4 The restoration of the baptismal font

As part of the action plan of the restoration program for 2019, and according to the available funds, by early June 2019, the Presidential Committee authorized the restoration of the Baptismal font located in the south lateral nave.

During the restoration works and the careful removal of the cracked pieces, a hidden richly decorated font made of marble was found inside the external octagonal reddish stone font, while specialized historians and archaeologists' team studied the findings aiming to reach the most accurate dating.

The studies have revealed that the Octagonal font was made in the same period as the rest of the Basilica mainly the last years of Byzantine Emperor Justinian’s rule, between the late 550 and 570. While the inner marble font with its style, shape and dimension dated back to the period of late Byzantine and the early Umayyad period, mainly between 6th and 7th centuries. Moreover archaeologists are still working to analyze the findings in the aim to double check the data provided by art-historical analysis related recent excavations which are of utmost importance in the future detailing the Chronology of the artwork.

It is worth mentioning that the conducted restoration works started in June 2019 and completed in February 2020. It included documentation, different levels of cleaning, consolidation, removal of cement fillings made during previous interventions, dismantling and treatment the cracked parts with consolidation, color retouch and protection.
2.5 Ongoing works

2.5.1 Restoration of the Greek Orthodox iconostasis

Currently, diverse wooden items inside the Church of the Nativity are being restored, including reinforcement and treatment of the gilded wood carved iconostasis, icons, and throne. In 2019, the Greek Orthodox Church conserved the wooden sculpture temple to maintain the authentic character of its wooden elements, as well as preserve its historical, cultural and religious values.

Several inspections and analyses have been conducted by trained and experienced technicians and scientists working at “ARTIS Gilding and Restoring”, which reveal deterioration and damage caused by consecutive coatings of pigments and varnishes applied at different times to the iconostasis and other wooden elements. Additional extensive gilded layers were removed and lost due to the exposure to pollutants, soot, oils, deposits, etc., which affect the aesthetic appearance of the wooden elements. Moreover, adverse impact of destructive insects were found on the entire wood surfaces that caused deterioration of the wooden structure.

The maintenance of the wooden works contribute to preserve these unique items through cleaning, and removal of the subsequent over paintings from the wood carved surface, revealing the original colors, highlighting the carving details and gilded layers as well as treating the destructive wood caused by insects. A great attention has been given to the conservation work of icons located in the iconostasis with respect to the primary aesthetic and historical content of the Church, which is expected to be completed by the end of April 2021.

2.5.2 Survey, assessment study and conservation plan for the front square

A specialized restoration team from archaeologists and historians are currently working on the assessment of the approaching “Nativity Square” located in front of the Church of the Nativity to evaluate the existing conditions in terms of the stone tiles, the ancient water reservoirs and the Square subgrade layers. The studies will include the following:

A. Archaeology study
B. Historical study
C. State of conservation of the Square, mainly tiles, pointing and the reservoir.
D. Complete and detailed restoration plans
E. Design for built-in automatic hydraulic security bollards

2.5.3 Conservation and risk management plan for the Church of the Nativity

The Conservation and Management plan has been prepared for the entire World Heritage Site in line with the World Heritage Committee decision (41COM 7A.42, item 7). It contains policies and strategies to ensure the protection and enhancement of the WHP, as well as guide future management, use and conservation activities at the Site. The plan also recommends developing a risk management plan for the Church of the Nativity, taking into consideration the circulation tackle and flow of the large numbers of tourists and pilgrims.

The State party has secured a generous fund from the Italian Cooperation for Development (AICS) to prepare a risk management plan for the Church of the Nativity to ensure the full protection and enhancement of the Church. A local consultant entity will be contracted to prepare the plan in cooperation with the Presidential Committee for the Restoration of the Church of the Nativity, the Ministry of Tourism and Antiquities and the three Christian denominations (the Greek Orthodox Convent, the Franciscan Convent and the Arminian Convent). It will be designed to sustain the values and physical attributes of the Church over the times as follows:

1. Assessing the levels of risk within the Church to determine priorities of actions and set up mitigation measures.
2. Setting a fire-fighting system in the Church.
3. Developing an effective evacuation plan for the Church in case of emergencies.
4. Performing an environmental assessment for the different spaces in the Nativity complex, mainly the Basilica, the grotto and St. Jerome caves, indicating the maximum capacity of the spaces to ensure the visitors' safety and comfort.
5. Providing risk-preparedness measures to counter-act the negative impact of visitors’ behaviors on the physical attributes of the Church.

6. Providing risk-preparedness measures counter-act any potential natural disasters (such as earthquakes, floods... etc.).

Unfortunately, due to the COVID-19 pandemic crisis, preparation of the risk management plan for the Church of the Nativity has been postponed.

2.6 Future remaining works

Since the commencement of the restoration works at the Church of the Nativity in 2013, the presidential committee for the Restoration of the Church of the Nativity has striven with all its efforts for securing funds to maintain smooth continuation for additional priority restoration tasks based on the final study recommendations.

The following table shows the Main remaining restoration works for fundraising:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Total value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Restoration of the marble tiling at Bema area (in front of the Greek Orthodox iconostasis)</td>
<td>120,000 €</td>
</tr>
<tr>
<td>2</td>
<td>Structural consolidation at the two corners (transept north and south)</td>
<td>250,000 €</td>
</tr>
<tr>
<td>3</td>
<td>The installation of the firefighting system</td>
<td>150,000 €</td>
</tr>
<tr>
<td>4</td>
<td>The installation of the microclimate system</td>
<td>250,000 €</td>
</tr>
<tr>
<td>5</td>
<td>Restoration of the central nave stone tiling</td>
<td>250,000 €</td>
</tr>
<tr>
<td>6</td>
<td>Study and restoration of the Church front yard stone tiles and the installation of electrical hydraulic bollards ( study amount is 25,000 Euro- on going)</td>
<td>450,000 €</td>
</tr>
<tr>
<td>7</td>
<td>Consolidation of the Basilica southern wall against seismic action</td>
<td>300,000 €</td>
</tr>
<tr>
<td></td>
<td>Total of the main restoration works</td>
<td>1,770,000 €</td>
</tr>
</tbody>
</table>

3. The conservation works in the Property and its Buffer Zone

3.1 Restoration of the Historic and Religious Centre of the city of Bethlehem of the Star Street

The Star Street, known as the Pilgrimage Route, is the most important street in the old city due to its association with the Birth of Jesus Christ. It is the Christmas procession Route. The Christian Patriarchates enter the city walking towards the Church of the Nativity during the Christmas season. The Street also embraces remarkable buildings with unique architecture and attractive sites telling the story of the city over centuries.

3.1.1 Beautification of Star Street

Based on the recommendations of the ICOMOS Advisory Mission (2016) for the revival and activation of Star Street and its branches, Bethlehem Municipality, through a fund offered by the Russian Federation Government, has rehabilitated the historical Route to promote the local identity and sustain its cultural and spiritual values to the present and future generations. The project has provided a welcoming, clean, safe and attractive environment for locals, visitors and pilgrims through maintaining the ecstatic appearance of building along the Street and saving the authentic value of the remarkable architecture, which required the removal of non-authentic electrical and mechanical additions
meanwhile maintaining religious, spiritual and cultural attributes of the World Heritage Property. The project has provided convenient spaces and comfortable mobility in the Street and in its branches allowing locals, visitors and pilgrims to approach essential services, facilities, and participating in cultural and recreational activities that will be held along the Street.

In order to revive the Route as a pedestrian destination and minimizing the vehicles flow, the project has accompanied with vehicle restrictions based on the recommendations of the ICOMOS Advisory Mission and the Mobility plan prepared by Bethlehem Municipality as follows:

- A Drop off point has been considered near Catholic Action roundabout to accommodate tourist buses in order to enable visitors and pilgrims to walk down the Street towards the Church of the Nativity. An environmentally electrical cars will be provided to facilitate the mobility of pedestrian with special needs. The buses will have an easy access through Orient Star Street, which is adjacent to the drop off point towards the Manger Street and finally park in the central bus station, where the buses will collect the pilgrims after visiting the church. Orient Star Street was an essential part of the project that completes the mobility plan of the old city for motorized and non-motorized mobility.

- All the flow of vehicles coming from the Historic Centre via the one way direction Salezian Street will be directed towards Catholic Action roundabout to the Manger Street through the King David’s Street or Orient Star Street that are adjacent to the drop off point. A car barrier with stop sign has been installed adjacent to the intersection point with Star Street to manage the flow of these vehicles based on a specific schedule prepared by the Municipality and the traffic flow of pedestrians crossing the street towards the Nativity Church.

- A Monitoring room will be installed at Hosh Abu Jarour. It is located within the Star Street at the intersection point with Salezian Street. One-way access car barrier with a stop sign was installed at the intersection point to address the traffic movement within specific time that will be identified by the Municipality. However, residents’ cars will be allowed to enter the Street with special cards that will be distributed to citizens to allow them to use the street for loading and uploading but not for parking their cars. Nonetheless, the traffic movement will be prevented from passing the Street during times of celebrations and events as well as during high volume of pedestrians in order to ensure safe mobility.

- In Reference to the recommendations of the ICOMOS Advisory Mission, Bethlehem Municipality is working to construct a car parking lot at the beginning of the Star Street. There are two vacant lands, adjacent to the action club roundabout, the Municipality is still looking to create an agreement with the landowners to utilize the lands as a car parking to enable the inhabitants and visitors to park their cars in a convenient place before their journey in the Route.

Unfortunately, due to the lockdown of the city due to COVID-19 pandemic, the implementation of the traffic plan has been delayed until the embracing of the crisis and its consequences.

Different other interventions have been conducted within the Star Street itself, including: upgrading of the existing infrastructure “sewage, water, storm water and lighting networks”, insulation of external walls that are located below the street level, cleaning and pointing of stone facades and monuments, painting the steel elements with divers colors “windows, doors and handrails”. Moreover, adding reversible light structure such as canopies and street furniture.

Concerning the Street floor pavement, Bethlehem Municipality, based on the consultation with relevant partners, decided to use stone tiles for paving the Street, which is paved with gray basalt stone while its sidewalks with yellow local stone tiles.

In conformity with the Conservation and Management Plan for the World Heritage Property, Bethlehem Municipality provides economic incentives for the inhabitants and the shop owners of the Star Street, such as 100% exemption from the waste collection fees during the current year in order to encourage them to invest in their properties as a way to revive the Street.
3.1.2 Rehabilitation of AL- Wardieh Street
AL- Wardieh Street is branched from the Star Street. It has been rehabilitated to provide safe and inclusive public spaces for the inhabitants as well as to allow students approach their destinations. The street is considered a vital segment in the Historic Center as it directly connects the city with the Star Street and Bethlehem University. The Street was rehabilitated completely despite the closure imposed on the city in April 2020. It includes constructing a tunnel close to the Bethlehem University to approach “the John Paul II Street”. This intervention plays a central role in reducing the traffic jam in such vital area that embraces many educational institutions, and support the provision of well-designed network of safe, accessible and comfortable Street to all.

The rehabilitation work included construction of new sewage, water, electricity, and telecom networks, offering better infrastructure and facilities to the local community. It also included rehabilitation of two main stairways connecting this part of the city with the commercial area known as (Almadbasa Area) and the Star Street.

3.1.3 Rehabilitation of the Orient Star Street
The Orient Star Street has been rehabilitated to be an exit route for tourist buses after loading passengers at the Action Club Roundabout to walk down the Star Street towards the Church of the Nativity, while the buses will drive through the Orient Star Street reaching Manger Street to finally park at “the Bus Station”.

4. Initiatives conducted by the State Party
4.1 Transport and Mobility Master Plan for Bethlehem Governorate
The first Mobility Study for Bethlehem Governorate was completed. It was launched by Bethlehem Municipality with the financial support from the French Development Agency “AFD” with a technical and financial contribution of Paris Municipality aiming to provide a high quality, sustainable mobility and transport solutions and tools, in order to improve the accessibility and livability in the Bethlehem conurbation area for the next 10 years. It is shortly called “Bethlehem Mobility 2030” and considered the first of its kind in the area. It includes the scene for changes and interventions that are needed in order to make Bethlehem Conurbation an accessible, accommodating and attractive place for all its inhabitants and visitors from all over the world, contributing to activate the economic and tourist potential of the areas. The plan is tackling the traffic challenges in the governorate such as; Road capacity, rapid growth of car ownership, traffic congestion, limited accessibility, noise and air pollution, decreased traffic safety, the deterioration of the quality of life of Bethlehem’s inhabitants and a week public transport system (See annex no.4).

The participation of citizens and local stakeholders in the sustainable urban mobility planning process was taken into consideration among several workshops took place at the Bethlehem Peace Center to obtain public legitimacy and create a plan that satisfies the mobility needs of people. The plan includes different measures, various activities, social programming and thirty-nine projects covering the whole Governorate. Fruitful cooperation between all involved municipalities is required to work together as one unit and to support and reinforce each other to secure the needed financial support to implement the proposed projects and activities, since many of the interventions transgress the boundary of just one Municipality (e.g.: The Hebron-Jerusalem road upgrade or the touristic bus route). Moreover, changing the mobility behavior of the people towards walking and utilizing public transportation, which considered a key role in alleviating the adverse effects of traffic problems in the governorate.

The first phase of the project(Data Collection) has been finished in October, 2017 by the local firm “Community Development Group “(CDG) jointly with Applied Research Institute- Jerusalem / society (ARIJ), whereas the second phase of the project has been assigned to the ( CDG) and MOVE Mobility from the Netherlands. There are three scenarios have been developed for the mobility as shown below:

1. Scenario A: “The Authentic City“ - This scenario focuses on “slowing down” all the traffic in the city and returning to a more traditional lifestyle. The main objective of this scenario is to decrease car use as much as possible, reduce motorized travel and return back to more traditional means of transportation, walking, cycling (where possible) and shared modes of transport.
2. Scenario B: “The Accessible City” - The focus of this scenario is to optimize the road network and find the best hierarchy of roads that will ensure more fluent traffic flows with less delay, in favor of motorized vehicles and commercial traffic. The main goal is to reduce the time spent in the traffic.

3. Scenario C: “The Multimodal City” - The focus of this scenario is to transform Bethlehem conurbation into a multimodal urban area. The main goal is to provide various alternatives to citizens and visitors, but with the main objective of strengthening public transport, walking and cycling, disfavoring private car use.

Based on the analysis of the existing situation, with its challenges and opportunities, international best practices, the performed analysis for the various scenarios and consultations with local stakeholders, the consultant proposed to implement phase 2020 – 2030 as a balanced combination of measures integrating different topics that can reinforce each other to achieve the objectives of the mobility. The main topics, which are covered by the projects and measures, are: road network, traffic safety, public transport, non-motorized transport, tourism, parking, distribution of goods, governance.

Moreover, the plan concerns activating Bethlehem Historic Center to host a wide variety of activities and user groups focuses on providing enough and balanced spaces for pedestrians, recognizing that roads are both social and public spaces and spaces for mobility. Bethlehem municipality has already made steps towards these new insights into providing pedestrian amenities among raising socialization level, add greenery and seating areas to adapt the spaces for new usage, as a step to modernize and revitalize the Historic Center, such as the Manger Square free of cars and the beautification of the Star Street project.

The plan proposed a ring road included five segments, which should be implemented in the upcoming ten years as follows: Wadi Musalam road, North Beit Sahour ring road segment, South Beit Sahour ring road segment, Artas Ring road segment and Al-Amal Road (the western Ring road segment), which is already exist but needs to be upgraded and modernized. Currently Bethlehem Municipality has launched the project of Wadi Musalam Road/ phase I. It connects Al-Karkafeh area in Bethlehem with north Beit Sahour road segment. It is part of the proposed ring road around the conurbation without accessing the city centers and avoiding traffic congestion, pollution and unsafety densely populated area.

4.2 Marketing plan for the Star Street

The preparation of the Marketing Plan for Star Street has been launched by Bethlehem Municipality in 2019, the plan aims to revive the Street and encourage its inhabitants to reopen their closed shops, turn the Star Street into sustainable attractive pedestrian destination for locals, foreign and visitors, respect the extra ordinary spiritual, religious and historical values of the Street.

The project has been awarded to a local company “Pal Pro- Consulting and Investment Services” for conducting inclusion studies, several analyses, assessments and recommendations to address the challenges and achieve the expected results of the project (See annex no.3).

Based on intensive consultations, conducted by Pal Pro experts, with various related stakeholders and after analyzing the problems, challenges, the potentials of the Street, and lessons learned from the previous experiences, the consultant has come up with proposed “business model and marketing strategies”. It is accompanied with suggested polices, tools and diverse recommendations for traffic, transportation, security, investment motivations, opening and closing hours of shops, accessibility, services, amenities, capacity building needed for the locals related to tourism and marketing field, which might contribute to revive the commercial, cultural and social life in the Star Street.

The model has suggested creating the “Star Street Development UNIT”, which will be established by the Bethlehem Municipality in partnership with the Streets’ shops owners, the different religious, cultural and business institutions located within the Street. In addition to selected private sector, investors chosen from Bethlehem Chamber of Commerce, and the union of souvenir shops owners.

The proposed UNIT will be responsible for managing, marketing and investing in all the businesses and promotional activities in the street as one unit concerning the quality of the tourist offer. Moreover, the executive management of the company required to assign qualified staff with long experience in the field of management and marketing toward creative tourism among utilizing an ample resources in the Street, which based on “experiencing”, “participating” and learning such as; Painting icons in the iconic school to enjoy the authentic experience with learning history, art,
traditional local industries, handcrafts. Hence the Street will be a combination of spiritual, religious experience with Palestinian cultural heritage; pilgrimage and biblical route for religious tourists who interested in following the same footprint of Mary and Joseph on their way to the Grotto “the place where Jesus was born” while self-discovery route for those who are looking for entertainment and skill development.

Some other recommendations are proposed to guarantee the sustainability of the Street, such as organizing day and night promotional activities, developing an annual calendar of events, providing religious and cultural interpretation panels narrating the history of the city over the centuries, etc. Furthermore, several interventions have been recommended to enhance security, safety and transportation to access the Street by all the users while offering several incentives for the shop owners to generate their businesses.

A workshop was held by Pal Pro experts with all partners of the project in February, 2020 to take their feedback on the preparation phase of the plan, but unfortunately, because of the health crisis related to global pandemic (COVID-19) and the subsequent widespread lockdowns in Palestine, all the proposed activities of the mentioned plan have been postponed.

4.3 Reinventing public space in Bethlehem

Bethlehem Municipality has initiated the project « Reinventing a public space in Bethlehem » in June 2019, the project translates the close cooperation between the Bethlehem Municipality and the French Development Agency “AFD” in the field of finding the balance of the Public spaces in the city within the time frame between (2019 -2021).

The project aims to improve the quality of public spaces, including streets, sidewalks, squares, alleys and neighborhoods within the Historic Center toward accessible and enjoyable for all populations. The project based on proper planning and investment, impacted positively on the quality of the entire environment of these spaces to enhance community cohesion and promote healthy, safe and wellbeing of the citizens. It considers the following aspects:

- Preparing education and awareness campaigns for the school students and the population to adapt with virtuous mobility behaviours, such as pedestrian movement optimizing the public spaces with reversible planning tools to fit the utilization of resources.
- Building experimental and cultural planning tools for imagining the future development of heritage neighbourhoods with their inhabitants.
- Building a secure community for women and girls to enhance their presence in the public space and promote their participation in all aspects of life.
- Promoting international exchanges, especially among young people.
- Enhancing the international vision of the city of Bethlehem and its cultural heritage.
- Strengthening technical and organizational capacities of Bethlehem Municipality.

Creating new uses of the Manger Square to be maintained as vibrant central space of the city accommodating various cultural, religious and Entertainment activities, such as the Christmas festivities, walking, sitting, playing, meeting, and relaxing. However, several activities have been affected by the outbreak of Coronavirus and delayed in uncertain time based on any development related to Covid-19 pandemic, while others were conducted among the social media following the protective measures of the pandemic.

Due to COVID 19, the end of the project will be postponed until June 2022, in order to achieve all activities in the best way.

4.4 Identification signage

The Joint services Council for tourism development in Bethlehem Governorate in partnership with Bethlehem Municipality initiated the identification of signage in all historical, archaeological, religious, cultural and tourist sites around the city. The panels demonstrate the name of the sites in both English and Arabic languages. They are also connected to the “QR” Code system that enable the visitor to get more detailed information about services and facilities related to the sites in three different languages. The service can be obtained through scan the Code with the smart phones to approach the website www.enjoybethlehem.com, which was created by the Council as an initiative to promote sustainable tourism development through digital technologies.
4.5 3D Bethlehem

Bethlehem Municipality has launched the project “3D Bethlehem “which is considered a unique opportunity to create reliable 3D database for the Historic Center, It sheds light on the great collaboration between the Bethlehem municipality and the Italian Cooperation for Development (AICS) who funded the project.

The activities of the project have required digital survey implemented with high technology equipment, such as digital tools and laser scanner provided by specialized experts from University of Pavia in parallel to 3D photogramatical instrument and appliances reflex cameras and drones. Moreover, the results of the project represent the first step toward management and control of the urban growth for the development of the cultural heritage and improvement of life in the city of Bethlehem.

Unfortunately, the global disruption to air travel caused by COVID-19 has affected the completion of the project activities.

4.6 Adaptive reuse of buildings located within the Star Street

Recently, two houses have been rehabilitated to be reused as guesthouses. This initiative is the outcome of the project “Specialitaly- Palestine” developed between Bethlehem Municipality and Comacchio Municipality from Italy to enhance sustainable tourism development in the Historic Center with specific attention to the local inhabitants of the Street among their involvement in the tourism industry towards opens honorable work opportunities as well as promote sustainable economic growth. While the initiative sheds light on offering vocational training and open employment opportunities mainly for disabilities, women and girls to participate in social and cultural activities.

The activities of the project will be as the following:

1. Exchange experience between Palestinian and Italian Institutions and local community in terms of promotions and tourist development.
2. Building capacity for the tourist institutions, organizations, the inhabitants of Star Street, disabilities, people involved in the guesthouses by offering training courses covering the touristic issues mainly reception’s tourism, hospitality and culinary.
3. Creating guesthouses network in the Historic Center to connect all the existing and proposed guesthouses together and facilitate accommodation for tourists.

4.7 Emergency health clinic

The Bethlehem Municipality has started planning an emergency health clinic at the Basement floor of the Bethlehem Peace Center, which allows pilgrims and visitors of the city to access essential first aid and health services. A doctor in cooperation with the Ministry of Health will operate the clinic while the Municipality will secure the needed funds.

4.8 Public electronic library

The Joint Services Council for Tourism Development for the Bethlehem Governorate is working to create a Public Electronic Library. It will serve to download books in different fields: historical, cultural and religious to meet the needs of the local community, students, researchers and writers. Its access will be supported the soft downloaded data with the ability to hear the pre-recorded audio through the website in both languages English or Arabic to meet the requirements of people with special needs in visual ability.

The library will also serve pilgrims and visitors who are looking forward to visit Bethlehem area and to get a comprehensive soft information in diverse fields as a kind of tourism promotion. Moreover, the library is expected to be equipped with an acceptable number of books and to launch in March 2021.
5. Conclusions

As the entire world, the outbreak of COVID-19 pandemic has affected personal lives in Palestine in an unprecedented way. It has brought significant disruption to every aspect of life especially tourism as one of the most affected sectors in Bethlehem. In spite of all quarantine measures taken to embrace the pandemic, diverse activities and initiatives have been conducted to maintain the World Heritage Property, such as completing the restoration of damaged marble tiles in the Church of the Nativity, restoration of the gilded carved wood iconostasis, and the restoration of the wooden elements of the Greek Orthodox Church.

It is worth mentioning that the Star Street and its branches have been rehabilitated according to the recommendations of the 2016 ICOMOS Advisory Mission. The Street has been rehabilitated to foster safety accessibility for all of its users and enhance local industries and traditional Bethlehem’s handcraft. Its branches have been rehabilitated to offer alternatives for the vehicles to reduce the traffic jam and enhance safety, cultural and spiritual experience of the Street as part of the World Heritage Property.

To promote the WHP, the State party have conducted several initiatives and projects, such as completing the Transport and Mobility Master Plan for the Bethlehem Governorate, and the Marketing Plan for Star Street. However, other initiatives mentioned in the report have been affected by the COVID-19 pandemic and subsequently their implementation have been postponed.
The Palestinian Presidential Committee for the Restoration of the Church of the Nativity

Contract Number: NCRW-PJ-13/1

Brief Construction Progress Report

September 15, 2013 – May 16, 2020
Restoration Strategy

The work methodology adopted in the restoration program aimed at maintaining the integrity of the church and assuring the conservation and protection of the site with all its cultural and religious values. These goals were achieved by following as much as possible the principles of restoration, stated in the various Charters of Restoration, ICOMOS and UNESCO documents, and by choosing and applying the most appropriate restoration techniques in the full respect of the importance and uniqueness of the monument. For this purpose, the outstanding universal value and authenticity of the Nativity church was deeply considered in all work stages, as the heritage to be preserved and transferred to future generations.

All elements inside the Church, regardless of the dating, starting from the roof and reaching down the floor mosaic that dates back to the fourth century, are considered delicate and of extreme importance, and were treated with extensive care by experienced and specialized restorers.

The restoration program has included the following tasks

- Roof & Windows
- Narthex and the related doors
- Wall mosaic, Internal plaster & Stone facades
- Wooden Architraves
- The installation of the electrical systems
- The restoration of the stone columns
- The restoration of the floor mosaic
- The restoration of the Marble floor
- The restoration of the Baptismal font

Short film about the restoration works
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The committee has awarded “Piacenti spa” the contract of Phase I: Roof and windows restoration on July 25, 2013 since their submitted tender proposal on June 14, 2013 got the higher scores in both technical and financial offers throughout a competitive international bidding process of a total price of 1,925,707.57 Euro.

On August 26, 2013 an agreement has been signed between The Palestinian Presidential Committee for the Restoration of the Church of Nativity as "Employer" and Piacenti S.p.a. – Italy as the “Contractor” in the presence of his Excellency Prime Minister Dr. Rami Al-Hamadallah and representatives of the three churches.

Since the commencement of the restoration works on September 15, 2013, the Committee has been receiving generous donations from different donors, which encouraged the committee to start and complete other restoration tasks based on a list of priorities and according to the final study recommendations. These additional works included the restoration of the narthex, the narthex eastern wooden door, the external stone façades, internal wall plastering, wall mosaics, the Basilica metal doors, wooden architraves, the installation of the electrical systems “lighting and smoke detection systems”, the 50 stone columns, the floor mosaic and the marble floor at transept north, the Bema in front of the Greek Orthodox wooden iconostasis and transept south and the Baptistmal font.

Currently a team of restoration specialists and historians are working on a need assessment for the Church front yard in order to evaluate the existing conditions and to specify the state of conservation for what concerns the stone tiles, the ancient water reservoirs and the yard subgrade layers.
1. **The roof works:**
   a. The whole roof was covered with new lead sheets with a total area of 1625m².
   b. Less than 8% of the wood trusses have been replaced with ancient wood brought from Italy.
   c. The seismic performance of the basilica had been improved by adding seismic steel connectors.
2. Wooden windows:
   All Church’s 42 deteriorated wooden windows were replaced with new wooden windows with UV double glass.

The damaged wooden windows

The new wooden windows
3. **Narthex works:**
   a. The three damaged cross vaults of the Narthex area were restored and consolidated and a new steel structure was installed to bear the new roof floor and to connect the opposite facades (The Basilica & the Narthex facades)
   b. By the completion of the consolidation of the Narthex cross vaults, it was possible to remove the huge wooden propping placed inside the Narthex since 1930s duration the British mandate.

4. **The Narthex eastern door and the Basilica metal doors:**
   a. The carved Narthex eastern wooden door has been renovated and consolidated.
   b. The metal doors of the basilica have been restored including the main church access door “The door of Humility”, and the three doors leading to the three convents.
5. **The consolidation of the internal plastering:**

3365m² of the internal plastering have been consolidated including the replacement of the cement patches with a compatible lime plastering layers.

*The internal plastering surfaces before restoration*

*The internal plastering surfaces after restoration*
6. **Wall mosaics:**

   The whole wall mosaic with a total area of 125m² was renovated including consolidation and cleaning works. (92m² at the central nave & 33m² at the transepts and apse).

![One of the wall mosaic angels before and after restoration](image-url)
7. The restoration of the external stone facades:
   The total area is 3076m²
   i. 928 m² already renovated (about 30%) Urgent areas.
   ii. 595 m² already renovated related to the front façade “western elevation”
   iii. 440 m² already renovated at the Northern façade
   iv. 521 m² already renovated at the Eastern façade.
   v. 592 m² already renovated at the Western façade.
8. **Wooden Architrave over the stone capitals:**

52 segments of the wooden architraves with a total length of 154m were renovated. The works include the replacement of the most deteriorated inner parts and the consolidation of all decorative outer surfaces.

*The wooden Architraves before restoration*

*The wooden Architraves after restoration*
9. Stone columns and the paints on columns:

The Church consists of 50 stone columns, 33 of which have paints representing one of the saints.

One of the columns before and after restoration
10. **Electrical works:**

   The electrical works include the installation of the smoke detection and the lighting systems. The works were completed by the end of December 2017.

*Lighting model and simulation*

*The new lighting system at the central nave*
a team of restoration specialists, archaeologists and historians are currently working on a need assessment for the Church front yard in order to evaluate the existing conditions and to specify the state of conservation for what concerns the stone tiles, the ancient water reservoirs and the yard subgrade layers. The study will include but not limited to the following main tasks:

A. Archaeology study
B. Historical study
C. State of conservation of square, mainly tiles, pointing and the reservoir.
D. Complete and detailed restoration plans
E. Design for built-in automatic hydraulic security bollards
4 PROTECTION OF COLUMNS AND WALL MOSAICS:

Before starting the assembly, work for the scaffolding inside the church the contractor protected the columns of the church using a special layer of geotextile with vertical wooden rods to achieve the maximum protection level. Prior protection works, dilapidation survey was performed to capture all existing conditions of the church elements including columns, floor, walls, mosaics, paints ... etc by high quality still photos and video so that existing site condition can be easily and accurately defined and determined.

By the completion of the scaffolding platform at the windows level, the contractor was able to start installing temporary protection system for the wall mosaic using special materials and wooden cover to avoid any damage during the restoration works.
5 ASSEMBLING THE INTERNAL SCAFFOLDING:

After the completion of the protection works for the columns and the architrave beam, assembling of the scaffolding started at the central nave area keeping proper spaces for the safe movements of pilgrims and visitors. Actually; this type of scaffolding is the first time used in the region which allows a high flexibility in assembling. The proposed scaffolding includes two platforms, the lower level form a protection platform and the upper platform forms a floor for the restorers to work at the level of the wooden structures of the church. During May 2014, the contract continued to erect the scaffolding system to cover the transept area and the Altar. Currently the internal scaffolding system is covering the entire church.

It’s worth mentioning that before the erection of the scaffolding system, intensive studies, calculations and analysis were made, checked and approved to make sure that the loads transferred to the Church stone flooring are within the permissible limits and taking into consideration the location of the Nativity Grotto and cavities.
6 TEMPORARY ROOF STRUCTURE:

After dismantling the existing wooden windows which are intended to be replaced by new ones, the contractor started the assembly of the roof structure at the central naves and aisles which were supported by the internal scaffolding through the windows. A layer of special PVC was installed on the roof structure as a protection from the rainwater during the restoration works as part of the church roof materials will be removed to allow for the evaluation of the roof condition and start the intervention according to the tender documents.
DETAILED WOOD EVALUATION:

Starting from December 2, 2013 until December 11, 2013 and from January 27, 2014 until February 16, 2014 wood experts have evaluated the current condition of the existing wooden structure supporting the roof and performed several non-destructive tests for the central nave and the aisles to provide information regarding geometry, dimensions, characteristics of connections, wood species, humidity and class of mechanical quality of the wood to prepare the design and shop drawings with respect to the tender documents. The same evaluation process onsite for the transept area and the Altar has started again since 2 June 2014 and completed on July 6, 2014. All the information, notes, observations and tests results were the reference to prepare the design and shop drawings for each truss.
The wooden pieces that were used in the interventions of the roof structure were gathered, tested and shipped from Italy. Two shipments reached Bethlehem on January 2, 2014 and May 12, 2014 and stored in a suitable place where humidity ratio is controlled.

After submitting the evaluation report and the shop drawings for the trusses intervention, all documents where approved after careful check by the consortium team and inspection on site. Each truss intervention started after approving a proper and safe propping system. The contractor has completed all the required restoration works of the trusses for the entire roof. All deteriorated parts of the trusses which were already replaced by the new ancient wood were documented, labeled and stored in a suitable place.
Completed

No intervention was required
PURLINS AND BOARDS:

Purlins and boards are part of the existing roofing layers. Purlins are connected directly to the wooden trusses by ancient nails and covered by the wood boards which are connected to the purlins by ancient nails as well. The proposed works are to replace the decayed purlins or boards and consolidate and save as much as possible the existing ancient elements. The replacement elements were also ancient wood brought from Italy. The contractor has completed the restoration / consolidation of the purlins and boards for the entire roof.
The restoration project is not only limited to the repair and restoration of the roof but also includes the seismic performance improvement since Bethlehem is in a seismic area and therefore there was also a danger due to the seismic vulnerability of the Church. Accordingly, roof-masonry connectors were required to be installed to connect the roof structure to the masonry wall in order to transfer the seismic load. The design included two types of seismic connectors: 1) Steel bars connectors to transfer the seismic loads from the end of trusses to the walls 2) Purlins connectors’ that will connect the roof structure especially the purlins to the masonry walls. The contractor has completed the installation of the purlins connectors for the entire roof and the required steel bars insertion for all trusses.
After the restoration of the boards and purlins and the replacement of the decayed parts, the roof layers were installed according to the below detail to create a ventilation system and a durable waterproofing coverage. The roof layers included the installation of phenolic plywood layer, vapor control waterproofing membrane, ventilation gaps joists, wooden planks deck, high vapor permeability waterproofing membrane, natural sheep wool layer and the lead sheets.

The contractor has already completed the installation of the specified layers including the lead sheets for the entire upper roof while the installation of the lead sheets for the lateral naves and the two corners were postponed to allow for the restoration of the external facades and to avoid any damage for the new lead sheets that could occur during the stone restoration works.

By the completion of the stone works at the two corners and the lateral naves the contractor was able to complete 100% of the roof surfaces.
The original contract (phase I) includes the replacement of existing damaged and decayed wooden windows with new cypress wood windows with low emissivity double glazing and special specification to reduce the lighting in the church and to be more suitable for the mosaic, paintings and other delicate decorative surfaces. The new windows have been fabricated in Italy and brought to the site and 42 windows were already installed.
Roof Crosses:

The original contract with the contractor includes the replacement of the existing four crosses at the four sides of the basilica and one cross at the center of the crossing area.

The main parts of the proposed crosses are as follows:

1. The main support of the crosses are made of welded hot dipped galvanized steel plates with a thickness of 5mm forming an I section.
2. The steel structure will be cladded with aged Zn-Ti (Zinc & Titanium) sheets 0.7mm thick that will be fixed with stainless steel bolts and a special glue. At both faces of the cross (front & back) a thin slot will be created which will have the same shape of the crosses and will be covered by a white sheet (semi-transparent) of PlexiGlass that will allow for the light to be visible from both sides of the crosses.
3. Inside the cross, a special waterproofing led lighting system will be installed on both side.

The crosses were fabricated in Italy and already delivered to the site and installed at the four sides of the top roof in addition to the fifth cross at the crossing area where the original crosses were installed.
Roof Lifeline System:

The new lifeline system will be used by the Church maintenance team for their safety during any future maintenance on the roof. The system covers the roof central nave area, the transepts and the apse. The system is composed of twenty hot dipped galvanized steel plates “brackets” that have been fixed at the ridge of the roof and connected by stainless steel wires.

The brackets were fabricated in Italy and already delivered to the site and installed at the specified location.
The restoration works for the narthex eastern wooden door has started in September 2014 by erecting a suitable scaffolding system and performing high-resolution digital photographic documentation and diagnostic research. Then followed with a carful consolidation and treatment process by wood restoration specialists. During the restoration works, it was found that the upper part of the door from the eastern side has wooden boards that hide the original wooden door, while the western part has also some part that have been uncovered to show the original carving art work. After the completion of the necessary restoration and consolidation works in December 2014, the visitors and pilgrims can see the original door and the wood carving art on the other side.

The Narthex eastern door during the restoration works
The two sides of the narthex door before and after restoration works
The works includes the restoration of the humility iron door; narthex southern iron door; lateral nave northern iron-wooden door; lateral nave southern iron door and lateral nave north iron window. The surfaces show in many cases erosions and exfoliations due to the oxidation of the iron and degradation of the wooden elements of the lateral nave northern door.

The restoration process included accurate photographic documentation, before, during and after restoration, tests execution for the various phases of the operation, stratigraphic tests for identification of the finishing coats sequence of the varnishes, mechanical removal of incoherent deposits, chemical removal of superficial coherent deposits, treatment aimed to stop the oxidation and to protect metallic surfaces, visual and aesthetic interference reduction of the surfaces and protective surface treatment as final operation of the restoration. The restoration works were completed in March 2015.
In accordance with the list of priority restoration works, additional works #2 was awarded to the contractor on July 17, 2014, which includes wall mosaic, the internal wall plastering, and the external facade restoration works. The priority has been given to the restoration of the stone facades at the two corners and the lateral naves just above the new proposed lead roofing to avoid any damages in future. The works included cleaning works, replacing the cement pointing with lime pointing and stone substitution where the existing stones were already eroded or severely deteriorated. This work was completed in October 2014; the rest of the stone facades restoration works has been postponed to concentrate on priority tasks while waiting for other funds.

On September 15, 2016 with the availability of the needed fund the Presidential Committee has authorized the restoration of the rest of the external stone façade at the western, northern, eastern and southern elevations. The works on western, northern, eastern and southern façades were completed in December 2016 & March 2017 & June 2017 and October 2017 respectively.
The External Stone Northern & Eastern Facades – Before & After Restoration
During March 2015, a group of mosaic specialists have started the survey of the wall mosaics at the central nave and performed a preliminary evaluation and tests. During the survey, a new fragment of an angel figure on the north wall between the fourth and the fifth window was uncovered. All wall mosaic restoration works were completed on June 24, 2016.

The restoration of the wall mosaic at central nave:
The restoration of the wall mosaic at transepts:
The Presidential Committee has authorized the works on the three terraces (Transept North, Transept South and the Apse), the work aims to insure a perfect waterproofing system to prevent any water leakage that could reach the recently restored plaster inside the church. The works included the dismantling of the existing stone tiles after numbering preparing for re-installation in the same location after the completion of the waterproofing layers and the restoration of the external plastering of the parapets. The works were completed by the middle of June 2016.
In accordance with the list of priority restoration works, additional works #1 were awarded to the contractor on March 28, 2014 which includes the restoration of the narthex and the narthex eastern wooden door. The works has started after installing the required temporary roof and the necessary propping system from below. The archeological excavations on the damaged vault was started after numbering and dismantling of the narthex roof stone tiling. All the works were performed under a comprehensive documentation system and archeological stratification and analysis.

The excavated materials include numerous fragments of pottery, animal bones and two coin. The findings will be useful to trace the date of construction of the vaults and the socio-economic context of the builders themselves.
The preliminary structural reports showed that the existing cracks on the roof actually extend from the damaged vault to the adjacent vaults. This fact made it necessary to excavate the two vaults next to the damaged one to uncover the vaults stones for better understanding of the structural stability of the narthex and to make the structural simulations, modeling and analysis more realistic in order to identify the most suitable solution.

Additional nondestructive tests and analysis were also needed for the same reason including sonic test, microscopic analysis, thermographic survey and core test to realize the details of the structural system and the components of the deferent structural elements which have been carried out during January 2015.
Based on the results of these tests, the model, structural analysis and the shop drawings were adjusted and submitted with the financial offer for review and approval.
The new technical and financial offers were studied carefully and approved on June 6, 2015. The consolidation works started on June 19, 2015 and completed in April 2016 which includes the installation of the supporting steel structure on the extrados of the narthex vaults, the installation of the corrugated sheets with the steel reinforcement, casting 10 cm of concrete slab, casting the slopping foamed concrete, installing two layers of bituminous membrane and installing back the reserved dismantled old tiles.

By the completion of consolidation of the Narthex vaults and the restoration of the internal stone facades and reaching a safe structural conditions, the contractor was able to remove the old wooden propping system that was supporting the damaged vaults since 1935 during the British mandate.
The restoration of the Narthex internal stone:
The Narthex area before and after the consolidation and restoration works
By the completion of the roof works, the contractor has started the restoration of the plastering surfaces at the central nave and the counter façade. Thermographic survey was made as a first step to be sure that no hidden mosaics are present under the plasters, then a comprehensive evaluation for the existing plastering layers was made to prepare the mapping and shop drawings for the restoration works. The works includes the consolidation of the existing plastering, replacing the cement patches with a lime plastering, and refill the damaged or missing parts of the plastering layers. The contractor has completed the restoration of the plastering layers for all walls exc in October, 2016.
21 RESTORATION OF THE WOODEN ARCHITRAVES (ADDITIONAL WORKS #3):

Since November 26, 2015 the contractor’s specialized team has started with the survey and the detection of the state of conservation for the wooden Architraves located above the stone column capitals using specialized x-ray scanner, resistograph machine and by also visual and sound tests. The diagnoses results were the base to specify the best method to be adopted for the restoration of these wooden elements. The works were completed in October 2016.
The main objective for the installation of the electrical systems (Smoke detection and the lighting system) is to protect the Church from any fire hazard, safe movements for pilgrims and visitors and to highlight the important art elements inside the Church.

The presidential Committee has hired a specialized international consortium to perform a detailed study for the Church need regarding the smoke detection and the lighting systems. The consortium has made all necessary models, studies, plans and details and selected the most appropriate systems for such an important monument. The actual works on site has started in April 2017 and already completed by the end of December 2017.

1. Smoke detection system (Optical linear smoke barriers):

The aim of the fire alarming system is to reveal and signal a fire as soon as possible, the presence of a fire or of a potentially dangerous situation. The design of this specific plant has been strictly correlated to the environmental conditions of the Church, the potential sources of combustion phenomena and the peculiarities of the areas to be protected (irreparable damages to non-recoverable historical art crafts).

The systems installed to the roof in two levels, the lower roof at the north and south lateral naves and at the upper roof of the Central nave, transepts and apse. The device generates two infrared with different angles. Theses beams reflect themselves on the reflector and come back to the receiver. If a fire with flame and smoke cut the beams with known characteristics related to the dynamic of a fire in terms of intensity and timings, an alarm will be generated. This is possible even if the fire has a starting point within a distance of 7.5m on the left or on the right of the detector.
2. Lighting system:

The aim of lighting system is to provide a safe movement for the visitors and pilgrims inside the church and to highlight the historical art elements like wall and floor mosaic, paints on columns, inscriptions and decorative carving on wooden doors and Architraves, the wooden iconostasis and some religious symbols on the stonewalls.
The Presidential Committee has authorized the restoration of the Basilica 50 columns and 10 capitals (no column shaft or base), thirty-three of which carry Crusader paintings of saints, kings, the Virgin and Child. The restoration works were implemented in stages and completed in April 2019, this achievement enabled the Church pilgrims and visitors to enjoy the beauty of the restored columns and their paints, graffiti and ancient inscriptions.

The restoration included the cleaning and consolidation of the capitals, shaft and the bases, which consists the removing of the coherent and incoherent deposits, consolidation of the existing cracks and holes, and also the cleaning and retouching of the existing paintings.
According to the available funds, in the mid of January 2018, the presidential Committee has authorized the restoration of the floor mosaic area (area #1, 2, 3, 4, 5, 6, 7 and 10). Area #1 located at the Central Nave beside the Bema, Area 2 & 10 at Transept North beside the stairs leading to the Bema while areas #3, 4, 5, 6, 9 at the Central Nave while area #7 located at lateral nave south (Refer to the plan below). The restoration of areas #1, 2, 3, 4, 5 and 10 were completed in December 2018. In July 2019, the restoration of areas #6, 7 and 9 were completed.

The works have not only restored the already exposed and foreseen floor mosaic, but also performed an archaeological excavation to uncover portions of the remaining hidden floor mosaic as documented during the British excavations made at the Church of Nativity in the 1930’s.
Careful archeological excavation was carried out on the uncovered mosaics during 2018, by an experienced archeologist and a team of specialized restorers. The archeological excavation made represented an ideal and unmissable opportunity to understand the right architectural and chronological context of the fragments of mosaics to be exhibited. In the northern part of the nave, it is now possible to see the mosaics dating back to the Constantinian-era basilica with the walls of the same period and also shows the cut in the floor mosaic made to allow for the construction of the new Justinian-era basilica.

The archeological excavation has been performed as follows:

- Numbering and photo-mapping of tiles;
- Removal of tiles, using hand chisels to loosen and cut the joints;
- Demolition of the substrate of the tiles in lime mortar;
- Identifying a portion of the original stratigraphy along the columns of the nave, about 40 cm away;
- Graphic and photographic documentation;
- Starting the stratigraphic excavation of the individual layers.

One of the cross sections created based on the Archeological excavation and analysis
Stone tiles numbering & documentation

Careful archaeological excavation

Uncovering the floor mosaic

Restoration and consolidation
Photos for the floor mosaic already restored

Floor mosaic: Area #1 – Before, during and after restoration
Floor mosaic: Area #2 – Before, during and after restoration
Floor mosaic: Area # 3, 4 & 5– Before, during and after restoration
Floor mosaic: Area # 6 & 9
As part of the working plan of the restoration program for 2019 and according to the available funds, by early June 2019, the Presidential Committee authorized the restoration of the Baptismal font, one of the artistic stone elements inside the Church located at lateral nave south. The works will include documentation, different levels of cleaning, consolidation, removal of cement fillings made during previous interventions, dismantling and rebuild the cracked parts with consolidation, repair the cracks with compatible materials, colour retouch and protection.

During the restoration works and the careful removal of the cracked pieces preparing for restoration, a hidden richly decorated font made of marble was found inside the external octagonal reddish stone font. Specialized historians and archaeologists were involved to analyse the findings aiming to reach the most accurate dating. So far, the scientific team has reported that the Octagonal font was made in the same period as the rest of the Basilica, that is in the last years of Byzantine Emperor Justinia’s rule, between the late 550 and 570. While the inner marble font with its style, shape and dimension shows that it is back to the period of late Byzantine and early Umayyad namely between 6th and 7th centuries. Geologists are still working to analyse the findings in the aim to cross-check the data provided by art-historical analysis with the results of the recent excavations which are of outmost important in future detailing the Chronology of the artwork.

The works started on June 5, 2019 and completed in February 2020.
By the completion of the restoration of marble tiles at transept North, in June 2019 and at the Bema area in December 2019, the Presidential Committee authorized the continuation of this task and the works started at Transept South that was also completed by on May 9, 2020.
Marketing Policies and Plan

For the purpose of Revitalize and Bring Back to life
The Star Street | Old Core Town | Bethlehem | Palestine

Sept. 9th, 2020

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List of Abbreviations

UNESCO: United Nations Educational, Scientific and Cultural Organization
CMP: Conservation and Management Plan
OUV: Outstanding Universal Value
WHS: World Heritage Site
CMP: Conservation and Management Plan
MoTA: Ministry of Tourism and Antiquities
MoLG: Ministry of Local Government
MOC: Ministry of Culture
SDIP: Strategic Development and Investment Planning
LED: Local Economic Development
BM: Bethlehem Municipality
BCCI: Bethlehem Chamber of Commerce and Industry
AHA: Arab Hotel Association
HILTOA: Holy Land Incoming Tour Operators Association
ATS: ASSOCIATION PRO TERRA SANCTA
SWOT: Strings, Weaknesses, Opportunities, Threats
SSDC: Star Street Development Company
Executive Summary:

The treasure of Bethlehem can be noticed while walking along Star Street which was one of the reasons why in June 2012, the Nativity Church and Star Street has been inscribed on the list of UNESCO World Heritage Sites as the Birthplace of Jesus and the Pilgrimage Route to the Grotto of Nativity. The Star Street was one of Bethlehem’s oldest commercial streets, some of its houses have reflected in their unitary architectural composition their contribution to the commercial nature of the street. However, the street suffered a drastic decline in the commercial activity and an alteration in its urban development heritage sense during the second half of the twentieth century due to the newly emerging parts of Bethlehem. Several initiatives were taken to revive the Star Street and to regain its lively activity, unfortunately and according to weak and disappointing partnerships with the public and private sector filled with mistrust, as viewed by the citizens and the tourism sector stakeholders, and among several many other factors, all these initiative failed to revive the street.

The main aim of this study is to conduct a marketing polices and plan for the purpose of revitalizing and bringing back to life the Star Street. Pal Pro experts have conducted a literature review for several studies and plans previously conducted for the street and conducted several meetings with representatives of different stakeholders in the tourism sector such as BM, BCCI, AHA, HILTOA, Holy Land Trust, ATS among others, owners of stores and businesses on the street, residents of the street and churches in addition to other private sector actors in the private sector in addition to several field visits to the street, to enable Pal Pro experts to diagnose and assess Star Street existing challenges and come up with the best sustainable solution for reviving the street and solve its challenges and problems.

The literature review revealed the historical, religious and cultural value of the street, the commercial vein along the past century and the urban development which led to the current status of the street among other factors. The literature review also addressed the legal framework govern the tourism sector in general and Bethlehem Municipality regulation to protect the cultural heritage of the old buildings of the city. The assessment of Star Street addressed the major factors that led the street to the current status, the street inventory of attractions, SWOT analysis for the street, Pal Pro experts’ observations, analysis and initial recommendations on several aspects such as history, culture, tourism, business and Community.

As a result of the literature review and the assessment of Star Street, Pal Pro experts came up with the proposed business model and marketing strategies for Star Street which suggested a tailor-made creative tourism model for Star Street that suggested creating Star Street Development Company “SSDC” (as a first option) / or Star Street Development Unit “SSDU” in Bethlehem Municipality (as a second option in case of facing a difficulty in establishing the company or establishing a company is not an acceptable option). The model included a detailed analysis of the interdependent system of activities, taking into consideration the content, structure, Governance, and
the design theme of the system, and included the inclusion of individuals and collective actors in addition to the emphasis on creating and capturing value. The plan also suggested the needed policies to be adopted as a prerequisite for its success, which included recommendations regarding traffic and transportation, security, investment motivations, opening and closing hours of shops, disabilities accessibility, and other services. The plan has analyzed the capacity needs for local community and recommended certain awareness workshops and specialized training courses and programs for the community and the workers in the tourism activities of Star Street. Market analysis for the major indicators of the tourism sector in Palestine, Bethlehem market in addition to Star Street. The plan briefed the marketing strategies and tools for Star Street highlighting the marketing and promotion tools to be used by SSDC/SSDU. The socio-economic impact of implementing the business model has been analyzed and a monitoring and evaluation framework that based on a results-based monitoring and evaluation has been proposed. An action plan for the sequence of activities accompanies with the proposed timeframe has been added to the plan.
Background

The treasure of Bethlehem can be noticed while walking along Star Street which was one of the reasons why in June 2012, the Nativity Church and Star Street has been inscribed on the list of UNESCO World Heritage Sites as the Birthplace of Jesus and the Pilgrimage Route to the Grotto of Nativity.

The Star Street contains more than 100 shops selling different things: groceries, antique items, souvenirs ... etc. Unfortunately, and after the Second Intifada, most of the stores were closed, and only during the Christmas season, the street comes to life.

For this purpose, Bethlehem Municipality, under the supervision of the Centre for Cultural Heritage Preservation engaged the service of Pal Professionals Consulting and Investment Services Co. to prepare marketing policies and plan for the Star Street in Bethlehem to revive it throughout the whole year, and to target the objectives of:

1. Preserving the Palestinian cultural heritage resources and protecting its identity and investing in this field as a main tool for economic, social and tourism development.

2. Developing tourist sites and services in Bethlehem area which will contribute in increasing the time spent in the Historic towns of Bethlehem area and not limiting it to the Nativity Church.

3. Alleviating poverty and improving the quality of lives for the marginalized communities by creating much needed jobs at the short and long terms especially in the tourism industry.

Purpose of this assignment

- To assess, through an exploration and investigation of the Star Street and the Historic Town assets and the current tourism market segmentation, the potential for sustainable tourism market, tourism and services in the Star Street.

- To develop on the basis of the identified potential, the set of tourism destinations, activities and services that are aligned with the concept of sustainable tourism, satisfaction of residents and the principles of business development in the street.

- To develop, on the basis of identified set of destinations, products and services, a detailed marketing plan that serve the aim of the project with the users and interested groups of the Star Street.
• To provide a measurement framework for monitoring and evaluation to the success and sustainability of the proposed activities, and their impact on the development of tourism in the city

• To ensure turning the Star Street into an attractive destination for locals as well as foreign visitors.

Objectives of this assignment

• Develop a marketing policy that suggests the potentials of sustainable tourism market, kinds of services and products in the Star Street.

• Develop marketing policy that shall include production of movies, and promoting tourist itineraries in the Historic Town especially with tourist agencies and institutions that work in alternative tourism.

• Target the MICE Market (Meetings, Incentives, Conferences & Exhibitions) to increase the number of visitors to Bethlehem

• Work with religious authorities, tour operators, hotels and stakeholder across the sector to proactively integrate and market the religious and cultural festivals that takes place in the city.
Literature Review

**Star Street;** marks the road that connects the traditional entrance of Bethlehem, near King David’s Wells with the Church of the Nativity, and extends along the Star Street through the Damascus Gate, or Qos Al-Zarara, the historical gate of the town, towards the Manger Square (UNESCO WHC, 2020). It is believed to be the path followed by Joseph and Mary during their trip to Bethlehem to give birth to the prince of Peace in the grotto of the Nativity (Pixner, 2010), and the route of the journey of the magi for gifting and adoration (Texler, 1997). It is ceremonially followed every year by Patriarchs of the three churches at their several Christmases, and during their official visits to Bethlehem (Atrash, 2015). And it is the path for other religious parades, wedding processions and funerary on their way to the Church of the Nativity (Dabdoub and Zoughbi-Janineh, 2011).

The Street embraces unique buildings, stairs and special features of traditional Palestinian Bethlehemite compositions built along the years from the 16th till the 19th centuries (Martín Ramos, 2004). It serves as a reference for the evolution of social, economic, political, religious, artistic, architectural composition, and intellectual growing agglomerations of the area. This peculiar configuration of Star Street, which is the result of different periods in the shaping of the city, reflected the socio-cultural fabric of the inhabitants and reveals the obvious richness of a very peculiar urban outline; a sample of the Old Town of Bethlehem and its heritage of civilization (Martín Ramos, 2004).

Along the Star Street, there are several locations that reveal the historical importance, socio-cultural fabric and architectural significance of the street such as Hosh Al-Syrian, Hosh Abu Jarour, Dar Al Sabbagh, Al-Bad Museum, Al-Riwaya Museum, Baituna al Talhami museum and others. It is confirmed according to the surveys implemented by the Center of Cultural Heritage Preservation (CCHP), that there are (796) historic buildings located within the boundaries of Bethlehem city center, while there are (309) historic buildings distributed throughout the city (Atrash, 2014).

Taking the commercial vein, the Star Street was one of Bethlehem's oldest commercial streets. Some of its houses like Al Dabdoub, Jabreah or Miguel have reflected in their unitary architectural composition their contribution to the commercial nature of the street (Martín Ramos, 2004). However, the street suffered a drastic decline in the commercial activity and an alteration in its urban development heritage sense during the second half of the twentieth century due to the newly emerging parts of
Bethlehem, especially that Star Street could not cope with the wave of traffic development after constructing the new street “Manger Street” in 1926, providing an alternative direct way to the church of the Nativity, and with constructing the Central Bus Station in 1999, providing parking lots and commercial shops. Adding to this, the severely affected economic situation as a result of the outbreak of the First Intifada in 1987 and then the Second Intifada in 2000 (Martín Ramos, 2004, Dabdoub and Zoughbi-Janineh, 2011, Selwyn and Isaac, 2015).

Several initiatives were taken to revive the Star Street and to regain its lively activity. Among the various components of Bethlehem 2000 project (BL2000), it focused on revitalizing Star Street as a tourism asset based on its heritage value as a site of pilgrimage and of architectural treasures. It has also secured funds from the Spanish Cooperation to rehabilitate the street, while the project itself funded the rehabilitation of the inside of thirty shops. However, it experienced weak partnerships filled with mistrust, as viewed by the citizens, and disappointing partnerships with the private sector, as the sector sought its own benefit and favored it over sustainable and long-term community development. An example of this is the agreement between Bethlehem Municipality and PADICO that set the tourism buses to park at the central bus station, hence, shifted the pilgrims’ route to go directly from the station to the church of the Nativity when the buses are parked at the central bus station (Dabdoub and Zoughbi-Janineh, 2011).

After BL2000 project, there were several attempts and initiatives taken to revitalize the street and to stir its commercial wheel, such as a Christmas Market executed by CCHP through the Development of Territorial Cultural Systems (DELTA) Project within the EuroMed Heritage II Programme (Dabdoub and Zoughbi-Janineh, 2011), commercial initiatives by the Bethlehem Chamber of Commerce and Industry, a Master Plan by the Ministry of Tourism and Antiquities along with the Bethlehem Chamber of Commerce and Industry which has indirectly highlighted the Star Street in one of its strategies aiming to improve the overall destination offer and visitor experience through actions related to reviving and re-integrating walking tours, and improving visitor corridors between sites such as providing shuttle service (Alternative Business Solutions, 2011).

In 2007 a model for the safeguarding of all Palestinian historic towns and urban landscapes was presented in the project of “Bethlehem Area Conservation and Management Plan- BACMP”, which ended in 2009 gathering the Ministry of Tourism and Antiquities (MoTA), the Ministry of Local Government (MoLG), Bethlehem Governorate and the Municipalities of Bethlehem, Beit Jala and Beit Sahour to adopt

The Charter emphasized on ensuring the protection of the cultural and natural resources and their rational use, on enhancing the environmental, cultural, architectural and social assets of the historic town and the urban landscape, and affirmed that the rehabilitation of historic town is related to meeting the expectations of the local community to improve the quality of the place of their residency for a more livable town (The Bethlehem Charter, 2008).

In the year 2012, the site of the Star Street along with the Church of the Nativity was recognized on the UNESCO’s World Heritage Sites (WHS) list as well as on the List of World Heritage in Danger under the name “the Birthplace of Jesus: the Church of the Nativity and the Pilgrimage route in Bethlehem”. It was the first Palestinian site that fulfills the criteria of holding an Outstanding Universal Value to be a WHS, and satisfies the conditions of integrity and authenticity. (UNESCO PRESS, 2012, para.2). Yet, its inscription formed an important milestone for Palestine and its mission in preserving its cultural heritage, and in particular that with an Outstanding Universal Value (OUV). After inscribing Bethlehem on UNESCO’s list as a World Heritage Site (WHS) in Danger, and as per Decision 37 COM 7A.27.6, where the World Heritage Committee urged the State Party to “develop a specific conservation and management plan for the property as a whole that includes approaches to tourism and development regulations”, it became necessary to prepare a plan for conserving and managing the site, as well as the buffer zone surrounding it (CMP, 2019).

The work on the preparation of a Conservation and Management Plan (CMP) for Bethlehem was continued through the “Heritage for Development: Investing in People for the Protection and Management of Historic Centres (Her4Dev)”; a project that was implemented by CCHP, in partnership with the RehabiMed Association in Spain, Cultural Technologies (CulTec) in Jordan and Centre for Architectural Conservation - Riwaq in Ramallah, Palestine, and in cooperation with the municipalities of Bethlehem and Ramallah in Palestine and As-Salt in Jordan. This project resulted in developing the “Bylaws for the Preservation of Architectural Heritage in Bethlehem City and the Classification of Heritage Areas and Individual Heritage Buildings” in 2014.

The bylaws and the corresponding recommendations were developed for built heritage, whether inside the Historic Centre or the separate traditional buildings found outside the Historic Centre. They also set the general framework for protecting the urban landscape in the Historic Center of Bethlehem. Taking the case of buildings within the old city boundaries; the law classifies buildings according to 7 classifications namely (1/Old City, 2/Old City, 3/Old City, 4/Old City, 5/Old City, 6/Old City, 7/Old City). Each classification has special provisions for heritage buildings designated for protection. For instance, it is noted (as shown in the following map below) that there are only (3) buildings along Star Street classified as (1/Old City) where all kinds of
horizontal and/or vertical additions to heritage buildings are prohibited, as well as any new additions to it.
Up till June 2018, it is worth mentioning that the bylaws formed the only legal instrument by which the traditional buildings are maintained, controlled and conserved. And hence, the bylaws granted the full and adequate protection of the built heritage in the Site and its buffer zone as the boundaries of the Site are outlined by the boarders of the Historic Centre of Bethlehem outline the boundaries and, as well as the urban landscape of the Site. In June 2018, a new law on the protection of the tangible cultural heritage in Palestine was endorsed, and hence, in additional to the bylaws, the national law defines a wider set of regulations that ensure the protection of the WHS (CMP, 2019).

The tangible cultural heritage is a cradle and medium for the traditional cultural and creative industries that promotes the city’s culture, identity and history. As recommended by ICOMOS (2016), that the urban, economic and social context should be addressed in the rehabilitation and management of the Pilgrimage route. In the same line, many restoration works took place in the pilgrimage route shows creative practices of urban cultural Heritage as a tool for sustainable development; such as the rehabilitation of Hosh Al Syrian for its adaptive reuse as a guesthouse, the rehabilitation of Hosh Abu Jarour for its reuse as a center for teaching iconography and opening a tourist information center, the rehabilitation of Dar Al Sabbagh for its reuse as a center for the diaspora studies, renewing the street lighting, managing the street’s traffic by opening a King David road to evacuate traffic in a different direction, and several projects that are finally topped by the project of the Rehabilitation of the Pilgrim’s route through the funds of the Russian Federation. It is worth noting that all restoration works executed in the area were implemented according to adequate restoration standards to maintain the built cultural heritage and sustain its outstanding universal value.

Moreover, Bethlehem Municipality works on numerous projects that serve the holistic approach of revitalizing the street and promoting its cultural heritage such as Bethlehem Capital of Arab Culture 2020, conducting a mobility plan that serves pedestrianizing the Star Street, reinventing the public spaces in Bethlehem and organizing cultural events that promote tourism and local economic development. In addition to that, the municipality in its Strategic Development and Investment Planning for the years 2018-2021 has highlighted the need to raise the quality of the traditional local handicrafts in Bethlehem and promote them in the tourism offer instead of selling Chinese imported products to tourists (Bethlehem SDIP, 2017), creating a sustainable economic benefit while preserving the city’s legacy. The SDIP has also pointed out the deficiency in controlling tourism itinerary inside Bethlehem, the lack of adequate promotional material and signage, poor networking within the tourism sector, lack of entertaining activities for tourists and locals, tourism short stays in Bethlehem and seasonality of tourism.

On the other hand, the SDIP praised having some opportunities that can elevate the tourism industry such as having a UNESCO World Heritage Site, Bethlehem Capital of
Arab Culture 2020 project, diverse religious, cultural, natural, archaeological tourism offer, having a wide economic infrastructure built on the foundations of the visitors needs such as hotels and restaurants, having a Joint Services Council for Tourism Development responsible for developing the tourism sector in Bethlehem governorate, having a big number of associations in Bethlehem with a wide range of specialties related to gender, youth, social affairs, tourism, and others.

However, it is observed that Bethlehem Municipality in prioritizing the list of the city’s development issues, it has undervalued the tourism development issues giving them less attention in the priority of addressing, given that the weakness in touristic attractions promotion was classified as number (10), the weakness in the citizen’s affiliation to the city and lack of trust in the municipality’s performance was given number (13), the lack of networking and coordination among tourism sectors was given (14), the competition between imported products and local handicrafts was given (15) and the lack of cultural and entertaining events was given (19).

As for the Local Economic Development Council Bethlehem- LED, it has targeted in its action plan for the year 2018 to 2020 to provide an encouraging environment to enhance and develop the production and marketing capacity of local products in small and medium enterprises through encouraging women, youth, graduates and unemployed. It has given a special focus on providing an environment for the marketing of local products and handicrafts through the organizing of periodic markets, which would be achieved through training and offering capacity building of (15) women in local and international marketing, and supply (20) booths to provide opportunities for entrepreneurs in light industries, such as traditional handicrafts and food products, to market local products (LED, 2018).

The Ministry of Culture, on the other hand, in its culture and heritage sector strategy for the year 2017-2022, is committed to empower an environment that promotes the Palestinian culture with big concentration on preserving the intangible cultural heritage, and on linking with the Palestinian diaspora (MoC, 2016). Nevertheless, the small allocated budget for the cultural affairs hinders the ministry’s efforts and limits its achievement, especially with the forthcoming events of Bethlehem Capital of Arab Culture 2020 that lacks planning and financing.

As for the Ministry of Tourism and Antiquities, it has underlined in its strategy for the years 2017-2022 the importance of providing High Quality Tourism Product through developing and enhancing cultural heritage resources through protecting, rehabilitating and managing cultural heritage sites, and diversifying the tourism packages to include cultural, recreational and marketing activities in order to extend the stay of tourists in Palestine as well as interact with the Palestinian life and culture. Moreover, it focused on developing public private partnerships, providing services and facilities to access tourism sites, create a proper secure environment, develop tourism investment related studies, facilitate private sector investments through loans and incentives, create a suitable environment for tourism investment, enhance the quality
of tourism services, prepare suitable infrastructures and facilities, enhance skills and capacities, and update legislations (MoTA, 2016).

According to the CMP, traffic management issue and providing parking lots is still skeptical and needs to be clarified to acquire the inhabitants’ approval. But also, some other recommendations were suggested to guarantee the future enhancement of the route; such as promoting day and night activities; introducing attractive businesses in the Route (such as restaurants, coffee shops, cultural centers, small grocery stores, workshops for light local industries; promoting organized tours to the significant buildings; developing a marketing plan; fixing benches and rest areas; developing an annual calendar of events; upgrading the existing interpretation panel; providing parking for busses at the northern end of the Star Street Route so that tourists can walk up and explore the town (CMP, 2019).

Finally, summing up the challenges that need to be tackled, it is recommended to work on:

1- Encouraging the sustainability of the local handicrafts among youth; men and women.
2- Networking with the Diaspora, especially those who have roots in the Star Street.
3- Including the Star Street in Bethlehem Capital of Arab Culture 2020 program.
4- Addressing the lack of trust that the street inhabitants have towards the authorities.
5- Better coordination with all stakeholders.
6- Facilitating public private partnerships that also embraces the local community.
7- Offering clear policies for the Star Street mobility, shops, etc.

Legal Framework and Polices

The Pilgrimage Route lies within the boundaries of Bethlehem Municipality, and hence, all regulations bestowed from Bethlehem city council and its capacity as the Local Committee for Urban Planning and Construction in the city of Bethlehem apply for it in any case of construction or alteration in the current buildings, and in licensing the handicrafts and industries, pursuing the provisions of the Local Authorities Law No. (1) Of 1997, the Towns, Villages and Building Planning Law No. (79) Of 1966.

Seminar of “The Star of Bethlehem” organized as part of the activities of the Permanent Conference of Historic Cities of the Mediterranean in 2009, which was endorsed by the three municipalities of Bethlehem, Beit Jala and Beit Sahour.

In 2012, the municipality of Bethlehem and the Centre for Cultural Heritage Preservation - Bethlehem, in cooperation with the Ministry of Tourism and Antiquities and the Ministry of Local Government have prepared a Bethlehem Area Conservation and Management Plan, implemented under the Heritage for Development Project funded by the European Commission and published by UNESCO, encompassing bylaws for intervention within the historic town, a management plan for the historic town and a manual for interventions endorsed by Bethlehem Municipality.

In 2013, the Palestine Charter was presented by MoTA in partnership with Palestinian non-governmental organizations, municipalities, stakeholder ministries and academic institutions, and in cooperation with ICCROM and the UNESCO office in Ramallah, and ICOMOS Palestine who agreed on and adopted this Charter.

However, most importantly the Pilgrimage route urban planning and construction follows the regulations of the Bylaws for the Preservation of Architectural Heritage in Bethlehem City and the Classification of Heritage Areas and Individual Heritage Buildings of the year 2014 which form a profound step towards the cultural heritage preservation, drawn by the Centre for Cultural Heritage Preservation in cooperation with Bethlehem Municipality, the Ministry of Tourism and Antiquities, and the Ministry of Local Government.

Up till June 2018, the bylaws formed the only legal instrument by which the traditional buildings are maintained, controlled and conserved in the Pilgrimage route and in its buffer zone, as the boundaries of the Site are outlined by the boarders of the Historic Centre of Bethlehem. Hence, the Bylaws was the main and sole instrument to fully and adequately protect the built cultural heritage in the Pilgrimage Route, its buffer zone as well as the site’s urban landscape.

In June 2018, a new law on the protection of the tangible cultural heritage in Palestine was endorsed; the Tangible Cultural Heritage Law No. 11, and hence, additionally to the 2014 bylaws, the national law defines a wider set of regulations that ensure the protection of the WHS, and authorizes the MoTA to participate in regulating the urban planning and construction.

After the site has become a World Heritage Site in the UNESCO, it has followed the World Heritage Center and ICOMOS recommendations to maintain the designation. Accordingly, A Conservation and Management Plan for the WHS in Bethlehem was developed and drafted to fulfill the proposed recommendations in a participatory approach that involves various stakeholders, including local authorities, non-governmental organizations and institutions, local associations and unions in addition to private enterprises working in different fields, who are able to contribute to one or more of the objectives of this plan.
Furthermore, Palestine ratified a number of international conventions, as binding provisions, which aim at ensuring the protection of cultural heritage (UNESCO. 2018), and that apply to the case of the Star Street (Pilgrimage Route), which are stated below:


On a parallel vein, the shops’ licensing issue form a matter of dispute between the Ministry of Tourism and Antiquities and the municipality of Bethlehem. Being the municipality’s responsibility to grant the handicraft and industry license to any kind of shop, with annual renewal, the Ministry of Tourism and Antiquities proclaimed its responsibility to license any tourism related shop, restaurant, and business. As a result, all touristic restaurants, souvenir shops and every touristic store stopped heading to the municipality to issue their license and got it from the ministry. To the municipality, granting this license was a regulator to guarantee regularizing other services provision, and that citizens would pay all their financial commitments to the municipality in order to be granted such license. And even after raising this issue to court, the ministry won the case. In any case, for any ministry, including the Ministry of Tourism and Antiquities, in order to grant their license and provide their services to any shop, it is per Law No. (5) Of 2011, article no. (93) That the shop owner has to present a “Work Permission” issued by the municipality.

However, this dispute and poor coordination between the municipality and the ministry has resulted to a leakage in licensing at both sides, as some shop owners evade paying by claiming that their craftsmanship is once related to tourism during municipality inspection, and vice versa. Therefore, there has been organized recently, joint inspection visits to overcome this issue.

As for the property ownership of Star Street, it is found that more than 50% of the ownerships belong to the Antonian Charitable Society (belongs to the Catholic community), Custody of the Holy Land, Assyrian Orthodox Church of Virgin Mary, The Greek Catholic Melkite Church, The Salesian Convent and Church and the Islamic Endowments.
It is also noted that some properties are owned by Bethlehemite Diaspora; who have immigrated mostly to Latin America countries and were unable to be back due to changes in law during the Ottoman period and British mandate, which are inhabited by tenants who took over the property. However, the Land and Water Settlement Authority is working on registering the properties by requesting original ownership documents.

Safety and Security responsibility along Star Street is an essential matter expected by locals and tourists alike. The Bethlehem Police with a particular attention from the Tourism Police handles this responsibility. And to facilitate the police’s mission, the municipality has hence established the necessary installations to install (40) security cameras in the nearest future to keep citizens, street visitors and tourists safe, and to facilitate identifying any problem or criminal record for the police, and accelerate solving the problem. Furthermore, the municipality through its environment department is responsible for determining and organizing the entrance of street vendors, vending stalls and carts, hawkers, stray animals, and beggars.

The branding and marketing of the pilgrimage route, is a key component that contributes to the success of reviving the Star Street and promoting it nationally and internationally. A responsibility shared by the Ministry of Tourism and Antiquities and Bethlehem Municipality.

Assessment of Star Street current status

Bethlehem resides in the fact that it is the birthplace of the founder of one of the world’s major religions. Bethlehem is the focus of Christian belief and worship and is the heart of the Christian world with Jerusalem City. Christmas, the most widely celebrated religious ceremony in the world, is based on the story of Jesus’ birth which occurred in Bethlehem and here comes the specialty of Bethlehem since the birth of Jesus in Bethlehem has touched the beliefs of millions of people around the world. Bethlehem became a pilgrimage destination, which contributed to the shift in Bethlehem (particularly from the mid-nineteenth century onwards) from a small agricultural village to a major tourist destination. Studying the chronological history and the different incidents took place in Bethlehem, we understand the alterations and changes that affected the physical, social, symbolic and religious values of the site. This paper take into consideration these factors and study the religious, historical, urban and social contexts of the site so as to better understand the significance and specialty of the street.

The ‘Birthplace of Jesus; Church of the Nativity and the Pilgrimage Route; became World Heritage and one of only three UNESCO World Heritage Sites in Palestine. This site is one of the holiest and most significant sites for humankind. The site was
inscribed on UNESCO’s World Heritage List, as well as on the List of World Heritage in Danger on the 28th of June 2012. As mentioned in the construction management plan prepared by UNESCO in 2012, the Site includes two components;

The first component is to the east, the property encompasses the Church of the Nativity and its architectural complex, which is composed of three Convents: the Armenian, Franciscan and Greek Orthodox Convents, the integrity of which is conceptually unimpaired and only physically diminished in relatively minor respects by modern additions. The immediate surroundings also embrace a small area of land to the east that is directly associated with the ensemble; an area known to contain as yet systematically unexamined and largely undisturbed evidence of occupation and burials from the early centuries AD back to at least the mid-2nd millennium BC.

The second component of the Site lays to the west, where the property encompasses the Pilgrimage Route, in total 712 m long. The Pilgrimage Route is defined by Star Street, part of Paul VI Street and the north side of Manger Square. Defining the borders of the buffer zone around the World Heritage Site was based on the study of the urban fabric in Bethlehem.

The borders of the buffer zone follow exactly the same borders of the Historic Town of Bethlehem as set and approved by the municipal council of Bethlehem in 2010 in the “Guidelines for the Conservation and Rehabilitation of the Historic Towns of Bethlehem, Beit-Jala and Beit-Sahour”. They also protect the historic center of Bethlehem and retain the urban fabric along the three main axes that lead to the Manger Square: Star Street, Paul VI Street and An-Najajreh Street. This indirectly leads to the enhancement of the living environment in the town.

As per the Palestinian social context, the social structure of Bethlehem has been formed of the “hamouleh” or clans inhabiting Al-Ahwash (the plural of Hosh, or Quarter) – each member of a blood related clan living in the same Hosh. The houses formed compact ensembles surrounded by a wall for protection against attacks. Later on, the Al-Ahwash expanded to form Al-Hara; a neighborhood or quarter. Each neighborhood with its inhabitants was independent from the other as a separate group yet forming an interrelated social entity which is responsible for all of the city and its inhabitants, thus implanting the positive beautiful image of a sound of collaboration between the inhabitants throughout the years. The obvious change in the social structure in Bethlehem is hence a natural outcome of the many groups that shape the current diverse society of the city. The inhabitants of the city are therefore influenced by the different customs, values, traditions, religions, behaviors and lifestyles.
The total area of the core and buffer zones adds up to 264,295 m², where the total area of the pilgrimage route is 4,699 m² and the total area of the nativity complex is 25,098 m². This is the street we are targeting with both its tangible and intangible heritage and identity.

Inventory of attractions

Bethlehem was initially settled more than five thousand years ago by Canaanite tribes and is a place with an outstanding and rich history. However, the worldwide recognition and present status of Bethlehem are certainly linked with its religious significance as the birthplace of Jesus. There is no doubt that from the fourth century onwards the history of Bethlehem became inseparable with that of the Church of the Nativity, which gave the city its mythical image and its international appeal. The church, built in 339 on the highest spot of Bethlehem’s mountain ridge, became a focal point of the town and in a large percent determined shaping of its historic urban center that emerged in its proximate surrounding. Nowadays, passing through the curvy stone-covered paths of Bethlehem’s old core, a person could admire the place’s traditional architecture dated to the Ottoman period in Palestine (1515 – 1917), which was built over the remains of buildings from the previous eras (e.g. Roman, Byzantine, Crusader). A walking tour through the historic center offers beautiful views of stone streets, sometimes topped by rocky arches (e.g. Zarrara Arch), domed houses with beautifully ornamented entrances, windows and smaller openings.

However, many architectural details are yet hidden from strangers’ sight behind the doors of residential dwellings. A typical urban construction of the old city consists of residential clusters a “Hosh”.

This type of architecture incorporates a group of single units or rooms situated around a courtyard belonging to an extended family. It aimed to protect house’s private space against outsiders, thus, the internal area cannot be visible from the street. Many of the old residential buildings are still inhabited by the local Bethlehemite community,
who are in the great percent the descendants of the seven family clans that used to create the original social fabric of the town.

Thus, meeting with those people and experiencing their culture and traditions could be an interesting encounter. Also a visit to one of the old city’s houses could unveil impressive elements of the previously mentioned architecture.

1. The ethnographic museum of Beituna al-Telhame (Bethlehem’s House) of the Arab Women Union, located in one of the old masons of Bethlehem.
2. Bethlehem’s old fruit and vegetable market, a typical middle-eastern bazaar, which extends almost through the entire Fawagreh quarter, could be a great experience of town’s present daily life.
3. Christian monasteries (e.g. Milk Grotto, Syriac Virgin Mary Church, Lutheran Church, Melkite Church, Salesian Church) and the oldest mosque in town: Omar Mosque, Bethlehem’s historic part is also the city’s religious center.
4. The diversity of people regarding their religious background could be of a great interest to any visitor.

SWOT Analysis

Based on the literature review process and Pal Pro experts’ participation on the meeting organized by Bethlehem Municipality and its partners with Star Street’s residents, several direct meetings with the street’s shops’ and buildings’ owners as well as the managers of several active centers and institutions in the street (Iconic Center & Mosaic Center) in addition to meeting representatives of several stakeholders, such as AHA, HILTOA, Holy Land Trust, ATS, MOTA, MOC, BM and churches (Syrian and Silesian), Pal Pro’s experts conducted the following SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis as a tool to assess the current status of Star Street.
**Strengths**

1. Pilgrimage Route to the Grotto of Nativity (Patriarch road to Nativity Church).
2. Religious value for Christians all over the world.
3. Star Street has been inscribed on the list of UNESCO World Heritage Sites in addition to the Nativity Church.
4. Majority of traditional commercial and residential units in the Pilgrimage Route are in a relatively good physical condition.
5. Strong international interest.
6. The rehabilitation of Star Street by Bethlehem Municipality
7. The strong story of the street.
8. Attractive features and landmarks in the street for tourists, cultural buildings, Qos Al Zarara, Churches.
9. New initiatives to motivate initiating guest houses in Star Street such as Hosh Al Syrian, Dar Al Majous, and few individual initiatives.
10. The existing handcraft centers such as the Iconic Center and the Mosaic Centers can motivate tourists to visit the Street.

**Weakness**

1. Most of the stores in Star Street are closed.
2. Lack of attractive commercial or touristic offering on Star Street.
3. Limited commitment of the local community to take part in applying the legislations.
4. Local community is not well aware of heritage friendly behaviors.
5. No specific assigned body that is managing the site and cooperating with other Stakeholders, each from their own sets of responsibilities.
6. Absence of an integrated management and monitoring system for the entire site.
7. Lack of a clear division of tasks and formal coordination between stakeholders.
8. Insufficient accessibility to the site for persons with disabilities.
9. Poor traffic management, and limited parking spaces around the site.
10. No public facilities (mainly security Cameras, security presence, Toilets and Garbage pails).
11. Low number of tourists visiting the Pilgrimage Route.
12. Inbound Visitors’ restricted time in Bethlehem area in general and the monopoly of Israeli tour operators in setting prearranged tours in Bethlehem.
13. Inadequate safety measures throughout the site.
14. Limited events, activities and entertainment components offered in the Site.
15. Unclear criteria and standards for the types of business allowed in the Pilgrimage Route.
16. A relatively big number of visitors visit the church in the high season, no existing management plan to use the waiting time of the pilgrimage to visit other parts of Bethlehem such as the Star Street and the manager square.
17. Poor branding and promotion on the Pilgrimage Route (Poor promotion for many attractions in the Site).
18. Heterogeneous and weak signage and informative panels throughout the site (such as the Map and the story of Star Street).
19. Standardization of the commercial offer, and limited promotion of local traditional handicrafts.
20. Need for capacity building to local community, Limited education and information provided to locals regarding the values of the site.
21. Limited opening hours of the Nativity church (Tourism is limited to day-tourism).
22. Lack of security in Star Street, deficient monitoring and weak response towards illegal actions that take place in the Pilgrimage Route.
23. Loose policies and penalties against breaking the regulations and laws.
24. Poor monitoring and maintenance for the physical attributes of the Site.

Opportunities

1. Bethlehem Capital of Arab Culture 2020 project is an opportunity for Bethlehem in general and Star Street in Particular.
2. The Palestinian Government policy to consider Bethlehem as a tourism Cluster.
3. The rise of the average occupancy rate in the Palestinian Hotels of Bethlehem from 50% in 2018 to 75% in the year 2019 which considered the highest average in the world.
4. The rise on the number of inbound visitors to Bethlehem Governorate to more than Million 1 during 2019.
5. Bethlehem includes 72 Hotels and the Palestinian Prime Minister has launched recently another new 4 Hotels in Jan. 2020.
6. The ability of the municipality to direct the tourist busses to drop their passengers on Catholic Action roundabout square will contribute to activate the Star Street.
7. Increasing number of inbound visitors to Bethlehem during the last years.
8. Increasing number of overnight number of inbound tourists represent an opportunity as currently they don’t have any options of how to utilize their night-time in Bethlehem.
9. Growing interest in cultural and experiential alternative tourism.
10. Renovation of several buildings in the site.
11. Expanding the tourism activities in the street will contribute to better economic situation for the community of the street.
12. The readiness of the Municipality and the government to motivate business in the street through Tax and fees waivers.
13. Several local and international organizations and institutions interest in the Site.
14. The site has a potential to contribute in enhancing the economic situation of Bethlehem, and increase employment.
15. Immersive experience of tourists visiting the Pilgrimage route has the potential to enrich the visitor’s cultural and spiritual experience in Bethlehem.
17. Local products and handicrafts can be promoted and sold in the Pilgrimage Route.
18. Use of social media and the different media arenas, including websites, to promote the site.
19. Establishing community-based networks for promoting the site.
20. Potential to offer an authentic cultural experience.
21. Loan Guarantee fund can motivate Banks to facilitate financing the shop owners to renovate and invest on their closed shops.
22. The support of Bethlehem Municipality for the marketing plan of Star Street reflects a positive trend in the municipality to activate the street.
23. The readiness of several players in the street to reactivate their initiatives in the street if the marketing plan and policies managed to revive the street and the ability to be part of the solution (eg: the Silesian church express their readiness to reopen their museum and other facilities if the plan will succeed to attract tourists to the street).
24. New tourism products development will represent a unique offer in Star Street.

**Threats**

1. Lack of serious financial support for the owners of the buildings and shops in Star Street.
2. The ownerships of several shops are not clear (Diaspora ownership or multiple decedents).
3. Political risks related to occupation constrains.
4. No designated body to manage the Site.
5. Bethlehem Municipality traffic management / mobility plan for Bethlehem area is still unready, (Condensed area with vehicles and busy traffic).
6. Lack of trust as a result of unmet promises of past projects which led to the local community’s disappointment, hesitation and unwillingness to participate in the development of the site or reopen their stores.
7. Giant souvenir shops monopole the handicrafts market, can resist the change and the development of Star Street.
8. Misleading and negative image about Bethlehem that is promoted by Israeli tour guides.
Observations, Analysis and Initial Recommendations

History and Culture observation and recommendations:

Observations

1. There is a need for religious and cultural interpretation. Is the narrative that indicates that it is believed to be the path followed by Joseph and Mary during their trip to Bethlehem to give birth to the prince of Peace in the grotto of the Nativity (Pixner, 2010), and the route of the journey of the magi for gifting and adoration (Texler, 1997), signs or visual representations illustrating the Journey.

2. Access to Hosh Al-siryan is only limited to a guest house and gastronomy. There is a lack of clarity of religious interpretation related to the Journey of Joseph and Marry.

3. Did not see any interpretation of the journey of Joseph and Marry and Magi, there is no display of any kind related?

4. The tourists need to be aware of the narrative/story and how it is related to the history of the city of Bethlehem over the centuries?

5. What is the authenticity of Hosh Abu Jarour for teaching iconography, how authentic historically supporting documentation?

6. There is no map with bilingual signs at the beginning of street directing the tourists to the different important facilities in an orderly manner.

7. The cultural identity of the street is not clear.

8. There is no clear icons or status reminding the visitors of the story behind the history of the street, for example, there is a need to reflect on the architect and explain the period it comes from specially the 19th and 20th century.

9. There is nothing much within the community that focuses on the theme of the street and that needs to be emphasized.

10. Even though that street is names Start Street there is not much within the community behavior that reflects the streets importance, the name and theme, needs to be emphasized and addressed.

11. Dar Al Sabbagh, the center for the diaspora studies needs to be more engaged in promoting the street’s theme and identity based on the historical studies and researches on the local community throughout the historical period since the birth of Jesus Christ to emphasize the authenticity and history the street had over the centuries, past up to date.
12. What about the Christian and Islamic heritage at the street throughout the past two thousand plus years?

Tourism Observations and Recommendations:

Observations
• Branding and Marketing: There is no Tourism Public-Private-Partnership Body like an advisory or Consultative Board to coordinate development and implementation of branding and marketing activities related to tourism.
• There is lack in conducting market researches related to street and Bethlehem in general to improve targeting of Bethlehem tourism offer and to expand its Geographical reach.
• There is no developed “Branding and Marketing” strategy that highlights the Bethlehem tourism offering, in particular the rich heritage and culture of its historical centers and mainly the star street.

Business
Observations
• The lack of businesses in the street as a major source to enhance local economic development and brings life to the street.
• The lack of investment in the street to open different businesses.
• The lack of women participation in businesses to benefit marginalized women and enhance women empowerment through the tourism sector and community based tourism.
• Old stores with old signage and not appealing fronts.
• Chinese and other imported products in the Market instead of Palestinian Handicraft.

Community observations and suggestions:
Observations
• Several factors led the assessment team to conclude that the community members are not aware of the tourism and heritage importance of the street.
• There is a lack in the feeling of proud of this treasure due to lack of information and data related to the street and its importance and value. Lack of understanding of the importance of being a site inscribed under the UNESCO and its benefit to local community as a major component for UNESCO.
• There is a general need for more financial investment in maintaining stores open and active in the street for the local community.
• Discussion with community leaders to identify major issues that need to be resolved before shop owners open and invest in their property.
• Lack of trust from local community to the government and different stakeholders and donors.
• Lack of public spaces and activities for tourists “domestic and international”.

**Government Observations:**
1. No Parking facilities at the site
2. The problem of the drop point of the tourist in order to increase to prolong the stay of the tourist at the street and deal with the capacity issue of the church and street plus Catholic Action roundabout (traffic control).
3. Lack of security and safety within the street.
4. Lack of various Facilities and amenities and rubbish problem (no Garbage Pails).
5. Lack of public spaces and benches at the street for tourists and locals to rest.
6. No focus on community based tourism and alternative tourism at the street that aims to enhance community benefit and participation in the sector.
Business Model and Marketing Strategies for Star Street

Based on the literature review, the assessment analysis and the conducted meetings and consultations with the various stakeholders and actors of the Bethlehem touristic scene, as well as the interviews with a number of Star Street shops and projects’ owners and managers, a number of active international institutions, and religion representatives undertaken by Pal Pro experts, and after analyzing the problems and the potentials of the street and having the privilege of the lessons learned from the past experiences and the current status, Pal Pro experts managed to build a business model, which if accompanied with all the suggested polices and recommendations, is believed to contribute to revive the Star Street and to bring the commercial, economic, cultural, touristic and social life back to it.

A business model is defined by an **interdependent system of activities** that explains how an individual or collective actors create and capture value (Zott & Amit, 2010; Zott et al., 2011), and it is described by three key features as below:

- First: The focus on an interdependent system of activities.
- Second: The inclusion of individuals and collective actors.
- Third: The emphasis on creating and capturing value.

The following section will discuss the three features at Star Street and the tailored business model to fit the specialty of the street and create its appropriate value.

**First: An interdependent system of activities**

The focus on the interdependent activity system which is a set of activities, by which collective actors engage their services in pursuit of developing a unique touristic offer in Star Street. The overall objective is to create a value for different stakeholders contributing to and benefiting from the suggested business model at the street. The activity system is characterized by four parameters; which are:

1. **Content**: Refers to the specific activities included in the business model;

2. **Structure**: Identifies the characteristics of the links between individual activities and among the overall system;

3. **Governance**: specifies the individual or collective actors who engage the service of resources; and finally,

4. **Design themes**: tail what theme guides a consistent combination of content, structure, and governance and thus drives value creation for the business model configuration.
The content of the interdependent system of activities:

The content and the components to build the business model should be integrated and interrelated to constitute a unique touristic offer for both local and international inbound tourists. The model should be comprehensive to be able to interact with the current situation of the street and be able to solve the current existing complications. The Interdependent approach fits more to Star Street which highlights the role of interdependency that matters to the structure of an activity system and its design theme. The business model facilitates building a coherent story of the street, interdependent network of choices and consequences that create and capture value. This business model will help in shaping and managing the value creation with all its ingredients.

The business model will consist of two major components to ensure an applicable, achievable and practical business model, taking into consideration all the factors that play a role in forbidding this street from being active all over the past period and offers the solution in a creative new approach:

1- **First Component**: The driver and elevator of the street activities, represented by Star Street Development Company (SSDC)/ Star Street Development Unit (SSDU); to be established by Bethlehem Municipality and the owners of the shops and businesses in the street in addition to the different religious, cultural and business institutions located in it. The company/Unit will have the following four major objectives which will be illustrated later in this plan:
   a- Promoting and Marketing all the businesses in the street as one unit.
   b- Managing the activities of the street as one unit.
   c- Investing in the business of the street.
   d- Represent an assurance for the sustainability of the business model.

2- **Second Component**: Answering the major questions related to the mechanisms and approaches to be followed to guarantee the success of the model. Such as:
   a- What the touristic offer of the street should be?
   b- What types of businesses should be established in the street?
   c- And how can we ensure that the offer will be unique and attractive for tourists arriving to Bethlehem?
   d- How can we assure that the model will be sustainable and represent a reassurance for the owners of the shops and businesses in Star Street?
   e- How can we enhance the chances of success in the street businesses?
   f- How can we incorporate the residents of the street in the model and enhance their participation?

The following section will illustrate the two components in details and clarify how these components are integrated, interrelated and represent a good solution for the success of Star Street:
First Component: Star Street Development Company (SSDC)/ Star Street Development Unit (SSDU)

To assure the integration and success of Star Street, a leader and a driving force is needed, the proposed Company/Unit will play this role. The company/Unit will be established by Bethlehem Municipality in partnership with the shops and businesses’ owners in Star Street in addition to selected investors and stakeholders such as Bethlehem Chamber of Commerce, the union of souvenir shops owners and private sector investors.
The suggested role of the company/Unit can be described as the following:

**Marketing of all the businesses in the street as one unit**

The Company/Unit will be responsible of all the marketing and promotional activities for Star Street such as:
- Creating a unified map for all the businesses in the street to be sold as a one unit for the tourists.
- Creating unified promotional materials to be published on all Palestinian touristic websites such as (not limited to) visit Palestine and travel Palestine.
- Promoting the street on the international tourism websites.
- Selling Star Street as a one tourism offer to local and regional incoming tour operators
- Unifying the theme and brand of Star Street.
- Organizing and coordinating all events, festivals, continuous creative competitions and ceremonies in Star Street.
- Signing agreements with Hotel Owners, Incoming tour operators and other parties to attract tourists to Star Street.
- Managing Marketing campaigns and planning for a successful promotional campaign.
- Developing film-induced tourism or movie-induced tourism. Film-induced tourism is defined as tourist visits to the destination featured on television, video, or cinema screen.
- Free Wi-Fi available for tourists

**Managing the activities of the street as one unit**

The company/unit will also be responsible on assuring the quality of the touristic offer in Star Street through (not limited to) the following:

- Responsible on the security level in the street
- Responsible on the commitment of the stores and businesses owners with the roles of the street.
- Responsible on assuring the availability of all the required services on the street.
- Managing all events, festivals and ceremonies organized in Star Street.
- Responsible of conducting capacity building trainings and coaching for the “shops and businesses” owners and workers on the touristic activities.

**Investing in the businesses of the street**

The Company/Unit will be responsible on signing customized agreements with the owners of the shops and businesses in the street for the following:

- Investing as a business partner with the shop owners and other premises who lack the suitable financing for their projects, the company/unit will finance/help in accessing to finance for the needed investments against a
partnership agreement that include a portion of profits for certain period of time.
- Investing as a business partner with the shop owners and other premises who lacks the suitable personnel to manage their businesses against a partnership agreement that include a portion of profits for certain period of time.
- Investing as a business partner with the shop owners and other premises who lack the suitable financing and personnel against a partnership agreement that include a portion of profits for certain period of time.

In the above three cases the company/unit partnership will be limited to its portion of profits for a certain period of time (operational partnership), which will be used with owners who are so sensitive to get the ownership of their shops and premises into partnership.

The company/unit will be able also to invest in purchasing or renting shops and other premises where available and manage its own investments in the street.

Represent an assurance for the sustainability of the business model

According to the past experiences that led to lack of trust and confident of the “shops and other premises’ owners in the street” that any investment or initiative in the street will be feasible or sustainable, Star Street Development Company/Unit and the partnership structure in addition to the involvement of several stakeholders and investors will assure the sustainability of the business model and improve the trust and confident in investing for those owners.

Second Component: Answering the major questions

The business model will answer the major questions related to the mechanisms and approaches to be followed to guarantee the success of the model. Such as:

What the touristic offer of the street should be ?

The touristic offer of Star Street will be a combination of a spiritual religious experience and a Palestinian cultural experience. Star Street will represent a biblical trail as well as a craft trail for the inbound tourists, the street theme will represent the two aspects by initiating a biblical stations in the street that will include the biblical aspect and also the street will represent the Palestinian Culture by a trail of a number of Handicrafts workshops, museums and businesses as illustrated in details in the following section.
What types of businesses should be established in the street?

1- Crafts Trail: for traditional local handicrafts, where the tourist will have the opportunity to visit specialized workshops (centers) and see the craftsmen working and buy the pieces he/she desires such as:
   - Mother of Pearl Center.
   - Ceramics center.
   - Icon Center.
   - Mosaic Center.
   - Olive Wood Carving center.
   - Glass Center.
   - Pottery center.
   - Embroidery center.
   - Leather Center.
   - Traditional Soap Making center.
   - Silver & Jewelry center.
   - Handmade gifts Center.
   - Painting & Artistic handmade Center.

The spread of these centers all over Star Street in addition to other museums and businesses will represent a full attractive unique craft trail for tourists.

Other suggested businesses illustrated as follows:

2. Gallery Coffee.
3. Coffee Shops (Traditional/Cultural and Modern).
4. Restaurants:
   - Traditional cuisine.
   - Organic Cuisine.
   - International Cuisine and international Food Corners / Japanese | Italian | etc...
   - Falafel.
   - Shawerma.
   - Fast Food.
5. Traditional Sweet Shops.
7. Pubs.
8. Other Shops:
   - Antique shop.
   - Minimarkets and Grocery.
   - Traditional style photographer.
   - Fresh Juices.
   - Fresh Fruits.
- Traditional clothing.
- Palestinian and Cultural Bookshop.
- Curved Stone Arts.
- Kids’ toys shop.

10. Money exchanger.
11. Banks ATMs.
12. Information center.
13. Free Wi-Fi.
14. Cinema to show the story of the Nativity, other biblical stories and history of Star Street.
15. Museums: This includes establishing new museums and upgrading existing museums such as the ethnographic museum of Beituna al- Talhami (Bethlehem’s House) of the Arab Women Union, The Silesian Museum, etc...
16. Guest Houses and AirBnB: This business has now grown into a business with over a million and a half listings in countries worldwide. The business can expand from air beds and shared spaces to private rooms in shared houses to entire homes and apartments as well as call Guest Houses.

How can we ensure that the offer will be unique and attractive for tourists arriving to Bethlehem?

1- Cultural Aspect: The proposed craft trail will be a unique cultural offer that presents the Palestinian cultural crafts workshops to tourists and visitors of Bethlehem.
2- Religious Aspect: The plan propose also a biblical trail, in which several biblical stations will be installed all over street where each station will present a part of Bethlehem’s biblical stories.
3- Entertainment aspect: The Street will be the only street in Bethlehem to include several gallery coffees, coffee shops, restaurants, pubs, traditional sweet shops and bakeries that will attract tourists as well as locals especially at night.

How can we assure that the model will be sustainable and represent a reassurance for the owners of the shops and businesses in Star Street?

- The involvement of the key institutions in Bethlehem such as Bethlehem Municipality and the Chamber of Commerce.
- The involvement of the street shops and other premises owners will enhance the community contribution to the success of the street.
- The involvement of certain private sector investors will add to the financial and technical capabilities of the shareholders.
- The Board of directors of the company/unit should include representatives of all the above mentioned parties.
- The executive management of the company/unit should be selected according to experience and capabilities in both tourism and business aspects.
- The business model of the street will be based on profitable business and the proposed Star Street Development Company/Unit will assure a successful Investment, promotion and marketing for the street.

How can we enhance the chances of success in the street businesses?

- Unique Touristic offer.
- Motivation Package.
- Community Participation.
- Apply the plan to change the drop off of the tourism Buses to Catholic Action roundabout.
- Continuous Promotional and marketing activities for the street as one unit.
- Develop a monthly event calendar at the street.
- The inclusion of at least 30-40% of the street stores in the launching of the street activities.
- Conducting trainings for guides and tourism leaders on the importance of Star Street and its Cultural and religious value.
- Develop and Promote regular cultural/entertainment activities and folklore shows.
- Organizing Artistic competitions on the street.
- Well-designed unified Brochure to be distributed in Hotels.
- Free Wi-Fi.
- Recommended to have statue of the three wise men /Magi figures looking at the star at roundabout to be seen upon arrival. The statue should include a star with adequate lighting system as a visual representation for the street entrance.
- Print post cards of the street and that to include the proposed statue.
- Support alternative tourism approaches, enhance and promote community-based local initiatives regarding tourism, such as tourism offers, walking trails designed inside the historic center of Bethlehem conducted by the different agencies. This will promote the authentic heritage of local community within the street.
- Installation of benches and shaded areas along the Pilgrimage Route

How can we incorporate the residents of the street in the model and guarantee their participation?

- The involvement of Star Street owners as founders of Star Street Development Company/Unit, electing at least one representative of the street owners in the board of director of Star Street Development Company/Unit.
- Further incorporate the residents of Star Street in the arrangements on the street that are related to their daily life.
- Conducting several awareness workshops for the residents of the street to enhance their participation and involvement.
- Conducting several trainings for the shops and other premises owners on business development and how to run a touristic business and tourism hospitality trainings will enhance their capabilities.

The Structure of the interdependent system of activities

The characteristics of the links between individual activities and among the overall system and within the value chain of tourism in Star Street, It sets the structure that links all stakeholders from public, private and local community, creating a Tourism Public-Private-Partnership (PPP). Engaging the universities in conducting market researches related to Star Street to improve the tourism offer and to expand its geographical reach. Chamber of commerce, diaspora such as Dar Al Sabagh for Diaspora Studies, Antoon Mansour and other owners. All these stakeholders will be connected and linked through one body (Star Street Development Company/Unit) that will be managing and operating the star street and pilgrimage route.

First Option: The Structure of Star Street Development Company (SSDC)

The company will be established and registered as a limited liability for Profit Company, the main aim of the company will be the development and reviving Star Street and the main characteristics of the company are illustrated as the following:

- **Partnership**: The company registration and establishment process will be led by Bethlehem Municipality and will include Bethlehem Municipality in addition to Bethlehem Chamber of Commerce and Industry BCCI, Owners of Start Street stores and other premises who are welling and capable, other tourism associations such as AHA, HILTOA, Cultural institutions, religious representations of the street churches and ownerships, Bethlehem diaspora investors and other investors.

- **Board of Directors (BOD)**: the BOD will include representatives of the partners who have suitable tourism capabilities in addition to a representative of Star Street residents.

- **Executive Management**: The Company’s BOD will assign qualified personnel who enjoy a long experience and knowledge to manage the operations of the company in a transparent process, the following chart illustrates the initial Management structure of Star Street Development Company:
Second Option: The Structure of Star Street Development Unit (SSDU)

The second option can be considered as an alternative in the case of rejecting the establishment of a limited liability partnership company by the Municipality and the city Council. The preference to form a Unit within the municipality to take this role, the unit to be established within the structure of Bethlehem Municipality, The Unit is forseen to handle all the suggested responsibilities of SSDC and the suitable management structure and expertise to do so, the SSDU should be ready to establish and orient the partnerships, the management and marketing of Star Street, the unit should have a specialized BOD / Advisory board to orient and monitor its activities, effeciency and achievements. The following section will summerize the responsibilities of this unit:

- Assuring and following up the right implementation of the approved polices.

- Orientation and following up the proposed plan with the investors and shop owners in Star Street and assuring their commitment and the integration within the approved types of businesses for Star street.

- Preserving the cultural, religious and touristic character of the street and building its brand and value.
- Managing and orienting all the ceremonies, festivals and events in the street.

- The right and efficient implementation of the steering committee and the advisory board decisions.

- Assuring marketing Star Street as one unit and orienting all the marketing efforts and the tools to be used.

- Assuring the participation and incorporation of all stakeholders including the street residents and shops owners in the plans and efforts to develop and revive the Star Street.

- The suggested organizational structure that describes the Star Street Development Unit (SSDU) is illustrated by the following diagram:
Design themes of the interdependent system of activities

Religious and Craft Trail

- A theme agreed on by all stakeholders to include in all interpretation, the theme is obviously related to the journey of Joseph and Mary and Magi and pilgrimage route. “It is believed to be the path followed by Joseph and Mary during their trip to Bethlehem to give birth to the prince of Peace in the grotto of the Nativity (Pixner, 2010), and the route of the journey of the magi for gifting and adoration (Texler, 1997)”. The narrative could be demonstrated in a short movie that can be displayed on a big screen in the road.

- To have a movie induced tourism about Jesus narrative that focuses on Star Street. Movies provide the objects and subjects for the gaze of many people, and for some people, movies induce them to travel to the locations where they were filmed.

- Develop interpretation panels and materials throughout the site and add interpretation material and signs inside the Star Street. Replace old inadequate ones with new relevant signs based on the theme and the story behind the name.

- Produce a visitor’s map/sign at Catholic Action roundabout with all the museums and attractions located throughout the street up to nativity church including the Craft Trail and include them as part of the visitor’s path.

- Recommended to have statue of the three wise men /Magi figures looking at the star street as part of the biblical narrative.

- Crafts Trail: for traditional local handicrafts (as described before) each crafts workshop is obliged to present at least one handicraft worker in their stores working on hand producing their craft items.

Second: The inclusion of individual and collective actors

The conceptualization of business models as systems of interdependent activities allows us to model value creation across these different levels and includes all members of value chain in tourism sector within the street.

- Groups of people
- Business units
- Non-profit
- Profit organizations
- Light Industries (Handicrafts)
The emphasis on individual and collective actors along Star Street is an important aspect to develop an integrated business model and to best handle the dynamics of the model portfolio over time, a critical factor that plays a key role in the sustainability of the street vitality.

Pal Pro Experts have conducted several field visits to Star Street and met several actors in the street, in addition to several representatives of Bethlehem institutions, the following list will summarize the meetings and the people who showed a positive attitude towards the idea and the initial suggestion of the business model:

<table>
<thead>
<tr>
<th>Person</th>
<th>Institution</th>
<th>title</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rania Malki Bandak</td>
<td>Bethlehem Peace center</td>
<td>Acting Director</td>
<td>-</td>
</tr>
<tr>
<td>Josef Twemeh</td>
<td>Laventana Restaurant</td>
<td>Resident and Owner of a restaurant</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Khalil Shokeh</td>
<td>Dar El Sabbagh – CCHP</td>
<td>Researcher</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>George Al Ama</td>
<td>Dar El Sabbagh</td>
<td>Founder, also an owner of four stores in Star Street</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Eng. Issam Juha</td>
<td>CCHP</td>
<td>Director</td>
<td>-</td>
</tr>
<tr>
<td>Adv. Anton Salman</td>
<td>Bethlehem Municipality</td>
<td>Mayor</td>
<td>-</td>
</tr>
<tr>
<td>Raida Hanania</td>
<td>Bethlehem Municipality</td>
<td>Head of Quality/ coordinator of Bethlehem Strategic Development Investment Plan</td>
<td>-</td>
</tr>
<tr>
<td>Anton Marcos</td>
<td>Bethlehem Municipality</td>
<td>City Manager</td>
<td>-</td>
</tr>
<tr>
<td>Dr. Samir Hazboun</td>
<td>Bethlehem Governorate Chamber of Commerce and Industry</td>
<td>Chairman</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Majed Ishaq</td>
<td>MOTA</td>
<td>GM Marketing Department</td>
<td>Positive</td>
</tr>
<tr>
<td>Ahmad Rojoob</td>
<td>MOTA</td>
<td>UNESCO Focal point</td>
<td>-</td>
</tr>
<tr>
<td>Arch Ihab Daoud</td>
<td>MOTA</td>
<td>V. Director General of conservation</td>
<td>-</td>
</tr>
<tr>
<td>Osama Abu Jaber</td>
<td>6 Shops in Star Street</td>
<td>Resident and Owner of 6 stores with his brother</td>
<td>Negative</td>
</tr>
<tr>
<td>Vincenzo Bellomo</td>
<td>ATS</td>
<td></td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Elias D’eis</td>
<td>Holy Land Trust</td>
<td>Executive Director</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Iyad Handal</td>
<td>Dar El Sabbagh</td>
<td></td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Name</td>
<td>Position/Role</td>
<td>Comments</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td>Fadi Kattan</td>
<td>Hosh El Syrian</td>
<td>2 visits to the guesthouse</td>
<td></td>
</tr>
<tr>
<td>Elias Thaljieh</td>
<td>Grocery Shop in Star Street</td>
<td>Resident and Owner of 2 stores</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Issa and Pascal Araj</td>
<td>Shops owners</td>
<td></td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Elias Al Arja</td>
<td>AHA / Bethlehem hotel</td>
<td>President / Owner</td>
<td>Neutral</td>
</tr>
<tr>
<td>Michael Awad</td>
<td>HILTOA</td>
<td>Vice President</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Fareed Ismael</td>
<td>Tourist Bus Driver</td>
<td>Driver</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Irene Botto</td>
<td>Qandeel – Dar Batto Guest House with culinary</td>
<td>Founder</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td></td>
<td>experience in Star Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osama Hamdan</td>
<td>The Mosaic center</td>
<td>General Director</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Carla Benelli</td>
<td>ATS supervisor of Mosaic Center Project</td>
<td></td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Mona Khader Bandi</td>
<td>Icon Center</td>
<td>Director</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Charlie Murad</td>
<td>Shop in Star street</td>
<td>Owner</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Elias Anastas</td>
<td>The Wonder Cabinet</td>
<td>Founder</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Father Bulos Nemeh</td>
<td>Syriac Orthodox Church of the Virgin Mary</td>
<td>Parish Priest (4 Shops on the</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>street)</td>
<td></td>
</tr>
<tr>
<td>Father Lorenzo</td>
<td>Silesian Convent</td>
<td>Superior</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Munir Anastas</td>
<td>Delegation Permanent de La Palestine – UNESCO</td>
<td>Ambassador – Short Meeting</td>
<td>-</td>
</tr>
<tr>
<td>Rula Dughman</td>
<td>Bab iddeir Gallary</td>
<td>Director – Short Meeting</td>
<td>-</td>
</tr>
<tr>
<td>Yousef Rahhal</td>
<td>Bethlehem Chamber</td>
<td>Board Member</td>
<td>-</td>
</tr>
<tr>
<td>Hussam Khalifa</td>
<td>PCBS</td>
<td>Department Director</td>
<td>-</td>
</tr>
<tr>
<td>Wissam Salsaa</td>
<td>The Wall-off Hotel</td>
<td>Owner</td>
<td>Positive</td>
</tr>
<tr>
<td>Anton Mansour</td>
<td>The Icon Center and Hosh Abu Jarour building</td>
<td>Owner - Diaspora</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osama Hamdan</td>
<td>The Ceramic Center</td>
<td>Founder</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Enrique el Gidi</td>
<td>Mother of Pearl specialist</td>
<td>Diaspora – With Anton Mansour</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Tony Dabdoub</td>
<td>Bethlehem Central Station</td>
<td>Director of Central Station</td>
<td>Positive with The Idea</td>
</tr>
<tr>
<td>Name</td>
<td>Organization/Role</td>
<td>Relationship with The Idea</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td></td>
</tr>
<tr>
<td>Anton Salman</td>
<td>Secretary of BOD of the Antonian Charitable Society of Bethlehem which owns around 30% of Star Street shops and buildings</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Charlie &amp; Fadi Abu Saada</td>
<td>The Greek Catholic Melkite Church</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Rajae Zakharia</td>
<td>Owner of 2 stores in Star Street</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Dr. Sulaiman Loussi</td>
<td>Owner of 2 stores in Star Street</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Lucy Thaljieh</td>
<td>Her family owns 2 open shops (Grocery and Embroidery)</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Beata Andonia</td>
<td>Dar al Majus Guesthouse</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Jack Hosh</td>
<td>Small Guest house beside Dar Al Majus guesthouse and a store near the information center at Star Street</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Maher Canawati</td>
<td>Three Arches Souvenir, Owner Bethlehem city councilor</td>
<td>Positive with The Idea</td>
<td></td>
</tr>
<tr>
<td>Mr. Khaldoun Bishara &amp; Shatha</td>
<td>RIWAQ, Directors</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Mimi Habash</td>
<td>Resident</td>
<td>Phone call</td>
<td></td>
</tr>
<tr>
<td>Shireen Bandak Mauge</td>
<td>Bethlehem city councilor, Bethlehem city councilor</td>
<td>Negative</td>
<td></td>
</tr>
</tbody>
</table>

This is similar to having a community based business model with the involvement of the majority of the Star Street stakeholders and with their own ideas and initiatives.
Third: Creating and Capturing Value:

This is the core of the business model. The diversity of stakeholders participating in the value creation for the street is an advantage for the business model which can combine the inside-out and outside-in perspectives. Creating and capturing value for the street will be through the proposed business model for creative tourism which is analyzed in the framework of cultural tourism. The creative tourism\(^1\) is perceived as a form of cultural tourism but is slightly different from the mainstream cultural tourism. This business model can be applied to the cultural tourism for Star Street in Bethlehem to fully utilize their creative and cultural heritage potential.

This business model offers visitors the opportunity to develop their creative potential through going beyond the general tourist gaze, by the opportunity to engage in different activities such as crafts, arts, culinary and other creative activities, thus creating a close link between the tourists, the local population and its cultural heritage. The tourist will visit the Star Street looking for active participation.

The value of the star street will go beyond the traditional cultural tourism which focuses on viewing and seeing destinations such as visiting museums, art galleries, concerts, dancing performances and the like. The value of star street will be based on the creative tourism which is based on “experiencing”, “participating” and “learning” for example not only observing icons or icon painting but taking courses on icon painting in the iconic school. The creative tourism in Star Street will include cultural tourism that satisfies the higher-level need of self-actualization for those who passes this route.

This route will be as well a pilgrimage route for religious tourists and self-discovery route for those who are looking for creative tourism and interaction, the primary focus will be on active skill development.

This type of tourism (creative tourism) will utilize all tourist resources like dabkah dances, singing Palestinian traditional songs, Palestinian story telling or Hikayat, local crafts, painting, festivals, etc...

Cultural Experience
Bethlehem in general and Star Street in particular are rich in cultural traditions and crafts that provide an ample resources for creative tourism growth and the development of both traditional and modern creative industries. The table below summarizes examples that can be utilized by Star Street investors:

\(^1\) Creative tourism is a form of cultural tourism (Ohridska-Olson, 2010). More specifically it is “travel directed toward an engaged and authentic experience, with participative learning in the arts, heritage, or special character of a place, and it provides a connection with those who reside in this place and create this living culture” (UNESCO, 2006).
<table>
<thead>
<tr>
<th>Location</th>
<th>Creative base</th>
<th>Description of creative activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother of Pearl Center - Suggested to be at Star Street</td>
<td>Local crafts Mother of Pearl</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Ceramics Center - Mother of Pearl Center - Suggested to be at Star Street</td>
<td>Local crafts Ceramics</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Iconic Center - star street (Already exist )</td>
<td>Local craft Icon photos</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Mosaic Centers - star street (Already 2 centers exist )</td>
<td>Local craft Mosaic</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Olive wood Carving Center - Suggested to be at Star Street</td>
<td>Local craft unique style of wood carving</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Art in glass Center - Suggested to be at Star Street</td>
<td>Local craft Art in glass</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Art in pottery Center - Suggested to be at Star Street</td>
<td>Local craft Art in pottery</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Beitona altelhami women association</td>
<td>Local craft Embroidery &amp; Traditional Soap Making</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Painting &amp; Artistic handheld - Suggested to be at Star Street</td>
<td>Painting &amp; Artistic hand made</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
<tr>
<td>Traditional Olive Oil Soap Making</td>
<td>Palestinian craft Traditional Olive Oil Soap</td>
<td>Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
</tbody>
</table>
Pal Professionals Consulting and Investment Services Co.

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<table>
<thead>
<tr>
<th>Center - Suggested to be at Star Street</th>
<th>the craft and/or purchasing there chosen handmade item from the center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver and Jewelry Center Suggested to be at Star Street</td>
<td>Palestinian craft Silver and Jewelry Participate in workshops and/or classes and/or listening to the narrative behind the craft and/or purchasing there chosen handmade item from the center</td>
</tr>
</tbody>
</table>

**Religious Experience**

In addition to the cultural experience, Star Street should reflect also the religious spiritual value of its own, the religious experience will add value for the street and its visitors, the street should also designed to reflect this value by adding a biblical rout through and structuring within the street at least 3 biblical stations that include a big sign that include a story about the religious value of the street, the station can include a digital voice or visual show by using screens or other technological means.

**Other Activities**

Star Street Development Company/Unit should create all the year round activities, ceremonies, festivals, dabka dancing, Artistic shows, Painting competitions, etc..., such activities will enrich the tourists activities and extend the time spent on the street and represent an attraction and motivations for the tourists to visit the street and stay for longer periods, however, these activities will contribute also to attract local tourists from Bethlehem governorate and other governorates to visit the street with their families to spend quality time and experience the shows. The following are suggested activities for the street:

- **Annual Handicraft festival** that include all Palestinian Handicrafts industries, this festival will turn Star Street to be the first Palestinian Handicrafts Hub in Palestine.
- **Specialized Crafts Annual Festivals** such as Mosaic Festival, Olive wood Festival, Mother of pearl Festival, etc....
- **Annual Festival for Palestinian Traditional Food and Sweets** where tourists will have the opportunity to taste the Palestinian cuisine and buy some.

During festivals tourists can enjoy dancing, eating, drinking, interacting, singing, and getting exposed to the real Handicrafts of Palestine in its people culture tradition and Heritage in one space and at the same time to share vision of a better future of love and communication between all and for all. These festivals could become an entry point to Palestinian tourism and Palestinian Public relations. The tourists’ objectives may vary but all would have the opportunity to come and see the true image of Palestine.

This will have a sustainable impact in tourism at Star Street and will make tourism experience authentic. This tourism will be based on the authentic experience it delivers to the tourist. Therefore, the Star Street itself will be part of the creative experience and can stimulate creativity for tourists and local community.
Policies

The proposed Public Private Partnerships should play a key role and contribute to motivating the success of the street through imposing a package of supporting polices to encourage the residents of the street and the stakeholder and investors to invest and revive Star Street and turn the miserable current status of the street into a success and a model to be followed in other tourism areas of Palestine in general and Bethlehem Governorate in particular.

The policies that can be considered as prerequisites to the success of the street and the proposed Company/Unit will focus on the following aspects:

- Traffic and Transportation
- Security
- Investment motives
- Opening and closing hours of shops
- Disabilities Accessibility
- Other Services

Proposed Recommended Policies

Traffic and Transportation

1. Provide car parking facilities around the site; Rimon Nazzal Parking, Samaan’s Family land and Filip Farraj land (right near to the Catholic Action roundabout) can be a good solution for the Parking.
2. Decision to make the drop point for tourists at Catholic Action roundabout to prolong tourist stay in Start Street. This also will minimize the negative impact of the site’s visitors on the site and encouraging eco-tourism approaches; this is related to the capacity of the site and avoiding traffic jams related to the capacity of the Catholic Action roundabout.
3. Control traffic in the Pilgrimage Route and ensure friendly pedestrian environment.
4. Shuttle busses to bring tourists from Jerusalem Crossing to Catholic Action roundabout and from Hotels at night to Catholic Action roundabout
5. Opening the street on Sundays’ prayers for cars to insure an easy access to churches.
6. Opening the street for the shop owners’ and their suppliers’ cars on daily bases from 6:00am to 8:00am to enable them to upload their merchandise.
7. Opening the street for its residents’ cars daily from 12:00am to 8:00am to facilitate their movement in case of emergency.

Security

8. Increase the number of Tourism Policemen and installing the cameras security system (CCTV) throughout the site and enhance their role in securing the appropriate security measures for locals and visitors.
9. Ensure first aid clinic services for the site user in addition to easy access for the ambulances, Civil Defense and Police when needed.
Investment Motives

1. Activating a motivation package for investors in Star Street that should include the municipality fees and Tax free policy for the first 3-5 years of the project.
2. Allowing restaurants and coffee shops to use the street for their tables and chairs.
3. Facilitating bank and MFIs Credit to shop owners.
4. Facilitating services for shop owners and investors such as Electricity and water connection/reconnections/transporting of reconstruction wastes.
5. Supporting and encouraging the conservation of the shops internally
6. Any shop owner who will open his business can use the door and the space of the shop in the other side of the road (if it is closed) temporarily until the other shop is open or under renovation.
7. Help more residents to dedicate 1-2 rooms for guests (AirBnB)/ these rooms should be registered but exempted from Fees and Taxes.
8. Engage the different stakeholders and tourism agencies in meetings and Workshops to consider the street in their plans, scope of work and programs.
9. Highlight the Site in the annual calendar of events for Bethlehem through a cooperation between Bethlehem Municipality, MOTA and alternative tourism organizations.
10. Support alternative tourism approaches, enhance and promote community-based local initiatives regarding tourism. This will promote the authentic heritage of local community within the street.

Opening and closing hours of shops

11. The opening and closing hours of all stores in Star Street should be defined and extended according to season, type of business to meet the tourists and local visitors time (For example the restaurants and coffee shops should be open until midnight and other stores and business until 8:00pm all around the year).

Disabilities Accessibility

12. Equip the street to be friendly for disabilities such as good sidewalks with wheelchair access.

Other Services

13. Securing WC (Toilet) service in Star Street.
14. Installation of benches and shaded areas along the Pilgrimage Route.
15. Improvement of Tourism Sites: Site clean-up, aesthetic improvement, restoration and conservation. Improve experience by providing signage,
ancillary attractions, and onsite amenities including relaxation areas, tourism information and materials, where possible involving local community.
16. Improvement of lighting and signage in the star street.
17. Coordinate city-sponsored activities around major holidays in Star Street.
18. Unification of stores signs style.

Bethlehem City Council in its meeting number 201 dated 5th Sept. 2020 has approved the following recommendations:

- A Decision has been made to make the drop point for tourists’ busses at Catholic Action roundabout, no discounts granted on busses fees.
- Regarding the shuttle busses to bring tourists from Jerusalem Crossing to Catholic Action roundabout and from Hotels at night to Catholic Action roundabout, this recommendation will be discussed later according to proven need.
- A Decision has been made regarding the inclusion of the plot of land belonging to the Samaan’s family, “next to the school of the Sisters of Saint Joseph in Star Street” within the structural plan for the city of Bethlehem as a car parking. In addition to cooperating with Mr. Philip Farraj who submitted a request to the municipality to establish a parking lot in his land.
- The opening and closing hours of Star Street for its residents will depend on the operational peak times, which will be determined by the city council in cooperation with its partners.
- Equip the street with an environment friendly light transportation vehicles for the street residents and their visitors 24/7.
- Equip the street to be friendly for disabilities such as good sidewalks with wheelchair access, etc...
- Activating a motivation package for shop owners in Star Street that include the exemption of the municipality fees (Waste charges and fees for crafts and industries) for the first 3 years and the possibility to renew according to status.
- Allowing restaurants and coffee shops to use the street for their tables and chairs.
- The City Council will establish in the future a local committee headed by the council in partnership with Star Street residents, MOTA, the tourism police and Bethlehem Chamber of Commerce, and the municipality will set its tasks and internal system in the future in cooperation with its partners.
- Facilitating services for shop owners and investors such as Electricity and water connection/ reconnections/transporting of reconstruction wastes.
- Improve the touristic experience by providing signage, ancillary attractions, and onsite amenities including relaxation areas, tourism information and materials.
- Activating the Tourism Information Center in Star Street to be operational for 18 hours a day by the Municipality and MOTA staff.
- Activating the “Peace Center” according to Bethlehem Municipality current strategy and finalizing the preparations and the operationalization of the Museum.
- Regarding “supporting and encouraging the conservation of the shops internally”, Bethlehem Municipality insisted its commitment with the “Bylaws for the Preservation of Architectural Heritage in Bethlehem City” of the year 2014, and will continue its work on developing it.

Recommendations on Capacity needs for local community

Community capacity building is about community empowerment. Community capacity building helps individuals, organizations, and communities to utilize their skills, resources and geographic advantages that enable them to reconsider strengths and opportunities of the abilities of community capacity in tourism development. Community capacity building enhances strengths and increases the confidence needed to tourism development in Star Street. Community capacity building will be built upon awareness campaigns and training session built on a participatory approach.

The success of tourism development requires that all stakeholders understand that investments in community capacities are necessary for development. Without community capacity building, tourism development processes could not operate. In order to implement the Business model we need to ensure community development, since the current local community capacity to undertake tourism programs is very limited, therefore, building capacities runs parallel with community development and creative business model development at Star Street. Tourism development practitioners should be aware of the need to understand the interrelatedness of the community capacity building (Hawe 1994).

The capacity building for Star Street needs to allocate resources from different stakeholders and donors to invest in awareness workshops and specialized trainings courses for actors in tourism scene in Bethlehem, the following section will illustrate the proposed capacity building activities to contribute to the success of the proposed business model:

Awareness workshops and activities:

Awareness workshops for Star Street residents and tourism practitioners including tourism incoming tour operators, touristic guides, business owners and investors in the street should include the following aspects:
- The religious importance of Start Street.
- The historical importance of Star Street.
- The cultural aspects of Star Street.
- An awareness course on Intangible and tangible heritage.
- The importance of tourism in creating Jobs and income generation opportunities.

Printing a briefed brochure about the religious, historical and cultural aspect will contribute to raising the awareness and attention of tourists on Star Street.

**Specialized Training Courses and programs:**

Several specialized training courses and programs are essential to assure the tourism services quality in Star Street, a training plan associated with an implementation plan should be designed in cooperation with main stakeholders and actors in the sector in Bethlehem, The following are an initial suggestions for the proposed training courses and programs:

1. **Vocational training:** Vocational training programs related to the tourism sector like hotel management, foodservice management, kitchen management and management in restaurant industry, gastronomy and food production, deserts, hospitality, other relevant programs.

2. **Universities:** Enhance cooperation with Bethlehem University, encouraging research, Masters in tourism and the continuous development of related programs in addition to extension courses such as Hotel management, Intercultural Communication, language courses and more.

3. **Soft and life coach skills trainings:** Cooperation with training centers to offer training sessions to local community involved or welling to get involved in the tourism sector with a focus on women and youth in the following aspects:
   - Entrepreneurship and small business development, marketing and promotion.
   - Communication, Dialogue, Negotiations, Planning skills.
   - Network and group- work, team building, working within a team.
   - Critical, Creative and Innovative thinking.
   - Problem solving, Setting goals, Decision making, Self-confidence and assertiveness.
   - Time management and delegation.
Marketing Strategies and Tools for Star Street

According to Pal Pro analysis and the above business model, the following section will summarize the marketing strategies to be followed for Star Street:

**Process:** Establishing Star Street Development Company/Unit to be the driver for developing and promoting the Street and its businesses, SSDC/SSDU will be responsible on Marketing, Management, Investment and building trust between partners.

**Product:** Unique Tourism offer by creating a cultural and religious offers on the street in addition to entertainment activities all over the year.

**Price:** The pricing policy and orientation will be sited by the SSDC/SSDU to fit with its targeting policy for the incoming tourists and local tourists’ activities and products.

**Place:** Star Street has been renovated recently and several interventions have been recommended to enhance the security, safety and transportation to access the street by the tourist and turn the place to a prime touristic destination.

**Promotion:** Star Street will be promoted as one unit for achieving the best offer and a cost effective approach to promote that businesses and activities on the street.

Marketing and Promotion tools to be used by SSDC/SSDU:
Socio- Economic impact of implementing the business model

As the creative tourism business model discussed above implemented, the development of this type of tourism will have the following positive socio-economic impact:

- **Job creation:** The revival of Star Street will create at least 150-200 direct jobs for youth, women, and men, which will impact positively the employed persons and their families’ standard of living.

- **Generation of Income:** A successful project in Star Street will lead to better income generation for the businesses in the street with will contribute positively in the growth of the tourism sector.

- **The implementation of the business model will contribute in enhancing the competitiveness of the active businesses in Star Street.**

- **The suggested business model will contribute in reviving the local crafts, Arts, tradition and costumes, preservation of ancient arts and crafts and renewing pride of the locals living at Star Street in their cultural heritage that they become a pilot model to be followed by the rest of the community. In addition to creativity spill-over effects.**

- **Cultural heritage preservation (tangible and intangible):** Integrating conservation and valorization of cultural heritage in the domain of community development, education, and tourism, as well as encouraging its accessibility and knowledge, can be helpful in raising awareness among the community on the importance of cultural heritage in its Palestinian identity.

- **The success of Star Street will represent a model to be followed and replicated on other locations and streets with touristic potentials in Palestine in general and Bethlehem in particular.**

- **Enhancing awareness among Star Street community about the importance of tourism in general and for their street in particular.**

- **Enhancing the capacity of youth and women in tourism services which will be have a positive impact on the trained tourism labor themselves and increase their opportunities to improve their living standards and also the quality of the touristic services delivered.**

- **Enhancing the value per money for the inbound tourists and contribute to enhance their satisfaction and experience in Palestine.**
Monitoring and Evaluation Framework

The Star Street project impact should be measured to reflect the different aspects affected by the intervention, that include but not limited to the impact on the tourism sector as a whole, impact on the residents of Star Street, and the impact to serve as a mechanism to maintain and guarantee the satisfaction of the tourists while visiting the star street.

Baseline
To insure a reliable monitoring and evaluation process, baseline surveys should be conducted to document the current stratus of different aspects in Star Street which will enable the stakeholders to document and measure the improvement and progress level achieved in each aspect of the street. The following baseline surveys are a prerequisite:

Baseline survey for the tourism sector in Bethlehem as of the beginning of the implementation of the project:
- Number of tourists visiting Bethlehem.
- Number of overnight stays in Bethlehem.
- Average spending of tourist in Bethlehem.
- Breakdown of tourist spending per touristic activity.
- Number of inbound tourists & local tourists visiting Star Street.
- Number of active businesses in Star Street per touristic activity.
- Number of employees and labor force in Star street businesses.
- Average income generated by active businesses in Star Street.
- Current investment value in Star Street.
Baseline Survey for Star Street residents as of the beginning of the implementation of the project:

- Average income.
- Understanding the importance of tourism for their street.
- Number of residents involved in businesses in the street.
- Ability to cooperate with any developmental plan.
- Ability of involve in development activities.
- Level of satisfaction on current services such as security access, etc...

Baseline survey for the tourists’ perception and satisfaction as of the beginning of the implementation of the project:

Tourist satisfaction is central to whether tourists return, recommend the destination to others or conversely advise others to stay away. It is therefore a leading indicator of the longer-term sustainability of the destination. Tourist satisfaction is based on many different factors, including the range of attractions of a destination, its market positioning, the quality of services, the expectations of tourists, and the experiences of each tourist during his/her stay. Many of the elements which affect tourist satisfaction (e.g., cleanliness of accommodation, water and food safety, friendliness of hospitality) are at least in part within the management purview of the industry and destination managers. The following chart illustrates the major aspects to build the baseline and then the evaluation process accordingly:
Tourist Satisfaction is the product of a number of dimensions, such as:

- Travel and Transportation experience.
- Hotel and accommodation experience.
- Restaurants, bars and coffees experience.
- Retail shops and Handicrafts trail experience.
- Meeting tourists’ expectations.
- Providing a sense of good value for money.

Results-based Monitoring and Evaluation

The best monitoring and evaluation approach is to be linked by the expected results that will reflect the success of the implementation of the project. The suggested results that can reflect the success in Star Street will be the following:

1. Star Street Development Company/Unit established within 3 months and fully operational in 6 months.
2. Conducting baseline surveys as described in the previous section within three months, and conducting a tourist satisfaction survey and residents’ survey by the end of each year to monitor the progress and evaluate the results every year.
3. Reservation and reopening at least 30% of Star Street with various businesses during the first year of the project.
4. Reservation and reopening of another 30% of Star Street shops are open by the end of the second year.
5. 10% of the shops to be preserved and open every following year for the following 4 years.
6. At least 50% of tourists visiting Bethlehem are passing through the street after by the end of the first year
7. At least 10% of the tourists staying at Bethlehem are visiting Star Street at night. And a similar number of local tourist are visiting the street.
8. Increase the time spent at the street by 50%.
9. Increase awareness and level of participation of the local community.
10. Increase the income of operating business on the street by 50% in the first year.
Action Plan
The following chart will summarize the sequence and the time frame of achieving the action plan for the project activities in the first year

Annexes
Annex I: Tourism Market Analysis
Annex II: References
Annex I: Tourism Market Analysis
The following section will highlight the main indicators and trends of the tourism market in Palestine, Bethlehem and Star Street according to the data available from different sources.

The Palestinian Tourism Market
Inbound tourism consumption in Palestine
According to the Palestinian Central Bureau of Statistics (Tourism Satellite Accounts, 2017) the total consumption of inbound tourism showed an increase by 27.3% in Palestine for the year 2017 compared to 2016, the consumption on inbound tourism totaled USD 1,019.3 million in the year 2016, including both overnight stay visitors and same day visitors compared to USD 1,297.5 million in the year 2017. This increase was due to the increase of the number of overnight stay visitors by 22.6%.

The percentage contribution of consumption in 2017 comprised: 34.8% on shopping, 25.1% on food and beverage serving services, 22.8% on accommodation services, 9% on passenger transport and communication services (87.5% on transport and 12.5% on communication), and 8.3% on other expenses.

Domestic tourism expenditure of Palestine
According to the Palestinian Central Bureau of Statistics (Tourism Satellite Accounts, 2017) the total expenditure on Domestic tourism increased by 8.2% in 2017 compared to 2016, the expenditure on domestic tourism totaled USD 165.7 million in the year 2017, including both overnight stay visitors and same-day visitors compared to USD 153.1 million in the year 2016.

The percentage contribution of expenditure comprised 54% on food and beverage serving services, 10.7% on passenger transport and communication services, 9.4% on accommodation services, 6.2% on shopping and 19.7% on other expenses.
Domestic vs. Inbound Tourism

The following chart illustrates the total value of inbound tourists spending in 2016-2017 versus the value of inbound tourists spending:

Analysis

The above statistics illustrates the following:

- The importance the inbound tourism in terms of Value compared to domestic tourism.

- The major spending of the inbound visitors is for shopping followed by food and beverages and then accommodations. While the major spending of the domestic tourist is the food and beverages followed by other items.
Bethlehem Tourism Statistics

Number of Inbound tourist to Bethlehem

According to the tourism police statistics in Bethlehem the number of inbound tourist has a steady positive growth in the last three years, the following chart illustrates the number of inbound tourists visited Bethlehem for the period 2012 -2019:

![Number of Inbound Tourists / Year (2012-2019)](image)

Number of Inbound tourist nights spent in Bethlehem

According to the same source the number of inbound tourists nights spent in Bethlehem Hotels has also a steady growth for the last four years, the following chart illustrates the number of inbound tourists nights spent on Bethlehem for the period 2012 -2019:

![Number of Nights /Year 2012-2019](image)
Average Number of Inbound tourist Busses to Bethlehem

The following chart illustrates the average number of inbound tourist busses visiting Bethlehem per day for the period 2012-2019, an opposite trend for the last three years can be noticed:

![Average Tourist Buses per day / Years 2012-2019](image)

The following chart illustrates the average number of inbound tourists’ busses visiting Bethlehem per day according to month of the year 2019:

![Average Busses per Month of the year 2019](image)

The average busses of inbound tourists reach in 2019 around 105 busses per day, the lowest average was in June and July where the average number of busses didn’t exceed 61 busses per day, while the highest average number of busses was in

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November with 173 busses per day. These numbers are very important for the traffic management plan of the authorities in Bethlehem.

**Star Street Tourist Survey**

The Center for Cultural Heritage Preservation (CCHP) has conducted recently a survey that included 34 inbound tourists passing by Star Street to get feedback about their perception and experience among other information on the street. The major results of the survey were the following:

**Country**

<table>
<thead>
<tr>
<th>Country of Origin</th>
<th>UK</th>
<th>Argentina</th>
<th>France</th>
<th>Holland</th>
<th>Mexico</th>
<th>Austria</th>
<th>Hong Kong</th>
<th>Honduras</th>
<th>Italy</th>
<th>Poland</th>
<th>USA</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>9%</td>
<td>21%</td>
<td>32%</td>
</tr>
</tbody>
</table>

**Age Group**

- 18 - 30: 65%
- 30 - 40: 21%
- 60 OR OLDER: 12%
- 17 OR YOUNGER: 3%
- 40 - 50: 3%
- 50 - 60: 3%
Accommodation

Where are you staying?

- Hosted by a local family: 18%
- Hotel in Jerusalem: 18%
- Rental apartment in Biet Sahour: 14%
- Hotel in Bethlehem: 12%
- Hosted by a local organisation: 9%
- Other: 8%
- Live in Jerusalem: 6%
- Rental apartment in Biet Jala: 6%
- Rental apartment in Bethlehem: 6%
- Rental apartment in Jerusalem: 3%

Travel and Transportation

4. How did you arrive to Star Street?

- Tourists Bus: 0%
- Other: 3%
- Taxi: 9%
- Car: 18%
- Public Transportation: 24%
- On foot: 46%

Was it hard for you to reach your destination?

- Yes: 24%
- No: 76%
Purpose of Visiting Star Street

What is the reason behind your visit to?

- SIGHT SEEING: 47%
- BETHLEHEM LIVE FESTIVAL: 26%
- PASSING BY: 15%
- OTHER: 6%
- SHOPPING: 3%
- ARCHITECTURE AND CULTURE: 3%
- RELIGIOUS:

Awareness

Did you know that Star Street is part of a World heritage site together with the Church of the Nativity?

- NO: 62%
- YES, IF YES IT IS: 38%
- DURING THE VISIT FROM INFORMATIVE PANELS ALONG THE STREET
- PRIOR TO YOUR VISIT TO THE STREET

Do you have any historical information on Star Street?

- NO: 79%
- YES, IF YES IT IS: 21%
- FROM NEIGHBORS
- DURING THE VISIT FROM INFORMATIVE PANELS ALONG THE STREET
- PRIOR TO YOUR VISIT TO THE STREET
Tourists rating of Star Street

How did you hear about Star Street?

- Promotional material: 3%
- Tour guide/Travel agency: 6%
- The internet: 9%
- Never heard of it before: 38%
- Through a friend: 44%

Do you feel safe walking in Star Street?

- Yes: 3%
- No, if no: 9%
- Due to cars movement: 29%
- A relatively empty street: 59%

How do you rate your experience at Star Street?

- *: 0%
- **: 0%
- ***: 3%
- ****: 9%
- *****: 29%
- ******: 59%

How do you rate your experience in Bethlehem?

- *: 0%
- **: 0%
- ***: 12%
- ****: 32%
- ******: 56%
Tourists’ recommendations to improve experience

Even though the number of surveyed tourists was limited to 34 tourists, the results of the survey is very important and informative especially regarding the tourist experience and preferences and offers a good information about the lack of awareness about the street and different other aspects.

Star Street Merchants Survey

The Center for Cultural Heritage Preservation (CCHP) has conducted recently a survey in Star Street that included 55 merchants representing 58 stores (from The Roundabout to Sabat) and 57 merchants representing 99 stores (from the Roundabout to the manager square) to get feedback about the status of the street (in total 157 stores in Star Street represented – From Sabat to manager square). The major results of the survey were the following:
Status of the Stores and motives to invest

**Are the commercial unit/units you are in charge of in use?**

- Yes: 35%
- No: 65%

**Reasons why the commercial units are not in use**

- Other: 4%
- Unavailability of a family member to manage the unit: 13%
- Lack of financial resources: 23%
- Waiting for the economic revival of the pilgrimage route: 60%

**Willingness in invest in the future**

- No: 3%
- Yes: 97%
Incentives that shall help investing in the units

- Other: 7%
- Flexible loans systems: 16%
- Reduce taxes: 38%
- Providing financial aid: 39%

The physical state of your commercial units

- Good: 54%
- Bad: 30%
- Excellent: 14%
- In need of immediate intervention: 2%

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Suggested Activities

Activities that will contribute towards revitalizing the Pilgrimage Route

<table>
<thead>
<tr>
<th>Attraction in the site</th>
<th>Other suggestions</th>
<th>Weekly markets</th>
<th>Cultural festivals</th>
</tr>
</thead>
<tbody>
<tr>
<td>18%</td>
<td>18%</td>
<td>32%</td>
<td>32%</td>
</tr>
</tbody>
</table>

Transforming the Pilgrimage Route to a pedestrian-only street

Neutral | Don’t Agree | Agree
--------|-------------|----------|
2%       | 13%         | 85%      |

Services that should exist in the Pilgrimage Route

- Cafes and restaurants: 26%
- Art galleries: 25%
- Souvenir shops: 24%
- Traditional handcrafts: 21%
- Other suggestions: 4%
Suggestions to facilitate car movement and parking in the Pilgrimage Route

Ownership and Stores Conditions

Ownership of the commercial units

Determine the area of the shop or shops
Annex II: References


Bethlehem Municipality (2017), Bethlehem Municipality Strategic Development Plan 2018-2021


Office of the Quartet Representative. (2013), Initiative for the Palestinian Economy Tourism


Strategic Analysis of Bethlehem, retrieved from:


In the year of 2008 and by A Presidential decree, The Presidential committee for Restoration of the Church of Nativity was established and headed by Ziad Albandak and membership of; Marwan Abdelhamid, Varsen Aghabekian, Nazmi Al Jubeh, Khouloud Daibes, Claudette Habesch, Nabil Kassis, Issa Kassissieh, Anton Salman.

By the year of 2010, the Palestinian Authority and The Presidential Committee, after coordinating and getting the approvals from the different concerned churches, announced a design and assessment effort tender. This tender has been established to direct the restoration program of the Nativity Church.

The Design agreement was signed off in September 2010 with the selected consortium in the presence and witness of the Prime Minster Dr. Salam Fayyad and the representatives of the three concerned churches (Greek Orthodox Patriarchate, Holy land custody Terra Santa, and Armenians Orthodox Patriarchate.) The three stages of design were completed in October 2011. The design package comprised of a final report, tender documents, design drawings and a Bill of Quantities for each component of the restoration program of the Nativity Church.

The Presidential Committee has assigned an international consulting company to review and prepare the tender documents, and coordinated with ICCROM for their technical assistance and counselling in the different stages of selection of the design firms and throughout the review of the final report.

After a thorough evaluation of the available funds, the presidential committee decided to renovate the Nativity church’s roof and windows only in the first stage. In light of that decision, the consortium put together a pre-qualification document and tendering package. On July 22, 2013 the Presidential Committee awarded the contract to the specialized Italian restoration contractor - Piacenti – one of the four international contractors who participated in the tender. Moreover, the committee decided to award the project’s construction management to CDG and Consortium; who prepared the final report study of the Nativity Church’s restoration.

On August 26, 2013 the Construction contract of the roof and windows restoration - which is in the amount of 1.93 million Euro - was signed between the Committee’s Chairman Eng. Ziad Albandak and the winning contractor in a ceremony held in the Presidential Palace - Bethlehem in the presence of Dr. Rami Al Hamdallah - the Palestinian Prime Minister, the three churches representatives and other ministers and officials.

Since the commencement of the restoration works on September 15, 2013, the Committee has been receiving generous donations from different donors, which enabled the committee to start and complete the restoration of other parts of the Church’s based on a list of priorities and according to the final study recommendations. These additional works included the restoration of the Narthex, the Narthex Eastern Wooden Door, the External Stone Façades, Internal Wall Plastering, Wall Mosaics, Basilica Metal Doors, Wooden Architraves, installation of lighting and smoke detection systems, the Basilica 50 Stone Columns, the floor mosaic and the restoration of the marble floor at Transept north, Bema area in front of the Greek Orthodox wooden iconostasis and transept south and the Baptismal font.

These additional authorized works had raised the amount of the signed contract to around 12 million Euros.
List of Restoration program achievements

1. **The roof works:**
   a. The whole roof was covered with new lead sheets with a total area of 1625m².
   b. Less than 8% of the wood trusses have been replaced with ancient wood brought from Italy.
   c. The seismic performance of the basilica had been improved by adding seismic steel connectors.

2. **Wooden windows:** All Church’s 42 deteriorated wooden windows were replaced with new wooden windows with UV double glass.

3. **Narthex works:**
   a. The three damaged cross vaults of the Narthex area were restored and consolidated and a new steel structure was installed to bear the new roof floor and to connect the opposite facades (The Basilica & the Narthex facades)
   b. By the completion of the consolidation of the Narthex cross vaults, it was able to remove the huge wooden propping placed inside the Narthex since 1930s duration the British mandate.

4. **The Narthex eastern door and the Basilica metal doors:**
   a. The carved Narthex eastern wooden door has been renovated and consolidated.
   b. The metal doors of the basilica have been restored including the main church access door “The door of Humility”, and the three doors leading to the three convents.

5. **The consolidation of the internal plastering:** 3365m² of the internal plastering have been consolidated including the replacement of the cement patches the extremely deteriorated patches with a compatible lime plastering layers.

6. **Wall mosaics:** The whole wall mosaic with a total area of 125m² was renovated including consolidation and cleaning works. (92m² at the central nave & 33m² at the transepts and apse).

7. **The external stone facades:** The total area is 3076m²
   i. 928 m² already renovated (about 30%) Urgent areas.
   ii. 595 m² already renovated related to the front façade “western elevation”
   iii. 440 m² already renovated at the Northern facade
   iv. 521 m² already renovated at the Eastern façade.
   v. 592 m² already renovated at the Western façade.

8. **Wooden Architrave over the stone capitals:** 52 segments of the wooden architraves with a total length of 154m were renovated. The works include the replacement of the most deteriorated inner parts and the consolidation of all decorative outer surfaces.

9. **Stone columns and the paints on columns (on going):** The Church 50 stone columns were restored, 33 of which have paints representing religious symbols.

10. **Electrical works:** The electrical works include the installation of the smoke detection and the lighting systems. The works were completed in December, 2017.

11. **Floor Mosaic:** By the mid of January 2018, the restoration of the floor mosaic area (area #1, 2, 3, 4, 5, 6, 7 and 10) were authorized. Area #1 located at the Central Nave beside the Bema, Area 2 & 10 at Transept North beside the stairs leading to the Bema while areas #3, 4, 5, 6, 9 at the Central Nave while area #7 located at lateral nave south. The restoration of all areas was completed in July 2019.

12. **Marble floor:** The restoration of the most damaged marble tiling located at transept north started on February 5, 2019 and completed in June 2019. As well as the Bema area started in October 2019 and completed in December 2019 and transept south completed in May 2020.

13. **The Baptismal font:** The restoration works started by the mid of June 2019 and completed in February 2020.
**Main remaining restoration works for fund raising**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Restoration of the marble tiling for Bema (In front of the Orthodox iconostasis)</td>
<td>€ 120,000</td>
</tr>
<tr>
<td>4</td>
<td>Structural Consolidation at the two corners (Transept North &amp; South)</td>
<td>€ 250,000</td>
</tr>
<tr>
<td>5</td>
<td>The installation of a firefighting system</td>
<td>€ 150,000</td>
</tr>
<tr>
<td>6</td>
<td>The installation of the microclimate system</td>
<td>€ 250,000</td>
</tr>
<tr>
<td>7</td>
<td>Restoration of the central nave stone tiling</td>
<td>€ 250,000</td>
</tr>
<tr>
<td>8</td>
<td>Study and restoration of the Church front yard stone tiles and the installation of electrical hydraulic bollards (Study amount is 25,000 Euro – On going)</td>
<td>€ 450,000</td>
</tr>
<tr>
<td>9</td>
<td>Consolidation of the Basilica external southern wall against seismic action</td>
<td>€ 300,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total of main remaining restoration works</strong></td>
<td><strong>€ 1,770,000</strong></td>
</tr>
</tbody>
</table>

For more information about the Restoration program, please visit our Website:

http://www.nativityrestoration.ps

Short film about the restoration works
**List of Donors:**

1. State of Palestine
2. Hungary
3. Said Tawfiq Khoury-CCC
4. Palestine Investment Bank
5. The French Republic
6. The Russian Federation
7. The Holy See-Vatican
8. Palestinian Investment Bank
9. Palestinian Commercial Bank
10. Bank of Palestine
11. The Hellenic Republic "Greece"
12. Alberto Kassis - Chile
13. Jose Said-Chile
14. Russian Orthodox Patriarchate
15. The Kingdom of Spain
16. Pontifical Mission
17. Armenian Orthodox Patriarchate
18. The Republic of Italy
19. The Federal Republic of Germany
20. The Kingdom of Morocco
21. The Republic of Poland
22. Paltel Group-Palestine
23. Turkish Cooperation TIKA
24. Arab Fund for Economic and Social Development - BDF
25. The Kingdom of Belgium
26. The Republic of Chile
27. Cologne City-Germany
28. Ibrahim Shukri Dabdoub
29. Hilda Bandak Dabdoub
30. Tamara Ibrahim Dabdoub
31. Quds Bank
32. Marina Venturini-Italy
33. World Economic Forum (Prof. Klaus Schwab)
34. The Foundation Alois und Jeannette Jurt
35. National Beverage Company
36. Wisam Muneer Anestas
37. Khalidoun Muneer Anestas
38. Sarpsborg City – Norway
39. Adnan Mjali – AFBDF
40. The Republic of Lithuania
41. George and Rhonda Salem Family Foundation – AFBDF
42. Republic of Malta
43. Kingdom of Norway
44. Jamal Daniel (The Levant Foundation) – AFBDF
45. The Federative Republic of Brazil
46. Praesident Des Landtags
47. Edward Djerejian - AFBDF
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78. Diaz-Cumsille Family -Chile- AFBDF
79. German Association of the Holy Land
80. Philipp Mäder
81. Prato City – Italy
82. Bishop Felix Gmür – Switzerland
83. Antiochian Orthodox Christian - AFBDF
84. Nidal Abisaab & Jane Raba – AFBDF
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FINAL REPORT

MOBILITY STUDY – TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
MOBILITY STUDY – TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM

FINAL REPORT

Project data
Client: Bethlehem Municipality
Funded by: Mairie de Paris & Agence Française de Développement
Project location: Bethlehem Conurbation, Palestine
Project start date: 15.04.2018

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List of abbreviations

BM: Bethlehem Municipality
MOT: Ministry of Transportation
HTC: Higher Transport
MOPWH: Ministry of Public Works and Housing
UNFCC: United Nations Framework Convention on Climate Change
BAU: Business as Usual
CO: Carbon monoxide
NOx: Nitrogen oxides
SOx: Sulphur oxides (SOx)
HC: Hydrocarbons
PM: Particulate matters
NDC: Nationally Determined Contributions
MCA: Multi-criteria analysis
MCDM: Multi-criteria decision making
PT: Public Transport
NMT: Non-motorized transport
PPP: Public Private Partnership
Reading Guide

In chapter 1 the Introduction with Main objectives, Study area and the Process and timeline are described as well as the Participatory process and Dialogue.

Followed by the Diagnosis and Analysis in chapter 2. In this chapter the following topics are discussed:
» Legislative, regulatory and institutional frameworks
» Socio-economic data and trends
» Climate change and environmental challenges
» Road network
» Public transport
» Non-motorized transport
» Parking
» Road safety
» Mobility patterns and accessibility

The Strategy Development is described in chapter 3 with topics Vision, Objectives, Scenarios and Alternative scenarios comparison.

In chapter 4 Action Plan we elaborate on the individual projects. The projects are subdivided into:
» Governance, Information an Education
» Integrated mobility corridors, cross-sectoral interventions
» Road network
» Parking
» Public Transport
» Walking

Monitoring and Evaluation is subject in chapter 5.

In chapter 6 the Conclusion and Further steps are described

Appendices: the strategy details of the Capacity building, Awareness campaign, and the Institutional setup

Annexes:
1. List of initial proposed long list of measures and projects
2. Schedule time plan
3. Master plan map (A3 size)
4. All other maps (A4 size)
0. FOREWORD

This document contains the main findings and proposals for the “Transport and Mobility Masterplan for the Conurbation of Bethlehem”. It represents the product of common efforts and an intensive cooperation between all stakeholders, together with the funders and the consultants over more than a one-year and a half period. The final result is an integral mobility study for Bethlehem conurbation for the next 10 years, the first of its kind in the area. It sets the scene for changes and interventions that are needed in order to make Bethlehem conurbation an accessible, liveable and attractive place for all its inhabitants, commuters and visitors from all over the world.

The different aspects of Bethlehem conurbation’s transport planning were analysed in an interdisciplinary manner and current and future trends were studied related to road networks, car use, parking, public transport, non-motorized transport, city logistics and tourism.

Co-creation, participation and an interactive dialogue between all stakeholders have guided the whole planning process, therefore the public acceptance and legitimacy of this plan were ensured. There was also a project steering committee that included representatives of the administration at different levels (national, regional and local) and decision makers which was consulted on an ongoing basis. This cooperation contributed significantly to the high quality of the study.

This document does not conclude the work that needs to be done, in fact it represents the first step of a long and exciting process in which Bethlehem conurbation has embarked. Mobility planning in Bethlehem conurbation is and will be a work in progress and a dynamic process. The measures must be concretised and verified. In this way, the plan and the projects will be continually updated so as to be able to react to future developments.

A warm "Thank you!" to everybody that has contributed to the successful completion of this assignment.
1 Introduction
1. INTRODUCTION

1.1 Introduction
Bethlehem is characterised by its continuous built-up area, a hilly topography and increasing scarcity of available land and a high density and uncontrolled urban development, served by an underdeveloped and inappropriate road and public transport network.

Due to road capacity and quality problems, coupled with a rapid growth of car ownership, Bethlehem has been faced with various transport and mobility related challenges, such as: congestion, limited accessibility, noise and air pollution, decreased traffic safety and in general, a deterioration of the quality of life of Bethlehem’s inhabitants.

In response to these challenges, Bethlehem Municipality (BM), supported by the Mairie de Paris and Agence Française de Développement, which provided BM with a grant, launched the elaboration of the first Mobility Study for Bethlehem. The first stage (data collection) was completed by a consortium consisting of CDG and Arij (finalised in October 2017). The second phase of the project was assigned to the consortium consisting of CDG Community Development Group (local company) and MOVE Mobility (international consultants).

Main objectives

» To quantify and define the locations and conditions for travel in the conurbation of Bethlehem – understand local conditions.
» To promote sustainable urban mobility by reducing reliance on the private car, encouraging the development of the use of public transport and offering a high quality and safe public space for pedestrian routes through a better share of urban spaces – encourage multimodality.
» To satisfy transport requirements in the best possible economic, environmental and social conditions – promote sustainability.
» To create an efficient urban structure and promote the potential for economic development, in particular by linking mobility services with the tourism offer – support integrated planning.
» To protect public health and quality of life for the population by reducing polluting emissions – improve livability.
» To strengthen inter-municipal cooperation and build a shared vision and strategy - improve institutional organization and build capacity.

“Provide high-quality, sustainable mobility and transport solutions and tools, in order to improve the accessibility and livability in the Bethlehem conurbation area”
**Study area**

The study area which was defined in the first stage consists of the five cities of Bethlehem, Beit Jala, Beit Sahour, Al Doha and Al Khader and the village of Artas, and the three refugee camps.

**Map 1: Study area**

![Study area map](image)

**Process and Timeline**

The process that we used in order to elaborate the Mobility Plan of Bethlehem Conurbation followed the guidelines used all over Europe and it consists of a planning cycle, characterized by continuous improvement, based on an iterative research and planning activity. The following chapters will describe the phases of: diagnosis and analysis, strategy development and action plan.
1.2 Participatory process and dialogue

The involvement and participation of citizens and stakeholders in the sustainable urban mobility planning process is necessary in order to obtain public legitimacy and create a plan that satisfies the mobility needs of people.

Co-creation and open dialogue have been at the core of the planning process of the Mobility Study for Bethlehem conurbation. Throughout the timeline of the project, several meetings with client’s representatives, various stakeholders and the project Steering Committee have taken place. These meetings have contributed greatly to the content of the project, throughout the various project phases.
Figure 2: The participatory planning process

- Phase 0: Inception
- Phase 1: Diagnosis and analysis
- Phase 2: Strategy development
- Phase 3: Action Plan
- Phase 4: Mobility Plan

Planning dialogue and participatory process:
- Steering Committee #1 - Kick-off
- Steering Committee #2
- Stakeholders’ workshop #1
- Stakeholders’ workshop #2
- Steering Committee #3
- Technical meeting #1
- Client meetings
- Steering Committee #4
- Client meetings
- Technical meeting #2
- Steering Committee #5
- Press conference
The participatory planning process – meetings with stakeholders and the Steering Committee
Diagnosis and analysis
2. DIAGNOSIS AND ANALYSIS

The overall purpose of this phase of the assignment was to understand people’s travel behaviour and (mode) choice, to understand socio-economic trends that might affect the future of mobility in the following years in the city and to understand, ultimately the challenges, bottlenecks and the solutions that are appropriate for Bethlehem. The following chapters present our main findings on the status quo of the transport system in Bethlehem conurbation.

2.1 Legislative, regulatory and institutional frameworks

Transportation sector in Bethlehem is being organized through cooperation between several parties, with each of them playing a different role according to their position and scope of work. The national level is supposed to set the general development plans in response to the needs of different areas and sectors. The following table shows the main stakeholders involved in transport planning and development. The main stakeholders involved in transport planning and development in Bethlehem conurbation are:

- **Ministry of Transportation (MOT)**: Planning of major transport developments
- **Higher Transport Council (HTC)**: Regulatory role of transport sector under the umbrella of MOT
- **Ministry of Public Works and Housing (MOPWH)**: Implementation of infrastructure projects outside the city (projects beyond municipality authority)
- **Traffic Police**: monitoring and control of transportation, traffic and road safety
- **Municipalities**: planning, design and implementation of transport projects
- **Bethlehem Governorate**: supervising and guiding the developments in Bethlehem
- **Bethlehem Transportation Committee**: coordination between stakeholders
- **Ministry of Local Government**: supervising and guiding of the municipalities.

*Figure 3: Transport governance in Palestine*
2.2 Socio-economic data and trends
In general, population has seen a tremendous growth in the Palestinian Territories, having almost doubled in the last 20 years, from approximately 2.8 million in 1997 to 4.8 million in 2017. The same trend can be observed also at Governorate and city level, for Bethlehem. By analyzing the demographic trends in the last 10 years, it can be concluded that the population has grown with an average of 2% per year across all localities that are part of the study area. Considering that no extraordinary (disruptive) events will take place and by applying this growth percentage, it can be deducted that the population of Bethlehem city will be approximately 42,325 in 2030 and 54,419 in 2040. For the Bethlehem conurbation the population will be 146,501 in 2030 and 188,362 in 2040.

Map 2: Population growth forecast in Bethlehem conurbation, based on a 2.6% uniform annual growth

<table>
<thead>
<tr>
<th>Locality Name</th>
<th>2017</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethlehem (Beit Lahm)</td>
<td>28,343</td>
<td>30,233</td>
<td>42,325</td>
<td>54,419</td>
</tr>
<tr>
<td>Beit Sahour</td>
<td>13,166</td>
<td>14,044</td>
<td>19,661</td>
<td>25,278</td>
</tr>
<tr>
<td>Beit Jala</td>
<td>13,367</td>
<td>14,258</td>
<td>19,961</td>
<td>25,664</td>
</tr>
<tr>
<td>Al Khadr</td>
<td>11,856</td>
<td>12,647</td>
<td>17,705</td>
<td>22,764</td>
</tr>
<tr>
<td>Ad Doha</td>
<td>12,641</td>
<td>13,484</td>
<td>18,877</td>
<td>24,271</td>
</tr>
<tr>
<td>Artas</td>
<td>5,695</td>
<td>6,075</td>
<td>8,504</td>
<td>10,934</td>
</tr>
<tr>
<td>Ad Duheisha Camp</td>
<td>8,729</td>
<td>9,311</td>
<td>13,034</td>
<td>16,759</td>
</tr>
<tr>
<td>A’yda Camp</td>
<td>2,800</td>
<td>2,966</td>
<td>4,180</td>
<td>5,375</td>
</tr>
<tr>
<td>Al A’za Camp</td>
<td>1,510</td>
<td>1,610</td>
<td>2,254</td>
<td>2,898</td>
</tr>
<tr>
<td>Total</td>
<td>98,107</td>
<td>104,648</td>
<td>146,501</td>
<td>188,362</td>
</tr>
</tbody>
</table>
Tourism is one of the main economic activities in Bethlehem conurbation and it has a high impact on local mobility. Therefore, it is important to understand tourism related statistics and trends. Tourism is mainly represented by organized/guided tours that use large dimensions buses for transporting the tourists around the city (to/from hotel, main touristic attractions). In general, touristic buses pose a big challenge to mobility in the Bethlehem conurbation. In the last years, a decline in the number of tourists has been registered, mainly due to unrest and political instability in the Middle East. Nevertheless, in 2017 and beginning of 2018, numbers have begun to rise again, with 37% more tourists in the first four months of 2018 as compared with the same period in 2016.

Figure 4: Number of tourist buses in Bethlehem area

Car ownership levels in Palestine have been increasing in the last decade, contributing to an increased level of congestion, harmful emissions, being directly related also to the steep increase of population. Data shows that the number of registered vehicles that are using Palestinian roads has almost tripled in the last 10 years. In general, the number of used, second hand vehicles that are registered is much higher (70% of the total number in Q2 2016 and more than 83% in Q1 2017) than the number of new ones, creating environmental concerns and contributing to the ageing of the fleet.

Figure 5: Registered vehicles in Palestine
In general, population has been steadily increasing in Palestine and in the study area, with the population under 30 representing approximately 70% of the total. At the same time, car ownership levels and number of cars on the streets, in general, have also been increasing. Economic development, on the other hand, has been volatile and fluctuating, with high levels of unemployment and an uncertain trend in GDP growth. All these factors will have a great impact on traffic and mobility in the next decades and needed to be carefully considered for the future of mobility in Bethlehem area.

### 2.3 Climate change and environmental challenges

Being a party to the United Nations Framework Convention on Climate Change (UNFCCC) since March 2016 and a signatory of the Paris Agreement in April 2016, Palestine has acknowledged the risks posed by climate change and has committed to the objectives of the Convention. Palestine has committed to become an active player in tackling and responding to climate change, by not only adopting adaptation measures, but also by stabilizing its GHG emissions, aiming at limiting its impact on climate, biodiversity and nature, in general. According to its NDC (Nationally Determined Contributions) Palestine has committed to reduce its CO$_2$eq. emissions with at least 12.8% compared to the Business as Usual Scenario (BAU) by 2040, in the status quo scenario or with at least 24.4%, if it achieves independence.

Like in most countries around the world, the transport sector in Palestine accounts for a large share of the GHG and other harmful emissions and is a main source of air pollution, being a major culprit for climate change. This is due mainly to the population growth, annual growth of vehicle fleet, the large share of second-hand, old vehicles without a catalyst and the emission standards set for vehicles, fuel quality standards, traffic management and general travel patterns (share of transport modes). Thus, the transport sector is annually responsible for large quantities of hazardous gases such as carbon monoxide (CO), nitrogen oxides (NOx), sulphur oxides (SOx) and hydrocarbons (HC), as well as other harmful substances, such as particulate matters (PM), dust, etc.

**Table 1: Total CO$_2$ produced (Tons) by Vehicle Type and Region, 2014**

<table>
<thead>
<tr>
<th>Region/Type of fuel and vehicle</th>
<th>Gasoline</th>
<th>Diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Passenger vehicles</td>
<td>Goods vehicles</td>
</tr>
<tr>
<td>Palestine</td>
<td>801,234</td>
<td>27,676</td>
</tr>
<tr>
<td>West Bank</td>
<td>493,402</td>
<td>4,987</td>
</tr>
<tr>
<td>North of West Bank</td>
<td>172,779</td>
<td>2,623</td>
</tr>
<tr>
<td>Middle of West Bank</td>
<td>190,551</td>
<td>236</td>
</tr>
<tr>
<td>South of West Bank</td>
<td>130,576</td>
<td>2,265</td>
</tr>
<tr>
<td>Gaza Strip</td>
<td>307,831</td>
<td>22,789</td>
</tr>
</tbody>
</table>

### 2.4 Road network

The road network in the Bethlehem conurbation is a complex one, without a clear categorization or structure – there is no radial or circular structure defining main routes. The main routes are determined by major traffic attractors and producers, such as Bethlehem city center, Beit Jala commercial area, Beit Sahour city center, schools, heritage sites, major commercial/leisure areas. Since there is no external ring road (especially due to Israeli imposed restrictions of usage of highways and main roads), all types of traffic are using the same network – internal, external and through traffic. The speed and the capacity of the roads
differ and the network is not uniform, with major four-lane roads discharging directly in city streets, with a much lower capacity. The legal speed on different roads is established by the Traffic Law nr. 5 from 2000.

With some exception (for example the road around Beit Jala city center), most of the roads marked as “main roads” have a wide profile, with two lanes for each direction and a variable width pavement. The typical profiles of roads in Bethlehem conurbation will have a width of 6.0, 8.0 m, 10.0 – 12.0 m and 16.0 – 18.0 m, with local and punctual variations, especially regarding the width of pavement and the usage of the existing sections (mixed for parking and driving, exclusively driving, with parking forbidden, etc.).

Map 3: Road categorization and main roundabouts in the study area
The majority of **bottlenecks and disruptions** in the main road network in the Bethlehem conurbation are concentrated in specific areas, but there are no systemic problems regarding the capacity of the major road infrastructure. The major cause of bottlenecks and disruptions are:

- Faulty design of roundabouts
- Loading and unloading of people and goods in the middle of the road/ street due to a lack of loading and unloading places
- Unclear signaling or lack thereof, poor quality of pavement
- Concentration of amenities that are producing and/ or attracting traffic
- Faulty and improper use of the street – parking in places where it is not permitted, double, sometimes triple parking, temporary stopping by the side of the road (for loading/ unloading, shopping, bringing or picking up children from schools, etc.)
- Drop-off/ pick-up points in front of hotels made by large touristic buses, both during the day and the night.

Touristic buses also pose challenges to road traffic in Bethlehem, with more than 20,000 buses per year. These buses are also using the most congested roads in Bethlehem, sharing the space with the local traffic.
Map 4: Main bottlenecks in the study area
2.5 Public transport

In general, public transportation in Palestine sector suffers from several difficulties, including an outdated bus fleet, service provision is inefficient, irregular and in some areas, inaccessible. Public transportation in Bethlehem governorate (as many other cities in developing economies) is planned by the service providers. This means that bus companies, shared taxis and shared cabs have each set their “informal” rules for establishing routes, schedules and rules of operation. This has not been controlled by the governmental agencies which hinders a proper public transport planning based on demand. The following aspects can be highlighted:

» Traffic Law No. 5 of 2000 from the Ministry of Transport of Palestine, regulates the requirements for obtaining route licenses as well as the age of the public transport fleet.
» Vehicle licenses in Palestine are issued in the form of license plates and do not expire.
» The costs for acquiring a license for operating as a public transport provider for shared taxis and shared cabs are between 20,000 and 40,000 Jordanian Dinars. The yearly costs of operation are around 800 Shekels.
» Licenses can be rented and exchanged to other vehicles. If the license is rented the yearly operation costs are 2,700 Shekels.
» Currently there is not a standard fare structure, that considers topics such as vehicle depreciation, transported passengers, travelled kilometres or fuel consumption. Payments are done to the driver of the public transport vehicles.
» The price of a trip is determined by the type of vehicle and the route; the costs vary from 2 to 50 Shekels and are established by the Ministry of Transport and corrected and adapted “on-site” to local conditions.
» The bus owners and the drivers that work for the public transport derive their income directly from passenger fares. Earnings are also invested in the maintenance of the vehicle.
» Since drivers’ monthly payments depend on the number of transported passengers, working hours can last sometimes more than 12 hours which might reflect on insecure situations due to tiredness of drivers.

There are 147 buses, 368 shared taxis and 120 shared cabs in circulation with a license to operate in Bethlehem area. These vehicles are currently serving the 47 (11 internal and 36 external) public transport routes within and to/from the study area.
The internal public transport routes offer a fair coverage for many areas within Bethlehem conurbation, within a 200 m and a 400 m distance. Nevertheless, there are several high population density areas that are barely or not at all covered by any of the PT lines. That is the case in most parts of Beit Sahour, including the city center and some touristic heritage sites, such as The Shepherds’ Fields, some areas of Al Khader and Artas, but also the southern parts of Bethlehem Municipality.

Map 5: Internal public transport routes coverage – 400 m distance

Due to this reduced coverage as well as the lack of public transport early in the mornings and late in the evenings, several users prefer to travel by car. This target group prefers not to use the shared taxis or cabs because of the waiting times in the stations until the vehicle has completed its capacity. This is more time consuming than doing the same trip by car, especially if the trip is to another governorate. One additional factor that hinders the use of public transport is the fuel cost in the region. Currently, one litre of diesel cost 4.99 Shekels, Gasoline 95 and 98, 5.84 per litre respectively. These prices are similar to the cost of roundtrip journey on public transport. However, travelling by car results to be more efficient since with one litre of fuel, a person can perform more than one trip.

Changes to the current system and organization might be complicated and could face opposition from the current transport operators. Since the individual vehicle owners usually make their profits from the current system, reorganization or readjustments, are terms that they tend to instinctively oppose. Winning over the current transport sector, while achieving public support from both customers and PT operators is perhaps one of the biggest challenges.
towards the successful implementation of any measure related to public transport for the Bethlehem conurbation.

2.6 Non-motorized transport
Walking is the only mode available as non-motorized transport mode in Bethlehem conurbation. In general, in the study area, only 9% of the trips are made by walking. The highest number of walking share belongs to students. The results of the survey performed during the previous phase of the project Data Collection, show that nearly 50% of pupils walk to school. That is mostly the case of pupils that attend public schools.

Overall, the pedestrian networks are not well connected, because walking is not well defined as a mode of transport in this city. Priority is given to motorized transport and especially towards the private car transport. In the city center of Bethlehem, there are some areas which are entirely paved for pedestrians (such as the Star Street), but cars still have access to these areas. Overall, there are no streets and zones that are exclusively pedestrian area. Furthermore, in the city center and the commercial part of the city, shops block pedestrian paths with their goods and stands. In addition, many pedestrian paths are blocked by waste from buildings constructions or parked cars.

Pavement blocked by shops goods

Pavement is renewed and in good state (area in Artas)

Pavement blocked and occupied by parked cars
Some 30 km/h zones are available in the city which makes walking safe, but because the pedestrian paths are not well separated from the streets, they are accessible by cars and become parking spots. Almost everywhere there is a conflict between pedestrians and motorized transport, especially at crossings and on narrow streets, where there is mixed traffic. All these make walking possible, but dangerous and inconvenient. Cars can easily park on pavements and people must use the road and walk between the cars. For crossing the streets, there are some traffic signs, but marking is inexistent or barely visible.

During night, streets are foreseen with enough lights to encourage walking and social activities, but since walking is not popular and people are not used to participate at street and urban life as pedestrians, in general, after dark sets in, streets are mostly empty.

Bethlehem area should become a walkable area, focused on providing enough and balanced space for pedestrians, recognising that roads are both social spaces and space for mobility. The following images present public spaces with a potential to become pedestrian areas.

Areas with potential to become pedestrianized

2.7 Parking
On-street and off-street parking regulation in Palestine is established by the MOT, MOLG and executed by each municipality. Off-street parking is mainly done at privately owned lots and buildings which operate on a yearly land license. Prices are set by the owner and offer daily
Parking fees with an estimated average cost of 10 NIS/day in the center of the city and 15 NIS/day near the entry-exit point Jerusalem, Checkpoint 300. On-street or road-side parking is only permitted on roads where the curb stone marking is either black and white (free parking) or blue and white (charged parking). Paid parking is only available on Manger and Paul VII (Bethlehem City) streets. The road-side paid parking is set or owned by the municipality. The municipality announces every five years a call for participation for a tender for private companies. The Municipality receives yearly a fixed amount of money per parking spot. Since 2014 a private company called TechPark is running the road-side paid parking in Bethlehem for 850 shekels per spot per year.

Although parking is prohibited on red and white painted curbs and fines for using this space are high (approximately 150 Shekels), car users often use these areas to park their vehicles due to the reduced enforcement by police. This lack of control together with the lack of a suitable parking study has resulted in public spaces, such as sidewalks packed with cars generating substantial barriers for walking and reduced road safety. In some cases, car owners prefer to park on the sidewalks even when parking is permitted on the street due to fear of their vehicles being damaged. Additionally, in areas where parking is allowed on both sides of the street, bottlenecks can be seen in rush hour specially on narrower roads. This situation affects the mobility in different areas of the Bethlehem conurbation.
2.8 Road safety
The main reference for road and safety technical specifications can be found in the Road Safety Manual that was issued in 2013. The following main topics have been described in the manual: vehicles technical and operational parameters; road parameters; traffic control; environment factors; road planning, design, building, operation and maintenance; intersections planning, design, building, operation and maintenance; parking planning, design, building, operation and maintenance; safety precautions (sidewalks, guards, design modifications for disabled people, school safety precautions, awareness, and monitoring).

All municipalities and village councils continually work on enhancing the quality of the main and vital parts of the road network. Nevertheless, some roads also suffer from poor quality of the road surfaces. Unsafe traffic situations are created by dangerous works, with poor signaling on the roads, works related to households along the road (e.g. connections to sewage), faulty repair works, executed with poor materials or creating uneven surfaces.

During the year 2017 about 832 road accidents were recorded in Bethlehem, seven of which were fatal. The following table shows the distribution of types for the accidents recorded. Overall, the total number of accidents increased by about 14% in 2017 compared to the previous years. The number of death accidents, physical injuries accidents, accidents with pedestrians and accidents with animals did not change noticeably. However, the number of accidents of material damages increased by approximately 31% in 2017.
Figure 6: Types and number of traffic accidents in the study area in 2017

<table>
<thead>
<tr>
<th>Type of accident</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidents with death</td>
<td>7</td>
</tr>
<tr>
<td>Accidents with physical injuries</td>
<td>265</td>
</tr>
<tr>
<td>Accidents with material damage</td>
<td>414</td>
</tr>
<tr>
<td>General accidents</td>
<td>11</td>
</tr>
<tr>
<td>Accidents with pedestrians</td>
<td>130</td>
</tr>
<tr>
<td>Accidents with animals</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>832</strong></td>
</tr>
</tbody>
</table>

As for injuries, from the total number of 717 injuries, 89.5% were recorded as minor injuries for the year 2017, whereas 9% and 1.5% of the injuries were respectively recorded as moderate and serious injuries. Although the number of injured people has shown a decreasing trend, the number of deaths resulting from road accidents has increased compared to 2015 and 2016 and the trend has also been consistent in 2018. In 2017 seven deaths were recorded throughout the whole year, while in 2018, for the period January – middle of May, the same amount of deaths was already recorded. Approximately 20% (164 accidents) of the total number of road accidents that occurred during 2017 were distributed on seven locations across the Study Area, the so-called black spots of the area.

Figures 7: Number of injured and killed people in traffic accidents in the study area
As numbers and situation in the diagram show, the road safety in Bethlehem is a major issue that needs to be addressed. In order to achieve a sustainable, inclusive and efficient transport system in Bethlehem area, increasing the safety of traffic participants needs to become a priority (a so-called 0 casualties vision). To achieve this, the main problems (lack of sufficient police officers, illegal parking, blocking pavements and roads, illegal vehicles driving around the road network, poor behaviour of drivers, etc) must be dealt with and solved.

Map 7: Road safety blackspots in the study area

2.9 Mobility patterns and accessibility

The processing of the raw data collected in previous stages has been performed in first instance with OmniTRANS 8.0. The output of the modelling exercise has provided proper base-scenarios and networks that has been transferred to the MOVE Meter. The MOVE Meter is a tool developed to support decision-making in urban development in general, and in transport planning. It provides an insight into the characteristics of the mobility system of a city, being able to analyse a variety of indicators and scenarios that can influence a city’s livability and accessibility (https://www.movemeter.com/).

This section presents key findings related to mobility patterns, obtained from the analysis of the household surveys and/ or derived from the transport model outputs and from the processing of the data with the MOVE Meter.
Modal split and mode choice

In general, in Bethlehem, motorized transport has a very high share of almost 91%. Walking represents only 9% of the trips. It is important also to understand the split of the motorized trips. Out of all trips, around 49% are represented by private vehicles, the shared cabs (4 seats) represent a staggering 25% of all trips, the rest is split between 7 seats shared taxis, small and large buses. It is interesting to notice that cycling is nonexistent, due to the lack of infrastructure, the declivity of some streets and the extreme weather conditions especially during summer months. Moreover, scooters and motorcycles are also not represented in the modal split.

Figure 8: Modal split in the study area

At municipality/locality level, the modal split presents striking variations. For example, the highest share of private vehicle use can be found in Beit Sahour, with 58%, while the refugee camps have the lowest share (8% in Al ‘Aza Camp and 12% in Ad Duheisha Camp). The same goes for variations in public transport, mainly related to availability of services, proximity to PT routes, but also income and quality of life level. Thus, the above mentioned two camps exhibit the highest share of public transport – 68% Al ‘Aza and 72% in Ad Duheisha. In general, walking has a very low share in most of the localities, with as low as 3% in Beit Sahour and Ad Doha, 8% in Beit Jala, and 36% in Artas (the highest share). Other modes – private taxis, motorcycles, bicycles have a relatively small share everywhere.

When it comes to mode choice by trip purpose, there are also many variations. Surprisingly, going to school and to work have the smallest private vehicle share (only 16% of the school trips and 45% of work trips are done by car). On the other hand, leisure, recreation, shopping, visiting friend and family all have a high share of private vehicle trips. It is important to mention that only 7% of the school trips are done by school bus (since there are no specific services in this sense). Walking is a popular mode choice for school trips, with 48%, but with striking low shares for leisure, recreation and shopping and work – 8%, 6%, 10% respectively.
Private taxis have the highest share for friends and family visits, but otherwise negligible ratios. Public transport is rather unpopular between students and pupils, with a share of 19%.

Figure 9: Modal split per municipality in the study area

Figure 10: Modal split by journey purpose

Main network characteristics
By feeding all collected data into the modelling tools, several characteristics of the network have been obtained, such as: modelled speeds, volumes on the network, modelled capacity.

Traffic volumes on the network: Traffic volume is an important basis for determining what improvements, if any, are required on a road or street facility. Traffic volumes may be
expressed in terms of average daily traffic or design hourly volumes. The following map shows the traffic volumes (the number of vehicles) on each link of the network during morning peak hour. The volumes consist of private vehicles and freight.

*Figure 11: Traffic volumes during morning peak hour. Source MOVE Meter*

In general, the hourly volumes during morning and evening peak hours are within normal limits. The colour and the thickness of the lines express the numbers derived from plotting the counting and the OD matrices on the network. With very few exceptions, on most links there are less than 1000 vehicles per hour (green links) and in many cases even less than 400 vehicles (blue links).

**Congestion:** Traffic congestion is a condition on transport networks that occurs as use increases, and is characterized by slower speeds, longer trip times, and increased vehicular queueing. When traffic demand is big enough that the interaction between vehicles slows the speed of the traffic stream, this results in some congestion. This can be measured by using various indicators such as volume/capacity ratio (V/C) or peak hour/free-flow speed ratio.

*Figure 12: Peak hour/free-flow speed ratio during morning peak. Source MOVE Meter*
By analyzing the data, it can be concluded that there are some segments of road within the study area that suffer from congestion or delayed travel time due to reduced travel speed. These are mostly related to busy or difficult intersections - such as the Gijon roundabout (on Manger Street), the intersection between Al Sahel Street and Hebron-Jerusalem Road, Hebron – Jerusalem Road next to Ad Duheisha camp and so on. The most problematic road in terms of travel speed is the road exiting/ entering the study area nearby Checkpoint 300. Nevertheless, the problematic areas are punctual, supporting the previous statements that Bethlehem conurbation is not facing severe structural congestion, but mostly incidental congestion related to bottlenecks.

**Main trip attractors and generators:** The following map shows a comparative analysis of the main attractors and generators of trips (on a Thursday), during morning and peak hour, based on the zoning shown above. During morning peak hour, the main attractors are situated in Bethlehem and Beit Jala municipalities, where most jobs and commercial areas are situated. The situation is very different during evening peak hour, with the zones situated in Israel generating and attracting many trips. This is because Thursday evening is the start of the weekend in Israel, and a large number of the Palestinians living in Israel are coming to Bethlehem to visit their families and friends, or for shopping and leisure.

*Figure 13: Trips generated (departures) and attracted (arrivals) during morning peak hour. Source MOVE Meter*

The relationships between various zones (and localities) within the study area and between internal and external zones, can be visualized as an OD matrix analysis performed with the MOVE Meter. The next map shows the strength and the size of the trip generation and attraction between various zones (internal and all trips) during the morning peak hour. The thickness of the lines represents the strength of the relation between two zones (in number of trips) and the size of the dots represent the number of trips generated and attracted by a zone.
Traffic type is an important indicator that can support proper urban and transport decision making. Traffic can be: (1) Internal - trips inside the study area; (2) External - trips from/to the study area to/from other places and (3) through traffic: trips that have no purpose in the study area, but just cross it, due to road configuration and its relation with the locality. These different types of traffic that are using the road network in Bethlehem conurbation require different approaches. For instance:

» The internal trips are quite often short (less than 3 km) and have the potential for shifting from car to public transport and walking, thus, shifting to a more multi-modal transport system inside the study area.

» The external trips are important for the economy of the area because these carry consumers, personnel and goods to the inner areas.

» Car traffic that goes through the area should be avoided as much as possible which implies a shift towards public transport or a segregation in the network (i.e. bypasses, ring roads outside the urban areas). This separation reduces the congestion and pollution in the internal areas. But building bypasses is not always the most efficient or economic sustainable solution, therefore correctly categorising the type of road and the speed on it is an important step. How to tackle this issue will be described in the strategy development phase.

By analyzing the data available, it can be seen that Bethlehem is experiencing both external and through traffic, for private vehicles and public transport as well. But they are not posing a great challenge to the traffic situation as, for example, during morning peak hour, from a total number of 18,908, only 2,824 were external or through trips, representing approximately 15% of the total number of trips. In the evening peak hour, the situation is different (especially since data is for a Thursday evening and as explained above a lot of Palestinian that live in Israel are coming to Bethlehem). Thus, during the evening peak hour, external and through trips represent about 39% - 5,558 out of 14,310.
3 Strategy development
3. STRATEGY DEVELOPMENT

3.1 Vision
Building on the main sustainable mobility concepts, based on the results of the working group’s discussions and the intensive stakeholders’ consultation process and international similar experiences, this is what we envision for Bethlehem conurbation in 2030:

“The Bethlehem conurbation benefits from an integrated mobility system that is people centered and environmentally friendly, contributing to a vibrant economy and to a connected, accessible and liveable urban environment”

The vision statement is reflecting three main directions guiding the future of the mobility system, but also of the general urban development of Bethlehem conurbation - the three pillars of the sustainability: environmental, social and economic. Throughout all these three topics, public participation is a key element. The vision depicts a transport system that is socially, environmentally and economically sustainable, as well as participative and democratic. Through a constructive cooperation, continuous dialogue between the various tiers of authorities and citizens, by developing a participatory and inclusive decision-making environment, this can be an achievable vision, not only a matter of aspiration.

Figure 16: Strategic objectives of the Mobility Plan
3.2 Objectives
At a strategic level, the Mobility Study for Bethlehem conurbation seeks to fulfil the above expressed vision for 2030 through the convergence of five main strategic objectives:

a) **Accessibility** – offering to all citizens various transport options that will allow them to choose the most adequate transportation means for travelling to their destinations and for accessing key services. This objective includes both connectivity – the capacity to travel between various points within and from/to outside the area; and access – people are not hindered to travel because of certain deficiencies (for example a disability) or social factors (age, income, gender, ethnicity).

b) **Safety and security** – increasing the safety and security of passengers and of the community, in general, providing safe and adequate means of transportation, aiming at reducing if not to eliminating completely traffic accidents within Bethlehem conurbation area.

c) **Environment** – reducing air and noise pollution, GHG emissions and energy consumption related to transport. Reaching the climate change mitigation and adaptation commitment, as agreed in international and national conventions.

d) **Economic efficiency** – increasing efficiency and efficacy of the system related to costs of persons and goods transportation.

e) **Livability** – contributing to increasing the attractiveness and the quality of the urban space, focusing the urban and mobility planning on the wellbeing of citizens, on the economic competitiveness and, in general, on benefits geared towards societal improvement.

Figure 17: Strategic objectives of the Mobility Plan
3.3 Scenarios

“Scenarios are consistent and coherent descriptions of alternative hypothetical futures that reflect different perspectives on past, present, and future developments, which can serve as a basis for action”.

Figure 18: Scenario development process

» Baseline 2017 – the situation as it was in 2017 during the data collection phase of the project. This scenario will be used for developing the BAU (Business-as-Usual) future scenarios, for the target year 2030.

» Baseline scenario 2030 – or Business-as-Usual (BAU scenario) - The BAU scenario 2030 reflects the socio-economic trends and the continuation of present trends in transportation, moderated by likely changes in legislation and technology. This scenario looks at how transport would develop if all projects in progress were to be implemented, without any additional measures being taken.

In addition, three other scenarios were worked out which clearly set out the scope for action in transport planning over and above the development that is likely to take place anyway:

» Alternative scenario A: “The Authentic City” - This scenario focuses on “slowing down” all the traffic inside the city and to return to a more traditional lifestyle. The main objective is to decrease car use as much as possible, reduce motorized travel and return to more traditional means of transportation, walking, cycling (where possible) and shared modes of transport.

» Alternative scenario B: “The Accessible City” - The focus of this scenario is to optimise the road network and find the best hierarchy of roads that will ensure more fluent traffic flows, with less delays, in favour of motorized vehicles and commercial traffic. The main goal is to reduce time spent in the traffic.

» Alternative scenario C: “The Multimodal City” - The focus of this scenario is to transform Bethlehem conurbation into a multimodal urban area. The main goal is to provide various alternatives to citizens and visitors, but with the main objective of strengthening public transport, walking and cycling, disfavouring private car use.
Figure 19: Three alternative scenarios

On the basis of the evaluation results, the discussions with stakeholders during the workshops and the one-on-one sessions with the several municipalities, a combination of several elements of the alternative scenarios was selected for a proposed target scenario to optimally fulfil the goals of the SUMP. The target scenario is an interim step toward the implementation plan.

Eventually, the target scenario is based on the main principles of both Scenario A – slowing down the traffic within the urban area, on the main urban roads, giving the city back to pedestrians and Scenario C: providing a ring road type of structure around Bethlehem conurbation, serving the higher speed and capacity traffic and providing an efficient connection between the localities in the study area.

Table 2: Focus of the alternative scenarios

<table>
<thead>
<tr>
<th>Measure fields of the alternative scenarios</th>
<th>motor vehicle traffic</th>
<th>NMT</th>
<th>PT</th>
<th>parking</th>
<th>freight</th>
<th>traffic safety</th>
<th>public space design</th>
<th>mobility culture &amp; education</th>
<th>multi-modality</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  The Authentic City</td>
<td>+++</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
<td></td>
<td>+++</td>
</tr>
<tr>
<td>B  The Accessible City</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>C  The Multimodal City</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>+++</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+++</td>
</tr>
</tbody>
</table>
3.4 Alternative scenarios comparison

Quantitative analysis – For the quantitative analysis, the same indicators established for the BAU scenario have been used for comparing the alternative scenarios between themselves and also against the Baseline Scenario 2030 (BAU), pointing out the effects of the measures.

Table 3: Comparison of alternative scenarios against Baseline scenario 2030, based on quantitative indicator

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline scenario 2030</th>
<th>Scenario A 2030</th>
<th>Scenario B 2030</th>
<th>Scenario C 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vehicle-kilometres travelled (km)</td>
<td>60,730 ◀ +51%</td>
<td>46,266 ◀ -8%</td>
<td>48,880 ◀ -4%</td>
<td>36,780 ◀ -24%</td>
</tr>
<tr>
<td>2. Hours travelled (h)</td>
<td>1,350 ◀ +51%</td>
<td>1,190 ◀ -13%</td>
<td>1,440 ◀ +6%</td>
<td>1,076 ◀ -21%</td>
</tr>
<tr>
<td>3. Average trip length (km)</td>
<td>1.94 ◀ 0%</td>
<td>1.9 ◀ 0%</td>
<td>2.0 ◀ +5%</td>
<td>1.0 ◀ -5%</td>
</tr>
<tr>
<td>7. Total hours delay (h)</td>
<td>651,200 ◀ +128%</td>
<td>464,100 ◀ -16%</td>
<td>599,400 ◀ +9%</td>
<td>406,600 ◀ -26%</td>
</tr>
<tr>
<td>8. Cost of delays ($)</td>
<td>3,307,200 ◀ +128%</td>
<td>2,784,600 ◀ -16%</td>
<td>3,586,400 ◀ +9%</td>
<td>2,433,600 ◀ -26%</td>
</tr>
<tr>
<td>9. CO₂ emissions (ton/year)</td>
<td>70 ◀ +43%</td>
<td>49 ◀ -36%</td>
<td>50 ◀ -29%</td>
<td>44 ◀ -37%</td>
</tr>
<tr>
<td>12. PM emissions (ton/year)</td>
<td>0.72 ◀ +38%</td>
<td>0.46 ◀ -36%</td>
<td>0.48 ◀ -33%</td>
<td>0.41 ◀ -43%</td>
</tr>
<tr>
<td>13. Number of accidents per year</td>
<td>1,590 ◀ +92%</td>
<td>965 ◀ -38%</td>
<td>1,440 ◀ -3.5%</td>
<td>1,225 ◀ -23%</td>
</tr>
<tr>
<td>14. Number of injured per year</td>
<td>610 ◀ +14%</td>
<td>377 ◀ -38%</td>
<td>550 ◀ -9.5%</td>
<td>476 ◀ -23%</td>
</tr>
<tr>
<td>15. Number of deaths due to traffic accidents</td>
<td>21 ◀ +200%</td>
<td>2 ◀ -96%</td>
<td>14 ◀ -33%</td>
<td>9 ◀ -57%</td>
</tr>
</tbody>
</table>

Economic Efficiency

Environment

Safe and Security

Liveability

It is important to mention that none of the scenarios was targeting an aggressive scrapping program, a comprehensive renewal of the fleet, through regulatory and financial means or a big jump to new and innovative technologies (green fleet with electric vehicles, solar energy vehicles, etc.), since transition has been proven to be very difficult and slow even in developed countries. Therefore, in the table above it can be seen that in terms of emissions, the situation will not become much better than it was in 2017 (especially what CO₂ and PM emissions are concerned). This means that without extra measures (scrapping program, stricter environmental rules and regulations for the fleet), Bethlehem conurbation will still be suffering from pollution and health issues related to traffic.

Qualitative analysis – The three alternative scenarios have also been qualitatively compared against the 26 stated objectives.
Selection of preferred scenario and results
On the basis of the evaluation results, the discussions with stakeholders during the workshops and the one-on-one sessions with the several municipalities, a combination of several elements of the alternative scenarios was selected for a proposed target scenario to optimally fulfil the goals of the SUMP.

The target scenario is an interim step toward the implementation plan. By comparison the results of the alternative scenarios, but also having in mind the time frame of the project (2030), the consultants consider that the target scenario should be a combination of the three scenarios presented previously.

This scenario presents an ideal situation and a very ambitious approach, but given the time and financial constraints it is more realistic to believe that only part of the proposed measures will be implemented. Eventually, the target scenario is based on the main principles of both
Scenario A – slowing down the traffic within the urban area, on the main urban roads, giving the city back to pedestrians and Scenario C: providing a ring-road type of structure around Bethlehem conurbation, serving the higher speed and capacity traffic and providing an efficient connection between the localities in the study area.

**Map 8: Main “Hardware”/ infrastructure interventions in Bethlehem Conurbation for the period 2020-2030**

Some of the main principles (reflected also in the combination of measures chosen, presented and described below) are:

» The road network will be categorised – start the creation of a ring road structure around Bethlehem conurbation which will be used for higher speed traffic (60 km/h outside urban area, 50 km inside urban areas), on sections where implementation in the near future is possible and probable, as discussed above. As stated previously, some sections are proposed for implementation beyond 2030 (due to financial, geographical/ topographical and political constraints) and 30 km/h zones will be introduced mainly in residential areas.

» The city centers in Bethlehem, Beit Jala, Beit Sahour and Artas and the convention Palace and Solomon pools area will be pedestrianised (car free zones).

» Paid parking will be introduced on a large scale and the revenues from it will be earmarked for transport investments in PT and NMT.

» The public transport network will be expanded and optimised: new routes will be established in areas not covered such as Beit Sahour and Beit Jala, a general reorganization of the PT system will take place, removing overlapping routes, reassigning vehicles to others, shortening waiting times and increasing efficiency and reliability.

» Street space will be enhanced for higher sojourning quality and designed with barrier-free access for pedestrians.
Walking will be promoted as one of the main transport modes in Bethlehem conurbation, for both residents and visitors, disposing of attractive and safe infrastructure.

Touristic routes and online applications will be developed and promoted, encouraging walking for visitation and PT.

For disabled people (local and tourists) small (10-16 seats) electrical buses will be created, serving the touristic routes (hop-on/ hop-off system).

Multimodal hubs will be developed at some of the main entrance in the conurbation (at least 2 until 2030), serving external traffic (both private vehicles and PT).

There will be intensive communication and education campaigns, promoting slow modes of transport and teaching traffic rules and behaviour, focusing mainly on walking and cycling (benefits for health, society, environment) and PT.

New financial and organizational models will be implemented (ear marked funds from fees, taxes and fines), international cooperation will be strengthened.

Enforcement will be strengthened and regulations will be applied stricter.

**Among the Interventions beyond 2030, it can be mentioned:**

- The missing sections of the ring road will be completed (can be also outside the study area, in cooperation and negotiation with other municipalities and/or the Israeli authorities).
- The PT system will continue to be improved and optimised and local PT services will be fully administered and managed by the local authorities.
- Further multimodal hubs will be developed at other entrances, reducing external vehicular traffic.
- Information and promotion campaigns will continue.
- Infrastructure for electrical and hybrid vehicles will be developed – charging points and so on.
- New technologies – hybrid and electrical vehicles which already started to penetrate the market and represent most of the fleet.
- Paid parking will be introduced on a large scale and the revenues from it will be earmarked for transport investments in PT and NMT.
- The public transport network will be continue expanded and optimised: new routes will be established in areas not covered such as Beit Sahour and Beit Jala, a dispatching system will be implemented, shortening waiting times, new PT models will be introduced where necessary (on-demand transport).
- Some of the multimodal hubs (the one next to Checkpoint 300 and at the Al Khader entrance) will also serve touristic buses, which will have to station there.
- Linking of the transport modes will be optimised and transferring will be made more attractive.

The following table presents some indicators for the performed quantitative analysis. Most of them present a improvements in all the analysed aspects.
Table 4: Comparison of Target Scenario 2030 against Baseline scenario 2030

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline scenario 2030 (BAU)</th>
<th>Target scenario 2030</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Vehicle-kilometres travelled (km)</td>
<td>50,73</td>
<td>39,400 @ -22%</td>
<td></td>
</tr>
<tr>
<td>(2) Hours travelled (h)</td>
<td>1,36</td>
<td>1,070 @ -21%</td>
<td></td>
</tr>
<tr>
<td>(3) Average trip length (km)</td>
<td>1.94</td>
<td>2.2 @ 0%</td>
<td></td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Total hours delay (h)</td>
<td>0.51</td>
<td>0.396,500 @ -20%</td>
<td></td>
</tr>
<tr>
<td>(8) Cost of delays ($)</td>
<td>3,307,200</td>
<td>2,373,200 @ -26%</td>
<td></td>
</tr>
<tr>
<td><strong>Economic Efficiency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) CO₂ emissions (ton/day)</td>
<td>70</td>
<td>40 @ -42%</td>
<td></td>
</tr>
<tr>
<td>(12) PM emissions (ton/day)</td>
<td>0.72</td>
<td>0.37 @ -49%</td>
<td></td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(13) Number of accidents per year</td>
<td>1,59</td>
<td>850 @ -47%</td>
<td></td>
</tr>
<tr>
<td>(14) Number of injured per year</td>
<td>610</td>
<td>450 @ -26%</td>
<td></td>
</tr>
<tr>
<td>(15) Number of deaths due to traffic accidents per year</td>
<td>21</td>
<td>4 @ -81%</td>
<td></td>
</tr>
<tr>
<td><strong>Safe and Security</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(16) Modal split</td>
<td>54% cars</td>
<td>40% cars @ -26%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31% PT</td>
<td>40% PT @ +29%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8% walking</td>
<td>20% walking @ +15%</td>
<td></td>
</tr>
<tr>
<td><strong>Liveability</strong></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

While analyzing the results of the Target Scenario 2030, there is a significant decrease in motor vehicle traffic as compared to the base scenario, with a shift in favour of non-motorized transport and public transport. This can be seen also in the modal split.

*Figure 21: Modal split comparison Baseline Scenario 2030 and Target Scenario 2030*

The following chapter presents the Action Plan and the detailed projects that are proposed to be implemented in the first phase (until 2023), that are necessary in order to fulfil the objective of the projects and to reach the mobility plan targets.
4 Action Plan
4. **ACTION PLAN**

4.1 **Introduction**

Based on the analysis of the current situation with the current challenges and opportunities, based on international best practices and experiences and on the analysis performed for the various scenarios and measures, the consultants propose for the implementation phase 2020 – 2030 a balanced combination of measures covering different topics: road network, NMT, PT, parking, organization, tourism, freight, information which can reinforce each other and create synergies in order to achieve the objectives of this assignment. Further, the right mix of soft, organizational and infrastructure related measures has been proposed. Below is the final list of measures and projects that are included in the final scenario for 2030 and the MCA results for the selected interventions.

The selection process has started at the beginning of phase 2: Strategy development, when a longlist of projects has been developed and presented. The appraisal of all 95 interventions based on various indicators, has resulted in a shortlist of more promising measures.

*Figure 22: Selection process scheme*
4.1.1 Options generation
Based on the analysis of the current situation with the current challenges and opportunities, based on international best practices and experiences and on the analysis performed for the various scenarios and measures, the consultants propose for the implementation phase 2020 – 2030 a balanced combination of measures covering different topics, that can reinforce each other and create synergies in order to achieve the objectives of this assignment. Further, the right mix of soft, organizational and infrastructure related measures has been sought.

The main topics covered by the projects and measures in the long list are:

- Road network/ traffic safety
- Public transport
- Non-motorized transport
- Tourism
- Parking
- Distribution of goods
- Governance

4.1.2 Options appraisal
This option appraisal has taken place in two stages: an internal appraisal performed by the consultants and a public appraisal, consisting of: the second Stakeholders’ Workshop and the third Steering Committee meeting, followed by an additional round of direct discussions at each of the municipalities involved in the project. By combining the results of these two appraisal actions, the definitive list of measures (also composing the target or the preferred scenario) has been further prioritised and assessed through a Multi-Criteria Analysis (MCA).

The main criteria against which the measures were appraised was the effectiveness related to the five strategical objectives (accessibility, safety and security, environment, economic efficiency and livability) overall costs (including planning and operation costs), dependency (on other measures, time, legal), jurisdiction, political support and public acceptability.

Effectiveness and cost appraisal
In the first step, the proposed projects from the longlist have been qualitatively evaluated according to the following grid:

- Effectiveness contribution to the achievement of the strategical objectives, with five levels of effectiveness (from -2 to +2: large adverse/ negative effect, adverse/ negative effect, neutral, slight beneficial effect, large beneficial effect). Some of the measures have received an overall score, since quantifying their effect against each objective was difficult (for example: information campaign, organizational and institutional measures).
- Assignment of the results in give effectiveness classes according to use points.
- Assignment of measures in cost classes: cost class 1: less than € 100,000 ("only" strategic action, with no costs or very low costs measures), cost class 2: up to € 300,000, cost class 3: more than € 300,000 and up to € 1 million, cost class 4: up to € 2.5 million, cost class 5: > € 2.5 million.
- Use a cost-effectiveness matrix to classify and appraise all measures and determine their degree of target achievement and prioritization.

For each of the five objectives, the effectiveness contribution of each individual measure was qualitatively determined using the expert judgement of the consultants’ team. A point-based evaluation grid has been developed and used by the consultants to score the measures.
The intersection of effectiveness and cost categories in the results are presented in a cost-effectiveness matrix. Measures with a strong effect and low costs have a very high degree of target achievement.

A high or middle degree of target achievement is represented in intermediate levels. The degree of target achievement of measures with low effectiveness but high costs is classified as low.

The same cost-effectiveness matrix has been used to determine also priority class for the measures. Thus, measures with low and manageable costs and highest degree of effectiveness should be given the highest priority in implementation, with the measures placed in the middle of the matrix being considered meaningful and sensitive and getting an intermediate priority.

Table 5: Cost-effectiveness matrix

<table>
<thead>
<tr>
<th>Measure code</th>
<th>Measure name</th>
<th>ACCESSIBILITY</th>
<th>SAFETY AND SECURITY</th>
<th>ENVIRONMENT</th>
<th>ECONOMIC EFFICIENCY</th>
<th>LEVABILITY</th>
<th>Total score</th>
<th>Effectiveness class</th>
<th>Annalysed cost class</th>
<th>Priority class</th>
<th>Level of achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMT-H01</td>
<td>Create a coherent network of pedestrian nodes</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>4</td>
<td>A++</td>
<td>very high</td>
<td></td>
</tr>
<tr>
<td>NMT 501</td>
<td>Promotion and awareness raising actions regarding walking and cycling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOL 502</td>
<td>Develop and implement large-scale education campaigns regarding traffic issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OD 503</td>
<td>Increase capacity related to traffic, urban mobility, financing of urban projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS 501</td>
<td>Develop and implement large-scale education campaigns regarding traffic safety issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN 504</td>
<td>Improve the vehicle fleet</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>A+</td>
<td>very high</td>
<td></td>
</tr>
<tr>
<td>RN 501</td>
<td>Promotion and awareness raising actions related to public car use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RL 501.1</td>
<td>Create information campaigns targeting the reduction of the use of private vehicles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PT-H01.5</td>
<td>Secure the A+ stations to the external routes from inside the cities to the main stations at the entrance of the study area (Bil-Farhair and Al-Azahra) to enhance accessibility (in cooperation with measure H 501)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>A+</td>
<td>very high</td>
<td></td>
</tr>
<tr>
<td>PT-H04</td>
<td>Improve boarding/unboarding services</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>A+</td>
<td>very high</td>
<td></td>
</tr>
<tr>
<td>PT-H04.1</td>
<td>Establish public transport stops along the main public transport corridor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multi-criteria analysis

Multi-criteria analysis (MCA) or multi-criteria decision making (MCDM) is a type of tool that allows decision makers to go beyond single-criterion approaches that often fall short in environmental and urban planning challenges and to include a wide range of criteria. For performing the multi-criteria analysis, the following criteria and weighing factors (percentages) have been used.

Table 6: Criteria and weighing factors multi-criteria analysis

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maximum score per criteria</th>
<th>Weight</th>
<th>Maximum overall score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>5</td>
<td>40%</td>
<td>2</td>
</tr>
<tr>
<td>Costs</td>
<td>5</td>
<td>25%</td>
<td>1.25</td>
</tr>
<tr>
<td>Public acceptance</td>
<td>5</td>
<td>20%</td>
<td>1</td>
</tr>
<tr>
<td>Legal and temporal dependence</td>
<td>5</td>
<td>5%</td>
<td>0.25</td>
</tr>
<tr>
<td>Jurisdiction</td>
<td>1</td>
<td>10%</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td><strong>21</strong></td>
<td><strong>100%</strong></td>
<td><strong>4.6</strong></td>
</tr>
</tbody>
</table>

Choosing the measures and projects to be implemented is an iterative process that is refined throughout the whole timeline of the assignment. The results of the two appraisals methods have been analysed, discussed with stakeholders and combined into packages of measures, measures and projects that represent the implementation plan for the period 2020 - 2030 and the action plan (the priority interventions) for the period 2020 - 2023.

Further, choosing the final list of projects was not a straight-line process. Attention has been given to retaining a good balance of infrastructure, soft and organizational measures, spanning across all covered topics. Further, measures reinforce each other and are more effective if implemented as packages of measures or integrated projects.

It can be observed that “soft” and “organizational” measures have scored the highest overall in both appraisal processes, due to the fact that with minimum investments they can achieve the best impact, while at the same time obtaining public and political support. It is important to mention that the MCA pointed out that the best scoring measures come from all topics and attention should be spread across various fields and types of interventions. That means that just providing a better quality of the public space, without public information and promotion campaigns will not have the same impact and vice versa. Further, investing in road network without improving and better organising parking is also less efficient.
Table 7: Scores measures

<table>
<thead>
<tr>
<th>MEASURE CODE</th>
<th>MEASURE NAME</th>
<th>Effectiveness score</th>
<th>Effectiveness in overall score</th>
<th>Costs in overall score</th>
<th>Public acceptance in overall score</th>
<th>Public acceptance</th>
<th>Dependence</th>
<th>Dependence in overall score</th>
<th>Jurisdiction</th>
<th>Jurisdiction in overall score</th>
<th>Number of points</th>
<th>Overall score</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMT.001</td>
<td>Promotion and awareness raising activities related to walking and cycling</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1.25</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>0.2</td>
<td>1.1</td>
<td>0.1</td>
<td>20</td>
</tr>
<tr>
<td>TOI.002</td>
<td>Develop information and promotion materials for transport schemes and routes</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1.25</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>0.2</td>
<td>1.1</td>
<td>0.1</td>
<td>20</td>
</tr>
<tr>
<td>TS.004</td>
<td>Develop and implement large scale education campaigns regarding traffic safety</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1.25</td>
<td>4</td>
<td>0.8</td>
<td>5</td>
<td>6.25</td>
<td>1.1</td>
<td>0.1</td>
<td>20</td>
</tr>
<tr>
<td>RN.001</td>
<td>Create information campaigns targeting the reduction of the use of private vehicles and encourage switching to other modes</td>
<td>4</td>
<td>1.6</td>
<td>5</td>
<td>1.25</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>0.2</td>
<td>1.1</td>
<td>0.1</td>
<td>19</td>
</tr>
<tr>
<td>PT.004</td>
<td>Promotion and awareness raising activities related to public transport</td>
<td>4</td>
<td>1.6</td>
<td>5</td>
<td>1.25</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>0.2</td>
<td>1.1</td>
<td>0.1</td>
<td>19</td>
</tr>
<tr>
<td>GU.003</td>
<td>Increase capacity related to traffic, urban mobility, financing of urban projects</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1.25</td>
<td>4</td>
<td>0.8</td>
<td>3</td>
<td>6.15</td>
<td>1.1</td>
<td>0.1</td>
<td>17</td>
</tr>
<tr>
<td>RB.001</td>
<td>Promotion and awareness raising activities related to private car use</td>
<td>4</td>
<td>1.6</td>
<td>5</td>
<td>1.25</td>
<td>4</td>
<td>0.8</td>
<td>5</td>
<td>6.25</td>
<td>1.1</td>
<td>0.1</td>
<td>19</td>
</tr>
<tr>
<td>NMT.001.1</td>
<td>Establish a working group dedicated to monitoring and evaluation of implementation of the plan</td>
<td>4</td>
<td>1.6</td>
<td>4</td>
<td>1.25</td>
<td>4</td>
<td>0.8</td>
<td>4</td>
<td>0.2</td>
<td>1.1</td>
<td>0.1</td>
<td>18</td>
</tr>
<tr>
<td>GU.001</td>
<td>Implement a city logistics plan (delivery of goods strategy)</td>
<td>4</td>
<td>1.6</td>
<td>4</td>
<td>1.25</td>
<td>4</td>
<td>0.8</td>
<td>4</td>
<td>0.2</td>
<td>1.1</td>
<td>0.1</td>
<td>18</td>
</tr>
</tbody>
</table>

4.2 Projects

This resulted is a shortlist of projects to be implemented during the timeline of the project, between 2020 and 2030. The list comprised 39 projects, representing the Implementation Plan.

A simplified impact assessment and appraisal through a multi criteria analysis has been performed for the 39 selected projects, based on the methodology presented in detail in phase 2: General Strategy Development report. The results can be seen in Table 7. The effectiveness of the measures has been appraised against the strategic objectives of the Mobility Study: accessibility, safety and security, environment, economic efficiency and livability. The advantage of the appraisal methodology used is that it combines two commonly used approaches, MCA (multi criteria analysis) and CBA (cost benefit analysis) to evaluate all impacts of a measure (quantitative and qualitative). Furthermore, it is applicable to hard and soft measures and it is in principle also applicable to local level projects. The scores have been assigned based on expert judgement and input from stakeholders gathered during the workshops, steering committee meetings and technical meetings.

The priority projects identified during phase 2 were already introduced during Steering Committee #4 in March. Then, a list of projects per topic and two draft examples of the formats that will be used for the Action Plan have been presented to the participants and they were accepted as a good format.

Further, the 39 projects were discussed also with stakeholders during several sessions organized on June 27th with the client representative from Bethlehem Municipality and on July 4th, at Bethlehem Municipality, where several important actors have participated, from Bethlehem, Beit Sahour and Beit Jala municipalities, MoLG and Traffic Police.

The measures depend on each other and by finding relationships between them and with external factors influencing the transport system, much larger effects can be obtained. Measures relate to each other in various ways: timing, geography, funding source, etc.
Finding relationships helps save a lot in terms of human and financial resources and will enhance the effects of the action plan. Also “impact relations” should be taken into account, e.g. promoting cycling via bike-to-school programs only makes sense if good bicycle infrastructure is available.

Therefore, considering the interactions and dependencies between measures, some of the interventions proposed and scored during previous phases (mainly phase 2) have been put together into packages of measures – integrated mobility corridors, for example or areas with multi-sectoral approach, such as the modernization of the city centers. By performing the impact assessment of each measure, appraise their effectivity against the Mobility Study goal and other criteria, as well as by consulting the stakeholders, the final phasing of projects for the timeframe 2020-2030 has been established, as well as their phasing.
Phasing of interventions:

» Phase 1: 2019-2023 (year 1-4)
» Phase 2: 2024-2027 (year 5-8)
» Phase 3: 2028-2030 (year 9-11)

Figure 23: Project phases

The list of projects (39) is presented below. Within the framework of the Mobility Study for Bethlehem Conurbation, for all proposed projects described below the following information is provided:

» General description, with general guidelines (– see also detailed description in phase 2 reports for each respective measure)
» Implementation period and timeframe
» Costs estimate (general costs expressed as a lump sum)
» Possible funding sources, e.g.: local/ national budget, international organizations, donors, a combination of these – preferably a combination of sources (more details can be found in the Institutional Setup Report)
» Project leader (and other stakeholders also derived from the Institutional setup)
» Indicators for monitoring (that can be easily measured, mainly output indicators).

For the ease of understanding, monitoring and evaluation, the projects have been given codes starting with the code BETH. The numbers do not reflect the order of implementation.

● GOVERNANCE, INFORMATION AND EDUCATION

BETH001. Strengthen the Mobility Committee and establish within it a working group/ unit responsible for the implementation, monitoring and evaluation of the Mobility Study and monitor the SUMP (phase 1)
BETH002. Increase capacity related to urban transport and mobility (phase 1)
BETH003. Strengthen enforcement of traffic regulations (phase 1)
BETH004. Establish a responsible body for local public transport organization/ provision (phase 1)
BETH005. Develop and implement an information, education and communication strategy, targeting important mobility topics: benefits of walking, use of PT, climate change, road safety (phase 1)

● INTEGRATED MOBILITY CORRIDORS AND CROSS-SECTORAL INTERVENTIONS
Integrated mobility corridors

The mobility corridors represent complex projects, with cross-thematic interventions such as (see Phase 2 reports):

» NMT - cleaning of pavement of debris, enlargement of pavement when necessary, placing of furniture and greenery, provisions for disabled people (measures NMT.H01.1, NMT.H01.2, NMT.H01.3, NMT.H02.3, NMT.H02.1, NMT.H02.2, etc.)

» Road network: road surface quality rehabilitation, placement of traffic signs and wayfinding, improvement of intersections and roundabouts (according to this guidelines), implement appropriate road hierarchy (30 km/h road, 50 km/h road, etc.) (measures RN.H01.1, RN.H01.2, RN.H01.6, RN.H05.1, RN.H05.2, RN.H05.3, TS.H01.1, TS.H01.2, etc.)

» PT: dedicated/ priority bus lanes (if applicable), organization of the new PT routes, placement of PT stations with proper facilities, acquisition of new PT vehicles for the new PT routes (pilot, if applicable) (PT.H01.1, PT.H01.2, PT.H01.5, PT.H02.5, PT.H04.1, etc.)

» Tourism: electrical touristic bus route if any present in the perimeter of the corridor (and some stops for it next to attractions) (TOU.H01.3, TOU.H01.4, TOU.H01.5)

» Parking – existing or not on the corridor and in what form and under what conditions (PK.H01.1, PK.H01.2, PK.H01.5, PK.S01.1, etc.)

» Freight – provisions and signaling for a smoother and better organized distribution of goods (FR.H01.1, FR.H01.2, FR.H01.3, etc.)

» Information and education campaigns – promoting walking and PT, awareness raising about road safety, climate change, etc.

BETH006. Upgrade and modernize the integrated mobility corridor (phase 1)
BETH006A. Upgrade and modernize the integrated mobility corridor North-South – Hebron-Jerusalem Road (phase 1)
BETH006B. Upgrade and modernize the integrated mobility corridor Al Sahel Beit Jala (phase 1)
BETH0086C. Upgrade and modernize the integrated mobility corridor Beit Sahour (phase 1)
BETH006D. Upgrade and modernize the integrated mobility corridor North-East – Manger Street (phase 1)
BETH006E. Upgrade and modernize the integrated mobility corridor Dr. Gemeiner Street (phase 2)

Cross-sectoral interventions

BETH011. Modernize and revitalize Bethlehem City Center (phase 1)
BETH012. Modernize and revitalize Beit Sahour City Center (phase 1)
BETH013. Modernize and revitalize Beit Jala City Center (phase 1)

● ROAD NETWORK AND CAR MODE

New infrastructure and infrastructure improvements

BETH014. Build a new road segments in Wadi Musalam, south of Beit Sahour, north in Beit Sahour in order to close the ring road around the Bethlehem conurbation area (phase 1+2+3)
BETH015. Build a new road segment in Artas, in order to close the ring road around the Bethlehem conurbation area (phase 3)
BETH016. Upgrade and modernize the West section of the ring road El-Amal Road (phase 3)
BETH017. Implement 30 km/h zones and home-zones in residential areas (phase 1)
BETH018. Improve the quality of road roads, signaling and marking (outside priority corridors), including pedestrian facilities (phase 1)
BETH019. Improve traffic safety conditions near schools (car-free or 10 km/ h zones, drop-off points) (phase 1)

New car modes

BETH020. Develop a car sharing system with electrical vehicles (phase 1)
BETH021. Encourage and support car-pooling – e.g. providing incentives to companies/employees that share a car to ride to work (phase 1)
  ● PARKING

BETH022. Implement the parking strategy and pricing over the whole area (phase 1)
BETH023. Develop a Park+Ride (P+R) facility at the east entrance (to/from Ramallah, Nablus, eastern rural areas) (phase 1)
BETH024. Developing a Park+Ride (P+R) facility at the southwest entrance Al Nashash (to/ from Hebron) (phase 2)
BETH025. Build new off-street parking garages (phase 2)
BETH026. Develop a city-wide parking information and management system (phase 1)

  ● PUBLIC TRANSPORT

BETH027. Reorganize current public transport system through the reconfiguration of current routes, establish new routes and assigning new indicatives (remove overlapping routes) (phase 1)
BETH028. Build PT stops (outside the main corridors) (phase 2)
BETH029. Develop a scheduled PT system outside the main corridors (phase 2)
BETH030. Introduce a touristic bus route, operated by electrical buses (including acquisition of the vehicles) (phase 1)
BETH031. Impose minimum quality requirements (emissions, age, interior, etc.) for vehicles operating as public transport services providers (phase 1)
BETH032. Phase out old, polluting PT vehicles (phase 2+3)
BETH033. Develop and approve a methodology for PPP (Public Private Partnership) regarding operation and delivery of transport service (phase 2)
BETH034. Introduce/ acquire electrical buses (phase 1)
BETH035. Introduce an on-demand public transport system (e.g. similar to Via Van) (phase 1)

  ● NON-MOTORIZED TRANSPORT

BETH036. Develop a coherent walking (pedestrian network) (phase 2)
BETH037. Implement a walking school bus (WSB) (phase 1)
BETH038. Develop online/ offline applications for walking routes/ wayfinding, including touristic thematic routes (phase 1)

  ● FREIGHT

BETH039. Develop and implement a city-wide freight delivery strategy (phase 2)
Other projects beyond 2030

» Build the missing sections of the ring road
» Develop a cycling network
» Introduce a bike-sharing system (electrical bikes)
» Improve and optimize the PT services
» Further develop multimodal hubs (P+R locations) at other entrances, reducing external vehicular traffic
» Continue the information and promotion campaigns
» Develop infrastructure for electrical and hybrid vehicles
» Use new technologies – hybrid and electrical vehicles will continue to penetrate the market and represent most of the fleet.

For the successful implementation of the projects, as it has been stressed before, it is imperative that the involved municipalities will work together as a whole, supporting and reinforcing each other, since many of the interventions transgress the boundary of just one municipality (e.g.: The Hebron-Jerusalem road upgrade or the touristic bus route).

The total estimated cost of all 39 projects, for the implementation period 2020 – 2030, is approximately: €61,697,000. The exact prices of all projects need to be established and calculated based on feasibility studies (for large scale interventions), further detailing and planning (for other types of interventions). In general, the costs presented below have been estimated based on lump sum prices from similar projects or based on prices per unit (km of road, etc.). Approximately €25,000,000 are represented by interventions proposed to be implemented during phase 1 2020 – 2023.
### Table 8: Summary of 39 projects

| CODE  | MEASURE NAME                                           | DESCRIPTION                                                                                                                                                                                                                                                                                                                                 | ACTIVITIES                                                                 | IMPLEMENTATION PERIOD | INTERNAL PERSONNEL NEEDED                                                                 | ESTIMATED COSTS (£)                  | FUNDING SOURCES                                                                 | STAKEHOLDERS                                                                                                                                                                                                 |
|-------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BETH001 | **Strengthen the Mobility Committee and establish within it a working group/ unit responsible for the implementation, monitoring and evaluation of the Mobility Study and monitor the SUMP** | Since many projects in this Mobility Study transgress municipality border, for the efficient and successful implementation and further the monitoring and evaluation of the projects, the establishment of a working group is needed, comprising representatives of the municipalities, the governorate, local businesses and NGOs | Establish the working group and the program manager, Monitor, evaluate and assess the progression of the implementation of the Mobility Study | 07/2020 - 11/2020 | 1 program coordinator, several representatives from each municipality and Governorate | 25,000 for the whole implementation period | Local budget of municipalities | All municipalities involved in the project, Bethlehem Governorate, the traffic committee and Ministry of local government |
| BETH002 | **Increase capacity related to urban transport and mobility** | Conduct a comprehensive capacity building and knowledge exchange program                                                                                                                                                                                                                                                                     | Determine all activities and schedules, Run the capacity building program | 07/2020 - 10/2020 | 1 program coordinator (can be the same as the one for BETH001) | 20,000 per year | Local, regional and national budget & international financial institutions, private companies, international donors, fundraising activities, sponsors | All municipalities involved in the project, Bethlehem Governorate, universities, local companies, NGOs, schools and universities, the traffic committee and Ministry of local government |
| BETH003 | **Strengthen enforcement of traffic regulations**       | A strong enforcement of traffic regulations through various interventions and tools will increase significantly the road safety, traffic conditions and quality of life                                                                                                                                                                       | Enforce traffic regulations | 07/2020 - 12/2029 | Ministry of Interior                          | 10,000 per year | National budget                                                               | Municipalities and Ministry of local Government, the traffic committee                                                                                                                            |
| **BETH004** | **Establish a responsible body for local public transport organization/provision** | Devolve PT related decision powers to regional and local level and appoint a dedicated, full-time team of professionals in a carefully considered employment structure | Establish the local PT regulatory body | 09/2020 - 02/2021 | Several representatives of local and regional administration | 10,000 per year | Local budget of municipalities | All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT Associations, the traffic committee and Ministry of local government |
| **BETH005** | **Develop and implement an information, education and communication strategy, targeting important mobility topics: benefits of walking, use of PT, climate change, road safety** | Awareness raising should be a continuous activity in the planning process, spanning across the whole spectrum of events and activities. The process must continue during and after implementation | Design the information/communication strategy in detail | 07/2020 - 03/2021 | 1 campaign coordinator, 2 media and communication specialists | 25,000 per year | Local, regional and national budget & international financial institutions, private companies, international donors, fundraising activities, sponsors | All municipalities involved in the project, private companies and advertising agencies, schools and universities, NGOs, citizens, the traffic committee and Ministry of local government |
| **BETH006** | **Upgrade and modernize the integrated mobility corridor North-South** | Organize and improve traffic conditions for all modes – cars, PT, walking. Provide viable mobility alternatives and discourage the use of private vehicles within the city and especially on Hebron-Jerusalem Road | Develop planning and design studies | 07/2020 - 11/2024 | 2 transport and urban planners, 1 landscape architect, 1 civil engineer | 6,000,000 total infrastructural costs | Local, national budget & international financial institutions, private companies, international donors | All municipalities that own sections of the corridor, local police, tourism authorities, local shop/business owners, developers and construction companies, the traffic committee and Ministry of local government, local companies |
| **BETH006A** | **Upgrade and modernize the integrated mobility corridor North-South** | Organize and improve traffic conditions for all modes – cars, PT, walking. Provide viable mobility alternatives | Develop planning and design studies | 07/2020 - 12/2021 | 2 transport and urban planners, 1 landscape architect, 1 civil engineer | 6,000,000 total infrastructural costs | Local, regional and national budget & international | All municipalities that own sections of the corridor, local police, tourism authorities, local shops/business,
<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Start Date</th>
<th>End Date</th>
<th>Personnel</th>
<th>Cost</th>
<th>Funding Sources</th>
<th>Responsible Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>BETH006B</td>
<td>Upgrade and modernize the integrated mobility corridor Al Sahel Beit Jala</td>
<td>Organize and improve traffic conditions for all modes – cars, PT, walking. Provide viable mobility alternatives and discourage the use of private vehicles within the city and especially on Al Sahel Street</td>
<td>Develop planning and design studies</td>
<td>07/2020 - 10/2020</td>
<td>2 transport and urban planners, 1 landscape architect, 1 civil engineer</td>
<td>2,000,000 total infrastructural costs</td>
<td>Local, regional and national budget &amp; international financial institutions, private companies, international donors</td>
</tr>
<tr>
<td>BETH006C</td>
<td>Upgrade and modernize the integrated mobility corridor Beit Sahour</td>
<td>Organize and improve traffic condition for all modes – cars, PT, walking. Provide viable mobility alternative and discourage the use of vehicles within the city and especially on Beit Sahour Road</td>
<td>Develop planning and design studies</td>
<td>08/2022 - 06/2023</td>
<td>1 traffic and urban planner, 1 landscape architect, 1 civil engineer</td>
<td>4,800,000 total infrastructural costs</td>
<td>Local, regional and national budget and international financial institutes private companies, international donors</td>
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<tr>
<td>BETH006D</td>
<td>Upgrade and modernize the integrated mobility corridor North-East – Manger Street</td>
<td>Organize and improve traffic conditions for all modes – cars, PT, walking. Provide viable mobility alternatives and discourage the use of private vehicles within the city and especially on Manger Road</td>
<td>Develop planning and design studies</td>
<td>07/2021 - 11/2022</td>
<td>1 traffic and urban planner, 1 landscape architect, 1 civil engineer</td>
<td>5,000,000 total infrastructural costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors</td>
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<td>Code</td>
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<td>BETH006E</td>
<td>Upgrade and modernize the integrated mobility corridor Dr. Gemeiner street</td>
<td>Organize and improve traffic conditions for all modes – cars, PT, walking. Provide viable mobility alternatives and discourage the use of private vehicles within the city and especially on Dr. Gemeiner Street</td>
<td>Develop planning and design studies Plan and construct</td>
<td>1 traffic and urban planner, 1 landscape architect, 1 civil engineer</td>
<td>3,000,000 total infrastructural costs Local, regional and national budget &amp; international financial institutions, private companies, international donors Bethlehem Municipality, local police, tourism authorities, local shop/business owners, developers and construction companies, the traffic committee and Ministry of local government</td>
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<tr>
<td>BETH011</td>
<td>Modernize and revitalize Bethlehem City</td>
<td>Increase the quality of urban space in Bethlehem city through integrated transport and mobility measures</td>
<td>Develop planning and design studies 09/2020 - 05/2021</td>
<td>1 traffic and urban planner, 1 landscape architect, 1 civil engineer, 1 architect and urban designer</td>
<td>4,000,000 total infrastructural costs Local, regional and national budget &amp; international financial institutions, private companies, international donors Bethlehem Municipality, local police, tourism authorities, local shop/business owners, developers and construction companies, the traffic committee and Ministry of local government</td>
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<tr>
<td>BETH012</td>
<td>Modernize and revitalize Beit Sahour City</td>
<td>Increase the quality of urban space in Beit Sahour city through integrated transport and mobility measures</td>
<td>Develop planning and design studies Plan and construct 02/2023 - 10/2023</td>
<td>1 traffic and urban planner, 1 landscape architect, 1 civil engineer, 1 architect and urban designer</td>
<td>1,200,000 total infrastructural costs Local, regional and national budget &amp; international financial institutions, private companies, international donors Beit Sahour Municipality, local police, tourism authorities, local shop/business owners, developers and construction companies, the traffic committee and Ministry of local government</td>
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<tr>
<td>BETH013</td>
<td>Modernize and revitalize Beit Jala City</td>
<td>Increase the quality of urban space in Beit Jala city through integrated transport and mobility measures</td>
<td>Develop planning and design studies 05/2023 - 08/2023</td>
<td>1 traffic and urban planner, 1 landscape architect, 1 civil</td>
<td>1,500,000 total infrastructural costs Local budget &amp; international financial institutions, Beit Jala Municipality, local police, tourism authorities, local shop/business owners, developers and construction companies, the traffic committee and Ministry of local government</td>
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<td>BETH014</td>
<td>Build new road segments in Wadi Musalam, south of Beit Sahour, and North of Beit Sahour in order to close the ring road around the Bethlehem conurbation area</td>
<td>Create a ring road structure around Bethlehem conurbation in order to relief traffic congestion, pollution and road unsafety in densely populated areas and to increase accessibility and good traffic conditions.</td>
<td>Develop planning and design studies</td>
<td>Plan and construct</td>
<td>02/2021 - 07/2021</td>
<td>07/2021 - 05/2023</td>
<td>1 traffic engineer, 1 road specialist, financial and environmental specialists</td>
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<tr>
<td>BETH015</td>
<td>Build a new road segment in Artas in order to close the ring road around the Bethlehem conurbation area</td>
<td>Create a ring road structure around Bethlehem conurbation in order to relief traffic congestion, pollution and road unsafety in densely populated areas and to increase accessibility and good traffic conditions. One small bridge needs to be constructed in the street</td>
<td>Develop planning and design studies</td>
<td>Plan and construct</td>
<td>02/2027 - 08/2027</td>
<td>08/2027 – 07/2029</td>
<td>1 traffic engineer, 1 road specialist, financial and environmental specialists</td>
</tr>
<tr>
<td>BETH016</td>
<td>Upgrade and modernize the West section of the ring</td>
<td>Create a ring road structure around Bethlehem conurbation in order to relief traffic</td>
<td>Develop planning and design studies</td>
<td>Plan and construct</td>
<td>06/2028 - 10/2028</td>
<td></td>
<td>1 traffic engineer, 1 road specialist, financial and</td>
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<tr>
<td>Project Code</td>
<td>Description</td>
<td>Objectives</td>
<td>Phase 1</td>
<td>Phase 2</td>
<td>Phase 3</td>
<td>Team Members</td>
<td>Costs</td>
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<td>BETH017</td>
<td>Implement 30 km/h zones and home-zones in residential areas</td>
<td>Develop 30 km/h zones within participating municipalities and lowering the speed with the help of signaling, marking, information and physical barriers, in order to increase road safety and livability in residential areas</td>
<td>Develop planning and design studies phase 1</td>
<td>Implement phase 1</td>
<td>02/2021 – 12/2022</td>
<td>1 road engineer</td>
<td>150,000 per 0.5 km²</td>
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<td>Develop planning and design studies phase 2</td>
<td>Implement phase 2</td>
<td>08/2024 – 09/2026</td>
<td>Municipalities, local police, road safety NGOs, developers and construction companies, the traffic committee and Ministry of local government</td>
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<tr>
<td>BETH018</td>
<td>Improve the quality of road surfaces, signaling and marking</td>
<td>Provide consistent repair and maintenance works to primary and secondary roads outside priority corridors, through improvement of road surfaces, profiles, signaling and marking</td>
<td>Develop an Asset Management Plan</td>
<td>Develop planning and design studies phase 1</td>
<td>02/2021 - 08/2021</td>
<td>1 road engineer</td>
<td>200,000 total costs</td>
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<td>Implement phase 1</td>
<td>Develop planning and design studies Phase 2</td>
<td>08/2021 – 12/2023</td>
<td>Municipalities, local police, road safety NGOs, developers and construction companies, the traffic committee and Ministry of local government</td>
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<td>01/2024 - 06/2024</td>
<td>3,500,000 total costs</td>
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<td></td>
<td>800,000 total costs</td>
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<tr>
<td>BETH019</td>
<td>Improve traffic safety conditions near schools</td>
<td>Undertake road adjustment works around schools, in order to increase the safety of children - reduce traffic speed, use marking and signing, clear drop-off points</td>
<td>Develop planning and design studies</td>
<td>Plan and construct pilot</td>
<td>Plan and construct rest</td>
<td>07/2020 - 10/2020</td>
<td>01/2021 - 02/2024</td>
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<tr>
<td>BETH020</td>
<td>Develop a car sharing system with electrical vehicles</td>
<td>Develop a car-sharing system, operated by electrical vehicles throughout the whole conurbation. The vehicles belong to a private actor which provides the service by setting different “car stations” around a specific area</td>
<td>Tender</td>
<td>Implement</td>
<td>07/2020- 01/2021</td>
<td>01/2021 - 09/2022</td>
<td>1 financial specialist</td>
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<tr>
<td>BETH021</td>
<td>Encourage and support car-pooling</td>
<td>In order to reduce traffic congestion and in general the use of private vehicles, the municipalities together with other stakeholders should provide a platform for car sharing.</td>
<td>Implement</td>
<td>09/2022 - 12/2023</td>
<td>1 communication specialist and 1 web developer</td>
<td>35,000 total costs</td>
<td>All municipalities involved in the project, youth and students organization, universities, private companies, citizens</td>
</tr>
<tr>
<td>BETH022</td>
<td>Implement the parking strategy and pricing over the whole area</td>
<td>Based on the parking strategy developed, the regulatory framework for parking within Bethlehem conurbation should change. Parking will be controlled and regulated, providing income for the municipalities and releasing the streets from parked cars, especially in vulnerable areas</td>
<td>Implement</td>
<td>02/2022 - 03/2023</td>
<td>1 traffic planner, 1 road engineer, 1 communication specialist</td>
<td>100,000 total costs</td>
<td>Local budget</td>
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<tr>
<td>BETH023</td>
<td>Develop a Park+Ride (P+R) facility at the east entrance (to/from Ramallah, Nablus, eastern rural areas)</td>
<td>Provide parking facilities to commuters and visitors coming from Ramallah, Nablus and the eastern rural areas, in order to decongest city s and main urban arteries. The location will be served by a high quality public transport connection</td>
<td>Develop planning and design studies</td>
<td>07/2020 - 12/2021</td>
<td>1 traffic planner, 1 road engineer, 1 PT specialist</td>
<td>800,000 total costs</td>
<td>Local, regional and national budget &amp; international financial institutions, private companies, international donors</td>
</tr>
<tr>
<td>BETH024</td>
<td>Develop a Park+Ride (P+R) facility at the southwest entrance Al</td>
<td>Provide parking facilities to commuters and visitors coming from Ramallah, Nablus and the eastern rural areas, in order to decongest city s and main urban arteries.</td>
<td>Develop planning and design studies</td>
<td>04/2026 - 09/2026</td>
<td>1 traffic planner, 1 road engineer, 1 PT specialist</td>
<td>800,000 total costs</td>
<td>Local, regional and national budget &amp; international financial institutions, private companies, international donors</td>
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<td><strong>Nashash (to/from Hebron)</strong></td>
<td>urban arteries. The location will be served by a high-quality public transport connection</td>
<td></td>
<td>private companies, international donors</td>
<td>committee and Ministry of local government</td>
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<td><strong>BETH025</strong> <strong>Build new off-street parking garages</strong></td>
<td>Building of off-street parking location in Bethlehem, Beit Sahour en Beit Jala to compensate parking locations that have been scrapped off (such as the Manger Square) or to improve the parking possibilities around city’s. This will contribute to reducing on-street parking and congestion.</td>
<td>Plan and construct Bethlehem  Develop planning and design studies Beit Sahour  Plan and construct Beit Sahour  Develop planning and design studies Beit Jala  Plan and construct Beit Jala</td>
<td>08/2021 - 08/2022  02/2021 – 07/2021  07/2021 – 07/2022  12/2022 – 05/2023  05/2023 – 02/2024</td>
<td>1 traffic engineer, 1 parking specialist  2,200,000 total costs  200,000 total costs  1,200,000 total costs  200,000 total costs  1,400,000 total costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors</td>
<td>All municipalities involved in the project, private companies, citizens, the traffic committee and Ministry of local government</td>
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<td><strong>BETH026</strong> <strong>Develop a city-wide parking information and management system</strong></td>
<td>Create an integrated parking management system that will reduce time spent looking for a parking place and therefore congestion, pollution and loss of money due to delays. The system will provide a city-wide information and monitoring platform that will contain real-time</td>
<td>Implement</td>
<td>08/2020 - 12/2024</td>
<td>1 traffic engineer, 1 IT specialist, 1 traffic management specialist</td>
<td>250,000 total costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors</td>
<td>All municipalities involved in the project, private companies, the traffic committee and Ministry of local government</td>
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<tr>
<td>BETH027</td>
<td>Reorganize current public transport system through the reconfiguration of current routes, establish new routes and assigning new indicatives (remove overlapping routes)</td>
<td>This project consists of the comprehensive analysis of the transport demand in Bethlehem conurbation and planning of the implementation/ reorganization of the first 4 routes. The study is the foundation for most of the subsequent planning, design, and financial work for a reorganization of the current public transport system. Demand estimates are critical to designing the system, planning operations, and forecasting the financial viability of the new measures.</td>
<td>Develop planning and design studies</td>
<td>03/2021 - 08/2021</td>
<td>1 traffic planner, 1 PT specialist</td>
<td>200,000 total costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors</td>
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<tr>
<td>BETH028</td>
<td>Build PT stops (outside the main corridors)</td>
<td>Building PT stops along all public transport routes is necessary in order to increase the quality and the reliability of the PT services. First activity should be the finding of the exact location (considering all</td>
<td>Develop planning and design studies</td>
<td>03/2025 - 10/2025</td>
<td>1 PT specialist, 1 GIS specialist</td>
<td>100,000 total costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors</td>
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<td>BETH029</td>
<td>Develop a scheduled PT system outside the main corridors</td>
<td>Waiting time is perceived as a negative aspect for many public transport users and might hinder the attractiveness (quality) of the system. In order to improve this aspect, this measure aims to establish a schedule and timetable for all the routes in Bethlehem conurbation so that users minimize the waiting periods at a stop.</td>
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<td></td>
<td>Develop planning and design studies</td>
<td>05/2024 - 04/2027</td>
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<td></td>
<td>1 PT specialist, 1 traffic engineer</td>
<td>350,000 total costs</td>
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<td>Local budget &amp; international financial institutions, private companies, international donors</td>
<td>All municipalities involved in the project, local police, PT regulatory body, PT operators, the traffic committee and Ministry of local government</td>
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<td>BETH030</td>
<td>Introduce a touristic bus route, operated by electrical buses (including acquisition of the vehicles)</td>
<td>This project will facilitate the mobility of all tourists, specially disabled and elderly people to the most important heritage sites in Bethlehem conurbation: Convention Palace and Solomon’s pools, and Orthodox and Catholic Shepherds Fields.</td>
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<td>Develop planning and design studies</td>
<td>08/2020 - 01/2021</td>
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<td>Plan and construct</td>
<td>01/2021 – 08/2021</td>
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<td></td>
<td>1 PT specialist, 1 tourism specialist, 1 communication specialist</td>
<td>250,000 total costs</td>
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<td></td>
<td>2,550,000 total costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors</td>
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<td>All municipalities involved in the project, Bethlehem Governorate, local companies, NGOs, tourism authorities, tourism operators, the traffic committee and Ministry of local government</td>
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<tr>
<td>BETH031</td>
<td>Impose minimum quality requirements (emissions, age, interior, etc.) for</td>
<td>Change and adapt current legal and regulatory framework related to operation of public transport, in</td>
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<td></td>
<td>1 PT specialist, 1 environmental engineer</td>
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<td>All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT</td>
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<td>Title</td>
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<td>BETH032</td>
<td>Phase out old, polluting PT vehicles</td>
<td>Replace old and polluting vehicles with higher quality and environmental standards for the PT within Bethlehem conurbation</td>
<td>Implement</td>
<td>03/2023 - 09/2029</td>
<td>1 PT specialist, 1 environmental engineer</td>
<td>Not possible to estimate in this phase</td>
<td>Local budget &amp; international financial institutions, private companies, international donors</td>
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<tr>
<td>BETH033</td>
<td>Develop and approve a methodology for PPP (Public-Private Partnership) regarding operation and delivery of transport service</td>
<td>Put in place the right conditions in regulatory and legal frameworks for establishing Public Private Partnerships in order to increase the efficiency and profitability of the PT system</td>
<td>Implement</td>
<td>2025</td>
<td>1 PT specialist, 1 financial specialist</td>
<td>period of 3 years; 5,000 per year</td>
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<tr>
<td>BETH034</td>
<td>Introduce/acquire electrical buses</td>
<td>Replace old and polluting vehicles with electrical vehicles for the PT within Bethlehem conurbation</td>
<td>Implement phase 1</td>
<td>12/2022 - 09/2023</td>
<td>1 PT specialist, 1 environmental engineer</td>
<td>1,400,000 total costs</td>
<td>Local, regional and national budget &amp; international financial institutions, private companies, international donors</td>
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vehicles operating as public transport services providers
order to include quality and environmental requirements for PT vehicles

BETH032
Phase out old, polluting PT vehicles
Replace old and polluting vehicles with higher quality and environmental standards for the PT within Bethlehem conurbation
Implement
03/2023 - 09/2029
1 PT specialist, 1 environmental engineer
Not possible to estimate in this phase
Local budget & international financial institutions, private companies, international donors
All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT Associations, the traffic committee and Ministry of local government

BETH033
Develop and approve a methodology for PPP (Public-Private Partnership) regarding operation and delivery of transport service
Put in place the right conditions in regulatory and legal frameworks for establishing Public Private Partnerships in order to increase the efficiency and profitability of the PT system
Implement
2025
1 PT specialist, 1 financial specialist
period of 3 years; 5,000 per year
-
All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT associations, private companies

BETH034
Introduce/acquire electrical buses
Replace old and polluting vehicles with electrical vehicles for the PT within Bethlehem conurbation
Implement phase 1
12/2022 - 09/2023
1 PT specialist, 1 environmental engineer
1,400,000 total costs
Not possible to estimate in this phase
Local, regional and national budget & international financial institutions, private companies, international donors
All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT associations, private companies
<p>| BETH035 | Introduce an on-demand public transport system (e.g. similar to Via Van) | Create an on-demand public transports system consisting of passenger cars, vans or small buses which operate in response to requests from passengers, done by booking services via a browser, app or a call, which will then plan a route for the day to pick-up users and take them to their required destination (such providers are: Via Van, Uber, Smartbus) | Develop planning and design studies | 02/2022 - 06/2022 | 1 PT specialist, 1 IT specialist | 100,000 total costs | 450,000 total costs | Local, regional and national budget &amp; international financial institutions, private companies, international donors | All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT associations, private companies |
| BETH036 | Develop a coherent walking (pedestrian) network | In the whole urban area of the Bethlehem conurbation it must be possible to walk on a safe, direct, attractive and comfortable way. Basically this means that every road/ street and zone must be walkable. The development of a coherent walking network means planning this network by planning and constructing parts (reprofile) and preventing obstacles in some parts of the network, like parked cars, containers etc. | Develop planning and design studies | 08/2020 - 08/2021 | 1 traffic planner, 1 architect or urban designer | 100,000 total costs | Not possible to estimate in this phase | Local, regional and national budget &amp; international financial institutions, private companies, international donors | All municipalities involved in the project, local shop/business owners, developers and construction companies |
| BETH037 | Implement a walking school bus (WSB) | A walking bus is a form of student transport for school children (mostly | Implement | 01/2021 - 05/2021 | 1 communication specialist | 7,000 total costs | Fund raising and sponsors | All municipalities involved in the project, Ministry of Education, local |</p>
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Project Description</th>
<th>Implementation Method</th>
<th>Timeframe</th>
<th>Human Resources</th>
<th>Costs</th>
<th>Funders</th>
<th>Stakeholders</th>
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<tr>
<td>BETH038</td>
<td>Develop online/ offline applications for walking routes/ wayfinding, including touristic thematic routes</td>
<td>Implement a new wayfinding online/offline application</td>
<td>07/2020 - 07/2021</td>
<td>1 tourism specialist, 1 IT specialist</td>
<td>25,000 total costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors, fund raising and sponsors</td>
<td>All municipalities involved in the project, tourism authorities, local shop/business owners, tourism companies, citizens, tourists, associations</td>
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<tr>
<td>BETH039</td>
<td>Develop and implement a citywide freight delivery strategy</td>
<td>Develop a coherent citywide logistic system, supporting an efficient, environmentally friendly and high-quality distribution of goods throughout the conurbation</td>
<td>06/2025 - 12/2025</td>
<td>2 traffic engineers, 1 urban planner, 1 logistics specialist</td>
<td>250,000 total costs</td>
<td>Local budget &amp; international financial institutions, private companies, international donors, fund raising and sponsors</td>
<td>All municipalities involved in the project, local companies, shops, goods distributors, associations, citizens</td>
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</tbody>
</table>
The format (also requested in the ToR) in which the projects are presented has been introduced and accepted during various stakeholders’ meetings. It provides a unitary presentation method, containing the same information for all projects. Further, the following list can be split in complete separate projects that can be presented independently to donors, financial institutions, stakeholders, etc. In the various stakeholders meetings “risks” and “short term strategy” were topics.

**Risks**

Risks involves uncertainty about the activity. The “organizational” projects are really crucial; that is why in this report we start with the “Governance” projects. If the organization is not in place or not functioning at all, what can you expect from other projects like the realization of a complex and expensive infrastructural work? So as mentioned in BETH001: “it is efficient and logical to build on what already exists”. In this report it is the “Transport Committee” in the governorate. To support and extend this body is not that risky compared with starting a completely new organization. The risks for infrastructure projects are always there; in several projects the procedure through “tendering” is mentioned. The client can/ must monitor if they get what was promised in the offer.

For Public Private Partnership projects the risks are shared. Also the partners keep each other “sharp” in what they want to achieve for their investment. So this is for some projects like a multipurpose building an appropriate approach. For each project we identify in a compact way the risks involved.

Based on the SWOT factors positive risks and negative risks are formulated.

- **Strength:** project characteristics that give the project an advantage over others
- **Weakness:** project characteristics that place the project at a disadvantage relative to others
- **Opportunities:** elements in the environment that the project could exploit to its advantage
- **Threats:** elements in the environment that could cause trouble for the project.

Positive risks: what are the opportunities for the project because of its strengths?
Negative risks: what are the threats for the project because of its weaknesses?

**Short term strategy**

The short term strategy in fact started with developing this Mobility Plan together. The working group, steering committee etc., they are involved and up to date about the content. So to continue with updating each other, sharing ideas and opportunities is something that already started “yesterday”. Not only with the organizational part but also with enforcement. Police already acts based on the discussions. They will continue when the follow up is according to their expectations. Information from the municipalities in the papers and on the internet on “parking”, “safe school areas” etc. should be a continuous process.

Moreover in the infrastructure short term activities could be done:

- Indicate some 30 km/h zones with signage
- Make “work with work”. An ongoing infrastructural work (renewing of the sewage for instance) could be used for re-profiling according to way it is stated in this Mobility Plan.

Below, the 39 detailed projects proposed, are organized on the following topics:

- Governance, Information and Education
- Integrated Mobility Corridors; cross sectoral interventions
- Road network
- Parking
- Public transport
- Walking
4.2.1 GOVERNANCE, INFORMATION AND EDUCATION

Developing and implementing comprehensive and integrated urban mobility policies for towns and cities, which cover the functional urban area and hinterland connections, requires close cooperation between different levels of government and across administrative boundaries. Furthermore, the key players for different policy areas, sectors, and modes of transport need to be brought together. This includes public authorities with explicit responsibilities in the field of mobility and transport, but also other relevant factors such as urban planners, schools and universities, major employers, representatives of civil society. Therefore, governance is an important topic that should be dealt with at the beginning of the implementation of the Mobility Plan, whether the topic is improving cooperation between stakeholders, improving the decision-making process, increasing capacity or strengthening enforcement. The specific interventions proposed for phase 1 (2020 – 2023) are:

**BETH001.** Strengthen the Mobility Committee and establish within it a working group/unit responsible for the implementation, monitoring and evaluation of the Mobility Study and monitor the SUMP

**BETH002.** Increase capacity related to urban transport and mobility

**BETH003.** Strengthen enforcement of traffic regulations

**BETH004.** Establish a responsible body for local public transport organization/provision

Further, in order to support other interventions, it is necessary to facilitate awareness and behavior change programs to communicate with and educate people to use sustainable modes of transportation – NMT and public transport. It is not necessary that everyone who has been informed about the topic of sustainable transport will understand and act accordingly. Awareness raising is the first step but not the only step to successfully change the habits of the public with regards to sustainable transport. The project proposed for this is:

**BETH005.** Develop and implement an information, education and communication strategy, targeting important mobility topics: benefits of walking, use of PT, climate change, road safety.

With emphasis we must mention that there is an existing situation, certainly in the field of Governance, Information and Education. Organizations, public and private, NGOs etc. are doing a great job every day in this perspective. The intention of this Mobility Plan is absolutely to encourage them and give them input for an accelerator in this field of mobility which is needed in terms of safety, livability, accessibility and environmental issues.

The projects are presented in the next pages.
BETH001 Establish a technical working group responsible for mobility

Implementation period: 07/2020 - 11/2020
Estimated cost: ~ € 25,000 (for whole implementation period)
Target group: local and regional mobility stakeholders
Project leader: local municipalities

Description
Cooperation and dialogue between stakeholders is a crucial element for good urban planning, in general and for mobility and transport planning in particular. Without the input, coordination and co-creation of various actors from the public sector, private sector and civil society, the decision-making process will always suffer. Furthermore, since many projects in this Mobility Study overstep municipality borders, a sound and healthy relation between all municipalities and the Governorate in Bethlehem conurbation is indispensable. It is efficient and logical to build on what already exists. There is a “Transport Committee” in the governorate. Experienced members from all three municipalities and the governorate take part. Based on this group a few sub groups will be appointed for different topics: “Mobility” (coordination Mobility Plan and Communication), “Public transport” (BETH004). Members of the sub group “Mobility” will be representatives from the municipalities, the governorate, private sector, schools and NGOs. The group Mobility will meet whenever necessary and should have an advisory role, not an executive one.

Objectives
» Top up “traffic, engineering” towards “mobility”
» Increase cooperation between mobility stakeholders and participation in planning processes
» Improve and make the decision-making process more inclusive and efficient
» Ensure the proper implementation, monitoring and evaluation of the projects in the Mobility Study.
Activities
» Municipalities have to establish a working group for mobility
» Define the composition of the technical working group
» Assign a program coordinator, responsible for the coordination of the measures and measure packages, follow-up of the implementation and the evaluation and for the communication with the technical working group and external parties
» Define clear responsibility for the technical working group and a schedule and location of meetings.

In the Netherlands we have good experience with a similar process within our provinces. The so called “Transport Region” was established in a cluster of three to five municipalities 25 years ago. For the same reasons as we are now talking about in Bethlehem Mobility Plan: a broadening of the work scope from “traffic” to “mobility” and for public transport.

Results five themes

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ENVIRONMENT</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ECONOMIC EFFICIENCY</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LIVABILITY</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Success indicators
» The technical working group has been constituted
» The program manager/ coordinator has been nominated
» The technical working group has met several times for mobility related issues and projects

Risks
» Positive: staff can be selected for a growing and new task
» Negative: no mobility skills available (yet) for a not yet embedded profession
**BETH002 Increase capacity related to transport and mobility**

**Implementation period:** 07/2020 - 10/2020  
**Estimated cost:** ~ € 20,000 per year (for the conurbation of Bethlehem)  
**Target group:** staff from municipalities, police, governorate etc. and interested mobility stakeholders from the public  
**Project leader:** local municipalities, companies, universities  

**Description**  
To create the best possible outcomes for city projects and urban planning, local governments need appropriate capacities at all levels. These capacities exist in different forms and in an urban context these capacities are important at a local level. So we are talking about capacity building for the staff from municipalities, police, governorate and capacity building for interested mobility stakeholders from the public. Sometimes a webinar for instance can be organized for a combined audience: mostly about different events, courses etc. Capacity building must incorporate activities related to: human resource development, organizational development, institutional development. Capacity building should be a continuous activity in the planning process, spanning across the whole spectrum of events and activities and should be in the form of: international study visits, participation at international congresses and conferences, organization of international congresses, self-learning, on-the-job training, coaching, higher education course, etc.

**Objectives**  
» Set up/ strengthen institutions that are appropriately equipped to support and undertake urban transport planning / research  
» Develop a manpower base for effective and sustainable urban transport planning  
» Create a system for continuous learning and updating of knowledge and information  
» Provide advisory services, strategic guidance and administrative support for technical cooperation  
» Strengthen legal and regulatory framework by sharing and exchanging best practices
Activities
» Assign a program manager or coordinator (for the capacity building program)
» Develop a capacity building plan, including activities, people involved and budget
» Organize activities related to capacity building
» Monitor and evaluate effects
» From the municipality: 1 person to keep up the project

Results five themes

| ACCESSIBILITY | + | 0 | 0 | 0 | 0 |
| SAFETY AND SECURITY | + | 0 | 0 | 0 | 0 |
| ENVIRONMENT | + | 0 | 0 | 0 | 0 |
| ECONOMIC EFFICIENCY | + | 0 | 0 | 0 | 0 |
| LIVABILITY | + | 0 | 0 | 0 | 0 |

Success indicators
» Knowledge and capacity of mobility stakeholders have been increased
» At least 50 professionals (private and public sector) have received one type of training

Risks
» Positive: first step (group) is there, in a growing and innovative market segment (job opportunities)
» Negative: key persons are very busy in an organization with some gaps
**BETH003 Strengthen enforcement of traffic regulations**

**Implementation period:** 2020 - 2030  
**Estimated cost:** ~ € 10,000 per year for max 10 years  
**Target group:** police and municipalities representatives  
**Project leader:** Ministry of Interior (Traffic police) and Ministry of Local Government

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**Description**

Traffic regulations address the mutual relationship between road users and the relationship between road users and their surroundings. They are aimed at promoting the safe and smooth flow of traffic on roads. Unconscious violation of rules should be addressed by road and vehicle design, but conscious breaking of rules must be addressed through police enforcement. Enforcement is an inseparable part of road safety policy at all levels of governance. Traffic Police has a great number of tools available for enforcing road traffic rules. They concern gathering evidence against offenders and the tools for their sanctioning. Traffic offenders can be penalized in various ways: fines, penalty points, (temporary) driving license suspensions, confiscation of their vehicles, mandatory participation in rehabilitation programs, prison sentences or community service. Penalties are meant to sanction offenders, protect society and influence the behavior of offenders and all citizens. In 2000, the mobility law n°5 has been approved but never updated since then.

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**Objectives**

- Increase road safety  
- Increase knowledge and awareness of traffic regulations and legislation  
- Improve overall traffic conditions in Bethlehem conurbation  
- Raise the fine on traffic flow violations  
- Increase the number of the traffic police  
- Raise the security on roads by assigning permanent police patrols to inspect the vehicles moving on roads and increase the number of vehicles inspection campaigns  
- Curb the havoc of the illegal vehicles and that vehicles that abuse the traffic laws specially those holding the yellow license plates  
- Check the possibility to add speed radars on the main roads

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**Activities**

- Assess the need for strengthening enforcement: personnel, knowledge, material resources  
- Develop recommendations for regulatory and legislative framework to support enforcement  
- Monitor and evaluate the effects  
- Strengthen enforcement on roads: increase number of police representatives on street, install speed cameras, etc.  
- Collect data on traffic violations and accidents
Results five themes

| ACCESSIBILITY       | +   | +   | o   | o   |
| SAFETY AND SECURITY | +   | +   | o   | o   |
| ENVIRONMENT         | +   | o   | o   | o   |
| ECONOMIC EFFICIENCY | +   | +   | o   | o   |
| LIVABILITY          | +   | +   | +   | o   |

Success indicators

» Number of traffic violations has decreased with 25%
» Number of traffic related accidents has decreased with 50%
» Number of traffic related casualties has decreased with 100%

Risks

» Positive: police organization is there with national guidance and support; honor in your work
» Negative: not all rules/signs are consequent; staff is under pressure
BETH004 Establish a responsible body for local public transport organization/provision

**Implementation period:** 2020 - 2021  
**Estimated cost:** ~ €10,000 per year  
**Target group:** local, regional and national officials that have experience in Public Transport  
**Project leader:** local municipalities, Governorate and Ministry of Transport Association of Drivers and Private sector

**Description**

The success of a public transport system lies in establishing a local/regional body that has the authority to make decisions, controls and manages the system. It can only be achieved within the desired timeframe through the appointment of a dedicated, full-time team of professionals in a carefully considered employment structure. Locally, the municipalities are more aware of their needs. Thus, it is essential that the Ministry of Transport delegates the decision power at the proper level. The best way of achieving this is by creating a transitional body (ad-hoc) within the Ministry of Transport which will evolve towards a new complete entity in the conurbation or governorate. The new entity will handle:

» Public transport service planning  
» Public transport infrastructure  
» Operational aspects of the service  
» Communications  
» Financing

In the start the transitional body “Public Transport” will be a sub group from the “Traffic Committee” in the governorate. This is described in BETH001.

**Objectives**

» Create an efficient institution responsible for the public transport in the conurbation  
» Create sub-departments in charge of the different aspects for the success of an efficient public transport  
» Expedite the implementation of public transport projects  
» Improve the current transport system

**Activities**

» Start negotiations/lobby with the Ministry of Transport for an independent public transport body  
» Change respective laws and regulations for setting the new structural public transport body  
» Select a coordinator for the public transport body and the subsequent departments  
» Define clear responsibilities and outcomes of each department for achieving the proposed goals in public transport  
» Set a clear communication strategy between the new institution and the rest of the public sector entities
The municipalities will play a key role in this new organization:

» In the first place the municipalities are aware of the current performance of public transport. Also, they are informed about public transport improvements.
» The municipalities have the knowledge and information about the network with stations/ stops/ information etc.
» And the municipalities have regular contact with all kinds of stakeholders. This is necessary for processing changes and to keep the public private partnerships alive.
» The municipality will keep this body “alive” by setting the agenda and dates.

Results five themes

| ACCESSIBILITY | + | 0 | 0 | 0 | 0 |
| SAFETY AND SECURITY | + | 0 | 0 | 0 | 0 |
| ENVIRONMENT | + | 0 | 0 | 0 | 0 |
| ECONOMIC EFFICIENCY | + | 0 | 0 | 0 | 0 |
| LIVABILITY | + | 0 | 0 | 0 | 0 |

Success indicators

» A 100% functional local/ regional Public Transport Body independent from the Ministry of Transport

Risks

» Positive: many organizations/people are working in Public Transport with opportunities for growth and better service
» Negative: current situation is a “fight market” with a lot of “fixed habits”
BETH005 Develop and implement an information and education strategy

Implementation period: 2020 - continuous
Estimated cost: ~ € 25,000 per year
Target group: all people in and around Bethlehem conurbation
Project leader: local municipalities, police, schools, universities, local companies

Description
Awareness raising should be a continuous activity in the planning process, spanning across the whole spectrum of events and activities. The process must continue during and after implementation. Mobility behavior can be influenced through information and promotion campaigns which are aimed at developing sustainable mobility behavior among the citizens without any additional infrastructure investment. Such campaigns have to address the target persons emotionally and also offer clear information. Repeat campaigns to stay in the mind of the citizens: Changing behavior is a process. Don’t expect to change habits because of one campaign of e.g. 3 weeks. It is essential to maintain a presence in the minds of the target group. Therefore a repetition or further development of the campaign is recommended. Information materials must be accompanied by actions allowing people to try out new behavior.
Objectives
» Create an efficient institution responsible for the public transport in the conurbation
» Create sub-departments in charge of the different aspects for the success of an efficient public transport
» Expedite the implementation of public transport projects
» Improve the current transport system

Activities
» Assign a campaign/ strategy coordinator and/ or manager
» Plan and organize: gather information, analyze best practices, determine the type of activities, timeline, budget
» Approve the campaign
» Prepare the information and promotion material or workshops and training courses
» Launch the education/ communication/ information campaign
» Monitor and evaluate: measure and assess results and impacts
» Develop, adapt, refine
» Repeat the measures constantly in order to achieve a multiplier effect

Results five themes

| ACCESSIBILITY | + | + | + | o | o |
| SAFETY AND SECURITY | + | + | + | + | + |
| ENVIRONMENT | + | + | + | + | o |
| ECONOMIC EFFICIENCY | + | + | + | o | o |
| LIVABILITY | + | + | + | + | + |

Success indicators
» Awareness level regarding sustainable modes of transport has increased
» Willingness to use the public transport and to walk has increased

Risks
» Positive: many new and innovative subjects with a worldwide coverage and techniques (internet) with also “new kids” on board
» Negative: almost all topics are new so no history/ experience; some steps forward could also result in a step backwards
<table>
<thead>
<tr>
<th>Activity</th>
<th>Transport modes</th>
<th>Media</th>
<th>Stakeholders</th>
<th>Cost (in Euros)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch publicly and promote the Mobility Study</td>
<td>Public transport, cars</td>
<td>Social media, newspaper, national radio, public launching event organized by the municipality – for example in Manger Square</td>
<td>General public, municipalities involved, politicians, investors/ funders</td>
<td>4,000</td>
<td>Once at the end of the Mobility Study (August-October 2020)</td>
</tr>
<tr>
<td>Campaign to promote the use of Public Transport</td>
<td>Public transport, cars, walking</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work places</td>
<td>Bethlehem conurbation, Public transport agencies, General public</td>
<td>2,500 per year</td>
<td>Twice a year, and/or when needed</td>
</tr>
<tr>
<td>On Demand transit initiative</td>
<td>Public transport, cars, walking</td>
<td>Social media, Mobile based apps, Billboard advertisements, Tourist information website, Tourist information, Flyers, Provide information in schools and work places</td>
<td>Bethlehem conurbation, Public transport agencies, General public, tourists</td>
<td>1,000 per year</td>
<td>When needed</td>
</tr>
<tr>
<td>Walking rights campaign for general public</td>
<td>Walking, car</td>
<td>Social media, Newspaper, Billboard advertisements, National radio and TV, Flyers, Provide information in schools and work places</td>
<td>Bethlehem conurbation, NGO's, General public</td>
<td>2,000 per year</td>
<td>As and/or when needed over a period of 10 years (implementation period of the Mobility Study)</td>
</tr>
<tr>
<td>Car-Free day</td>
<td>Walking, car</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work places, Billboard advertisements, Website</td>
<td>Bethlehem conurbation, NGO's, General public, Police</td>
<td>1,000 per year</td>
<td>once in a year (22nd September)</td>
</tr>
<tr>
<td>Campaign to promote walking to school</td>
<td>Walking</td>
<td>Provide information in schools, Newspaper, Billboard advertisements</td>
<td>Bethlehem conurbation, schools, institutions, parents, students, NGO's</td>
<td>1,000 per year</td>
<td>As and/or when needed over a period of 10 years</td>
</tr>
<tr>
<td>University education and information programs to teach about public transport and walking (Non-motorized transport)</td>
<td>Walking, Public transport</td>
<td>Advertisements on university website, Newspaper advertisements</td>
<td>Bethlehem conurbation, institutions, scholars, researchers, students, NGO's</td>
<td>1,000 per year</td>
<td>Continuous, first batch to be enrolled in 2020</td>
</tr>
<tr>
<td>Carpooling campaign / Car sharing campaign</td>
<td>Car</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work</td>
<td>Bethlehem conurbation, NGO's, General public, Private companies</td>
<td>1,500 per year</td>
<td>Once a year, As and/or when needed over a period of 10 years</td>
</tr>
</tbody>
</table>
Information and education campaign

<table>
<thead>
<tr>
<th>Campaign</th>
<th>Mode of Transport</th>
<th>Promotion Methods</th>
<th>Participants</th>
<th>Cost per Year</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accident/ traffic safety awareness campaign</td>
<td>Walking, car</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work places, Billboard advertisements, Website</td>
<td>Bethlehem conurbation, NGO's, General public, Private companies, Police</td>
<td>6,500</td>
<td>Twice in a year</td>
</tr>
<tr>
<td>Road safety education in schools, universities and work places</td>
<td>Walking, car</td>
<td>Provide information in schools, Newspaper, Billboard advertisements, Social media</td>
<td>Bethlehem conurbation, institutions, scholars, researchers, students</td>
<td>4,500</td>
<td>Twice in a year</td>
</tr>
</tbody>
</table>

Car free day - 22nd September
Car Free Day has already become a tradition in many countries around the world and it is celebrated on the 22nd of September, every year. One day per year, the city lets its inhabitants and visitors enjoy a city free of cars, on its major routes. It marks the perfect occasion to think about sustainable mobility and smart modes of transport in a fun way. To encourage this, activities are organized for both children and adults.

A role model
- Someone who is well known (or will become well known) expresses “sustainable behavior”, like walking to work every day instead of using the car.
Walking

» Use social media and internet means a way to raise awareness about walking
» Develop a brand for promoting walking, some examples: “We are all pedestrians”, “Walk! Be part of the change!”, “Listen to your legs”, etc.
» Organize public meetings and workshops to promote and present the benefits of walking
» In conjunction with NGO’s organize walking rights campaign. The walking rights campaign will act as an effective communication tool in educating the general public about benefits of walking inside the limits of the city. General public will walk to market places, work places, schools etc. instead of using their cars

Promoting public transport

Promotion and awareness campaigns are essential for the success of a public transport strategy. Thus, branding, marketing and communication tools are important to:

» Attract people’s attention to the benefits of public transport
» Facilitate the recognition of the system
» Provide information to users
» Establish a good public perception about the system
Safety and accident awareness

» Safety campaigns, directed at a specific target group of road users and designed to change their behavior, should involve governmental, municipal and non-governmental institutions and organizations and mass media as widely as possible.

» Campaigns can be developed online, on social media platforms and internet sites, on paper – through the means of spreading flyers and brochures, placing posters throughout the urban area or on site – through public, participative activities.
4.2.2 INTEGRATED MOBILITY CORRIDORS, CROSS-SECTORAL INTERVENTIONS

The integrated mobility corridors proposed for modernization and improvement in the first implementation phase of the Mobility Plan of Bethlehem conurbation (2020 – 2023) represent the backbone of the urban traffic within the area. As result of the analysis phase, the development and establishment of the target scenario, the main urban roads have been identified. **Without immediate action to improve the traffic conditions on these major roads, congestion, unsafe situations and illegal and reckless driving behavior cannot be avoided.** Improving the traffic flow, the quality of urban space and the safety will positively contribute to the achievement of the vision and the targets set for Bethlehem for 2030. Further, it will ensure that the secondary road network (mainly in residential areas) will be relieved from through traffic and spill overs from major roads.

The major interventions that are needed for all main mobility corridors, as well as for the city of Bethlehem refer to an integrated manner of planning, tackling diverse, complementary topics spanning from: **improving pedestrian facilities, adapting street profiles to discourage car use, improving road surface, marking and signaling to improve safety conditions, enforcing paid parking along the roads in clearly marked bays, improving public transport services and facilities** (introduce regular, scheduled PT services, place shaded/covered waiting stations), **improving pedestrian crossings, intersections and roundabout design** and so on. All these topics are presented for each of the integrated mobility corridors, in the following projects:

**BETH006.** Upgrade and modernize the integrated mobility corridor general
**BETH006A.** Upgrade and modernize the integrated mobility corridor Hebron-Jerusalem Road
**BETH006B.** Upgrade and modernize the integrated mobility corridor Al Sahel Beit Jala
**BETH006C.** Upgrade and modernize the integrated mobility corridor main Beit Sahour street
**BETH006D.** Upgrade and modernize the integrated mobility corridor Manger Street
**BETH006E.** Upgrade and modernize the integrated mobility corridor Dr. Gemeiner Street
**BETH011,12,13.** Modernize and revitalize Bethlehem, Beit Sahour, Beit Jala, Artas and Al Khader

The map below shows the location of the main integrated corridors, as part of the road network categorization proposed and developed in the previous phases of the project (Road network strategy), as well as in relation with the pedestrianization of Bethlehem city center.

These projects need to be coordinated also with the following projects, in particular: **BETH017, BETH018, BETH022, BETH027, BETH034.**
Map 9: Main “Hardware”/infrastructure interventions in Bethlehem Conurbation 2020-2030
BETH006 Integrated mobility corridors of Bethlehem

Description
The improvement of the integrated mobility of Bethlehem is necessary in order to respond to several challenges that Bethlehem conurbation is facing: congestion, pollution, unsafe road situation, unregulated parking and poor quality of PT and pedestrian facilities. Several sections of the road are considered bottlenecks for mobility and there are several locations that are blackspots in terms of road safety. Furthermore, parking is disorganized and unregulated, with cars blocking traffic, but mainly obstructing the proper use of the pavement by pedestrians. Measures correlated with P+R at Al Nashash.

Objectives
» Improve mobility for people of all ages and income levels
» Improve safety for all types of travelers
» Increase the share of walking trips
» Increase PT ridership

Activities
» Tender for studies and detailed design
» Design all aspects of the corridor
» Implement:
  ● change/ improve road profile, surface and traffic signs and marking
  ● change/ improve design and marking
  ● determine locations of parking bays and mark them
  ● place parking payment devices (P&D)
  ● determine location and place PT stops with facilities (36 locations), with approx. 300 m distance between them
  ● determine the location of the touristic bus stops
  ● clean pavement of debris/ cars/ obstacles
  ● extend pavement to min. 1.5 m (where possible)
  ● place urban furniture - lights, benches, greenery on pavement
  ● implement crossing facilities at every major intersection
» Monitor and evaluate

NOTE: The touristic bus routes/ stops are part of project BETH030
Success indicators
» The whole length of the corridor has been rehabilitated and improved
» Congestion and pollution levels have decreased with 20%
» Number of pedestrians has increased with 10%
» Congestion and pollution levels have decreased with 20%
» Area is served by reliable PT

Risks
» Positive: the need to change; results are road safety, health and no traffic jams
» Negative: corridors have always been like this; weak decision making process

General characteristics

Integrated mobility corridor
» 1 lane per direction corridor with 1 lane for (paid) parking/ bus stops on each direction
» “orange zone” paid parking area with parking payment devices P&D
Promote multimodal mobility: walking for trips shorter than 2 km, public transport for external trips
Integration with the P+R projects, which will serve as interchange multimodal hubs and also as public transport stations for external lines and as charging locations (overnight) for electrical buses
» Served by a frequent and efficient public transport line
» Served by a touristic public transport vehicle
» Cleaned and improved pedestrian routes, with high quality material and uninterrupted pavement
» Provided with high quality and design standards urban furniture and greenery - high quality surfaces, seating places, trash cans, trees and plants
» Extension of pedestrian pavements to at least 1.5 m width, where possible.

Map 10: Master Plan for Bethlehem Conurbation Integrated Mobility Corridors
Road and parking

**Bus bulbs (curb extension)**
- Recommended length of 12.0 m for big buses, less if mini buses or taxis are used
- Clearly marked with a different color curb (different than parking)
- Placed at mid-blocks not at intersections
- Combined with amenities such as wayfinding maps, plantings, and trees to enhance the overall transit user experience

**Parking lane (with curb extension)**
- Provide street pocket for parking
- Recommended length of min. 5.0 m and 3.0 m width
- Use clear marking with the color indicating the type of parking (blue/ white, red/white, etc.)
- Use permeable/ green tiles for the parking
- Plant street trees on curb extensions aligned to the parking lane to narrow the overall profile of the roadway
- Use curb extension also to place lighting elements, hydrants, meters, etc. to release pavement from it
- Place frequent parking payment machines (every 200 m where possible)
Intersections and pedestrian crossings and facilities

Pedestrian crossing

» Redesign crossing area with extended curb near crossing, including trees
» Install acoustic signals at the traffic light for people with visual disabilities
» Redraw zebra marking to be perpendicular to pavement (shortest crossing distance) with visible white paint, with a width of minimum 2.4 m
» Install ramps for wheelchair accessibility and tactile surfaces for visually impaired people
» Design and configuration need to ensure long-distance visibility for both vehicle drivers and pedestrians
» Draw/ design crossings every 150-200 m and at major intersections along the corridor
Pedestrian areas

- Remove obstacles from existing pavement
- Expand pavement to 1.5 m where possible
- Use quality pavement materials: stone tiles on sand foundation, preferably with patterns in pastel light colors
- Provide provisions for disabled people at intersections (sloping and anti-skid curb) and along the pavement (directional tiles for visually impaired)
- Place trees (in the ground or pot)
- Place seating facilities every 500 m, can incorporate greenery as above, should be made of wood, materials that don’t absorb heat
- Place garbage bins every 200 m
- Place way-finding and directional signage at every 500 km or major change of direction, as well as in the vicinity of tourist attractions
- Place lighting facilities where missing
- Place separation/protection elements towards the street: wood planter, bollards - to prevent cars from mounting on pavement and avoid accidents
Public transport

Bus stops

- Simple and minimalistic design
- Made from durable materials - metal frames/ glass, PVC or polyester panels
- Provide shelter from weather elements through a canopy/ cover
- Provide information about the bus line served, schedule and maps (in the form of protected posters)
- Distinguishable characteristics for the touristic and express station - another color of material and information about the touristic sites served
- Provide space for commercials (the municipality can rent the space for advertising)

Public transport

- Quality of service and vehicles increases; public transport becomes a reliable transport mode serving the corridor
- Place on both sides of the road public transport stops - at ideally 300 m distances between them (where necessary, it can be denser - in densely populated areas. The stops are for public transport and touristic buses.
- Reorganize schedule and functioning times for the public transport on the corridor: route 5 every 15 min.; during peak hours, every 30 min.; outside peak periods:
  - functioning time express bus: Mon. to Thur. 5:00 - 21:00, Fri - Sun. 6:00 - 19:00
  - functioning time touristic bus: daily 7:30 - 21:00,2 starting with one each hour per hour
  - provide adaptable schedule depending on season and demand (high touristic season, University) – possibility to ride more frequently/ on demand
  - the Ministry of transportation will set the price
  - monthly/ yearly subscription for PT is encouraged
- Phase out old vehicles and impose high quality in terms of comfort and emissions (gradually in the next 5-7 years)
Tourism (included in project BETH030)

- Part of the complete touristic circuit in the conurbation (vehicles will be acquired as part of the complete project) — project BETH030
- Touristic bus stops on each direction with extra facilities: distinctive markings to revitalize it, information related to the touristic route and schedule, name of the stops and information about the touristic sites nearby, distances in meters and minutes walking
- The touristic route will be served by an electric bus

Map 11: Touristic / Attraction Route Map
BETH006A Integrated mobility corridor Hebron-Jerusalem Road

Implementation period: 2020 - 2021

Estimated cost: ~ € 6.0 M (without acquiring buses, vehicles, etc.)

Target group: all Bethlehem inhabitants/ visitors/ commuters

Project leader: local municipalities, PT body

Results five themes

| ACCESSIBILITY | + | + | + | + | + |
| SAFETY AND SECURITY | + | + | + | + | o |
| ENVIRONMENT | + | + | + | o | o |
| ECONOMIC EFFICIENCY | + | + | + | + | o |
| LIVABILITY | + | + | + | + | o |

General characteristics

Map 12: Integrated mobility corridor Jerusalem- Hebron Road
**Integrated mobility corridor characteristics**

» Served by a frequent and efficient public transport line — bus route 5, with 21 stops on each direction (located at approximately 300 m distances from each other). Other PT lines: 1, 2, 4, 8, 12 are serving sections of the road or are feeding it from adjacent routes

» Served by a touristic public transport vehicle (electric small capacity vehicle of 16 passengers) with 6 stops: Solomon’s Pool, Ad Duheisha, Central Market, Bethlehem city, Bethlehem Northern Entrance, Checkpoint 300
Roundabouts

Putin/ Ad Duheisha roundabout

» Provide clear marking for signaling: approaching roundabout (300-400 m before), priority rules (white “give priority” triangles on street surface and vertical priority traffic signs), pedestrian crossings
Clearly mark with colored border the raised island  
Provide landscape improvements in the raised island (no interventions that would hinder visibility)

**Ad Doha roundabout**
- Remove semi-raised island and replace it with clear white painting marking that can be overtaken by large vehicles  
- Transform the roundabout into one with mountable island  
- Provide clear marking and signage, approaching and in the roundabout, showing priority and traffic rules

To prevent that a roundabout “blocks” and causes traffic jams (mainly due to trucks) in the Netherlands a special lay-out of the middle island has been developed. A strip/ lane of 1.5-2.0 m is executed in a different surface (elements) and it is possible to drive over it. In the photo the purple strip is 1.5 m, in elements and only used by large vehicles.

The activities related to the different functions on both sides of the corridor will influence the mobility corridor to be successful or not. So, during the design of a corridor it is necessary to make an inventory about:
- The parking situation in general and also which activities (supermarket, restaurant etc.) need how many parking places. Are there any alternatives for this parking on the street/walkway?  
- Each new activity to be built (shop, office etc.) should cover its own parking requirement. So, in negotiations with the initiator it could be a solution that instead of three floors they build four floors with one for parking cars.
Street profile

Total width varies along the route. Specific profiles will be determined during detailed design based on actual site surveys.
BETH006B Integrated mobility corridor Al Sahel Street

Implementation period: 2020 – 2021
Length: 2.4 km
Estimated cost: € 2.0 M (without acquiring buses, vehicles, etc.)
Target group: all Bethlehem & Beit Jala inhabitants/ visitors/ commuters
Project leader: Beit Jala Municipality, PT body

Results five themes

| ACCESSIBILITY | + | + | + | + | + |
| SAFETY AND SECURITY | + | + | + | + | o |
| ENVIRONMENT | + | + | o | o |
| ECONOMIC EFFICIENCY | + | + | + | + |
| LIVABILITY | + | + | + | + |

General characteristics

Map 15: Integrated Mobility Corridor – Al Sahel Road
Integrated mobility corridor characteristics

» Served by a frequent and efficient public transport line — bus route 3 and 8, with 9 stops on each direction (located at approximately 300 m distances from each other). Other PT lines: 1, 2, 4, 5, 6 are serving sections of the road or are feeding it from adjacent routes

» Served by a touristic public transport vehicle (electric small capacity vehicles of 16-20 passengers) with 3 stops in each direction: Beit Jala City, Al Sahel and Bethlehem City (see project BETH030)

» The municipality of Beit Jala is planning to do the cycling and walking pathway project which is perpendicular to Al Sahel corridor and crossing it.
Touristic bus

Map 17: Touristic/Attraction Al Sahel route

General characteristics

A design plan for Al Sahel Corridor, Provided by Beit Jala municipality, it was prepared by USAID through AECOM.
Street profile

Total width varies along the route. Specific profiles will be determined during detailed design based on actual site surveys.

Al Sahel Street Zone (1) - Typical section

Total width varies along the route. Specific profiles will be determined during detailed design based on actual site surveys.

Al Sahel Street Zone (2) - Typical section
Total width varies along the route. Specific profiles will be determined during detailed design based on actual site surveys.
Roundabouts and pedestrian crossings

The municipality is planning to do this project.

Beit Jala roundabout

» Provide clear marking for signaling: approaching roundabout (300-400m before), priority rules (white “give priority” triangles on street surface and vertical priority traffic signs), pedestrian crossings
» Clearly mark with colored border the raised island
» Provide landscape improvements in the raised island (no interventions that would hinder visibility).

A roundabout in The Netherlands
Street Strengths & Opportunities

Street Strength
Physically segregated lanes, greenery and speed calming.

Street Opportunities
Increase level of safety by extending existing curb to improve safety and can provide a space for public use.

Street Strength
Street; a social gathering.

Street Opportunities
Temporary street transformation life, work, play street.

Street Strength
Plaza for people for gathering & enjoy

Street Opportunities
Efficiently using of space, rise socialization, greenery seating areas and create active streets adopt this space for new usage.

Street Strength
Street embraced by residences, social interaction

Street Opportunities
Furniture, Lighting, Plants, Signage

Street Strength
Mixed use

Street Opportunities
once the curb side parking is resolved, the side walk geometry can be utilized to accommodate parklets, soft scape and social hubs.

Street Strength
Holy places - touristic destination

Street Opportunities
- Improving the surrounding environment so tourist could enjoy, meditate & live the experience.
**BETH006C Integrated mobility corridor Beit Sahour main road**

*Implementation period:* 2020 – 2023  
*Length:* 6 km  
*Estimated cost:* ~ € 4.8 M (without acquiring buses, vehicles, etc.)  
*Target group:* all Bethlehem conurbation inhabitants/ visitors/ commuters  
*Project leader:* Beit Sahour municipality, PT body, tourism board

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**Results five themes**

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**General characteristics**

*Map 18: Integrated Mobility Corridor – main Beit Sahour Road*
Parking lane (with curb extension)
» Provide street pocket for parking
» Recommended length of minimum 5.0 m and 3.0 m width
» Use clear marking with the color indicating the type of parking (blue/white, red/white, etc.)
» Use permeable/green tiles for the parking
» Plant street trees on curb extensions aligned to the parking lane to narrow the overall profile of the roadway
» Use curb extension also to place lighting elements, hydrants, meters, etc. to release pavement from it
» Place frequent parking payment machines (every 200 m where possible)
Pedestrian Crossings

Pedestrian crossing along the corridor Beit Sahour

» Implement traffic calmed crossings every 150-200 m, at all major intersections and mid-blocks
» Place visible marking (zebra crossing) with visible white paint and traffic signs (approaching and next to the crossing), with a width of minimum 2.4 m
» Use vertical deflection measures such as speed bumps, tables, and cushions to reduce motorist speed and warn them of the presence of an upcoming pedestrian crossing.
» Install ramps for wheelchair accessibility and tactile surfaces for visually impaired people

Map 21: Roads Pedestrian Crossing map
Street profile

Total width varies along the route. Specific profiles will be determined during detailed design based on actual site surveys.
BETH006D Integrated mobility corridor Manger Street

Implementation period: 2021 – 2022
Length: 2.0 km
Estimated cost: € 5.000.000 (without acquiring buses, vehicles, etc.)
Target group: all Bethlehem inhabitants/ visitors/ commuters
Project leader: local municipalities

Results five themes

| ACCESSIBILITY | + | + | + | + | + |
| SAFETY AND SECURITY | + | + | + | + | o |
| ENVIRONMENT | + | + | + | o | o |
| ECONOMIC EFFICIENCY | + | + | + | o | o |
| LIVABILITY | + | + | + | + | + |

Map 22: Integrated Mobility Corridor – Manger Road

Integrated mobility corridor characteristics of Manger Street

» Served by a frequent and efficient public transport line — bus route 1 (detailed in project BETH011), with nine stops on each direction (located at approximately 300 m distances from each other). Other PT lines: 2, 4, 9 are serving sections of the road or are feeding it from adjacent routes

» Served by a touristic public transport vehicle (electric small capacity vehicle of 16-20 passengers) with four stops in each direction: Start Street, Bethlehem City, Nativity Church (see project BETH030)

» Dr. Gemeiner Road (Al Kharkafah) should be integrated with the Manger road project and having the same cross section in order to create a circle road.
Touristic bus and attraction routes
Roundabout and pedestrian crossings
Dr. Gemeiner Road (Al Kharkafah) should be integrated with the Manger street project and have the same cross section in order to create a circle road.

**Gijon roundabout**

- Proposed tunnel under the Roundabout connecting directly the Manger road with Dr. Gemeiner (Al Kharkafah) road to be constructed, in order to reduce the number of vehicles passing through the roundabout
- Provide clear marking for signaling: approaching roundabout (300 - 400 m before), priority rules (white “give priority” triangles on street surface and vertical priority traffic signs), pedestrian crossings
- Clearly mark with colored border the raised island
- Provide landscape improvements in the raised island (no interventions that would hinder visibility)
Street profiles

Total width varies along the route. Specific profiles will be determined during detailed design based on actual site surveys.

Manger Road Zone (1)-Typical section

Manger Road Zone (2)-Typical section
Manger Road Zone (2) - with extended pedestrian zone

Manger Road Zone (3) - Typical section

Total width varies along the route. Specific profiles will be determined during detailed design based on actual site surveys.
**BETH006E** Integrated mobility corridor Dr. Gemeiner (Al Kharkafeh) street

**Implementation period:** 2024 -2024  
**Estimated cost:** €800,000 (without acquiring buses, vehicles, etc.)  
**Target group:** all Bethlehem inhabitants/ visitors/ commuters  
**Project leader:** local municipalities, PT body

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*Map 25: Integrated Mobility Corridor – Dr. Gemeiner (Al Kharkafeh) Road*
Touristic bus stops and attraction routes

Map 26: Touristic bus stops and attraction routes

Street profile
BETH011,012,013 Modernize and revitalize city centers of Bethlehem, Beit Sahour, Beit Jala, Artas and Al Khader

**Implementation period:** 2019 - 2022(11), 2023-2023(12), 2023-2024(13)

**Area:** 0.35 km², 3.0 km pedestrianized roads for Bethlehem city

**Estimated cost:** € 4.0 M(11), € 1.2 M (12), € 1.5 (13)

**Target group:** all Bethlehem inhabitants/ visitors/ commuters

**Project leader:** local municipalities

**Description**

The city centers of Bethlehem, Beit Jala, Beit Sahour, Artas and Al Khader are and always have been the “urban accelerators” of the conurbation of Bethlehem. Today “tourism” is the backbone of the Governorate’s economy. This means that, based on many functions (shops, restaurants, hotels, churches, mosques, offices etc.) on a very small piece of land with a high density in buildings, many things are happening and starting there. So we must cherish these places because they are so important for the social and economic wellbeing of the centers itself but also for the rest of the conurbation and region. This has been the case for ages in towns, in Europe, the Levant, Middle East etc. And then came the car as a mode of mass transport. We realized that in all older inner cities in so many countries things were growing out of balance the last decade. Driving and parked cars consume so much space that they are literally choking these vulnerable and indispensable centers. On top of that those cars are polluting and they cause accidents.

Nowadays many (historical) cities are convinced that Smart Moving Cities (Green Mobility) are cities where people have a choice to go walking, by car, by public transport or cycling! So multimodality; this is one of the main assumptions in this Mobility Plan for Bethlehem. The municipality of Bethlehem has already made steps towards these new insights. Good examples are (a more) car free Manger Square and the redesign of Star Street.
Objectives

» Foster a stronger local economy and prosperity in the city centers
» Increase quality of public space
» Improve tourist (visit) experience
» Reduce car traffic (driving and parking) to a minimum in and around the cities
» Strengthen appreciation and conservation of the special historical and cultural assets that exist in the city of Bethlehem and the other city centers

The big changes in the mobility systems as described will make “walking” by far the main mode of transport. The streets and squares will become active living areas where people play, buy, eat, rest, meet each other etc. Almost all streets/squares are part of pedestrian routes. Many streets need to be refurbished. Needed are high quality and design standard urban furniture and greenery; high quality surfaces, seating places, trash cans, trees and plants and street lighting.
Activities
The old city centers are the most challenging places/areas for architects, urban planners, mobility planners, landscapers and so on. So that means integrated planning must be done at a high level. In this Mobility Plan 39 projects are developed. Some of the projects cover the whole conurbation with an impact on the city centers, and some zoom in on these areas. Of course the old city center of Bethlehem is a little bit ahead of the other centers in terms of rehabilitation and revitalization. So good and inspiring examples like Star Street can be found for the other four centers.

A highlight of some topics from other projects which have a big impact on the city centers:

» Categorization of the network and Implementation of zones BETH 014, 015, 016 and 017:
  ● Finding a balance between accessibility and livability
    - main road
    - activity streets
    - 30 km/h zones and pedestrians

» Parking strategy and Build off-street parking
  ● Parking reduction as much as possible
  ● Bring parking on the edge in buildings

» Reorganize public transport BETH 023, 025
  ● Last mile/walking

» Walking (pedestrian) network BETH036
  ● City center
  ● Walking areas

» Freight delivery system BETH039
  ● Last mile
  ● Small electrical vehicles

When we cumulate this for the city center task we find this integrated design:

» Motorized accessibility (cars, buses) is provided from the outside of the city center by streets with the function “activity street”. For taxis there are just a few places available in the city center.

» The city center is a special zone; mainly fully pedestrianized (so car free).

» This zone is furnished for walking.

» Parking of cars and buses is mainly in garages outside the city center. Disabled people are permitted to park on specially assigned locations in the city center. People living and working in the city will be able to park their car in designated areas. This possibility will be phased out; at the end all cars will be parked outside the city center.

» The “last mile” is the section in the city center for Public Transport and Freight/ Distribution. This distance will be covered by small electrical vehicles. This distribution can take place within a certain timeslot.

» For people with difficulties going up and down some steep streets there will be properly designed handrails (slope management).
Implementation points:
- Comfortable and clean pavement
- Remove parking from streets and Manger Square
- Change/improve road profiles
- Remove most of the traffic signage

Star Street is a good existing example. It fully fits in the described philosophy. Al Fawagreh street, Milk Grotto street and Al Madbaseh street should have a similar treatment.

As stated earlier, the other four city centers will develop in a similar way as Bethlehem city center, given their size and scale.

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Success indicators
- The whole area has been modernized and upgraded
- Car traffic in the area has been reduced with 90%
- A flourishing economy

Risks
- Positive: “new” life, quality to historical places
- Negative: (too) many ideas for complex areas
General characteristics

Map 27: Master Plan for Bethlehem conurbation city centers

Map 28: Master Plan Bethlehem city center
City center characteristics

» On almost all streets restrictions on vehicular traffic are imposed, becoming pedestrianized areas
» Parking is allowed only for residents and other people with a special permit
» Walking becomes the main transport means, the streets becoming active living areas, where people play, rest, meet in these streets
» Cleaned and improved pedestrian routes, with high quality materials and uninterrupted pavement
» Provided with high quality and design standards urban furniture and greenery - high quality surfaces, seating places, trash cans, trees and plants
» Promotion events, various street public events and performances
Street Strength
Street name reflected as an art feature

Street Opportunities
Enhance street safety and directional signage by adopting art features

Street Strength
Street, a social gathering

Street Opportunities
Temporary street transformation into a cultural & festival events

Street Strength
Plaza for people to gather and enjoy the community

Street Opportunities
Efficiently using of space, raise socialization level, add greenery & seating areas, adapt this space for new usage

Street Strength
Street embraced by residences, social interaction

Street Opportunities
Furniture, Lighting, Plants

Street Strength
Commercial/residential use

Street Opportunities
Transform a mixed-use street into a community oriented space, the side walk geometry can be utilized to accommodate parklets, soft scape and social hubs

Street Strength
Fixed and flexible Urban furniture

Street Opportunities
Street furniture extends hosting of people. Material choice impacts comfort, for example, metal can get very hot or cold. A mixture of fixed seating that is always available & flexible seating that is customizable is ideal.

Street Strength
Triangle Plaza

Street Opportunities
Improving Triangle plaza to respond to building use by providing places for people to sip coffee, play games, read the paper or study with integrated landscaping
Commercial pedestrian street in the city center

Star Street (under construction)
Limited access for vehicles at emergency cases & night period; vehicles entrance will be controlled by hydraulic ballards

Revitalization of Bethlehem city center
Urban furniture

Pedestrian areas activities

- Remove obstacles from existing pavement
- Use quality pavement materials: stone tiles on sand foundation, preferably with patterns in pastel light colors
- Provide provisions for disabled people along the pavement (directional tiles for visually impaired)
- Place trees (in the ground or pot) that will create shadow and decrease local temperature
- Place seating facilities every 500 m, and incorporate greenery, should be made of wood, materials that don’t absorb heat; place garbage bins every 200 m (approx. 60 pieces); place way-finding and directional signage at every 300 m or major change of direction, as well as in the vicinity of tourist attractions (approx. 20 pieces)
- Place water fountains, kiosks and shades, place signaling and marking
- Place lighting facilities where missing
Public transport ("last mile" included)

Bus stops characteristics activities
» Simple and minimalistic design
» Made from durable materials - metal frames/ glass, PVC or polyester panels
» Provide shelter from weather elements through a canopy/ cover, seats and trash cans
» Provide information about the bus line served, schedule and maps (in the form of protected posters)
» Distinguishable characteristics for the touristic and express station - another color of material and information about the touristic sites served
» Provide space for commercials (the municipality can rent the space for advertising)
» Can provide with green canopy to increase green surface and cool the area

Public transport activities
» Quality of service and vehicles increases; public transport becomes a reliable transport mode serving the area
» Place on both sides of the road public transport stops - at ideally 300 m distances between them (where necessary, it can be denser - in densely populated areas or near touristic attractions - 200m, while in sparsely populated or built areas, distances can be bigger - 400 m): 34 stops, of which 6 also touristic
» Reorganize schedule and functioning times for public transport on route 5 every 10 min. during peak hours, every 20-30 min. outside peak periods
  ● Functioning time express bus: Mon. to Thur. 5:00 - 21:00, Fri - Sun. 6:00 - 19:00
  ● Functioning time touristic bus: daily 7:30 - 21:00, 4 times per hour
  ● Provide adaptable schedule depending on season and demand (high touristic season, University) - possibility to ride more frequently/ on demand
  ● Recommended price: it should be decided by the municipality
» Phase out old vehicles and impose high quality in terms of comfort and emissions
» Electric vehicles for delivery of goods and people for “the last mile”
Tourism (included in project BETH030)

Map 31: Touristic Attraction route master map
Tourism activities

- Part of the complete touristic circuit in the conurbation (vehicles will be acquired as part of the complete project)
- Three touristic bus stops on each direction: Start Street, Bethlehem City Centre, Nativity Church
- The regular bus stops that will be used also as touristic bus stop will be provided with extra facilities: distinctive markings to recognize it, information related to the touristic route and schedule, name of the stops and information about the touristic sites nearby, distances in meters and minutes walking
- The touristic route will be served by an electric bus
- The “last mile” will be served by small electrical buses

Delivery of goods

Map 32: Bethlehem city center Master Plan routes, stops & bus stops
Delivery of goods activities

» Place access control poles or fences at various entrance points in the city center, restricting vehicle access: some fixed, some removable to allow access to residents, delivery of goods vehicles and interventions vehicles

» Set up an information system for controlling the automated poles/ bollards

» Organize a covenant between interested stakeholders: delivery of goods suppliers, local businesses, municipality

» Set up a loading/ unloading bays at three main access points to the city center, for the large goods vehicles

» Set up a micro-delivery of goods system with cargo-bike or manual trolley for small scale/ packed goods and with electrical motorized vehicles for larger items, acquire vehicles

» Design and implement a communication strategy for the delivery of goods in the city center and an online site

» For the short term starting with a time schedule for the delivery of good between e.g. 7.00-9.00 am is needed. This to be concluded together with the stakeholders

» Small electrical cars for the delivery of goods for the “last mile”
4.2.3 ROAD NETWORK

As part of Phase 2, a target scenario has been developed. Further a strategy for road network has been presented, refining the proposals from the scenario. This has resulted in a general road categorization map, indicating main outer roads (proposed for starting the closing of the ring road around Bethlehem conurbation), main urban roads that are the backbone of the internal traffic (most of them proposed for modernization as integrated corridors proposed above), secondary internal urban roads, serving the more residential neighborhoods and discharging in the higher category of roads, local or tertiary roads. As part of the road network strategy, an enforcement of 30 km/ h zone has been proposed for most of the residential areas in the municipalities of Bethlehem conurbation. During the first phase of implementation, it is proposed to start with a testing period in 3 dense residential areas around the main corridors and the city centers. Besides main interventions related to infrastructure improvements (BETH018, BETH019), other types of projects are also needed in order to reduce use of the car. Such an example is the development of a car-pooling applications, encouraging car sharing and car-pooling, etc. Main road network categorization interventions can be seen in the map below and several key projects included for implementation are detailed:

BETH014,015,016. Realization of parts of the Ring road
BETH017. Implement 30 km/ h zones and home-zones in residential areas
BETH018. Improve the quality of road roads, signaling and marking (outside priority corridors)
BETH019. Improve traffic safety conditions near schools (car-free or 10 km/ h zones, drop-off points)
BETH020. Develop a car sharing system with cleaner vehicles
BETH021. Encourage and support car-pooling – e.g. providing incentives to companies/ employees that share a car to ride to work
Road network categorization

Map 33: Master Plan for the Ring (Through) Road

This map shows the framework for the mobility system in the conurbation of Bethlehem. So it shows the main roads (the ring road (parts)) and the different corridors (the activity streets). All other streets are part of a 30 km/h zone or a pedestrianized area. It is crucial to have this bigger picture in mind, for planners, engineers and road users.
Realization of parts of the Ring road

Implementation period: 2021-2029

Estimated cost: $1.5 M Wadi Musalam, $1.8M North Beit Sahour part, $1.5M South Beit Sahour part, $4M Artas segment, and $1M Al Amal Road

Target group: all Bethlehem inhabitants/visitors/commuters

Project leader: local municipality, Ministry of Transport developers

Description

The Master plan map of this Mobility Plan shows a (partly indicative) Ring road around the Bethlehem conurbation area. Five segments of this Ring road will be included in the 10-year plan as follows: Wadi Musalam road, North Beit Sahour ring road segment, South Beit Sahour ring road segment, Artas Ring road segment and Al-Amal Road (the western Ring road segment); already exist but needs to be upgraded and modernized. The scope of finishing this project is on the longer term (10 years or even more). Nevertheless, it is important that the Ring road is already part of this Action plan.

Two aspects are to be mentioned:

1. The good thing of this planning document (the Mobility Plan) is that municipalities are already focused on this big project.
2. Related to the first point: municipalities are very smart to make “work with work”; so, some parts of this Ring road have already been realized or are under construction since the start of this planning process.

The Ring road segment connecting Bethlehem Northern entrance with Al Amal road will be out of the scope of this mobility plan due to restriction from the Israeli Authorities and the requirement of political situation.
Objectives

» Realization of (parts of) the Ring road
» To avoid nuisance caused by motorized traffic in the vulnerable urban areas of Bethlehem conurbation
» Thanks to the network, with this Ring road it is possible to establish car free zones in the central areas
» A multimodal shift (more public transport and walking/cycling)
» Good accessible areas (industry and living areas) also for motorized transport
» The backbone for a multimodal city

Results five themes

| ACCESSIBILITY | + | + | + | + | + |
| SAFETY AND SECURITY | + | + | + | + | o |
| ENVIRONMENT | + | + | + | + | o |
| ECONOMIC EFFICIENCY | + | + | + | + | + |
| LIVABILITY | + | + | + | + | + |

Success indicators

» The whole area has been modernized and upgraded
» Car traffic in the area has been reduced with 25%
» Road (parts) has been realized
» The Ring (parts) takes over motorized traffic from vulnerable areas

Risks

» Positive: clear solution for a bigger goal (multimodality citywide)
» Negative: difficult governance in an area scarce of land (three municipalities, governorate)
General characteristics

A basic principle of the Mobility Plan for a Smart Moving City is finding a good balance between livability and accessibility. Until 25 years ago this balance in Bethlehem was good. The numbers of (private) cars were not that high, there were not many reasons to travel to neighboring towns and villages, and public transport could handle its share of moving people.

But then the process of using the car as a multipurpose mode started. At least two aspects of the use of the car can be mentioned:

1. The car used as mass transport
2. The consumption of space per mode

Space used per mode

<table>
<thead>
<tr>
<th>Mode</th>
<th>Space Used per Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>0.8 m²</td>
</tr>
<tr>
<td>Bicycle</td>
<td>3 m²</td>
</tr>
<tr>
<td>Car, 5 persons, 40 km/h</td>
<td>20 m²</td>
</tr>
<tr>
<td>Car, 1 person, 40 km/h</td>
<td>60 m²</td>
</tr>
<tr>
<td>Full, 40 km/h</td>
<td>9.4 m²</td>
</tr>
<tr>
<td>Full, 40 km/h</td>
<td>4.6 m²</td>
</tr>
</tbody>
</table>

This image shows the space used per person by the different modes of traffic. Walking is by far the most efficient: 0.8 m² per person while one person in a car uses 60 m². Public transport and cycling are in between these two extremes. The basic principles of Smart Mobility Planning is:

» Multimodality (more modes) will provide space;
» In vulnerable areas (city centers, living areas, etc.) non-motorized transport and public transport have priority.

The Ring road facilitates the car system with “customized” space and capacity.
There are three types of car traffic in an urban area like the Bethlehem conurbation: through traffic, external traffic and internal traffic. This map shows the “general movements” of those three types.

**Car trips and the Ring road**

The Ring road (parts) facilitates the necessary car trips. In the first place of course “through” traffic for Bethlehem conurbation. Next, “external traffic”; starting from the entrance points traffic will follow the Ring road as long as possible (thanks to the quality of the Ring road) and then the last part of the trip goes to and from the destination/origin.

This shift from cars to the outside of the conurbation will relieve/solve the current traffic jams in the central area. As a result, according to this Mobility Plan, a serious improvement of the services/network for public transport and walking/cycling will be possible. Doing so short car trips (internal traffic) will be avoided.

This moving of car trips from inside the urban areas to outside the urban areas will be a process of years. This image shows the step by step movement in Utrecht, a city in the Netherlands. The phasing that is shown will be the case in Bethlehem conurbation as well. It will probably years take before the ring is closed. So after each phase there will be an evaluation moment: how does it work until now, which can be the next steps etc.

In the introduction phase of the car, this mode used the same (historical) network as the walking mode. In almost every historical city, also in Bethlehem conurbation, the network structure is orientated towards the center areas (radial structures). With the growing number of (private) cars this became more and more a problem, especially in the most vulnerable areas (like the town centers with shops, markets, narrow streets etc.) The last decades we have learned in the Netherlands that creating “smart networks” for the car traffic will:

» Remove through traffic in the vulnerable areas
» Bring better accessibility in all parts of the city
» Create the basis for the 30 km/h zones with a good size
Road profile Ring road

Designing the Ring road and implementing all the different parts will be a “fitting task”. Not at every place it will look and feel exactly the same. It is necessary that this Ring road has recognizable general characteristics.

Ring road characteristics

» Profile – a total of 14 m
» Two lanes is enough capacity for the traffic flow
» Lanes separated by a median (0.5 m)
» Asphalt pavement
» Priority road
» (New) junctions preference for roundabouts
» Street lighting that “shows” the main road function
» Green; trees
» Side skirts: grass or elements in more urban areas
» Parallel parking possible where needed
Map 35: Wadi Musalam Segment Road
Map 36: North Beit Sahour Road Segment of the Ring (Through) Road

Map 37: South Beit Sahour Road Segment of the Ring (Through) Road
Map 38: Artas Road Segment of the Ring (Through) Road

Map 39: Al Amal Road Segment of the Ring (Through) Road
**BETH017 Implement 30 km/h zones in residential area**

**Implementation period:** 2020 - 2022 (phase 1), 2024 - 2026 (phase 2)

**Estimated cost:** ~€ 25,000 per zone of 0.5 km²

**Target group:** all Bethlehem conurbation inhabitants

**Project leader:** local municipalities, police

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**Description**

A 30 km/h zone is a set of connected streets where the speed is limited. These zones are used by both non-motorized and motorized traffic and are usually located in residential, school and shopping areas where the number of pedestrians is high. Measure needs to be coordinated with BETH018 and works should be executed at same time. Some of the zones only need the signs “30 km/h”; in other zones (some) roads need a re-profiling. This re-profiling is absolutely necessary to make it clear to all users that this is an area where the absolute maximum speed is 30 km/h. The € 25,000 per 0.5 km² is an empirical figure; so an average amount for all 30 km/h in the conurbation.

**Map 40: Implementation of 30 km/h zones in Residential Area**

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**Objectives**

- Improve road safety and reduce environmental pressure related to pollution and noise
- Improve safety for all types of travelers
- Increase the share of walking trips
- Increase and encourage cycling, walking, scootering and other NMT modes
**Activities**

- Define the exact implementation area (at least in a radius of 300 - 400 meter) together with the community
- Define necessary vertical and horizontal signaling and marking
- Develop the tender document for acquisition and implementation of signaling
- Plan and design a communication campaign with exact dates of activities to be performed
- Implement:
  - start communication with the community
  - tender the acquisition and implementation of signaling
  - implementation of 30 km/h zones
- Monitor and evaluate together with the community

![30 km zones to be implemented Bethlehem](image1)

![30 km zones to be implemented Beit Jala zone 1](image2)

![30 km zones to be implemented Beit Jala zone 2](image3)
30 km zone characteristics

- For this first phase, it is expected that an area of a reasonable size is transformed to a 30 km zone
- Start and end must be clearly identified by implementing sober vertical signs (minimizing costs)
- Along the road horizontal signaling of 30 km zones must be implemented (with visible white paint)
- There is no priority road, neither at intersections unless the road is crossing a bus route
- Sidewalks have good quality for pedestrians and some crossings are slightly elevated
Results five themes

| ACCESSIBILITY | + | + | o | o | o |
| SAFETY AND SECURITY | + | + | + | + | + |
| ENVIRONMENT | + | + | + | + | o |
| ECONOMIC EFFICIENCY | + | + | + | o | o |
| LIVABILITY | + | + | + | + | + |

Success indicators
» Number of accidents related to speed reduced by 40%
» Congestion and pollution levels have decreased by 30%
» At least three areas will be implemented in the first phase

Risks
» Positive: big impact of road safety with simple/cheap interventions
» Negative: not “car friendly” with a difficult look and feel
**BETH018 Improve the quality of roads, marking and signage**

**Implementation period:** 2020 - 2028  
**Estimated cost:** ~€ 80,000/km main road, ~€ 35,000/km secondary roads  
**Target group:** all Bethlehem conurbation inhabitants  
**Project leader:** local municipalities, police

**Description**
Improvement of the quality of roads, marking and signage means tuning the lay-out of roads/streets and 30 km/h zones with their functions, also in relation to maintenance. In this Mobility Plan all roads and streets are categorized; there are (only) three possible functions: main roads or flow roads, activity streets and part of) a 30 km/h zone (street in residential area).

![Basic characteristics Road Design](image)

**Map 41: Rehabilitation of the quality of road surface and sidewalk**

Rehabilitation the Quality of Road Surface & Sidewalk Map
The basic principle is that road users recognize the function of a road, anticipate and display the right behavior. So it is very crucial that (in phases) all the roads and streets in the conurbation of Bethlehem get the right profile/design. This process will cost money; at the same time municipalities can save money if they act smart. This means make “work with work”. E.g. if the sewage must be renewed the road needs to be “opened”, closing it in the right profile is far cheaper than just a re-profiling. Also realizing a 30 km/h street is cheaper than an activity street which is cheaper than a main road.

Objectives
» Improve road safety and reduce environmental pressure related to pollution and noise
» Improve the quality of the transport system
» Provide a reliable and uniform road network for all users and all modes

Activities
» Register all roads with details about quality, year of execution, rehabilitation works performed and needed
» Estimate maintenance needs and costs
» Define a strategy: a good balance between roads/streets and 30 km/h zones
» Develop the tender document execution of works (per phase or a complete contract for the whole period)
» Implement
  ● plan and design the works
  ● execute the works
» Update the assets and management plan
» Monitor and evaluate
» Repeat operation when needed
» Make the inventory of all road assets and assess the extent of interventions needed
» Define interventions for phase 1 – start with part of the main network and the one that needs immediate action – guided by the pedestrian/ walking priority routes – some main arteries are part of the integrated corridors and therefore they will be modernized as part of those respective projects
Define all interventions spread across multiple phases (2022 - 2024, 2024 - 2026)
Organize tenders for design and execution: improve surface, place marking and signage, place urban furniture
Execute works
Proper design of the infrastructure should prevent drifting by cars and motorcycles

This project needs to be correlated with BETH006, BETH017, BETH019

Examples of poor maintenance

Examples of Dutch maintenance and signage
Examples of Dutch maintenance and signage

Results five themes

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Success indicators

» All urban roads have been inscribed in the inventory and assessed
» All roads have undergone necessary repair and maintenance works
» Number of accidents related to road quality, marking and signaling reduced by 90%

Risks

» Positive: makes the whole mobility system better
» Negative: the image of maintenance on time is low
BETH019 Improve traffic safety condition near schools

Implementation period: 2020 - 2021 (pilot - 5 schools), 2021 - 2024 (the rest)
Estimated cost: ~ € 50,000 (for each school environment; (small) infrastructural interventions included)
Target group: school children, students, parents, education staff
Project leader: local municipalities, police, schools

Description
High volumes of traffic at schools’ roads during arrival and pick-up times can lead to poor traffic circulation and often unsafe conditions for bicyclists and pedestrians. For example, vehicle congestion and queuing during drop-off and pick-up times can conflict with pedestrian and bicycling circulation; students walking or bicycling to or from school may not use or have access to pavements or crosswalks; school parking areas may be unorganized and lack traffic controls and markings. Parents may engage in a variety of illegal or unsafe behaviors, including parking in a crosswalk, double-parking, speeding, parking in “NO PARKING” places, parking in locations that encourage their children to cross a travel lane. This measure proposes to tackle some of these issues around schools in Bethlehem conurbation. This project should be correlated and coordinated with BETH036 and BETH005 (information and education campaign targeting school children) and it is addressing the engineering and enforcement issues, rather than education and encouragement (BETH005).

Objectives
» Improve traffic safety around schools
» Encourage and facilitate the use of other means of transport except car
» Restrict the use of the cars in the vicinity of schools
» Ensure safe walking to/from and around schools
» Reduce congestion and emissions around schools

Activities
» Determine the pilot schools for kick-starting the project (at least five and preferably located in various locations and municipalities)
» Determine the needed interventions:
  Engineering/design
  • define clear drop-off/pick-up sites at a distance from the school
  • define the car free zone around a school where it is not permitted to drop off or pick up pupils by car
move the crosswalk to a location where students currently cross
improve crosswalk visibility/ repaint crosswalks; use signs, plantings, and other barriers
place clear “School area” vertical and horizontal markings
install speed bumps near school entrances
improve the quality of the pavement around schools

**Enforcement**
- reroute or restrict automobile access during key times in the day
- enforce reduced speed (10 km/h) around and in front of schools
- require students to enter and exit the vehicle on the same side of the street as the school
- restrict parking in the neighborhood during school hours
- provide crossing/ walking assistance (volunteer program)
- employ targeted police enforcement

» Evaluate, upscale

**Results five themes**

| ACCESSIBILITY | + | + | + | 0 | 0 |
| SAFETY AND SECURITY | + | + | + | + | + |
| ENVIRONMENT | + | + | 0 | 0 | 0 |
| ECONOMIC EFFICIENCY | + | + | 0 | 0 | 0 |
| LIVABILITY | + | + | + | + | + |

**Success indicators**
» Around at least five schools the traffic conditions have been improved

**Risks**
» Positive: kids are the future; they deserve multimodality
» Negative: by car/taxi is safe; why this big change?
School map

Map 42: Location and capacity of schools in Bethlehem conurbation

Locations and Capacity of Schools in Bethlehem Conurbation
BETH020 Develop a car sharing system with cleaner vehicles

**Implementation period:** 2020 - 2022

**Estimated cost:** ~€400,000

**Target group:** all Bethlehem inhabitants who do not own a private vehicle & visitors

**Project leader:** local municipalities and private actor

**Description**

Car-sharing is a short-term self-service car hire. The vehicles belong to a private actor which provides the service by setting different “car stations” around a specific area. The advantage is that the user has flexible access to a car without the high costs of maintenance, insurance, road tax and parking. It is ideal for people that do not own a car and would like to use the car for a day trip, shopping, etc. The principle of sharing a vehicle is based on the following simple steps:

- Registration of the user in the system of a particular operator (via an app)
- Verification of the user’s permission to drive (driving license) and identification (e.g. an ID card or a passport)
- Payment of a deposit fee
- Finding an available car in a close by sharing station via the app
- Making the vehicle reservation
- Accessing the car via the app or validation code inside the vehicle. The fare is normally per minute
- Similar services: Green Wheels, Car2Go, ConnectCar

**Objectives**

- Reduce car usage and acquisition
- Reduce emission pollution

**Activities**

- Develop a study to understand the possible demand of the system and changes of law or new legislations
- Develop and publish the tender for implementation of the system (at least ten vehicles and at least three of them must be of clean technologies). The number and type of vehicles will also be determined by the provider based on the financial feasibility. The service provider must be responsible for the software and hardware acquisition/ development as well as the fleet management, maintenance of the vehicles, as well as for monitoring and evaluating the performance of the system
- Implement the system (previous approval by the municipalities and community) and communicate it to the society via radio, television, online platforms
- Monitor and evaluate together with the community and public and private actors
Results five themes

<table>
<thead>
<tr>
<th>ACCESSIBILITY</th>
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Success indicators
» At least ten vehicles have been deployed as part of the program
» Monthly use rate of 70%

Risks
» Positive: mobility becomes more and more a service at a lower price
» Negative: no car ownership feels like a big step
Explanation of the car sharing app

How does the application work?
You can use your smartphone to rent a car. It’s easy, convenient, and saves time. No need to stand in line at the car rental counter or fill in annoying paperwork. All you need is an Android or iOS phone and your driver’s license

» Download the car sharing app
» Create an account and validate your driver's license
» Choose a car in the app and tap on "Start" to rent it
» The trip will start and the car's door will unlock automatically

Find and slip into a Fetch car near you
Choose a car from the map or from the list. You can immediately see your distance to the car and the range of the battery. Once selected you have 15 minutes to get to the car. At the car you check for damage, known damages are listed in the app. Please note, your fare will start running when you start the reservation and you can only end the reservation when you are near the car!
**BETH021 Encourage and support carpooling**

**Implementation period:** 2022 - 2023  
**Estimated cost:** ~ € 35,000  
**Target group:** home-work commuters, students  
**Project leader:** local municipalities, youth and students organizations, universities, private and public local institutions  

**Description**  
The definition of “Carpooling” is where two or more people who share the same journey origin and destination, decide to form a “crew” using a car owned by one of them to share the journey and parking costs. The realization of an operative center equipped with specific software which manages databases and creates “ideal crews”, can be a strong incentive for the diffusion of the intelligent use of the private car. The effective implementation of the journey will in fact depend on arrangements made in private by the users. More precisely, the service provided leads to the creation of a database containing information about users who are potentially interested in carpooling, such as personal data, trip origin and destination, journey date and time, constraints and preferences (i.e. only colleagues, same sex or age). The database uses opportunity matching software and provides an “ideal crew”, whose members satisfy conditions of spatial and temporal proximity and constraints imposed by users. The information required to determine contacts with other potential members of the crew vary, depending on the scope of service provision and the communication channel used.

**Objectives**

» Increase the number of passengers travelling in one vehicle  
» Decrease the number of circulating and parked vehicles  
» Decrease the pollutant emissions in the atmosphere  
» Reduce congestion on major arteries and around activity centers  
» Increase social interaction and mutual trust within the community

**Activities**

» To make it practical: start pilots for car-pooling within the municipalities’ organizations, institutions, teachers at school, students from the same university  
» Not only learn from this pilot; also communicate about it from the start  
» Software and service activation; identification of incentives (reduced parking fees at destination, contribution to fuel costs)  
» Establish pooling locations around the city  
» Informative campaign for users make car-pooling even more attractive by rewarding this way of traveling. E.g. special parking places in some areas for car-pool cars  
» The municipality plays a key role in making car-pooling happen. From gathering data, bringing together public and private (partnerships) to pointing out special parking places for car-pool cars
Results five themes

| ACCESSIBILITY | + | + | + | + | 0 |
| SAFETY AND SECURITY | + | + | 0 | 0 | 0 |
| ENVIRONMENT | + | + | + | 0 | 0 |
| ECONOMIC EFFICIENCY | + | + | + | 0 | 0 |
| LIVABILITY | + | + | + | 0 | 0 |

Success indicators
» Average occupancy of vehicles increases to 2.5 people/vehicle
» Number of employees/students that carpool increases with 20%

Risks
» Positive: the individual will save money and it is good for the environment
» Negative: have to share a limited space and organization part can be nasty
Explanation of the car-pooling app

Share a car via an application. The app is designed to work in a few simple steps. Users first set their itinerary by entering the time, address, and information for the trip. Whether it’s a one-off or recurring trip, users can keep their essential information stored in the app. Once an itinerary is submitted, Neighbor’s proprietary algorithms works to understand the needs and preferences of the riders based on scheduling, routine, age, interests, and so on.

How to offer a ride:
1. Offer a ride: Just say where you’re going, where you’d like to pick up and drop off passengers and when.
2. Your passengers book and pay online: When a passenger books a seat with you, we’ll share their phone number in case you need to get in touch.
3. Travel together: Travel together.
4. Get your money after the ride

How to travel:
1. Find a ride: Just say where you’re heading, where you’re leaving from and when. Then pick a ride that works for you! If you need more info, you can message drivers before booking.
2. Book and pay online

1. Offer a ride: Just say where you’re going, where you’d like to pick up and drop off passengers and when.
2. Your passengers book and pay online: When a passenger books a seat with you, we’ll share their phone number in case you need to get in touch.
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4. Get your money after the ride

How to travel:
1. Find a ride: Just say where you’re heading, where you’re leaving from and when. Then pick a ride that works for you! If you need more info, you can message drivers before booking.
2. Book and pay online
4.2.4 PARKING

A coherent parking policy is a powerful tool to influence the demand of transport and urban development of a city. It can support reducing congestion, enhancing the use of non-motorized transport and public transport, improving the economic vitality of zones and recovering public space.

In order to support the envisioned changes in traffic and the shift from car use to other modes, parking is an essential component to be reviewed. In order to obtain the best results, the parking strategy (developed in Phase 2) needs to be finetuned, detailed and optimized in terms of zoning and pricing and few key off-street parking locations have been proposed.

The creation and implementation of an integrated zoning and paid parking policy is crucial for exerting a high level of control in the traffic flow and volumes. It improves the mobility by freeing up space for moving vehicles, improving traffic conditions by reducing travel of motorists searching for spaces, and encouraging the greater use of public transport in congested areas with limited parking (increasing the parking supply would generate more vehicles in the area). It is important to keep the parking supply at lower levels and modify the parking price depending on the area of the city. The price should be set for all authorized on-street parking in the city and the revenue can be invested in mobility developments.

The parking projects proposed for implementation during the period 2020 – 2027 are:

BETH022. Implement the parking strategy and pricing over the whole area
BETH023. P+R East entrance
BETH024. P+R West entrance
BETH025. Build new off-street parking garages
BETH026. Develop a parking information and management system
Map 43: Implement a Parking Strategy and Pricing Policy in whole conurbation plan
BETH022 Implement a parking strategy and pricing policy in the whole conurbation

Implementation period: 2022 - 2023
Estimated cost: ~ € 100,000
Target group: all vehicle users in Bethlehem conurbation
Project leader: local municipalities, police, Traffic Committee

Description
The creation and implementation of an integrated zoning and paid parking policy is crucial for exerting a high level of control in the traffic flow and volumes. It improves the mobility by freeing up space for moving vehicles, improving traffic conditions by reducing travel of motorists searching for spaces, and encouraging the greater use of public transport in congested areas with limited parking (increasing the parking supply would generate more vehicles in the area). It is important to keep the parking supply at lower levels and modify the parking price depending on the area of the city. The price should be set for all authorized on-street parking in the city and the revenue can be invested in mobility developments. The number of needed parking places within the conurbation until 2030 will increase to 30,000. All these places will be efficiently managed, used and regulated in both on-street and off-street parking facilities.

Objectives
» Prevent illegal parking on street and pavement
» Improve the management and control of parking
» Restrict the use of the car in the conurbation centers
» Substantially increase the paid parking locations based on zoning
» Improve and diversify payment options
» Increase local revenues for municipalities

Activities
» Develop a comprehensive parking demand study
» Finetune the zoning and pricing policies
» Make an inventory of all parking locations around the conurbation - on-street, off-street, P+R
» Implement/ enforce the parking zoning and pricing policies (start with a pilot in the city center or a major corridor, e.g.: Hebron - Jerusalem Road)
» Promote the project
» Evaluate and scale up to the whole conurbation
Results five themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>o</th>
<th>o</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESSIBILITY</td>
<td></td>
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</tr>
<tr>
<td>SAFETY AND SECURITY</td>
<td></td>
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<td></td>
<td>+</td>
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<tr>
<td>ENVIRONMENT</td>
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<tr>
<td>ECONOMIC EFFICIENCY</td>
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<td>o</td>
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</tr>
<tr>
<td>LIVABILITY</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
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</tr>
</tbody>
</table>

**Success indicators**

» All on-street and off-street parking locations are registered in an inventory and regulated
» Illegal parking is reduced to a minimum
» Revenues of the municipalities from parking fees increase with 20%

**Risks**

» Positive: quality of urban space while the income of the municipalities rises
» Negative: public will avoid the parking system if the strategy is no solid/finished
On-street zoning and pricing

Map 44: Implement a Parking Strategy and Pricing Policy in whole conurbation plan

Implement a Parking Strategy and Pricing Policy in the Whole Conurbation Plan

On-street parking

- Establish zoning based on location and character of the area: city center, activity center, main corridor, residential area
- Establish a differentiated tariff based on zoning
- Remove parking from Manger Square
- Strengthen parking enforcement
- Start with pilot on Hebron Jerusalem road

<table>
<thead>
<tr>
<th>Time</th>
<th>RED</th>
<th>ORANGE</th>
<th>GREEN + P&amp;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00 to 19.00</td>
<td>0.5-1.5</td>
<td>0.25 - 0.5</td>
<td>0.1 - 0.25</td>
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<td>1 hour</td>
<td>1.5 - 2</td>
<td>0.5 - 1.5</td>
<td>0.25 - 0.5</td>
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<tr>
<td>2 hours</td>
<td>2.5 - 4</td>
<td>1.5 - 2.5</td>
<td>0.5 - 1</td>
</tr>
<tr>
<td>3 hours</td>
<td>Forbidden (max 3 hrs/4 euros)</td>
<td>Forbidden (max 5 hrs/4 euros)</td>
<td>2</td>
</tr>
<tr>
<td>Day Tariff (24 hr)</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>RED</th>
<th>ORANGE</th>
<th>GREEN + P&amp;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 19:00</td>
<td>0.5-1.5</td>
<td>0.10 - 0.25</td>
<td>FREE</td>
</tr>
<tr>
<td>1 hour</td>
<td>1.5 - 2</td>
<td>0.25 - 0.35</td>
<td>FREE</td>
</tr>
<tr>
<td>2 hours</td>
<td>2.5 - 4</td>
<td>0.35 - 0.45</td>
<td>FREE</td>
</tr>
<tr>
<td>After the 3rd hour</td>
<td>Not possible</td>
<td>FREE</td>
<td>FREE</td>
</tr>
</tbody>
</table>

NOT applicable on holidays
Off-street parking locations and pricing

Off-street parking

Map 45: Proposed and existing off street parking locations

» Plan new off-street parking locations
» Municipality has to specify the exact location based on the availability and owner interest
» Five new parking garages: two in Beit Sahour, one in Bethlehem, two in Beit Jala - total capacity of 370 parking places - three to be built in phase 1, two in phase 2
» Two new Park + Ride locations: West Entrance and East Entrance- one to be built in phase 1 and one in phase 2
» Eight locations for pilgrim/touristic buses parking, with a total capacity of 30 buses - three to be built in phase 1, five in phase 2 and 3
» Establish a uniform parking tariff in the whole conurbation

<table>
<thead>
<tr>
<th>Time</th>
<th>Off-street parking</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00 to 10:00</td>
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<td>1 hour</td>
<td>0.25 - 1.5</td>
</tr>
<tr>
<td>2 hours</td>
<td>0.5 - 2.0</td>
</tr>
<tr>
<td>3 hours</td>
<td>0.5 - 3.0</td>
</tr>
<tr>
<td>Day Tariff (24 hr)</td>
<td>1.5</td>
</tr>
<tr>
<td>After 19:00</td>
<td></td>
</tr>
<tr>
<td>1 hour</td>
<td>0.25 - 1.5</td>
</tr>
<tr>
<td>2 hours</td>
<td>0.5 - 2.0</td>
</tr>
<tr>
<td>3 hours</td>
<td>0.5 - 3.0</td>
</tr>
<tr>
<td>After the 3rd hour</td>
<td>1.5</td>
</tr>
</tbody>
</table>
Cashless payment
Establish a uniform parking tariff in the whole conurbation. Cashless parking should be available in all pay and display off-street car parks and on-street charged car parking locations. To use cashless parking, you'll need to register your vehicle and method of payment details within an application. Once registered, you can pay for and manage your parking using your mobile phone, mobile app or online. You don’t have to estimate your parking time, as you control when you start and stop your parking. However, there may be restrictions on the length of time you are allowed to park - see local signs for details.

Step-by-step
You park your car. You provide the parking meter's 5-digit number to your provider by telephone or text message. The number can be found on the blue sign close to the parking place on a referral sign and on the parking meter map (tick the parking meter legend). This will start your parking time. When you leave, call or text your provider to end your parking time. Or stop the parking session in your app. Payment of the parking fee stops immediately. You pay the regular street rate, and only for the time you have parked. You don’t have to put anything in the car; the check goes through your license plate.
**BETH023 P+R East entrance, BETH024 P+R West entrance**

**Implementation period:** 2020 – 2021 (23), 2026-2027 (24)

**Area:** approx. 4,000 sq m

**Estimated cost:** € 0.8 M per project

**Target group BETH023:** commuters and tourists from/to Ramallah/ northern areas and west rural areas

**Target group BETH024:** commuters and tourists from/to Hebron/ southern areas

**Project leader** local municipalities, private investors, PT regulatory body

**Description**

P+R facilities provide advanced, efficient and environmentally friendly alternatives for drivers coming from outside the city. Normally, the cost of parking in a P+R location is much cheaper than parking in the city center or on the main arteries and it provides an integrated ticket/ subscription with PT serving central areas and activity centers. Drivers can leave their vehicles in the parking lot as long as they want, and the total cost of parking includes the tickets for public transport to the city. In phase 2 of this study we (stakeholders, work group and consultants) decided to point out two pilot P+R locations: East Entrance and West Entrance. If the pilots prove to be successful, further locations can be explored for new P+R facilities in other areas of the conurbation, e.g. in the proximity of Checkpoint 300, at the entrance from Al Khader/Beit Jala from Jerusalem. This will become current after 2030.

**Objectives**

» Reduce external traffic on main road network in Bethlehem

» Reduce parking pressure in the city center

» Seamless onward travel to city center zone by PT

» Integrate with the proposed ring road system

» Promote combined transport modes and connect private transport and public transport

**Activities**

» Identify suitable location at the entrance from/to Hebron by municipality based on availability and owner interest

» Discuss the technological possibilities of P+R equipment: e.g. capacity (150 parking spaces including 10 for disabled, 8 buses - 5 for touristic buses, 2 freight), gates on entrance and exit, information system for public transport, fare integration with PT, guidance system, facilities for PT (covered waiting bays), sanitary facilities, security measures

» Develop document with conditions for supplier tender (contracts, fares)

» Adjust/ adapt PT provision to serve the P+R - first stop of route 5 to Checkpoint 300, adjust external lines from southern areas (stop at P+R, not in the city center)

» Tender for design and execution

» Promote P+R solution and develop benefits packages (e.g. for employers)

» Implement (construction and operation)

» Monitor and evaluate, review, expand/ refunction

» Let the land owner of the P+R parking as an encouragement and incentive to invest on this land by allowing him to build a commercial building etc.
Results five themes

| ACCESSIBILITY | + | + | + | + | 0 |
| SAFETY AND SECURITY | + | + | 0 | 0 | 0 |
| ENVIRONMENT | + | + | 0 | 0 | 0 |
| ECONOMIC EFFICIENCY | + | + | + | 0 | 0 |
| LIVABILITY | + | + | + | 0 | 0 |

Success indicators

» 40% of external trips from south reduced on Hebron-Jerusalem Road
» 80% level of occupancy of P+R
» Touring cars/ touristic buses occupied 80% of the time

Risks

» Positive: parking at a logical place (rural → urban) and less cars in the urban areas (gives quality)
» Negative: low support-base; will not leave the car behind and going to park in the urban area which is (still) easy to do

Map 46: Implement a Parking Strategy and Pricing Policy in whole conurbation plan
General characteristics

» A multipurpose building
» Parking in a parking garage
» 5-8 spots for charging/ parking electrical vehicles, equipped with necessary charging infrastructure
» In front of the building the bus stop (route 5) with boarding areas: the bus square
» Clear signage (approaching the parking and inside the plot) regarding location, capacity, prices
» Walkways to connect parking areas and boarding areas. Sidewalks should be a minimum of 1.5 m wide
» Urban furniture: trash receptacles in all boarding areas, emergency assistance phones, benches in waiting areas, greenery and plants to reduce heat and protect from sun
» Landscaping across approximately 10-20% of the lot
BETH025 Building of new off-street parking garages
BETH026 Develop a parking information and management system

Implementation period: 2021 - 2024
Area: approx. 4,000 sqm Bethlehem garage, 2100 sqm Beit Sahour garage, 2700 Sqm Beit Jala garage
Estimated cost: 2.5 Million Euro Bethlehem garages, 1.4 Million Euro Beit Sahour garages, 1.6 Million Euro Beit Jala garages
Target group: All Bethlehem inhabitants/ Visitors/ Commuters
Project leader: Bethlehem Municipality, Beit Sahour Municipality, Beit Jala Municipality, Private investors, PT regulatory body, Mobility plan implementation body

Description
Parking garages facilities provide advanced, efficient and environmentally friendly alternatives for drivers in the three cities: Beit Jala, Bethlehem, and Beit Sahour.

Normally, the cost of parking garages is cheaper than parking in the city center or on the main arteries. Drivers can leave their vehicles in the parking lot for the a whole day, and payments shall be based on total time of parking, this parking strategy should differ from on-street parking which must be limited to max two hours parking with higher parking cost. Local communities neighboring the garage, specially residents of the old cities, should have reduced fees for monthly subscription at a nominal price for day use and free use at night.

Building new parking facilities is expensive. This can only be realized if the facilities are well used. So, the key design principle is an integrated parking management system. Car drivers can easily find a place in one of the parking garages which means a reduction of congestion, pollution and loss of money due to delays. The system will provide a city-wide information and monitoring platform. Real-time information about parking locations, guidance, availability of free parking places, pricing etc. will be available. The estimated costs for the first set-up will be € 800,000.

Objectives
» Improve air quality
» Reduce parking pressure in the city center
» Reduce on-street parking
» Provide safe, protected and up-to-date parking facilities for visitors and locals
» Promote combined transport modes and connect private transport and public transport

Activities
» Identify final parking garage locations in the three cities: Beit Jala, Bethlehem, and Beit Sahour as shown on the location map
» Final review of the proposed main building characteristics of the garage buildings
» Required capacities for the proposed parking garages are as follows:
  ● Bethlehem City, 100 parking spaces including 5 for disabled, and 5 for buses
  ● Beit Jala City, 80 parking spaces including 4 for disabled, and 3 for buses
  ● Beit Sahour City, 60 parking spaces including 3 for disabled, and 2 for buses
» Review the technological possibilities of the garage building such as gates on entrance and exit, information system for public transport, fare integration with PT, guidance system, facilities for PT (covered waiting bays), sanitary facilities, security measures
Integrate private investments to facilitate faster execution with possible investment schemes.
Tender for design and execution
Implement (construction and operation)
Monitor and evaluate, review, expand/refunction

Results five themes

<table>
<thead>
<tr>
<th>Accessibility</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
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<tr>
<td>Safety and Security</td>
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<td>+</td>
<td>+</td>
<td>0</td>
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<td>Environment</td>
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<tr>
<td>Economic efficiency</td>
<td>+</td>
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<td>+</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td>Livability</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
</tr>
</tbody>
</table>

Success indicators

- 30% of on-street parking to be reduced
- 30% reduced traffic in the city centers
- 50% local residents comfort for transport and parking facilities
- 80% level of occupancy

Risks

- Positive: “parking chaos” solved with many effects as clean air, less congestion, guaranteed parking for inhabitants
- Negative: modern and big investments in a system that must be “in balance”
General characteristics

Off-street parking garages
In order to increase the off-street parking capacity, a few major new parking locations are proposed, in various locations in the study area. In total, an extra capacity of 630 extra parking places are proposed (240 located in the P+R, as described below). The location south of the Nativity Church is replacing the now existing parking lot arranged in Manger Square. Since Manger Square is proposed to be pedestrianized, some of the existing parking capacity needs to be compensated. The calculated/estimated parking capacity of Manger Square is approximately 150 parking spots. Since the whole parking strategy and the target scenario are directed towards reducing car usage and, the capacity of the proposed new location will be much lower – 100 parking spots.

Further new garages are proposed on Beit Sahour (60 places in first phase and 80 more places in second phase) and in Beit Jala (80 places in first phase and 50 places in the second).

Public Private Partnership
The subject of BETH033 is to develop a methodology for Public Private partnership (PPP) regarding public transport. Parking is a topic where PPP also meets:
» Owner of the plot
» Regulations
» Tariffs
» Investments (budget)
» Innovations
» Yearly profits etc.
Design principles

Exterior Design
Parking garage buildings should not be just cost effective but also aesthetically. In general all parking buildings are massive structures, therefore architectural design shall consider the following criteria to reduce the impact of the building mass:

» Architectural compatibility with the surroundings
» Exterior landscaping to screen the structure within setback and streets
» Exterior architectural façade coverings on the concrete structure.
» Exterior architectural articulation and color composition

Interior Design
The interior of the garage should be well lit and provide a sense of safety and inviting environment for all users, interior side walls, columns and ceiling should be painted with light color and all suspended mechanical equipment and installations shall also be painted to match with architectural features. The interior of parking structures shall have a minimum floor to ceiling height of 2.4 m.

The interior of the garage shall include proper signage, proper protection for vehicular and pedestrian mobility, including fulfill civil defense requirements for safety and escape measures as per the IBC code requirements.
Safety and Security

» Create a safe environment by providing lines of sight and encouraging natural surveillance through strategic placement of doors, windows and street-level uses

» Provide lighting at sufficient lumen intensities and scales, including pathway illumination, pedestrian and entry lighting, and/or security lights, lighting that enables users to see and be seen is one of the most important security features of a parking structure

» Ensure transparency of street-level uses by keeping views open into spaces behind walls or plantings, at corners, or along narrow passageways

» Glass-backed elevators and glass enclosed and/or open stairways, visible to the adjacent street, are highly recommended for enhanced security

» Security fencing should be installed below stairwells to eliminate the possibility of a person hiding under the stairs

» Provide speed breakers at crossings and pathways to prevent possible accidents.

Sustainable design features for parking structures

» The design of garage buildings should consider the following concepts:
  ● take advantage of solar exposure and natural ventilation available onsite where possible
  ● maximize daylight for interior and exterior spaces and minimize shading on adjacent sites through the placement and/or design of structures on the site
  ● manage direct sunlight falling on south and west facing facades through shading devices
  ● green roofs
  ● solar panel sunshades on the top levels
  ● water-efficient landscaping, irrigation using non-potable water
  ● energy efficient light sources such as natural lighting, fluorescent, induction, and light emitting diodes (LED)
  ● computerized lighting controls and voltage reduction

Site Requirements

Large and rectangular shaped sites are ideal for parking structures. Although flat sites are generally more economical to develop, sloped sites can provide design opportunities such as access on different levels and/or no ramping between levels. For reasonably efficient parking layout, double-loaded parking “bays” range in width from about 17-18m, depending upon the angle of parking and the width of the parking space. The overall width of the structure should be determined based upon multiples of the chosen parking bay width. Longer sites provide the opportunity to park along the end bays, which provides more parking spaces, improves efficiency, and lowers the cost per space. A longer site also allows for shallower ramps which provide improved user comfort. Walking distance tolerances from parking to a primary destination are typically 100 m for shoppers, 200-250m for downtown employees, and 450-600 m for students and other users.
Circulation and Ramping
The basic circulation element for a parking structure is the continuous ramp with parking on both sides of the drive aisle. In continuous ramp structures, some of the parking floors are sloped in order for traffic to circulate from one level to another.
The basic criteria for choosing a circulation system are the simplicity or complexity of the system and the architectural compatibility. Ingress and egress capacities are also a consideration in the selection of a circulation system. Some circulation systems provide the opportunity for level façades which may be desirable.
A parking ramp slope of 5% or less is preferred. Parking ramp slopes should not exceed a 6.67% slope, which is the maximum parking slope permitted in the International Building Code (IBC).
Non-parking ramp slopes should have a maximum slope in the 12% to 14% range. Non-parking ramp slopes up to 20% are sometimes considered.
Parking structures with non-parking ramps tend to be less efficient in terms of area per parking space which directly increases the construction cost per parking space.
Parking Access and Design

Access points to garage buildings should provide clear definition of the entry to the development, there shall be a minimum of two (2) entry and exit points. All ingress/egress points shall be designed to ensure adequate emergency vehicle access to the parking structure. The minimum distance of entry/exits from corner intersections is at least 75 feet (23m) to 100 feet (30.5m) (preferably 150 feet) (46 m). Gates should be located far enough away from the street to allow at least one vehicle behind the vehicle in the service position. Entry/exit areas that have parking control equipment should have a maximum 3% slope. Required Accessible spaces related to total spaces in facility are as shown in table.

<table>
<thead>
<tr>
<th>Total Spaces in Facility</th>
<th>Minimum Accessible Spaces</th>
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<tr>
<td>1 to 25</td>
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<td>26 to 50</td>
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<td>301 to 400</td>
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</tr>
<tr>
<td>401 to 500</td>
<td>9</td>
</tr>
<tr>
<td>501 to 1,000</td>
<td>2% of total</td>
</tr>
<tr>
<td>1,001 and over</td>
<td>20 plus 1 for each 100 over 1,000</td>
</tr>
</tbody>
</table>
Pedestrian Requirements
Pedestrian traffic is equally as important in a parking structure as vehicle traffic. A safe, secure and well signed pedestrian path must be provided. Pedestrian access at the grade level should be separated from vehicular ingress and egress. Pedestrian access is usually adjacent to stair/elevator towers. It is also desirable to place a dedicated pedestrian aisle adjacent to a vehicle entry/exit. Maximum lines of sight for both pedestrians and vehicles should be provided, and mirrors and warning devices should be incorporated when necessary. Access locations should be restricted to a few locations for security reasons.
A minimum of two stairs are required to meet code-required means of egress for fire exits in parking structures. Stairs shall be open or glass enclosed and be visible to the street for security reasons. Elevators should be located at the facility terminus in the direction of pedestrian travel, recommend that elevators have glass backs for security reasons.

One-Way vs. Two-Way Traffic
One of the primary factors in the design of parking structure is determining the traffic flow: one-way or two-way. Typically, a parking bay for a one-way traffic flow is narrower than for a two-way flow. The available site dimensions will influence the parking bay width and thus also influence the circulation pattern.
The following graphs shows different vertical circulation patterns in the garage building.
Parking Layout Dimensions
The following tables summarize parking layout dimensions by User Comfort Factor categories.

<table>
<thead>
<tr>
<th>User Comfort Factor 4</th>
<th>Parking Width</th>
<th>Module Width (1)</th>
<th>Vehicle Width</th>
<th>Aisle Width</th>
</tr>
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<tbody>
<tr>
<td>Angle (WP) (MW) (VP) (AW)</td>
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<td></td>
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<tr>
<td>45</td>
<td>12'-0&quot;</td>
<td>49'-10&quot;</td>
<td>17'-7&quot;</td>
<td>14'-8&quot;</td>
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<tr>
<td>50</td>
<td>11'-9&quot;</td>
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<td>65</td>
<td>9'-11&quot;</td>
<td>55'-9&quot;</td>
<td>19'-2&quot;</td>
<td>17'-5&quot;</td>
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<tr>
<td>70</td>
<td>9'-7&quot;</td>
<td>57'-0&quot;</td>
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<td>90</td>
<td>9'-0&quot;</td>
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<td>20'-0&quot;</td>
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<thead>
<tr>
<th>User Comfort Factor 3</th>
<th>Parking Width</th>
<th>Module Width (1)</th>
<th>Vehicle Width</th>
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<td>Angle (WP) (MW) (VP) (AW)</td>
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<td>12'-4&quot;</td>
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<td>19'-2&quot;</td>
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Note: (1) Wall to wall, double loaded aisle.
4.2.5 PUBLIC TRANSPORT

A good public transport system is vital for the prosperity of urban areas, allowing people to access the jobs and services, employers to have access to labor markets and companies to reach their customers with their services. This system is also clean, efficient in terms of fuel consumption and carbon emissions, increases the attractiveness of urban centers and favors the health of citizens. Public transport offers affordable access to opportunities, something vital for the creation of a more inclusive society. This mode can provide a safe and effective urban mobility to all the inhabitants of Bethlehem conurbation. Compared to the private vehicle, public transport if more efficient in terms of space and transported passengers, which makes it more sustainable.

The PT projects proposed for Phase 1 of the implementation (2020-2030) are:

BETH027. Reorganize current public transport system through the reconfiguration of current routes, establish new routes and assigning new indicatives (remove overlapping routes) – routes 1, 5, 8_1 and 9_1
BETH028. Build PT stops (outside the main corridors)
BETH029. Develop a schedule PT system
BETH030. Introduce a touristic bus route, operated by electrical buses (including acquisition of the vehicles)
BETH031. Impose minimum quality requirements for vehicles operating as public transport services providers
BETH032. Phase out old, polluting PT vehicles
BETH033. Develop and approve a methodology for PPP (Public private partnership) regarding operation and delivery of transport service
BETH034. Introduce/ acquire electrical buses
BETH035. On demand PT
Map 48: Map Public Transport interventions
BETH027 Reorganize current public transport system – Phase 1

Implementation period: 03/2021 – 08/2021
Estimated cost: ~€ 200,000
Target group: all Bethlehem inhabitants
Project leader: Public Transport Body, municipalities, Ministry of Transport

Description
In BETH004 the establishment of a Public Transport Organization for the Conurbation of Bethlehem is described. That is a very important step. The next step will be this BETH027; the first phase of a reorganization of the public transport system which fits the philosophy of this Mobility Plan: integrated planning and based on the categorization of the whole area: main roads, activity streets, 30 km/h zones and pedestrianized areas.

This project consists in the first place of the analysis of the current public transport. Based on that knowledge and the insights of this Mobility Plan a study is proposed (tender) of the implementation/reorganization of at least four lines. The study is the foundation for most of the subsequent planning, design, and financial work for a reorganization of the current public transport system. Demand estimates are critical to designing the system, planning operations, and forecasting the financial viability of the new measures. A public transport study must consider a set of characterization indicators, both on supply and demand. The offer analysis would come from the current public transport operators, while those related to the demand would come mostly from field work (appraisals). A complete base of information and suitable process of analysis, will allows a better understanding of the existing lines, areas that lack of coverage as well service levels, quality and satisfaction of the public transport. Not all lines and stops can be reorganized, optimized and implemented in the same time. Some routes have been already identified based on the lack of current public transportation. The gradual implementation will start by the execution of the proposed route for Beit Jala (route 8.1) and Beit Sahour (route 9.1), which currently does not dispose of any public transport service. Further the route on Hebron – Jerusalem Road (route 5) should be improved in the first phase, as well as the one serving Bethlehem city center (route 1). One important principle is that all people that are now involved in providing PT services, will be involved in the reorganization.

Objectives
» Improve quality and accessibility of public transport, specially to areas where currently the service is non-existent or low
» Optimize the current public transport
» Analyze the current demand and offer
» Increase public transport use/reduce car usage
» Balance in vehicles small/medium/large

Activities
» Create and tender a public transport study (current demand and offer of public transport) and detail plan of at least the first 4 lines
» Communicate the process with the current public transport operators
» Change the necessary regulations and laws
» Co-create with the current public transport operators
Results five themes

| ACCESSIBILITY       | + | + | o | o | o |
| SAFETY AND SECURITY | + | + | + | + | + |
| ENVIRONMENT         | + | + | + | o | o |
| ECONOMIC EFFICIENCY | + | + | + | o | o |
| LIVABILITY          | + | + | + | + | + |

Success indicators

» A finalized public transport study
» Definition of precise routes and stops for the proposed first four lines
» Definition of implementation phase 1
» Preparation of a phase 2

Risks

» Positive: good Public Transport is an efficient mode in terms of space and energy use. It helps multimodality
» Negative: reorganization of Public Transport is a big step in this sector; resistance can also be expected from inside
Public Transport Study characteristics Bethlehem Conurbation

The public transport study will use the following facts and parameters for the whole conurbation and for each line.

*Map 49: Current Public Transport lines*
Map 50: Area of influence lines network and areas not covered (grey)

Map 51: Public Transport Lines 20/21 coverage 400 m
Map 52: Area of influence of the PT lines (new lines included)

Current offer

» Length of the trip (both directions)
» Route pathway
» Time per round (minutes) during peak and off-peak hours
» Average daily speed (km \( \text{h}^{-1} \))
   Time intervals between vehicles
» Minimum theoretical provision of vehicles for the line (in practice it is adjusted with more continuous data of speeds and in order to guarantee minimum punctualities, besides providing reserves for incidents)
» Number of stops on the line (in both directions)
» Average distance between stops (in meters)
» Percentage of coincidence between the current route lines.

Current supply-demand relationship

» Trips on a working day
» Frequencies and visual occupation
» Vehicles-km on a working day
» Boarding and descending of passengers to determine concentration points
» Daily load (passengers / busiest section in the whole day)
» Relationship between daily load in the busiest section and daily demand

New routes (their implementation is part of other projects BETH001-BETH004, BETH006)

» Precise path of the four routes and stops
» Demand and offer and vehicle typology
» Frequencies and possible schedule
» Change route numbering to the proposed one
BETH028 **Build PT stops (outside the main corridors)**
BETH029 **Develop a schedule PT system**

**Implementation period:** 2024-2027  
**Estimated cost:** 850,000 (Beth028), 350,000 (Beth029)  
**Target group:** All Bethlehem inhabitants/ Visitors/ Commuters  
**Project leader:** Bethlehem Municipality, Beit Sahour Municipality, Beit Jala Municipality, Private investors, PT regulatory body, Mobility plan implementation body

**Description**  
In BETH006 is described how the public transport stops can be integrated, designed and implemented in the main corridors of the conurbation. On all the other routes it is necessary to realize signals, stops, stations, transfer point etc. This to ensure the quality and reliability of the public transport services. Related to the public transport project BETH027 (Reorganize current public transport system - Phase 1) is the development of a schedule/ timetable/ information methodology for the whole public transport system in and around the conurbation. More and more (potential) clients need clear and reliable information about routes, times, prices, delays, alternatives etc. In the first phase this information needs to be available on paper as well as online. In time clients will rate the public transport system as “very convenient” or even “very good”.

**Objectives**  
» Provide clear, safe, protected and up-to-date PT stops  
» Enable combined transport modes and connect private transport and public transport  
» Good information system for public transport

**Activities**  
» Create comfortable stations and stops by considering the safe and convinced connection  
» Considering land use and the location of the station  
» Develop an information system “new style”

**Results five themes**

| ACCESSIBILITY | + | + | + | o | O |
| SAFETY AND SECURITY | + | + | + | + | O |
| ENVIRONMENT | + | + | + | o | O |
| ECONOMIC EFFICIENCY | + | + | + | o | O |
| LIVABILITY | + | + | + | + | O |

**Success indicators**  
» Definition of precise routes and stops for the proposed first four lines  
» Reliability and accessibility  
» Information qualified by the public as “good” or even better

**Risks**  
» Positive: makes the PT system clearer, faster, safer; also easier in combination with other modes  
» Negative: introducing “new style” Public Transport; the organization and population are not (yet) used to it
Map 53: Public Transport interventions
**BETH030 Introduce a touristic bus route, operated by electrical buses**

**Implementation period:** 2020 - 2021  
**Length:** 23 km  
**Estimated cost:** ~ € 2.8 M (including acquisition of buses)  
**Target group:** tourists visiting Bethlehem conurbation  
**Project leader:** local municipalities, tourism authorities, PT body

**Description**

It is important to facilitate the mobility of all the tourists, specially disabled and elderly people to the most important heritage sites in Bethlehem conurbation: The Nativity Church, Milk Grotto, Bethlehem Northern entrance, Monastery of Artas, Deir al-Khadr, Suliman Pools, Conference Palace, Orthodox Field of shepherds, Field of shepherds, Saint Nicolas Church and other attraction. The frequency in principle will be every 15-30 minutes, however, after analyzing the demand (with the public transport study), these frequencies can be rearranged. The bus stops will be placed in close vicinity of the heritage sites, but also in between those points, providing the opportunity to tourists to hop off the bus and wonder also in less popular places. The bus stops will be provided with maps, information about the attractions in the vicinity of the stop and schedules for the touristic bus. The tickets can be bought from the bus driver and can be valid for a trip or a whole day. The price of the tickets will be decided by the municipalities together with the tourism responsible bodies.

**Objectives**

- Reduce tourism related car trips  
- Improve the touristic experience in Bethlehem conurbation  
- Promote Bethlehem conurbation as an attractive tourism destination  
- Reduce vehicle related emissions

**Activities**

- Develop a tender package for organizing/planning the route  
- Develop a tender package for bus acquisition  
- Organize tender for the planning and acquisition of buses (6)+2 charging stations  
- Develop a detailed plan and schedule  
- Equip 42 bus stops with touristic marking, information, maps  
- Acquire new electrical buses (probably by private companies)  
- Promote the project  
- Launch the project  
- Evaluate and scale up
Success indicators
» The buses are running
» The occupancy level of the buses are on average 80% daily
» All important sites are served by the touristic route

Risks
» Positive: clean and easy way of “touristic sightseeing” which suits the conurbation very well (23 km route)
» Negative: complete new facility which (partly) must compete with all the other tourist buses related to the hotels
Route and stops

**Bus route and stops characteristics**

- **Route length:** 23 km, crossing all participating municipalities: Bethlehem, Beit Sahour, Beit Jala, Artas, Al Khader, Ad Doha
- **The following heritage of religious sites will be served by the route:** The Nativity Church, Milk Grotto Monastery of Artas, Saint George's Monastery Deir (al-Khadr), Suliman Pools, Conference Palace, Bethlehem Northern Entrance, Field of Shepherds and Saint Nicolas Church
- **Additionally, intermediary stops and attraction sites will be provided in other areas,** allowing tourists to unboard and visit the cities on their own: Al Sahel, Cremisan convent, Makhrour valley, Beit Sahour (city), Osh Ghourab, Central Market, Ad Duheisha, Checkpoint 300, etc. according to the map below
- **Schedule:** daily between 7:30 and 21:00 (schedule can be adjusted based on demand), 4 times an hour - every 15 minutes (frequency can be reduced in low season or later in the evening)
- **The touristic bus stops will coincide with the regular public transport stops (developed as part of other projects);** if the touristic route will be developed prior to the PT routes and stops, a simple marking (flag/ pole with information, schedule) will be placed instead of a stop
- **Where already existing, extra facilities will be added to the regular bus stops:** distinctive markings to recognize it, information related to the touristic route and schedule, name of the stops and information about the touristic sites nearby, distances in meters and minutes walking
- **The project will be advertised in social media, via print materials, international tourism fairs and via tourism website**
Map 55: Touristic/Attraction routes

**Buses characteristics**

» Fully electric minibus with a low floor and seating for up to 20 passengers - 1 seat for disabled people (wheelchair accessible through platform), air-conditioned in the city center

» Flexible through fast charging and low in maintenance and no emission what so ever

» A range of up to 200 kilometers per each charging

» Battery LiFePo4, capacity up to 84 kWh, voltage: 400 ~ 750 V

» Charging - power 44 kW, current: 32 or 64 A

» Cost per km: € 6, emissions: <0.1 kg/km in operation

» Minimum 1500 charging cycles
BETH031 Impose minimum quality requirements for vehicles operating as public transport services providers

BETH032 Phase out old, polluting PT vehicles

**Implementation period:** 2020 (Beth031) 2023-2029 (Beth032),

**Estimated cost:** 0 (Beth031), Not possible to estimate for Beth032

**Target group:** All public transport, related organizations (PPP)

**Project leader:** All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT associations

**Description**
For instance, the Netherlands the goal is set that by 2025 all new buses in the public transport sector will be free of harmful exhaust gases. It is to be expected that this will be a global topic everywhere soon. The initiative described in BETH030, regarding electric buses for the touristic bus route will probably work as an accelerator for the whole public transport sector in Palestine. This includes the development of requirements for vehicles operating in public transport services.

In the next stage the old and polluting public transport vehicles will be recognized according to new regulation.

**Objectives**
» Improve air quality
» Reduce transport related greenhouse gases emissions
» Save costs associated to transport and transport externalities
» Increase quality of life and the urban environment

**Activities**
» Change and adapt current legal and regulatory framework related to operation of public transport in order to include quality and environmental requirement
» Yearly technical examination of all public transport vehicles based on the new regulation
## Results five themes

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### Success indicators

- CO₂ emissions on this route have decreased with 80%
- Energy efficiency of vehicles on the route have increased with 60%
- Positive image of the PT system and the level of users’ satisfaction have increased

### Risks

- Positive: clean and energy efficient instrument that can work as an accelerator for buses and also other vehicles
- Negative: a frontrunner project of which the size of support is unclear
BETH033 Develop and approve a methodology for PPP (Public Private Partnership) regarding operation and delivery of transport service

Implementation period: 2025  
**Estimated cost:** period of 3 years; €5,000 per year  
**Target group:** All public transport vehicles  
**Project leader:** All municipalities involved in the project, Bethlehem Governorate, Ministry of Transport, PT operators, vehicle owners, PT associations

Description  
A Public Private Partnership (PPP) is a cooperative arrangement between the public and private sector, typically of a long-term nature. It involves an arrangement between a unit of the government and a business that brings together better services of public transport in the conurbation. Worldwide there is no consensus about how to define a PPP. Common terms of PPP’s are the sharing of risk and the development of innovations. In this Mobility Plan for the Conurbation of Bethlehem the transition of public transport is key; without a good public transport system the goals of sustainability etc. will not be fulfilled. Also the public sector and the private sector cannot handle this task separately; they have to work together. So there is a close connection with BETH004.

Objectives  
» Find a tailor made partnership Public Transport for this conurbation  
» Increase the participation of different stakeholders  
» Enable more investment in infrastructure, by accessing private finance  
» Enable investments in electrical vehicles  
» Putting a greater focus on the quality of service to the end-user

Activities  
» Introducing the PPP  
» Establish a framework/ methodology  
» Identify projects  
» Appraise PPP projects  
» Tender and contract

Establish a body for “Public Transport”, 8 steps approach; just an example
Results five themes

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Success indicators

» Number of tenders and contracts based on the PPP framework

Risks

» Positive: public and private organizations working/investing together for a better result
» Negative: this will be a process that, for the first time, feels complex
**BETH034 Introduce electrical buses on PT routes**

**Implementation period:** 2022 - 2023 - Pilot Phase, 2023 - 2030 - Upscaling  
**Estimated cost:** ~ € 1.4 M (for the pilot phase, including all costs)  
**Target group:** all people in and around Bethlehem conurbation  
**Project leader:** local municipalities, PT body, private investors

**Description**
Urban buses are an important transport mode where electrification can have a significant impact today. This trend is driven primarily by the rising awareness of toxic air pollution in cities from internal combustion engines and supported by the compelling economic, comfort, and noise advantages. Urban buses have the opportunity to become the first transport mode to reach zero emission thanks to electrification. Acquisition of eco-friendly cars or electric buses has the potential for improving the quality of environment and reduce the greenhouse gas production from transport. This project refers to a pilot project that will serve as a test case for the complete electrification of the PT system in Bethlehem conurbation. The served route proposed is Route 1, circling Bethlehem city center (route and bus stops are subject of project BETH011). This project refers to the acquisition, governance and rolling of vehicles on the route and it is related to project BETH027 - Reorganize PT system, phase 1.

**Objectives**
- Improve air quality
- Reduce transport related greenhouse gases emissions
- Save costs associated to transport and transport externalities
- Increase quality of life and the urban environment

**Activities**
- Change/ adapt legislative and regulatory frameworks to accommodate e-mobility, especially for public transport
- Assess and decide on opportunities and best solutions for technology, network, requirements, needed infrastructure
- Develop a tender documentation, including contracts and financial models, concession model, technical requirements, etc.
- Organize tender for: acquisition of three buses, one charging station, diagnostic equipment and specialized tools for maintenance and repair, training of personnel who will operate, maintain, diagnose and repair for 5 years
Results five themes

| ACCESSIBILITY | + | + | + | 0 | 0 |
| SAFETY AND SECURITY | + | + | + | 0 | 0 |
| ENVIRONMENT | + | + | + | + | + |
| ECONOMIC EFFICIENCY | + | + | + | + | 0 |
| LIVABILITY | + | + | + | + | 0 |

Success indicators

» CO2 emissions on this route have decreased with 80%
» Energy efficiency of vehicles on the route have increased with 60%
» Positive image of the PT system and the level of users

Risks

» Positive: better Public Transport in a clean(er) environment
» Negative: complex in investment and operation

Map 56: Bethlehem City Center Master Plan for routes, stops & parking lots
Buses characteristics

» Implement and start operation
» Monitor and evaluate, upscale
» Mid-size, low-floor bus, with space for up to 31 passengers (14-20 seated), air-conditioned
» Flexible interior, with possibility to change the seat configuration
» High quality interior materials and equipment
» 8 m long, accessible for people in a wheelchair
» Range of 220 km per each charging
» Minimum 1500 charging cycles
» Battery LiFePo4, capacity up to 84 kWh, voltage: 400 ~ 750 V
» Charging - power 44 kW, current: 32 or 64 A
» Cost per km: € 6, emissions: <0.1 kg/km in operation
**BETH035 on demand PT**

**Implementation period:** 2022 - 2023  
**Estimated cost:** ~€550.000 (including vehicle acquisition)  
**Target group:** commuters living in low public transport demand areas, disabled and elderly  
**Project leader:** local municipalities and PT regulatory body

**Description**

An on-demand response public transports consists of passenger cars, vans or small buses which operate in answer to requests from passengers which normally is done by booking service via a browser, app or a call center, which will then plan a route for the day to pick-up users and take them to their required destination (such providers are: Via Van, Uber, Smartbus). The provided vehicles do not have a fixed route or schedule and normally it may pick-up several passengers along the route to take them to the respective end point.

**Objectives**

» Provide public transport to areas with low passenger demand  
» Provide accessibility of public transport for people with reduced mobility and elderly  
» Promote a more sustainable mode of transport and reduce the number of car trips

**Activities**

» Develop a public transport study to understand the demand of public transport and user requirements  
» Determine and map the areas with low transport demand and determine a pilot route  
» Determine type of vehicles (capacity, quantity)  
» Develop the tender document for an operating system including a smart phone application and a telephone order system  
» Develop the tender document for providing the operation of the service including vehicle acquisition and maintenance  
» Tender development of the operating system and vehicle acquisition  
» Tender operation of the service including electrical vehicle acquisition (5 vans) and charging points  
» Implementation of the pilot route  
» Monitor and evaluate, review, expand/ refunction  
» The role of municipality is mainly to initiate the planning phase
Results five themes

| ACCESSIBILITY | + | + | + | + | + |
| SAFETY AND SECURITY | + | + | o | o | o |
| ENVIRONMENT | + | + | + | + | o |
| ECONOMIC EFFICIENCY | + | + | + | o | o |
| LIVABILITY | + | + | + | + | o |

Success indicators
- At least one pilot route has been implemented
- 70% of the estimated target audience using the system

Risks
- Positive: public transport for everybody in the whole area based on smart phones
- Negative: new techniques for clients and the operational staff
4.2.6 WALKING

Non-motorized urban transport (NMT) is an essential element of clean urban transport. NMT supports the sustainable development of a transportation system and it includes two main modes - walking and cycling. These modes can be desirable for relatively short distances, which, in general, make up for the highest number of trips in cities (in Bethlehem, the share of trips shorter than 2 km that are done by private vehicle is 68% during an average morning peak hour).

By implementing several key/priority projects in the first phase, the first steps will be made towards transforming walking into a beloved mode of transport, preferred for local journeys with short distances and together with public transport, a part of longer ones. Bethlehem conurbation will develop a world-class walking environment, transforming the experience for all users and enhancing the quality of life and well-being of residents, workers and visitors. The main projects proposed for implementation are:

BETH036. Develop a coherent walking (pedestrian network)
BETH037. Implement a walking school bus (WSB)
BETH038. Develop online/offline applications for walking routes/wayfinding, including touristic thematic routes
BETH039. Develop and implement a citywide freight delivery strategy
Map 57: Main walking (pedestrian) network
BETH036 Develop a coherent walking (pedestrian) network

Implementation period: 2021 - 2024
Estimated cost: to be determined during design phase
Target group: all inhabitants and visitors of Bethlehem conurbation
Project leader: local municipalities

Description
The creation of a coherent pedestrian network throughout Bethlehem conurbation that would allow pedestrians to move around the city through a comfortable, attractive, and safe space is a precondition to increase the share of walked trips. The network will allow mainly local accessibility within the municipalities that are part of the study area, based on an adequate hierarchy of pedestrian routes, but also inter-municipality connections throughout the whole study area. For determining the main and the important local pedestrian routes, several mobility patterns (by private vehicle) has been analyzed, for example: the origin and destination of short trips (< 2 km), width and slope of roads, condition of the pavement, location of main attractions, location of schools. Not all pavements on all roads can be repaired, modernized and foreseen with urban furniture at the same time and the exact phasing should be determined by each municipality during implementation.

Objectives
» Increase the overall share of walking
» Improve the walking environment and experience
» Improve people’s health through active mobility
» Reduce the number of short trips (less than 2 km) performed by private vehicle
» Promote walking as a safe and enjoyable transport mode

Activities
» Tender for studies and detailed design
» Design all aspects of the network
» Implement (phasing will be determined during detailed design):
  ● remove barriers for pedestrians - construction sites debris, municipal trash containers, parked cars
  ● extend pedestrian to a minimum width of 1.0 - 1.5 m (where possible)
  ● improve surface of pavement where damaged
  ● provide shading (trees every 30 m on main routes, every 50 m on secondary routes)
  ● place signage showing directions and distances on main routes and at main intersections
  ● place urban furniture (trash cans, benches, lighting equipment) edge, tactile surfaces
  ● improve pedestrian crossings and intersections
» Special attention for (steep) slopes. At some places in the network specific stairs, a handrail or even an escalator at crucial places.

This project needs to be coordinated with BETH006, BETH011, BETH018, BETH019, BETH037
Results five themes

| ACCESSIBILITY | + | + | + | + | + |
| SAFETY AND SECURITY | + | + | + | + | o |
| ENVIRONMENT | + | + | + | + | + |
| ECONOMIC EFFICIENCY | + | + | + | o | o |
| LIVABILITY | + | + | + | + | + |

Success indicators
- At least 50% of the main pedestrian network has been improved
- Walking share has increased with 10%

Risks
- Positive: everybody is a pedestrian (now and then); it is healthy, cheap and it uses little space
- Negative: walking has just “that normal” image that it is a fight for some extra space, quality etc.
BETH037 Implement a walking school bus (WSB)

Implementation period: 2021
Estimated cost: ~ € 7,000
Target group: primary and secondary school children
Project leader: local municipalities, local schools, voluntary associations

Description
A walking bus is a form of student transport for school children (mostly primary and secondary programs) who, accompanied by adults (in some cases a “driver” leads and a “conductor” follows), walk to school along a set route, in much the same way a school bus would drive them to school. In order to be successful, the program requires cooperation between local public institutions (the municipalities), school boards and personnel and parents. Further, direct support (logistic and financial) from the Ministry of Education would also be advantageous, but not mandatory. Success with a simple walking school bus or a desire to be more inclusive may inspire a community to build a more structured program. This may include more routes, more days of walking and more children. Such programs require coordination, volunteers and potential attention to other issues, such as safety training and liability. The school principal and administration, law enforcement and other community leaders will likely be involved.

Objectives
» Reduce school related car trips (dropping off and picking up school children)
» Increase traffic safety around schools
» Increase social interaction and mutual trust within the community
» Promote walking as a safe and enjoyable transport mode

Activities
» Identify partners and create an initial team
» Data gathering - survey within schools
» Database creation and data analysis
» Define basic characteristics of the program: route, frequency
» Recruiting Students and Leaders and Promoting the Program
» Start and run the program
» Evaluate and expend the program
Results five themes

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<tr>
<td>ACCESSIBILITY</td>
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<td>SAFETY AND SECURITY</td>
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<td>LIVABILITY</td>
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</table>

Success indicators

» School related car trips decrease by 15%
» At least ten schools participate in the program

Risks

» Positive: everybody loves kids; also “learned when young is done when old”
» Negative: the program is based on volunteering; cannot be stopped within a short period
In order to increase walking, especially among children and teenagers, the schools in Bethlehem conurbation need to be served by a good walking network, provided with high quality urban space. That means that the priority for interventions should be given to improving the pedestrian facilities on major routes (as shown in the map above) that would ensure safe and pleasant walking to schools.

The categorization of the network has been made in such a way that schools are located at a distance of maximum 300 m from a major walking route.

As part of projects BETH006, BETH017 and BETH018, major repair, modernization and improvement should be undertaken for developing the walking/ pedestrian network on the main corridors.
Develop way-finding online/offline applications for walking routes (including touristic routes)

Implementation period: 2020 - 2021
Estimated cost: ~€ 25,000
Target group: All Bethlehem inhabitants and visitors
Project leader: Local municipalities, Ministry of Tourism, NGOs, tourism authorities

Description
Bethlehem conurbation is a touristic place, with many religious and cultural landmarks. This project will consist of implementing a new way-finding online/offline application that guides people in Bethlehem to their destination and provides information/tips about the main attraction points. It will be an attractive option for both locals and visitors.

The app will allow the tourist to always stay up-to-date with the best hot spots, to have all the travel guides and routes in one app, including free maps, different language guides (English, French, Spanish, Russian, Arabic), and an option to navigate through the city using off-line GPS. Hence, making the visit to the conurbation more efficient as well as enjoyable.

 Objectives
» Improve the accessibility of locals and visitors to tourist places
» Improve safety for all types of travelers
» Increase the share of walking trips
» Enhance tourist experience in the area

Activities
» Produce the tender document for the development of a tourism guide app for Bethlehem conurbation on an existing app or a new platform. This must include gathering of tourism information: history, walking routes, restaurants, hotels, main attractions, etc.
» Plan and design a communication campaign with exact dates of activities to be performed
» Implement:
  ● start communication with the community
  ● tender the way-finding app
» Monitor and evaluate together with the community and the owners of the app
Results five themes

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<td>SAFETY AND SECURITY</td>
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<td>ENVIRONMENT</td>
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<tr>
<td>ECONOMIC EFFICIENCY</td>
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<td>+</td>
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<td>+</td>
<td>0</td>
</tr>
<tr>
<td>LIVABILITY</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
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</table>

Success indicators
» 2000 downloaded apps
» 5% yearly increase of the app usage

Risks
» Positive: walking as a complete and safe mode, also for tourists
» Negative: new technique to be used also by elderly people
Way-finding app characteristics

» Can be implemented on an existing platform/app or developed as a completely new app. Examples of existing platforms that can be used are: TripScout, Trip Advisor, time to momo, CityMapper, Openroute Service
» Simple to use and available off-line
» Includes historical information of the local highlights
» Presents different walking tour routes with highlights
» Up-to-date with events, new hotspots and festivities
» Has a direct interactions with maps, allow to: find current location on map, calculate walking distances and times between two/multiple given points, locate different points of interest
» Includes crucial information regarding emergencies services
» Database design: Structured Query Language (SQL) or similar; programming language: PHP, Java Script or similar
Develop and implement a citywide freight delivery strategy

**Implementation period:** 2025-2027

**Estimated cost:** ~€ 250,000

**Target group:** All municipalities involved in the project, local companies, shops, goods distributors, associations, citizens

**Project leader:** Local municipalities

**Description**
Develop a coherent citywide logistic system, environmentally friendly and a high quality distribution of goods throughout the conurbation. The growth of the economy and the related logistical movements do not contribute to the livability and safety situation in the conurbation. Like in almost all urban areas worldwide we see that the current manner of working in the distribution goods is not sustainable. Especially the problems in the old inner cities ask for creative solutions.

There is a paradox dominating the city distribution: “the shorter the distance the more complex the distribution”. So we are talking about a proper distribution of goods towards the destinations in the conurbation. Especially the problems in the old inner cities ask for creative solutions.

**Three pillars for improvement:**
1. **Electrical transport within the conurbation.** It could/should be stated that from 2025 on electrical vehicles will be mandatory. So transportation with big trucks (diesels or electrical) to the outer edge of the conurbation and from there electrical transport, smaller vehicles.

2. **Infrastructure.** The four P+R points (BETH023, 024) are suitable places for transshipment loads to the electrical vehicles. Within the conurbation the categorized network in main roads, activity streets and 30 km/h zones and pedestrian zones provide the framework to make a transition in the historical city center. The “last mile” (similar to public transport) is again customization.

3. **Organization.** This project will and must be a cooperation between the public and private sector. Also the stimulation of establishing specialized companies in city transport is key. That means more freight in each vehicle. The traffic information data could be shared with these companies for an efficient delivery.

**Objectives**
- The development of an efficient, safe and livable system of city distribution.
- In 2025 electrical city distribution

**Activities**
- Appoint a coordinator for the municipalities
- Bring together the transporters/organizations of clients
- Exchange ideas, information and data
- Make a (first) citywide logistic plan
- Choose a pilot
- An agreement (public/private about a delivery schedule in the morning (phase 1)
Results five themes

| ACCESSIBILITY     | + | + | + | + | O |
| SAFETY AND SECURITY | + | + | + | + | O |
| ENVIRONMENT       | + | + | + | + | O |
| ECONOMIC EFFICIENCY | + | + | + | + | O |
| LIVABILITY        | + | + | + | + | + |

Success indicators
- Within 3 years more than 50% of delivery of goods done by this system
- Reduction of the number of diesel) trucks in the urban area
- Specialized transporters

Risks
- Positive: a sustainable, efficient city distribution in a clean and quiet environment
- Negative: a in many aspects reshuffling in delivering goods
5 MONITORING AND EVALUATION
5. **MONITORING AND EVALUATION**

Monitoring and evaluation needs to be built into the plan as essential management tools to keep track of the planning process and measure implementation, but also to support the learning process from the planning experience, understand what works well and less well, and to build the business case and evidence base for the wider application of similar measures in the future.

A monitoring and evaluation mechanism help to identify and anticipate difficulties in the preparation and implementation of the Mobility Plan, and, if necessary, to “repackage” measures in order to achieve targets more efficiently and within the available budget. It will also provide proof of the effectiveness of the plan and its measures. This allows those responsible for the actions to justify where money was spent.

The ex-post evaluation reviews the sustainable urban mobility planning and implementation stages, and the overall results of the decision making process. It should include the following areas:

- **Output (action taken):** Newly constructed infrastructure (e.g. x km rehabilitated and modernized pavement or road) or new transport and mobility services in operation (e.g. x new buses) – using output indicators.
- **Outcome (impact of action):** Real and measurable improvements in quality of life and the quality of transport services (outcome indicators) should be the main focus. Examples are congestion (vehicle delay) or the number of walking trips. Include intermediate outcomes if possible; these represent milestones towards key outcome targets. The indicators should measure outcomes directly, or measure how outputs are demonstrably related to outcomes.
- **Planning process of the measure implementation:** The efficient use of resources as an investment in measures; the process of implementation: e.g. timing of implementation, quality (process indicators).

For monitoring and evaluating the progress of the overall mobility plan, the targets set during Phase 2: General Strategy Development will be used. In order to understand the progress of the plan, specific measurements and studies should be performed at specific interval, obtaining intermediate results. For example, a household travel survey should be performed at least every 5 years, but preferably more frequent in the first decade of the mobility planning, considering that Bethlehem is a starter city. The method of monitoring for each indicators and their respective target is described below. Qualitative indicators, especially user satisfaction is important for understanding and evaluating the progress of the plan and of the proposed projects. Therefore, the household surveys should have a strong qualitative component.
Table 10: Target indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline 2017</th>
<th>Baseline scenario 2030</th>
<th>Target 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Modal share of NMT</td>
<td>9%</td>
<td>8%</td>
<td>19%</td>
</tr>
<tr>
<td>(B) Modal share of PT</td>
<td>35%</td>
<td>31%</td>
<td>40%</td>
</tr>
<tr>
<td>(C) Vehicle-kilometres travelled</td>
<td>33,600</td>
<td>50,700</td>
<td>32,000</td>
</tr>
<tr>
<td>(D) CO\textsubscript{2} emissions</td>
<td>49</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>(E) Number of road traffic related deaths</td>
<td>7</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>(F) Total hours delay</td>
<td>241,800</td>
<td>551,200</td>
<td>241,800</td>
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</tbody>
</table>

A) **Modal share of NMT**: the share of non-motorized trips in the overall modal split will increase with 10%, compared to status quo baseline 2017. Can be monitored and assessed through reoccurring household surveys performed at 3 years (2023) and 7 years (2027) after the start of the implementation of the measures and 1 year after the end of the implementation plan (2031), used also for the update of the Mobility Plan and strategy for subsequent periods, beyond 2030.

B) **Modal share of PT**: the share of public transport will increase with 5%, compared to status quo baseline 2017. Can be monitored and assessed through on-site data collection – counts of vehicles, number of passengers boarding and unboarding in main locations and reoccurring household surveys performed at 3 years (2023) and 7 years (2027) after the start of the implementation of the measures and 1 year after the end of the implementation plan (2031), used also for the update of the Mobility Plan and strategy for subsequent periods, beyond 2030.

C) **Vehicle-kilometres travelled** by private vehicles: will decrease with 5%, compared to status quo baseline 2017. Can be measured and monitored by means of modelling (with the MOVE Meter or other similar tools).

D) **CO\textsubscript{2} emissions**: will decrease with 28% compared to Business as usual (BAU) 2030. Can be measured and monitored by either modelling with the MOVE Meter (based on km-travelled, statistical data related to vehicle fleet composition) or by on-site measuring with specialised equipment and instruments.

E) **Number of road traffic related deaths**: 50% compared to status quo baseline 2017. Can be measured and monitored by statistical data obtained from the Police.

F) **Total hours delay**: will remain the same as status quo 2017. Can be measured and monitored by means of modelling (with the MOVE meter or other similar tools).

If desired, the complete list of indicators used for evaluating the scenarios can be used during the monitoring and evaluation process.
Table 11: All indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Method</th>
<th>Frequency</th>
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<tbody>
<tr>
<td><strong>ACCESSIBILITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Vehicle-kilometers travelled (km)</td>
<td>Modelling – MOVE Meter</td>
<td>yearly</td>
</tr>
<tr>
<td>(2) Hours travelled (h)</td>
<td>Modelling – MOVE Meter</td>
<td>yearly</td>
</tr>
<tr>
<td>(3) Average trip length (km)</td>
<td>Modelling – MOVE Meter</td>
<td>yearly</td>
</tr>
<tr>
<td>(4) Number of trips generated (internal trips)</td>
<td>Modelling – MOVE Meter/Countings</td>
<td>yearly</td>
</tr>
<tr>
<td>(5) Number of trips generated (external trips)</td>
<td>Modelling – MOVE Meter/Countings</td>
<td>yearly</td>
</tr>
<tr>
<td>(6) Number of trips generated by PT (trips)</td>
<td>Modelling – MOVE Meter/Countings</td>
<td>yearly</td>
</tr>
<tr>
<td><strong>ECONOMIC EFFICIENCY</strong></td>
<td></td>
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<tr>
<td>(7) Total hours delay (h)</td>
<td>Modelling – MOVE Meter</td>
<td>yearly</td>
</tr>
<tr>
<td>(8) Cost of delays ($)</td>
<td>Manual calculation</td>
<td>yearly</td>
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<tr>
<td><strong>ENVIRONMENT</strong></td>
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<tr>
<td>(9) CO₂ emissions (ton/day)</td>
<td>Modelling – MOVE Meter/onsite measurements</td>
<td>Quarterly/yearly</td>
</tr>
<tr>
<td>(10) NOx emissions (ton/day)</td>
<td>Manual calculation</td>
<td>Quarterly/yearly</td>
</tr>
<tr>
<td>(11) CO emissions (ton/day)</td>
<td>Manual calculation</td>
<td>Quarterly/yearly</td>
</tr>
<tr>
<td>(12) PM emissions (ton/day)</td>
<td>Manual calculation</td>
<td>Quarterly/yearly</td>
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<tr>
<td><strong>SAFETY AND SECURITY</strong></td>
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<tr>
<td>(13) Number of accidents per year</td>
<td>Statistics/Police records</td>
<td>Yearly</td>
</tr>
<tr>
<td>(14) Number of injured per year</td>
<td>Statistics/Police records</td>
<td>Yearly</td>
</tr>
<tr>
<td>(15) Number of deaths due to traffic accidents per year</td>
<td>Statistics/ Police records</td>
<td>Yearly</td>
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<td>--------------------------------------------------------</td>
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**LIVABILITY**

| (16) Modal split | Household survey | Every 3 years |

Further, at a measure or project level, the monitoring and evaluation should be performed for each individual intervention proposed, through both qualitative and quantitative tool. Further for projects, output indicators can be used, such as number of km of modernized road, as well as outcome indicators – number of children walking to school instead of being taken by car by parents. The indicators that should be used for monitoring individual projects are mentioned in the specific formats that are part of the Action Plan – “success indicator”.

It is important to allocate specific budget for performing the monitoring and evaluation of the plan and interventions. The M&E process can be performed internally, by staff designated by the municipality or can be externalized to local or international consultancy offices. For the specific projects, the monitoring and evaluation costs can be included in the project budget.
CONCLUSION
AND FURTHER STEPS
6. CONCLUSION AND FURTHER STEPS

This report represents the final output of Phase 3: Action Plan. The purpose of this report has been to provide an operational framework for the implementation of the strategy developed during previous phases. This step will be followed by concluding a so-called “communication version” (summarized) of all the outputs related to the projects, from all phases. This will be used to communicate and popularize the Mobility Study. This will conclude the study and this assignment. It is proposed that in combination with the last Steering Committee meeting, a public event will be organized in order to launch the project publicly and to kick-off the implementation phase, which will take place between 2020 and 2030.

![Figure 23: The project timeline and logical structure](image-url)
Maps in report

1. Study Area
2. Population growth forecast in Bethlehem conurbation, based on a 2.6% uniform annual growth
3. Road categorization and main roundabouts in the study area
4. Main bottlenecks in the study area
5. Internal public transport routes coverage – 400 m distance
6. Parking locations in the study area
7. Road safety blackspots in the study area
8. Main “Hardware”/infrastructure interventions in Bethlehem Conurbation 2020-2030
9. Main “Hardware”/infrastructure interventions in Bethlehem Conurbation 2020-2030
10. Master Plan for Bethlehem Conurbation Integrated Mobility Corridors
11. Touristic / Attraction Route Map
12. Integrated mobility corridor Jerusalem- Hebron Road
13. Integrated mobility corridor Hebron-Jerusalem Road
14. Touristic/ Attraction Route map Jerusalem - Hebron
15. Integrated Mobility Corridor – Al Sahel Road
16. Existing PT routes at Al Sahel Road
17. Touristic /Attraction route Al Sahel
18. Integrated Mobility Corridor – main Beit Sahour Road
19. Beit Sahour Public Transportation & Touristic / Attraction Routes & Bus Stops
20. Touristic/ Attraction Route map Beit Sahour
21. Roads Pedestrian Crossing map\ 
22. Integrated Mobility Corridor – Manger Road
23. Touristic / Attraction Routes & Public Transportation Manger Road
24. Touristic Attraction Master Plan
25a Integrated Mobility Corridor – Dr. Gemeiner (Al Kharkafeh) Road
25b Integrated Mobility Corridor – Dr. Gemeiner (Al Kharkafeh) Road
26. Touristic bus stops and attraction routes
27. Master Plan for Bethlehem conurbation city centers
28. Master Plan Bethlehem city center
29. Beit Jala city center
30. Beit Sahour city center
31. Touristic Attraction Routes
32. Bethlehem city centers Master Plan routes, stops & parking lots
33. Master Plan for the Ring (Through) Road
34. Master Plan for the Ring (Through) Road
35. Wadi Musalem Segment of the Ring (Through) Road
36. North Beit Sahour Segment of the Ring (Through) Road
37. South Beit Sahour Segment of the Ring (Through)Road
38. Artas Road Segment of the Ring (Through) Road
39. Al Amal Road Segment of the Ring (Through) Road
40. Implementation of 30 km/h zones in Residential Area
41. Rehabilitation of the quality of road surface and sidewalk
42. Location and capacity of schools in Bethlehem conurbation
43. Implement a parking strategy and pricing policy in the whole conurbation
44. Implement a parking strategy and pricing policy in the whole conurbation
45. Proposed and existing off street parking locations
46. Implement a parking strategy and pricing policy in the whole conurbation47
Proposed and existing off street parking locations

Public Transport interventions

Current Public Transport lines

Area of influence lines and areas not covered (grey)

Public Transport lines 2020-2021 coverage 400 m

Area of influence Public Transport lines (new lines included)

Public Transport interventions

Introduce electrical buses on PT routes

Touristic Attraction routes

Bethlehem city centers Master Plan routes, stops & parking lots

Main walking (pedestrian) network

Main walking (pedestrian) network

Location and capacity of schools in Bethlehem conurbation

Delivery of goods plan for Bethlehem city center
MOBILITY STUDY – TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
Phase 3: Action Plan
Task 3.1: Capacity Building Strategy

MOBILITY STUDY – PHASE III \ TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
MOBILITY STUDY – PHASE III | TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM

PHASE 3: ACTION PLAN
FINAL REPORT
TASK 3.1: CAPACITY BUILDING AND AWARENESS RAISING

Project data
Client: Bethlehem Municipality
Funded by: Mairie de Paris & Agence Française de Développement
Project location: Bethlehem Governorate, Palestine
Project start date: 15.04.2018

Authors: CDG Community Development Group, Palestine & MOVE Mobility, The Netherlands
Project stage: Phase 3 – Action Plan
Version: 1.0
Status: Final

Disclaimer: The authors’ views expressed in this document do not necessarily reflect the views of Bethlehem Municipality, Mairie de Paris or Agence Française de Développement.

Findings, recommendations and conclusions are based on the information gathered by the consultants, but complete accuracy and completeness cannot be guaranteed. Therefore, the authors, the beneficiary or the funding bodies cannot be held responsible for any losses, omissions or errors that might derive from the use of this document.
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1. INTRODUCTION

This report has been produced according to the Terms of Reference for this assignment, the contract no. 54/2017 signed between Bethlehem Municipality and Community Development Group “CDG” in joint venture with MOVE Mobility (signature date 29.03.2018) and according to the Technical Proposal submitted by the consortium during the Request for Proposal (RfP) stage. This report represents the deliverable for Phase 3: Action Plan, output 3.1 Capacity Building and Awareness Raising - being a continuation of Phase 2: Strategy Development. It refers in particular to developing a capacity building programme for experts in Bethlehem conurbation.

UNDP (United Nations Development Programme) defines capacity development as "the process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time".\(^1\)

To create the best possible outcomes for city projects and urban planning, local governments need appropriate capacities at all levels. These capacities exist in different forms and in an urban context these capacities are important at a local level.

To many people capacity building just means training or human resource development. It is one of the main components of capacity building but not the only one. However, if decision-makers, managers, professionals and technicians are to operate at full capacity, they need to know more than just their own abilities. They need an institutional and organisational environment favourable to, and supportive of, their efforts, energies and capacities. Institutional and organisational constraints present a great impediment to the effective management of cities and settlements. Capacity building must incorporate all three aspects listed below simultaneously and within the framework of an agreed common policy:

- Human resource development: The process of equipping individuals with the understanding, skills and access to information, knowledge and training that enables them to perform effectively.
- Organizational development: The elaboration of management structures, processes and procedures, not only within organizations but also the management of relationships between the different organizations and sectors (public, private and community). It includes, working relationships; shared goals and values; teamwork, dependencies and support. A new kind of relationship, focusing on a flexible and responsive management should be built between urban development organizations and the management.
- Institutional development: Making legal and regulatory changes to enable organizations, institutions and agencies at all levels and in all sectors to enhance their capacities. This leads to solving issues of financial management, borrowing and trading capacity of government agencies; the ability of local authorities to negotiate contracts and form partnerships with private sector.\(^2\)

---


Capacity building should be a continuous activity in the planning process, spanning across the whole spectrum of events and activities.

2. CAPACITY BUILDING FOR SUSTAINABLE URBAN MOBILITY IN BETHLEHEM CONURBATION

The responsibility for the planning and implementation of urban transport systems rests with the state governments and the municipal bodies. Scientific assessment of institutional and technical capabilities on transport planning and traffic management of cities of different sizes needs to be carried out. Capacity building will have to be addressed in three levels – institutional, organizational and individual, also within Bethlehem conurbation.

The main objectives of capacity building mechanism in urban transport are, in general:

- To set up / strengthen institutions that are appropriately equipped to support and undertake urban transport planning / research
- To develop a manpower base for effective and sustainable urban transport planning
- To create a system for continuous learning and updating of knowledge and information
- To provide advisory services, strategic guidance and administrative support for technical cooperation
- Strengthen legal and regulatory framework by sharing and exchanging best practices.

The main purpose of the capacity building programme in Bethlehem conurbation is to improve capacity at various levels. At an organisational level, the following aspect are important:

- Improved and more efficient administration, including the use of existing human resources (for example, setting the right people on the right tasks), financial management
- Improving capacity for fundraising and income generation
- Encouraging diversity, partnerships and collaboration

For individuals, capacity building may relate to leadership development, advocacy skills, training/speaking abilities, technical skills, organizing skills, and other areas of personal and professional development. These will be further discussed in chapter 3.
As mentioned before, a healthy mix of “hard”, “soft” and “organisational” measures and interventions is desirable for a successful mobility plan. Capacity building is a crucial activity and element within the organisational sphere of a project.

Figure 2. Capacity building in the planning processes

2.1 Target groups for capacity building in Bethlehem conurbation

Target groups in the capacity building for transportation planning are practitioners, city staff and managers, elected representatives, professionals and other local stakeholders. In the picture below, they are divided into three main categories: decision makers, communities, professionals.
Decision makers are local authorities, such as government officials, politicians, or managers. In Bethlehem conurbation, the concerned municipalities involved in the project (Municipalities of Bethlehem, Beit Jala, Beit Sahour, Al Khader, Ad Doha, Artas) and the police are the decision makers.

Professionals are architects, civil engineers, urban planners, project managers and financial experts from the municipalities in the Bethlehem conurbation and private companies are the other target groups.

Communities are local NGO’s, associations and other member of the civil societies (inhabitants). In the Bethlehem conurbation, they consist of, for example: public transport union, bus union, shop owners, hospitality stakeholder, Municipal Youth Council and Centre for cultural heritage preservation.

Transportation sector in Bethlehem conurbation is in hands of several parties, from different level: local, regional and national, with each of them playing a different role according to their position and scope of work. Capacity building should target all these parties improving cooperation. However, this document only targets the local stakeholders from the concerned municipalities of Bethlehem conurbation.

2.2 Capacity building needs for stakeholders in Bethlehem conurbation

Throughout the planning process of the Mobility Study for Bethlehem conurbation, several capacity building needs from the stakeholders have been pointed out, referring to the general topics below:

- Lack of integrated approach regarding urban planning in general and transport planning, in particular
- Lack of financial resources and knowledge/ capacity to attract funding
- Regulatory and legal lacunas
- Lack of specific training/ education in sustainable transport planning
- Lack of technical knowledge

Through the capacity building programme that we propose, we strive to improve competencies at various levels within the Bethlehem conurbation. Table 1 below describes examples of competencies for each of three levels, individual, organizational and institutional.
Table 1. Examples of competencies for each level of capacity development

<table>
<thead>
<tr>
<th>Competency</th>
<th>Individual Level</th>
<th>Organizational Level</th>
<th>Institutional Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical</td>
<td>Regularly updated knowledge and skills. Understanding of broader technical context.</td>
<td>Appropriate knowledge and skills mix for the services that are delivered, such as engineering, legal and finance, institutional knowledge.</td>
<td>Technical knowledge and available skill mixes in a broader setting. Procedures for critical review and corroboration of knowledge and information.</td>
</tr>
<tr>
<td>Management</td>
<td>Project management, financial management, personnel and team management, mentoring skills. Leadership and understanding political consensus building</td>
<td>Leaders able to operate with goals and objectives as agreed with supervisory entities and main stakeholders. Ability to set goals, strategy. financial management. People management. Project management and ability to deliver timely.</td>
<td>Sound and workable task assignments of sector agencies. Minimal overlap between agencies. Facilitation of proper management by organizations.</td>
</tr>
<tr>
<td>Governance</td>
<td>Understanding of procedures. Ability to engage with and listen to stakeholders. Ability to apply inclusiveness. Focus on results.</td>
<td>Transparent decision-making processes. Procedures to consult with stakeholders and provide empowerment to others. Procedures to be held accountable, including transparency in budgets and plans.</td>
<td>Distinction between ‘operator’ and ‘regulator’. Procedures to ensure inclusiveness in particular regarding objectives, priorities and strategies. Procedure to ensure transparency and accountability.</td>
</tr>
<tr>
<td>Learning</td>
<td>Desire to ‘keep learning’, readiness to critically reflect on one’s own performance. Availability for training and education in new skills and knowledge</td>
<td>Readiness and procedures, to critically review own performance on a continuous basis Goals, procedures and resources to support learning by staff, organization and, if necessary other stakeholders. Support of communities of practice and rewards for staff learning.</td>
<td>Procedures to promote open working atmosphere and critical reflectance on performance. Openness to review sector performance on continuous basis and revise policies and arrangements, if necessary. Foster inclusiveness.</td>
</tr>
</tbody>
</table>

3. CAPACITY BUILDING ACTIVITIES AND PROGRAMME

Capacity building activities are very important for successful planning and implementation of the urban mobility in Bethlehem conurbation. The activities are required to be carried out during and after the process of planning. It is extremely important that the activities are inclusive and involve women in training. As described in the competence Table 1 there are several capacity building activities addressing the situation in Bethlehem.

---

conurbation. Table 2 below summarizes all the activities proposed for the Bethlehem conurbation into two main types: Knowledge Exchange and Training. Explanation for each kind of activity follows the table.

### Table 2. Capacity building activities summarized

<table>
<thead>
<tr>
<th></th>
<th>Technical competence</th>
<th>Management and Communication competence</th>
<th>Governance competence</th>
<th>Learning competence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Knowledge Exchange</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Study visit</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2. Twinning / partner cities</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>3. International congress</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>B. Training</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. On the job training</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>2. Face to face training</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>3. Self-learning</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>4. Coaching</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5. Higher education courses</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

x = It defines the type of competence the activity will cover.

**A. Knowledge Exchange**

1. **Participate in international study visits**

Travelling and experiencing different approaches of achieving a sustainable transport is the best technique to understand innovative solutions that can be applied in the conurbation. These visits will ensure knowledge exchange between stakeholders – professionals, politicians and other people involved in adopting and implementing the sustainable transport mobility plan for Bethlehem conurbation and a faster implementation of projects.

For example, once a year visit to the Netherlands and/or other good practices countries/cities with the concerned stakeholders from Bethlehem conurbation can be an option. A visit to transportation hubs, such as Utrecht Central station, to innovative parking solutions, such as successful P+R locations, public transport stations and stops, to understand not only infrastructure topics but also organisation and cultural topics.
10

2. Join Twinning partnership / Partner cities

Bethlehem conurbation should be involved in twin-cities partnership (sister city partnership) with similar kind of cities (having similar population and size) active in promoting sustainable transportation. This would enable the municipalities to learn from the practices of sister cities and implement some of the techniques in Bethlehem conurbation. For example, a sister city agreement for promoting sustainable transportation and knowledge exchange can be signed with Strasbourg, France and the Hague, the Netherlands (existing sister cities).

It should be an idea for the Bethlehem conurbation to join alliances like:

» Mobilise your cities – www.mobiliseyourcity.net
» PROSPECT learning programme - www.h2020prospect.eu
» CIVITAS: Cleaner and better transport in cities – www.civitas.eu

3. International congress

International conferences on sustainable urban planning, are an excellent opportunity to learn more about the sector and share knowledge with other experts in a short space of time. Bethlehem conurbation should study the possibility of hosting one of this congresses/conferences. The main focus can range = from development, heritage, energy to tourism etc. all associated to mobility. These congress’s (conferences) will bring a pool of international and regional talent – including politicians, researchers, professionals, media to the Bethlehem region. The congress will boost:

» Talent and skill development
» Innovation in the field of transportation planning
» Planning and governance techniques
» Operations and customer service practices
» Funding and financing practices

Examples of such international congresses:

» ICLEI Resilient Cities (https://resilientcities2019.iceli.org/)
B. Training

1. On the job training

The municipalities of Bethlehem conurbation should organize on the job training for professionals. Training courses for use of GIS software, design and CAD software, MOVE Meter software and transportation planning software should be organized. It will help the concerned professionals involved in sustainable mobility planning project to enhance their skills.

Normally, on the job training, as well as face to face training, is provided by external consultancy and training offices, specialised in providing courses in their field of work. For example, MOVE Mobility (or one of their partners) can organise a training for transport planning, modelling and MOVE Meter. We have organised such training (for the Dutch version of the MOVE Meter – De Mobiliteitsscan) for various groups of civil servants from Dutch municipalities and the Dutch government.

Courses proposed:

» Introduction to sustainable transport planning
» Transport modelling with the MOVE Meter
» Monitoring and Evaluation techniques
» Introduction to GIS and spatial analysis
2. Face to face training

Face to face trainings are essential to enhance soft skills (i.e. social and communication skills, character and personality development, attitude and emotional development) of any professional. Skills in group-work and team building are also advised to be undertaken. Development of these skills will help the stakeholders to communicate effectively and develop trust within the team involved in sustainable mobility planning project. E.g. A civil engineer from the municipality can get a specialized face to face training to develop specific skillsets regarding communication and personality development.

Courses proposed:

» Improve your communication and social skills
» Improve relational behaviour at work
» Improve teamwork skills
3. Self-learning

Promoting self-learning for all the employees involved in the sustainable mobility planning project should be also an initiative from the Bethlehem municipalities. Self-learning involves a lot of activities, like reading, learning from the internet, watching videos which an individual can take up to enhance his/her skills in a specific area.
E.g. Reading SUMP reports from sources like WRI (World Resource Institute), ITDP (Institute for Transportation and Development Policy), ELTIS (The urban mobility observatory)

4. Higher education

The combination public and private knowledge in urban mobility is a plus in terms of professional development. Thus, the municipalities should be involved in promoting higher education by offering short term or long-term courses in conjunction with academic institutions about urban and transportation planning.

For example, an intensive course of 2 weeks at the university or an academic institution on sustainable urban and transport planning for the professionals and civil servants. This intensive course should include lectures and workshops from international guest speakers and experts. Also, a regular course on urban and transport planning should be taught in the university as part of the curriculum. The course should be taught for at least one semester to students of technical universities. Students from other fields of study should also be given an option to study the course as well.

The following table provides a summary of the activities concerning capacity building in Bethlehem conurbation, as well as extra information and budget. The timeframe is 2020 – 2030, like the implementation period of the Mobility Study this document is part of.
Table 3. Summary table describing the capacity building activity for urban mobility in Bethlehem conurbation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Budget (Estimated total in €)</th>
<th>Participants</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Knowledge Exchange</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Study visit</td>
<td>Once every 2 years (also whenever</td>
<td>30,000</td>
<td>Professionals and civil servants</td>
<td>Netherlands, Other European or non-European countries that are good examples for sustainable mobility</td>
</tr>
<tr>
<td></td>
<td>possibility exists/appears)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Twinning / partner cities</td>
<td>On-going</td>
<td>5,000</td>
<td>International and local participants (Researchers, practitioners, politicians, professionals)</td>
<td>Depending on the programme/partners</td>
</tr>
<tr>
<td>3. International congress</td>
<td>Once every year or every two years</td>
<td>200,000</td>
<td>International and local participants (Researchers, practitioners, politicians, professionals)</td>
<td>Bethlehem conurbation</td>
</tr>
<tr>
<td><strong>B. Training</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. On the job training</td>
<td>Continuous</td>
<td>25,000</td>
<td>Professionals and civil servants</td>
<td>Bethlehem conurbation</td>
</tr>
<tr>
<td>2. Face to face training</td>
<td>Continuous</td>
<td>10,000</td>
<td>Professionals and civil servants</td>
<td>Bethlehem conurbation</td>
</tr>
<tr>
<td>3. Self-learning</td>
<td>Continuous</td>
<td>1,000</td>
<td>Professionals and civil servants</td>
<td>Bethlehem conurbation</td>
</tr>
<tr>
<td>4. Coaching</td>
<td>Continuous</td>
<td>-</td>
<td>Professionals and civil servants</td>
<td>Bethlehem conurbation</td>
</tr>
<tr>
<td>5. Higher education courses</td>
<td>Continuous</td>
<td>30,000</td>
<td>Professionals and civil servants</td>
<td>Bethlehem conurbation</td>
</tr>
</tbody>
</table>

4. CONCLUSION

The urban mobility world is constantly changing and the only “tool” to keep up to date with the tendencies of this market is by improving, sharing or acquiring new knowledge, soft skills, meeting people, etc. Thus, it is essential that Bethlehem conurbation and its members of the municipality.

LIST OF ACRONYMS AND ABBREVIATIONS

NMT                         Non-Motorised Transport
PT                          Public Transport
RfP                         Request for Proposal
ToR                         Terms of Reference

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MOBILITY STUDY – PHASE III \ TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
Phase 3: Action Plan
Task 3.2: Awareness Raising

MOBILITY STUDY – PHASE III \ TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
MOBILITY STUDY – PHASE III | TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM

PHASE 3: ACTION PLAN
FINAL REPORT
TASK 3.1: CAPACITY BUILDING AND AWARENESS RAISING

Project data
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Funded by: Mairie de Paris & Agence Française de Développement
Project location: Bethlehem Governorate, Palestine
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Authors: CDG Community Development Group, Palestine & MOVE Mobility, The Netherlands
Project stage: Phase 3 – Awareness Raising
Version: 1.0
Status: Final

Disclaimer: The authors’ views expressed in this document do not necessarily reflect the views of Bethlehem Municipality, Mairie de Paris or Agence Française de Développement.

Findings, recommendations and conclusions are based on the information gathered by the consultants, but complete accuracy and completeness cannot be guaranteed. Therefore, the authors, the beneficiary or the funding bodies cannot be held responsible for any losses, omissions or errors that might derive from the use of this document.
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1. INTRODUCTION

This report has been produced according to the Terms of Reference for this assignment, the contract no. 54/2017 signed between Bethlehem Municipality and Community Development Group “CDG” in joint venture with MOVE Mobility (signature date 29.03.2018) and according to the Technical Proposal submitted by the consortium during the Request for Proposal (RfP) stage. This report represents the deliverable for Phase 3: Action Plan, output 3.1 Capacity Building and Awareness Raising - being a continuation of Phase 2: Strategy Development. It refers to the Awareness Raising and Information Strategy.

“Awareness can also be referred to as consciousness or knowledge. It refers to the process by which the population (or a single person) gets to know a topic and incorporates it, becoming conscious of its characteristics, the issues that are behind it, and how one can act with respect to it” ¹

It is necessary to facilitate awareness and behaviour change programmes to communicate and educate people to use sustainable modes of transportation – NMT and public transport. It is not necessary that everyone who has been informed about the topic of sustainable transport will understand and act accordingly. Awareness raising is the first step but not the only step to successfully change the habits of the public with regards to sustainable transport.

Awareness raising programmes will encourage shifts in existing sustainable transportation planning paradigms leading to change in behaviour. For example, cars as imposers of high costs on the community (i.e., an antisocial mode); buses should be made as modern and comfortable (i.e., a choice mode rather than a mode of last resort); walkways as a measure of democratization (i.e., pedestrians as part of the transport system)².

Awareness raising is connected to behavioural change. “Behaviour change is when a person in fact carries out an action one wishes to promote”³. In the case of sustainable transportation, behaviour change refers to change in habits of the people about mobility. People from Bethlehem conurbation should be seen changing their mode of transportation (which is mainly cars) to NMT and use of public transport after the education and communication of awareness raising campaigns.

Awareness raising should be a continuous activity in the planning process, spanning across the whole spectrum of events and activities. The process continues during and after implementation. First steps which include the stakeholder meetings and workshops have been already implemented. The dates of the stakeholders’ workshops in Bethlehem were- Workshop 1: 18 - 19 September 2018 and Workshop 2: 12 November 2018. These can be considered the first activities related to awareness raising, education and information of mainly public servants and politicians in Bethlehem conurbation. The next step should target a wider public in order to have the expected results.

---

2. AWARENESS RAISING FOR SUSTAINABLE URBAN MOBILITY IN BETHLEHEM CONURBATION

The main objectives of awareness raising mechanism in urban transport are, in general:

» To equip institutions and governments with skills and tools to act as a promoter of sustainability
» To improve the quality of life and health of general public
» To advertise and promote the city areas dedicated and reserved for pedestrians and cyclists
» To promote sustainable mobility habits among various groups of public
» To promote the advantages of using sustainable transport modes
» To foster eco-driving skills

It is important for the public to know the benefits of sustainable mobility:

» Health benefits
» Financial benefits
» Regulatory benefits
» Legal benefits
» Environmental benefits

As mentioned before, a healthy mix of “hard”, “soft” and “organisational” measures and interventions is desirable for a successful mobility plan. Awareness raising is a crucial activity and element within the ‘software’ sphere of a project as seen in Figure 1.

*Figure 1. Awareness raising’s position within the project*
2.1 Target groups for awareness raising in Bethlehem conurbation

Target groups in awareness raising for Bethlehem conurbation with reference to sustainable transportation planning are divided into three main groups, i.e. policy makers, general public and private sector as seen in Figure 2.

With respect to Bethlehem conurbation:
- Policymakers include decision makers and people working for the government and municipalities.
- Public can be further divided into two groups, general and specific groups. As the names suggest, general groups are target groups which are involved and benefitting from activities meant for everyone. Specific groups are target groups which are target groups involved and benefitting from activities meant only for a precise group of people.
- Private sector includes people working for SME’s and large companies, in various field of activities.

Activities related to education and communication of all the three groups are mentioned in chapter 3.

Figure 2. Main target groups for awareness raising

TARGET GROUPS

2.2 Stakeholders

Stakeholders are the group of people who play an active role in promoting and organizing awareness raising activities. Stakeholders include city authority, city region, public transport operators, schools, employers and representatives of business community, user groups, media, communication agencies and designers as seen in Figure 3.
3. AWARENESS RAISING ACTIVITIES AND PROGRAMME FOR BETHLEHEM CONURBATION

Awareness raising activities are very important for successful planning and implementation of the urban mobility in Bethlehem conurbation. It involves influencing the mobility behaviour of the people of the Bethlehem conurbation mainly through information and promotional campaigns. These campaigns would involve no extra infrastructural investment and can offer clear information targeting all kind of groups of people in the conurbation. These campaigns will be referred to as activities below. These activities are required to be carried out before, during and after the process of successfully developing a sustainable transport plan in Bethlehem conurbation. It should be a continuous process.

It is extremely important that the activities are inclusive and involve a wide spectrum of participants, including women, youth, children, disadvantaged people, people with various believes and cultures, etc. The activities are listed in the Table 1 below. They relate to one or more transport modes, stakeholders involved and cost. The table mentions the type of medium and frequency of each activity. Lastly, it points out to the activities mentioned in Action Plan for the year 2020-2030.
### Table 1. List of activities describing the transport modes, type of media, stakeholders and dependency

<table>
<thead>
<tr>
<th>Activity</th>
<th>Transport modes</th>
<th>Media</th>
<th>Stakeholders</th>
<th>Cost (in Euros)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch publicly and promote the Mobility Study</td>
<td>Public transport, cars</td>
<td>Social media, newspaper, national radio, public launching event organised by the municipality – for example in Manger Square</td>
<td>General public, municipalities involved, politicians, investors/funders</td>
<td>3,000</td>
<td>Once at the end of the Mobility Study (August – October 2020)</td>
</tr>
<tr>
<td>Campaign to promote the use of Public Transport</td>
<td>Public transport, cars</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work places</td>
<td>Bethlehem conurbation, Public transport agencies, General public</td>
<td>2,500 per year</td>
<td>Twice a year, and/or when needed</td>
</tr>
<tr>
<td>On Demand transit initiative</td>
<td>Public transport, cars, walking</td>
<td>Social media, Mobile based apps, Billboard advertisements, Tourist information website, Tourist information center, Flyers, Provide information in schools and work places, Website</td>
<td>Bethlehem conurbation, Public transport agencies, General public, tourists</td>
<td>1,000 per year</td>
<td>When needed</td>
</tr>
<tr>
<td>Walking rights campaign for general public</td>
<td>Walking, car</td>
<td>Social media, Newspaper, Billboard advertisements, National radio and TV, Flyers, Provide information in schools and work places</td>
<td>Bethlehem conurbation, NGO's, General public</td>
<td>2,000 per year</td>
<td>As and/or when needed over a period of 10 years (implementation period of the Mobility Study)</td>
</tr>
<tr>
<td>Car-Free day</td>
<td>Walking, car</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work places, Billboard advertisements, Website</td>
<td>Bethlehem conurbation, NGO's, General public, Police</td>
<td>1,000 per year</td>
<td>once in a year (22nd September)</td>
</tr>
<tr>
<td>Campaign to promote walking to school</td>
<td>Walking</td>
<td>Provide information in schools, Newspaper, Billboard advertisements</td>
<td>Bethlehem conurbation, schools, institutions, parents, students, NGO's</td>
<td>800 per year</td>
<td>As and/or when needed over a period of 10 years</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------</td>
<td>--------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>University education and information programmes to teach about public transport and walking (Non-motorized transport)</td>
<td>Walking, Public transport</td>
<td>Advertisements on university website, Newspaper advertisements</td>
<td>Bethlehem conurbation, institutions, scholars, researchers, students, NGO's</td>
<td>1,000 per year</td>
<td>Continuous, first batch to be enrolled in 2020</td>
</tr>
<tr>
<td>Carpooling campaign / Car sharing campaign</td>
<td>Car</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work places, Billboard advertisements, Website</td>
<td>Bethlehem conurbation, NGO's, General public, Private companies</td>
<td>1,500 per year</td>
<td>Once a year, As and/or when needed over a period of 10 years</td>
</tr>
<tr>
<td>Accident/traffic safety awareness campaign</td>
<td>Walking, car</td>
<td>Social media, Newspaper, National radio and TV, Flyers, Provide information in schools and work places, Billboard advertisements, Website</td>
<td>Bethlehem conurbation, NGO's, General public, Private companies, Police</td>
<td>6,000 per year</td>
<td>Twice in a year</td>
</tr>
<tr>
<td>Road safety education in schools, universities and work places</td>
<td>Walking, car</td>
<td>Provide information in schools, Newspaper, Billboard advertisements, Social media</td>
<td>Bethlehem conurbation, institutions, scholars, researchers, students</td>
<td>4,500 per year</td>
<td>Twice in a year, As and/or when needed over a period of 10 years</td>
</tr>
</tbody>
</table>
Activities and topics

A) PUBLIC TRANSPORT

1) Education and information programme to promote the use of Public Transport

The municipalities of Bethlehem conurbation together with the public transport operators should start a campaign in the year 2020 to promote the use of public transport in Bethlehem conurbation and the new plans to organize the system. This activity will start a communication dialogue with the general public for the use of public transport in Bethlehem conurbation. Promotion and awareness campaigns are essential for the success of this public transport strategy. Thus, branding, marketing and communication tools are important to:

» Draw people’s attention on the benefits of public transport
» Facilitate the recognition of the system
» Provide information to users
» Establish a good public perception about the system.

Thus, this project has main purpose the promotion of public transport as a cost/efficient and sustainable transport mode. Citizens with private vehicles should be the main target of this activity. This task is one of the main responsibilities of the new Public Transport body.

The entity should define and promote the public transport as a brand. Workshops, trial runs, and public meetings are important to disseminate public transport information to the stakeholders. This is important to have a feeling of the perception of the people towards the system as well as their feedback.

Furthermore, it is important to promote with the community the plans for the implementation and reorganisation of the public transport routes. This should be done at least 4 months before the starting phase. The communication can be done via flyers, community workshops and/or tv campaigns. Finally, it is important that the public transport system has a brand/logo so that the community can recognize and familiarize with it better.

The name of the system can be selected via a competition within the community. This will guarantee the appropriation of the system by the citizens and increase the usage.
For areas with a low public transport demand an on demand public transport will be implemented. Since it is a new innovative initiative, it must be well communicated to the community that will benefit from it. Although this service is intended to all citizens, special marketing should be design for elderly. Besides the standard social media, tv and radio communication campaigns, personalised community workshops to explain step by step the use of the app/websites should be established. This will assure that all the citizens has equal access to public transport and are encouraged to make use of it.

**B) WALKING**

This strategy recognises the importance of celebrating walking. With each celebration comes a positive image of walking and heightened awareness of how much a part of our lives walking is and how beneficial it is to the health of the community. For this, promotion, information and education (the so-called “soft” measures) are crucial.

There are several types of actions that can be undertaken for promoting and encouraging walking, in coordination with “hard” measures, such as improving pedestrian infrastructure. Under the term promotional activities several different promotional tools are considered, ranging from very traditional tools like brochures, newsletters etc. to more progressive tools like using Facebook, YouTube etc. Thus, it is important to considers a package of types of promotional activity, which might be pursued individually or together, always having in mind the target group of the activity.
Here are some examples of possible activities:

» After the approval of the Mobility Study, the localities/municipalities in Bethlehem conurbation, can start with a promotion and information campaign regarding the interventions that are part of this strategy and in general, part of the Action Plan developed in the framework of the Mobility Study. This can be done through social media channels and through spreading printed materials containing information regarding the planned projects.

In order to support this action, the municipalities can jointly organise a “Active Mobility Day”, in order to raise awareness about environmentally friendly modes of transport and to present the Local Action Plan so that citizens are informed and prepared for what mobility measures will be implemented over the next few years. Through this, residents can become more aware that a car is not always a solution over short distances, particularly within Bethlehem conurbation, a place of short distances where the whole city area is accessible quickly by bike or on foot.

» Develop a brand for promoting walking, some examples: “We are all pedestrians”, “Walk! Be part of the change!”,”Listen to your legs”, etc.

» Car Free Day has already become a tradition in many countries around the world and it is celebrated on the 22nd of September, every year. One day per year, the city lets its inhabitants and visitors enjoy a city free of cars, on its major routes. It marks the perfect occasion to think about sustainable mobility and smart modes of transport in a fun way. To encourage this, activities are organised for both children and adults.

This day should be transformed into a big celebration of walking, cycling and using the PT. But ideally, the municipalities should organise this type of event much more often than once a year in order to have a higher impact.

» Awareness raising leaflets can be sent to all residents, accompanied by a letter from the mayor, outlining the concern regarding the movement of pedestrians, illegal parking on pavement, increase of car ownership and usage and so on, but also the negative impact all this has on the image of public space.

» Education campaign regarding the proper use of crosswalks (marked and unmarked), pavement, lane crossings, driveways, signals, traffic calming circles, and other infrastructure

» Develop promoting materials for touristic sites and routes in Bethlehem conurbation that can be visited on foot.

Some of these activities are presented below with more details.

2. Walking campaign for the general public

As presented, it the analysis phase, Bethlehem presents a high density of amenities and facilities, within a short (walkable) distance. However, many walkable trips are frequently done by car in Bethlehem area: 52% of the are shorter than 1 km and 68% are shorter than 2 km in the morning. Normally, people perceive that walking takes longer than driving when actually, it can be much less since there is no need to for example, search for a parking space. Thus, walking strategies such as “mode competition” comparing the travel times between several modes can be introduced. Normally, it demonstrates that walking is faster than taking the car!

Bethlehem is a touristic city and walking should be promoted instead of taxis or cars. Tourist information signalling with real walking time to main attraction centres is an excellent “campaign” to encourage, both locals and visitors to walk.
3. Car-free Day

Car free day is to be organized by the municipalities of Bethlehem conurbation with help of NGO's and the police authorities. The car free day should be organized once a year, 22nd September, if possible, as it is International car free day. It will be an opportunity for the general public including children to learn more about their neighbourhood without using cars. It will promote and build awareness to walk, use of public transport and other modes of sustainable transportation in the conurbation.

4. Campaign to promote walking to school

As mentioned in the analysis phase, several parents take their kids to school by car instead of walking. Schools should educate and communicate to children and their parents about the benefits of walking for short distances. One of the most successful awareness campaigns is the “walking bus” to schools. A walking school bus is a group of children walking to school with one or more adults. It can be as informal as two families taking turns walking their children to school to as structured as a route with meeting points, a timetable and a regularly
rotated schedule of trained volunteers\textsuperscript{4}. This simple campaign, not only will educate and create awareness among the children and their parents, about the benefits of walking, but will help reducing car trips in the school areas such as Children and Manger streets. In order to have more visibility, the first edition of the “walking bus” should be promoted on tv, radio and should be launched by the Mayor or a high rank official.

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{image.png}
\caption{Promote walking to school}
\end{figure}

5. University education programme to teach about public transport and walking (NMT)

Since students are a responsive target group, especially when it comes to changing behaviour, choosing more sustainable modes of transport and so on, an education and information programme/session should be developed by the universities in the Bethlehem conurbation with the help of municipalities, in order to increase awareness of students related to: pollution, health risks associated with transport, climate change, benefits of walking, cycling and the use of PT. The educational programme should facilitate an increase in the uptake of walking to university, car sharing and car pooling, etc.

C) CAR USE

6. Carpooling campaign / Car sharing campaign

This activity will be implemented in coordination with the rest of the software measures targeting the promotion of walking and PT. The main goal is to present the disadvantages (economic, environmental, health related, social) of driving private vehicles (especially for shorter distances), in comparison with the advantages of other modes of transport and the benefits of car-pooling and car sharing, if car use is still necessary.

Carpooling – 2 or more people who have a similar commuting pattern and share a ride – should be promoted in Bethlehem conurbation to reduce traffic congestion, costs, and pollution. Private companies and other commercial entities should promote, educate and give incentives to the employees sharing their car to their facilities. The municipality could offer to their employees to leave early one day a week if they carpool. It will help to reduce parking issues in the work places and will decongest traffic on the road. It is important to highlight the benefits to the car owner: new friends, less travel costs and help others to arrive to the destination!

Another innovative campaign to reduce car ownership is to promote car sharing. For example, an employee can commute to work by public transport or walk, but when a car is needed, the private companies can ask the employee to use one of the car’s provided by car sharing company. Only a small number of cars are needed for car sharing as the cars can be reused by multiple people at different times. Car sharing will help in reducing car traffic, pollution and help the users of this service commute to work without a car. This can be also promoted

\textsuperscript{4}http://www.walkingschoolbus.org/
for the rest of the residents that do not own a car and would like to make use of the vehicle on a sporadic basis (i.e. weekend trips, furniture shopping). The main goal is to make an efficient use of the private vehicle!

Photo 7. Carpooling benefits

Photo 8. Car sharing

**D) TRAFFIC AND ROAD SAFETY**

The human factor exerts a dominant influence on road safety. The implementation of measures that may effectively influence the behaviour of road users are recognised, therefore, as a vital aim of road safety activities. Road safety campaigns are an important tool for reaching this aim. They complement, but do not replace, however, regular year-long activities aimed at improving road safety. Safety campaigns, directed at a specific target group of road users and designed to change their behaviour, should involve governmental, municipal and non-governmental institutions and organizations and mass media as widely as possible.

7. Road safety campaigns

The following principles can be applied to road safety campaigns:

» Communication in road safety should not be used only as an isolated safety measure but should also be combined with other measures, such as legislation, education and enforcement.

» The prime aim of communication should be to motivate the target group to adopt safer behaviour as a matter of habit or, in general, to increase awareness of safety problems. Messages should be designed, therefore, not only to attract attention but also to stress the point that each individual is running dangers and is likely to have an accident, thereby overcoming any psychological resistance and changing it into acceptance.
The message should be as specific as possible so as to provide as clear guideline for a given situation and it must be seen as true. The informant and the information medium should inspire confidence by their actions and the use of reliable information sources. Effective communication depends also on a reliable, detailed and up-to-date system of statistics.

Communication should also take into consideration the fact that individuals have the tendency to overestimate the possibility provided by the technical devices of their vehicles and their driving capability and thus feel safer than they really are. The factors necessary for a successful dialogue between traffic experts and road users can be inspired from marketing communication techniques. Appropriate media and advertising forms, most suitable for the target group and the theme chosen, should be selected.

Campaigns with high emotional impact should be the main priority to reduce the accidentality rate in the conurbation. These campaigns should be organized by municipalities of Bethlehem conurbation, schools and other institutions and private companies in partnership with the police and NGO’s. Tv and radio commercials/propaganda, ludic activities on the streets, etc. The focus of the campaigns should be (but not limited) to: (1) wearing the seat belt (for all the passengers on the vehicle); (2) speed limits and accidents, (3) don’t drink and drive, (4) respecting the road signalling and (5) don’t text and drive.

Photo 9. Road safety campaigns

Passenger vehicle restraint statistics from The National Highway Traffic Safety Administration were recently released from a study that took place from 2001 to 2010. While the study shows that seatbelt and other restraint use has risen to 85% among accident victims, the number of lives that could have been saved still lies in the thousands. Our infographic highlights the troubling facts about unrestrained occupants and may make you think twice before skipping a seatbelt the next time you get into a car.

(All statistics from 2010, the most recently reported data)
Road safety education should one of the mail pillars of the communication campaigns. Interactive activities with kids should be done at schools from an early age to instil respect and safety values to prevent accidents. These activities can be from games to recognize the signals, speed games with tricycles, visit to the local police authorities, etc.

4. CONCLUSION

The presented awareness campaign is an essential part of each project and should not be considered a secondary task, because a successful communication contributes to the general accomplishment of the project. This implies tailored made campaigns based on topic, age range, institutions, etc.
LIST OF ACRONYMS AND ABBREVIATIONS

NMT  Non-Motorised Transport
PT   Public Transport
RfP  Request for Proposal
ToR  Terms of Reference
SME  Small and medium-sized enterprises

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Photo 4 is taken from: https://www.barhale.co.uk/news/wisbech-walk-safely-campaign/
Photo 5 is taken from: https://en.wikipedia.org/wiki/Car-Free_Days#/media/File:Jakarta_Car_Free_Day.jpg
Photo 6 is taken from: https://greenschoolsireland.org/all-aboard-for-ballybane-community-walking-bus/
Photo 7 is taken from: https://trec.pdx.edu/events/professional-development/webinar-psu-master-urban-and-regional-planning-murp-info-session
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PHASE 3: ACTION PLAN

MOBILITY STUDY – PHASE III \ TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
Phase 3: Action Plan
Task 3.2: Institutional Arrangement

MOBILITY STUDY – PHASE III \ TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
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PHASE 3: ACTION PLAN
FINAL REPORT
TASK 3.2: INSTITUTIONAL SETUP

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Findings, recommendations and conclusions are based on the information gathered by the consultants, but complete accuracy and completeness cannot be guaranteed. Therefore, the authors, the beneficiary or the funding bodies cannot be held responsible for any losses, omissions or errors that might derive from the use of this document.
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1. INTRODUCTION

Mobility development in Bethlehem is a collective responsibility where the related parties should integrate their efforts to achieve the intended development. This requires mainly the following:

» Finding a steering committee or council
» Ensure integration of planning
» Management and monitoring of activities

The following is a conceptual institutional framework that is supposed to guideline the mobility development in Bethlehem Conurbation. For sure there are many details need to be discussed between related parties for better understanding and agreement.

What is suggested here remains a suggestion as the negotiation among the intended council’s members may lead to completely other different directions of planning and management. Hence, the following are just proposed guidelines for managing the related common issues of mobility development.

2. PROPOSED MANAGEMENT BODY

The management body is supposed to include all related stakeholders in the area; basically the following:

» Bethlehem governorate office
» LGUs (Municipalities) including Bethlehem, Beit Sahour, Beit Jala, Doha, and Al-Khader, in additional to the villager council of Irtas and the three refugee camps
» Traffic police
» Local office of Ministry of Transportation (MOT)
» High Traffic Council (HTC)
» Ministry of Public Works and Housing (MOPWH)

It happened that most of the related parties are already represented in the traffic council managed by Bethlehem governor. In a way, the management body exists but needs the development of procedure manuals and instructions to guide the planning, monitoring, budgeting, and financial management…etc.

*Figure 1. The proposed Management body diagram*
The main responsibilities of the council may include:

- Ensure integrated development of Bethlehem Conurbation mobility
- Handle communication with other parties regarding integrated plans
- Support fundraising for common projects
- Help in project management and financial management of common projects
- Follow up, monitoring and evaluation of common plans implementation

3. MANAGEMENT

The following are the main aspects of the proposed council’s management:

A. Planning

Annual planning of mobility development is recommended where:

- The council triggers the planning process
- Each party suggests its major development initiatives
- Comments from all members should be collected on all development initiatives
- Once all initiatives are modified and agreed, each party should be asked to prepare and submit a detailed plan.
- All plans should be integrated in one master plan
- The council is responsible of monitoring the implementation

B. Decision Making

The council’s approval of initiatives, plans, and budgets…etc. is compulsory and supposed to consider voting for ensuring common approval. The required number of votes should be identified according to the sensitivity of the topic, either 50%+, 75%+…etc.

It could be possible to agree on an authority matrix that explains the authority of decision according to the topic. It is supposed to be agreed on by related stakeholders. The following table is an example:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Member’s Authority</th>
<th>Council’s Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>Internal plans</td>
<td>Integration of plans</td>
</tr>
<tr>
<td>Planning</td>
<td>Internal plans</td>
<td>Integration of plans</td>
</tr>
<tr>
<td>Fundraising</td>
<td>Internal projects</td>
<td>Linkages and integration</td>
</tr>
<tr>
<td>Financial management</td>
<td>Self-financed projects</td>
<td>Common projects budgeting</td>
</tr>
<tr>
<td>Management</td>
<td>Institution’s management</td>
<td>Council’s management practices</td>
</tr>
<tr>
<td>Nonconformities</td>
<td>Internal problems and cases</td>
<td>Cases related to integration and common projects</td>
</tr>
<tr>
<td>Communication</td>
<td>Internal issues</td>
<td>Issues related to integration and common projects</td>
</tr>
</tbody>
</table>
C. Management Procedures

The council’s management activities should be guided by a procedures manual that shows the instructions of handling all management activities. The procedures manual should be developed according to the council’s bylaws that are agreed by all members. The manual is expected to cover many practices such as:

» Planning
» Procurement
» M&E
» Research & studies
» Communication
» Awareness

D. Monitoring & Evaluation

Part of the council’s mission is to monitor the efficiency of the proposed solutions and their impact on the mobility. It should follow up implementation of plans, commitment to agreements and decisions, and assess the impact of the applied solutions. Proper M&E manual is to be developed in order to guide the monitoring and evaluation process by setting up a suitable reporting mechanism, proper key performance indicators (KPIs), suitable review of planned activities, and adapting a problem solving technique.

On this purpose, the committee should meet quarterly as part of an ongoing monitoring process on the status of the implementation of measures in the field of environmentally-friendly mobility.

Regarding the monitoring and evaluation of the elaborated mobility study, in order to make implementation smoother and more consistent, it is highly recommended to assign a programme manager, or coordinator for the action plan. The coordinator, a member of the mobility and transport planning responsible body, can be the same department or section as for the whole SUMP or a different one. This programme manager will be responsible for the coordination of the measures and measure packages, follow-up of the implementation and the evaluation.
E. Technical Issues

Technical tasks can be handled by the council’s members unless there are special skills needed, therefore, they can be assigned to external parties according to the procurement procedures. The following table.

Table 2. Shows the basic responsibilities of technical aspects

<table>
<thead>
<tr>
<th>Topic</th>
<th>Basic Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning for mobility</td>
<td>LGUs, Traffic Police</td>
</tr>
<tr>
<td>Safety aspects</td>
<td>Traffic Police, MOT</td>
</tr>
<tr>
<td>Roads &amp; infrastructure</td>
<td>LGUs, MOPWH</td>
</tr>
</tbody>
</table>

Similar to other issues, it is necessary to agree on the responsibility of technical issues among the council’s members.

F. Integration between LGUs Plans

Each municipality has its own situation and challenges that it seeks to develop, however, due to the close and interactive connections between the five municipalities and the villager council in Bethlehem conurbation municipalities should integrate their master plans to ensure integrated development of the area served by all parties.

Mobility is one of the main aspects that need integration to ensure the optimal routes and flow of traffic within the conurbation. Of course, each municipality or villager council should have control on internal roads, but when the connections and flow is affected it should be integrated with other partners in the same area. The governorate Mobility council, in which all related parties are represented, should be consulted of any development of the traffic and flow changes. Any traffic development plans that affect the traffic in the area should be approved by the council.

4. FINANCIAL ARRANGEMENTS

Financing sustainable urban mobility in a sustainable way is one of the biggest challenges cities and towns are facing. The key actors in financing sustainable mobility are: governments (national, regional), city administration, citizens, donors/ international organisations, private sector investors. Finding the right balance between various financial sources, securing enough funds for meeting transport demands of cities’ citizens still proves to be a challenging issue for cities. Across Europe, but especially in transitional countries, there is still a wide gap between modal uses, funding allocation (that is still mainly directed to major infrastructure developments). In general, municipalities in Palestine, including Bethlehem lack financial capacity for developing transport plans, strategies and policy, as well as resources for developing infrastructure and for supporting sustainable transport modes.

In many of the best performing cities, finance of urban transport systems is provided through a combination of financial sources: direct national and local revenues, value-capture and public-private partnerships, innovative financial mechanisms. In most of the cases, municipalities have financial autonomy and taxing powers. For accessing and unlocking all financial means, municipal and national governments have to have a wider understanding of financial mechanism and instruments that are available. Thus, local governments can supplement their revenues by enforcing parking charges, road and congestion pricing schemes, employers’ contribution, fare-box revenues, land development/land value taxes, advertising, while national governments
can create revenues from and for urban transport through fuel taxes, vehicle taxation and so on. In general, cities that are seen as best practices have shown leadership and innovation in accessing funding through various means, while at the same time ensuring transparency, accountability and public support.

These setups provide more fiscal security and less dependency on national government, allowing municipalities to have more control over funding flows, and thus allowing better urban transport planning processes, prioritisation of actions and projects. Financing urban transport should be integrated into a wider policy process. The first step is to setup a comprehensive and integrated vision for an equitable, affordable and in general, sustainable urban transport system, followed by a realistic and supportive financial arrangement.

The role of the national government

The Palestinian central government can increase its revenues by applying various fiscal instruments that thereafter can be earmarked and redirected to mobility investments at local level. Such instruments are: fuel taxes and surcharges and vehicle related taxes and surcharges.

Increasing taxes and charges are generally unpopular but efficient measures. This is also an effective way of applying the user-pays principle. There are two ways in which the revenues generated by this tax can be directed to local investments: municipalities can apply an additional charge on top of the national fuel tax, requiring the proper administrative and legal framework to do so, or part of the revenues collected by the national government would be redistributed at local level. Fuel taxation increases the price of travelling by personal vehicle, generating therefore not only additional revenues, but also indirectly a reduction of GHG emission, but discouraging the car use and reducing travelling.

The main challenge is to ensure that these nationally fixed and applied taxes are distributed at local level, through an appropriate and effective institutional set up. An institutional arrangement which proved to work in other countries was to set up a national transport and mobility fund from which resources could be redirected to municipalities.

The role of the local government

Lack of funding has been identified as a key challenge for Bethlehem in deploying sustainable mobility solutions. The municipalities are highly dependent on external funding. In order to increase their revenues, municipalities need to have financial autonomy and specific taxing powers. By doing so, the municipalities would be able not only to increase their revenues, which can thereafter be earmarked and redirected for investments in mobility projects, but at the same time, they would be able to enforce measures and policies that could contribute to relieving congestion, reducing urban transport related harmful emissions and in general, increase the quality of living of their inhabitants.

Such fiscal and financial instruments that local authorities can employ are: parking charges, road pricing or congestion charges, employers’ contributions, fare box revenues, land development/ value-capture taxes, public-private partnerships and advertising campaigns. The additional revenues can be utilized for investments in infrastructure, technology, maintenance of existing infrastructure of fleets, operation, institutional capacity, policies or traffic management.

Parking charges follow, just as it is the case with fuel and vehicle taxes, the user-pays principles. They can generate additional revenues for municipalities and at the same time aim at reducing private car usage, by increasing the expenses for car owners. On the other hand, parking regulations and charges cannot be applicable in the absence of improved public transport of NMT options. Moreover, in most of the cases, additional taxes and charges are unpopular measures and therefore, there is no political will to enforce them. By organizing efficient public awareness and information campaigns and by redirecting the revenues to investments in PT or NMT, public acceptance can be obtained.
Employer's contribution is paid by local businesses directly to local authorities for supporting local urban transport. It can be paid in the form of a local tax or as a subsidy given to employees to pay for their transport fares (PT or NMT modes). Like in the case of many other taxes, having in place an enabling legislative framework is crucial for imposing this tax, but once set, it can be a sound source of long-term and reliable revenues. The "Versement Transport ins France" is one of the most successful employers’ tax programme, used for investments and operation of public transport in urban areas. The fund has been set up in 1971, the tax needs to be paid for all companies with more than 9 employees, in urban areas with more than 10,000 inhabitants and the tax levels are decided at local level, based on the nature of public transport and the local conditions, ranging between 0.5% and 2% of the companies’ payroll.

As mentioned above, the Palestinian municipalities can apply a combination of charges and taxes on private car use in order to increase their revenues, based on the city’s characteristics and demands. Ideally, these taxes should be collected in an urban transport fund, with funding earmarked for further investments in sustainable projects for urban transport, thus ensuring adequate financial resources and proper management of funds.

The role of the private sector

The private sector can play an important role in both financing and operating the urban transport systems. Given the fact that the public finance (national and local) availability is limited, it is important to mobilise private capital in mobility developments. The capital can be directed to the development, operation and maintenance of PT, NMT (such as bike-sharing), parking facilities. The role and the options for attracting and involving the private sector in urban transport is shown in Figure 2. Moreover, the PT service quality level as well as the PT fares can be influenced by providing a sound legal framework for competition among service providers.

*Figure 2. The role of the private sector in urban transport. Source: The World Bank Group, 2014*

The role of the PPP schemes in urban transport is to: provide additional capital, provide optimal use of resources, provide alternative management and implementations skills and increased financial, human, professional capacity. Attracting private participation and setting up PPP schemes does not necessarily imply
a “quick fix” for urban transport and careful considerations should be given to the suitability and the type of PPP arrangement for each project, based on its size, scope and location.

Table 3. PPP opportunities for Georgia. Source: Saunders, 2017a

<table>
<thead>
<tr>
<th>PPP opportunity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Terminals</td>
<td>Once identified by the Sustainable Urban Mobility Plan (SUMP) locations and designs for bus terminals can be drafted by the municipality and a tender announced for construction and leasing of the terminals to private operators for a 5 to 20-year period where the private operator receives income from renting retail space in return for financing the terminal construction</td>
</tr>
<tr>
<td>Bus Fleet Management</td>
<td>Private operators could be granted concessions for a 5 to 10-year period to operate public transport according to a public service contract in return for investing in the required bus fleet. Operators would receive income from fares and determined subsidies from the municipality.</td>
</tr>
<tr>
<td>Bicycle Renting</td>
<td>Municipality could grant concession licenses for bicycle renting at defined location for companies to provide services to the public and tourists in exchange for investing in bicycles and their related infrastructure and management (the public operated system in Batumi could also be sold to a Private Operator).</td>
</tr>
<tr>
<td>Parking</td>
<td>Municipalities could grant concession to several Park and Ride (P+R) locations to manage the costs (security, maintenance, etc.) with a set tariff determined by the municipality. Municipalities could also contract out all on- and off-street parking facilities at a determined tariff and a profit sharing agreement could be met.</td>
</tr>
</tbody>
</table>

Such financial arrangements can provide a secure revenue source for municipalities, coming from the private sector that, in turn, benefit from previous large public investments in urban transport.

The role of international financial institutions (loans) and donor organisations

In many countries, investments in urban transport (especially in public transport) have been supported by multilateral development banks and international technical assistance programmes, such as: French Agency for development (AFD), Asian Development Bank (ADB), The European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the World Bank, USAID and so on. Furthermore, financing sustainable urban transport can be done through various internationally establishes climate funds and mechanism such as The Global Environment Facility (GEF), The French Global Environment Facility (FGEF, the French counterpart of GEF), The Clean Technology Fund (CTF), The Green Climate Fund (GCF, a funding mechanism of the UN), International Climate Initiative (IKI, Germany), etc.
Sustainable mobility related projects can be funded through either centralised or decentralized financial programmes. As with policy options, there is "no one-size fits all" model and careful considerations must be given to the country’s political, financial and institutional context. Furthermore, there is no good or bad model, both types of approaches have their advantages and disadvantages. The following table presents an overview of instruments that can be used by the municipalities to generate funding for investments in mobility.

### Table 5. Urban transport funding sources and options available for Georgia. Source: Authors’ own compiled from various sources

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Level of enforcing/collection</th>
<th>Short description/remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel tax</td>
<td>National (can be doubled by a local fuel tax.)</td>
<td>A portion of the fuel tax collected by the national government can be earmarked for SUT. A local fuel excise tax could be placed on petrol stations within city boundaries (optional within 10km of city boundaries to avoid residents driving to the border).</td>
</tr>
<tr>
<td>Vehicle ownership and usage tax</td>
<td>National</td>
<td>Revenues generated through vehicle ownership and usage taxes can be redirected/ earmarked for SUT. Such taxes are: vehicle registration tax (RT), vehicle registration fee (RF), annual motoring tax (AMT), circulation tax (CR).</td>
</tr>
<tr>
<td>Road pricing schemes</td>
<td>National and local</td>
<td>They can be applied in the form of tools or charges, such as: for the use of a transport infrastructure (road toll), for an area (congestion charge) or for entering a certain zone of the city (cordón charge). Revenues generated should be re-directed towards urban transport.</td>
</tr>
</tbody>
</table>
### Parking fees

Local

Using on- and off-street parking (especially in central urban areas) should be charged with a fee established by municipalities, depending on zone, location, accessibility, etc. It is important to keep the parking supply at lower levels and modify the parking price depending on the area of the city. The price should be set for all authorized on-street parking in the city and the revenue can be invested in SUT developments.

### Employers’ contribution

Local

Can be mandatory of voluntary and can be employed in various ways: tax on payrolls, paying for employees’ PT tickets and passes.

### Land value capture mechanisms

Local

Business/ land owners, residents can be charged higher property/ land taxes if they are situated in an area well served by qualitative public transport facilities. It can be in the form of: a betterment tax, impact fee, selling public land, sell of additional construction rights.

### Advertising revenues

Local (sometimes national, on national roads and highways)

Selling advertising and naming rights on fleet and assets (buses, trams, metros, metro stations, land owned by municipality or the national government) to private companies can generate revenues that can be used for SUT.

### PPP

Local

There are multiple ways of attracting private investments in urban transport, through public-private partnership. The aim of a public-private partnership is to involve the private sector in the initial investment and/or operation of a project by assigning some of the tasks to the private partners and transferring a share of the risk to them, while guaranteeing a sufficiently profitable set-up (by means of public sector subsidies if need be) to attract investors.

### (Inter)national loans and grants

National and/ or local

International financial institutions and donors play a major role in financing SUT in developing countries. IFIs operating in Georgia are willing and ready to invest and provide loans for sustainable transport measures and even provide some grant funding for assistance in planning and coordination of loan related activities.

### Climate-related funding

National and/or local

There are various climate-related funding mechanism aiming at reducing GHG emissions. As urban transport can greatly contribute to reducing GHG emissions, climate funding has become available also for SUT developments. Some of the climate funds that can be accessed are: GEF, FGEF, CTF, GCF, IKI.

In order to fund investments and operation related to urban mobility, the municipalities in Bethlehem conurbation can set up their own “Urban Transport Fund”, which can draw funding from various sources (national/ local taxes, grants, loans, fares, private investments). In this case, flows for capital investments and for operations can also be separated and better administered by municipalities. Therefore, the financing of urban mobility become more complex, but at the same time more sustainable and manageable in time and control over expenses and income resides mostly in the hands of municipalities though increased allocated powers. The figures below present such “ideal” funding decentralised models, for both capital investments and recurrent expenses, as developed by CODATU for developing countries.
Figure 3. “Ideal” funding decentralised models for capital investments. Source: CODATU

1. Fuel and vehicle use related taxes (described in recommendation 16, subchapter 4.4), collected at national (and/or local level) and earmarked for urban transport investments.

2. Road pricing schemes (recommendation 8, subchapter 4.3), parking changes (recommendation 14, subchapter 4.4), other road use taxes.

3. Operating income of the system is re-invested (e.g. fares collected for PT use).

4. Employers’ contribution (subchapter 5.2).

5. Other direct and indirect taxes paid by contributors to national, regional or local governments, which can be redirected/earmarked for urban transport investments.

6. Grants and loans from national or international institutions (chapter 5.4). PPP investments (subchapter 5.3).

7. Taxes paid by building owners, land owners, developers, residents and retailers, through various modalities (value-capture mechanisms described in subchapter 5.3, development taxes, property taxes).

8. Public authorities at various levels contribute to urban transport capital investments from their own budget.
Figure 4. "Ideal" funding decentralised models for recurrent expenses. Source: CODATU

1. Users of public transport contribute to financing the system by buying tickets and passes.
2. Road pricing schemes (recommendation 8, subchapter 4.3), parking changes (recommendation 14, subchapter 4.4), other road use taxes.
3. Employers’ contribution (through buying transit passes for their employees).
4. Employers’ contribution (subchapter 5.2).
5. Other direct and indirect taxes paid by the contributors to national, regional or local governments, which can be directed/earmarked for urban transport investments.
6. Advertising companies pay advertising fees and part of the advertising revenue to the transport authority or to the operators of the transport system.
7. Taxes paid by building owners, land owners and developers, residents and retailers through various modalities (value-capture mechanisms, described in subchapter 5.3, development taxes, property taxes).
8. Public authorities can provide subsidies for certain socially vulnerable categories: low income households, unemployed, young people, the elderly, etc.
9. Public authorities pay subsidies to balance the accounts of deficit-making transport companies.
➢ Budgeting

Common projects that serve the whole area could be financed through:
» Self-finance where each municipality shoulders part of the cost from their budgets.
» Distribution of the common project into parts where each municipality handles a part.
» The council handles the fundraising of some common projects according to allowable fundraising opportunities.

➢ Financial Management Procedures

Common budgets should be managed by the council where:
» Financial procedures manual should be developed.
» Funds can be managed by any party recommended by the council with proper agreement and monitoring.
» Periodic financial reports are to be issued, presented, and approved by the council.
» Periodic financial audits to be conducted.

Setting a clear financial framework requires that:
» The council is formed legally
» The council has its own identity and legal status
» The council has clear bylaws and management practices
» All members agree on the management practices and financial aspects according to the bylaws
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PHASE 3: ACTION PLAN

MOBILITY STUDY – PHASE III \ TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM
List of initial proposed long list of measures and projects

**ROAD NETWORK AND VEHICLE TRAFFIC**

<table>
<thead>
<tr>
<th>Measure field</th>
<th>Measure name and description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Categorise the network</td>
<td>Establish the major road network, with the main roads (50 km/h) and the activity roads (40 km/h)</td>
</tr>
<tr>
<td></td>
<td>Implement 30 km/h zones in most of the residential areas</td>
</tr>
<tr>
<td></td>
<td>Build a new road segment in the south of Beit Sahur, in order to close the ring road around the Bethlehem conurbation area</td>
</tr>
<tr>
<td></td>
<td>Build a new road segment in the north of Beit Sahur, in order to close the ring road around the Bethlehem conurbation area</td>
</tr>
<tr>
<td></td>
<td>Implement home zones with streets accessible by car, but with a limited speed (10 km/h)</td>
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<tr>
<td></td>
<td>Implement ‘pedestrians only’ zones in the city centres in Bethlehem, Beit Jala, Beit Sahur and Al Khadair (car free zones)</td>
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<td></td>
<td>Implement traffic calming measures: signalling, chicanes, chokers, elevated medians, well-marked road humps</td>
</tr>
<tr>
<td></td>
<td>Establish “Environmental zones” or “Low Emissions Zones” (LEZ)</td>
</tr>
<tr>
<td></td>
<td>Establish LEZ in central areas</td>
</tr>
<tr>
<td></td>
<td>Place signalling and marking for LEZ areas</td>
</tr>
<tr>
<td>Improve the vehicle fleet</td>
<td>Design and implement fiscal measures such as reduced import and buying taxes for new vehicles, for hybrid or electric vehicles</td>
</tr>
<tr>
<td></td>
<td>Define and implement stricter requirements in terms of energy efficiency and GHG emissions standards</td>
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<tr>
<td></td>
<td>Create a scrapping programme</td>
</tr>
<tr>
<td></td>
<td>Maintain and improve existing assets</td>
</tr>
<tr>
<td></td>
<td>Repair and improve the quality of road surfaces on all roads (especially on major arteries)</td>
</tr>
<tr>
<td></td>
<td>Improve marking and signalling on all roads (especially on major arteries)</td>
</tr>
<tr>
<td></td>
<td>Improve the intersections and roundabouts design</td>
</tr>
<tr>
<td>Promotion and awareness raising actions related to private car use</td>
<td>Promote and encourage the use of public transport services</td>
</tr>
<tr>
<td></td>
<td>Create information campaigns targeting the reduction of the use of private vehicles and encourage switching to other modes</td>
</tr>
<tr>
<td></td>
<td>Raise awareness related to new technologies, electric mobility, etc.</td>
</tr>
<tr>
<td>New car use models will be encouraged: carpooling, car sharing through public services or private ones</td>
<td>Start developing the cycling infrastructure</td>
</tr>
<tr>
<td></td>
<td>Develop a network of electrical vehicles across the Bethlehem conurbation area that will be used as car-sharing services, based on a monthly or yearly subscription</td>
</tr>
<tr>
<td></td>
<td>Encourage carpooling by providing incentives to companies/employees that share a car to ride to work (an incentive can be in various forms: free or at a reduced fee parking, tickets for activities, etc.)</td>
</tr>
<tr>
<td></td>
<td>Establish a traffic management centre in charge of data collection, analysis and monitoring (at either local or governorate level)</td>
</tr>
<tr>
<td></td>
<td>Establish a traffic study and a household survey that should be conducted every five years, monitoring the progress of the SUMP, and the state of mobility and transport in Bethlehem conurbation (both qualitative and quantitative data: inhabitants' satisfaction with PT services, with quality of roads, etc, traffic counts, environmental measurements).</td>
</tr>
</tbody>
</table>

**PUBLIC TRANSPORT**

<table>
<thead>
<tr>
<th>Measure field</th>
<th>Measure name and description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reorganise current public transport system through the reconfiguration of current routes, establish new routes and assigning new indicative (remove overlapping routes)</td>
<td>Establish a new public transport route between Bethlehem city centre and Beit Jala (between PT station S04 and Arab Society Hospital), including several stops on Al Sahel Street</td>
</tr>
<tr>
<td></td>
<td>Establish a new public transport route between Bethlehem city centre and Beit Sahur (the multimodal hub, see project/measure PK.H01)</td>
</tr>
<tr>
<td></td>
<td>Establish a new public transport route between Bethlehem city centre and Beit Sahur (the multimodal hub, see project/measure PK.H01)</td>
</tr>
<tr>
<td></td>
<td>Establish a demand-responsive public transport system in low-density areas</td>
</tr>
<tr>
<td></td>
<td>Relocate the PT stations for the external routes from inside the cities to two main stations at the entrance of the study area (Beit Sahur and Al Nashash) (in correlation with measure PK.H01)</td>
</tr>
<tr>
<td></td>
<td>Enhance PT accessibility and efficiency and improve travel times</td>
</tr>
<tr>
<td></td>
<td>Establishing bus priority at main intersections</td>
</tr>
<tr>
<td></td>
<td>Establishing bus priority at main intersections</td>
</tr>
<tr>
<td></td>
<td>Establish dedicated bus lanes on the main roads (Hebron-Jerusalem Road, Al Sahel Street, Beit Sahur Road), ensuring a fast connection between the multimodal hubs and the centres of activity (see also project/measure PK.H01)</td>
</tr>
<tr>
<td></td>
<td>Acquire vehicles with facilities for people with mental and physical disabilities and develop an On-Demand system for this purpose</td>
</tr>
<tr>
<td></td>
<td>Implement a traffic management system for PT, including a dispatching system or integrated application, reducing waiting times for both the operators (waiting for clients) and for the users (possibility to visualise where the available vehicles are and what the departure time is)</td>
</tr>
<tr>
<td></td>
<td>Develop a scheduled PT system</td>
</tr>
<tr>
<td></td>
<td>Improve public transport fleet quality</td>
</tr>
<tr>
<td></td>
<td>Impose minimum quality requirements (emissions, age, interior, etc.) for vehicles operating as public transport services providers</td>
</tr>
<tr>
<td></td>
<td>Improve boarding/unboarding services</td>
</tr>
<tr>
<td></td>
<td>Establish public transport stops along the main public transport corridors (e.g. line 6, 18, 19, 20, 21) with proper facilities (cover, benches, information signs, commercials)</td>
</tr>
<tr>
<td></td>
<td>Establish a School Bus System</td>
</tr>
<tr>
<td></td>
<td>Conduct a study/survey assessing the demand/need for a public transport system dedicated to transporting school children (how many children travel by car, what are the travel distances, is there interest and support from the parents, how and by whom should the programme be organised)</td>
</tr>
<tr>
<td></td>
<td>Develop and establish a School Bus routing system with fixed pick-up/drop-off points</td>
</tr>
<tr>
<td></td>
<td>Promotion and awareness raising actions regarding the use of public transport</td>
</tr>
<tr>
<td></td>
<td>Establish a responsible body for local/regional public transport organisation/ provision</td>
</tr>
</tbody>
</table>

**NMT (WALKING, CYCLING) AND PUBLIC SPACE**

<table>
<thead>
<tr>
<th>Measure field</th>
<th>Measure name and description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct a study/survey assessing the demand/need for a public transport system dedicated to transporting school children (how many children travel by car, what are the travel distances, is there interest and support from the parents, how and by whom should the programme be organised)</td>
<td></td>
</tr>
<tr>
<td>Develop and establish a School Bus routing system with fixed pick-up/drop-off points</td>
<td></td>
</tr>
<tr>
<td>Promotion and awareness raising actions regarding walking and cycling</td>
<td></td>
</tr>
<tr>
<td>Implement a Walking Bus for schools</td>
<td></td>
</tr>
<tr>
<td>Create a coherent network of pedestrian routes</td>
<td></td>
</tr>
<tr>
<td>Remove barriers for pedestrians and cycling; construction sites debris, municipal trash containers, parked cars</td>
<td></td>
</tr>
<tr>
<td>Increase accessibility for elderly or disabled people in form of smooth, even pavement, submerged pavement edge, tactile surfaces and audio signalling at crossings/traffic lights</td>
<td></td>
</tr>
<tr>
<td>Design and implement adequate sidewalk widths and pedestrian crossings</td>
<td></td>
</tr>
<tr>
<td>Improve the quality of urban space and the sojourning experience</td>
<td></td>
</tr>
<tr>
<td>Make Manger Square car free area and activate it as a social public space</td>
<td></td>
</tr>
<tr>
<td>Define the pedestrian areas in the city centres and develop a design package</td>
<td></td>
</tr>
<tr>
<td>Redesign the public space/pedestrian area on the main roads to accommodate attractive urban furniture, materials, facilities and greening</td>
<td></td>
</tr>
<tr>
<td>Provide protective barriers (separations) between streetway and pavement, in order to increase safety and prevent cars from parking on pedestrian structures</td>
<td></td>
</tr>
<tr>
<td>Start developing the cycling infrastructure</td>
<td></td>
</tr>
<tr>
<td>Implement a cycling pilot programme on a major road (e.g. Hebron-Jerusalem Road) and in a few residential areas (e.g. in Al-Khader)</td>
<td></td>
</tr>
<tr>
<td>Place cycling facilities along the main corridors: bicycle racks</td>
<td></td>
</tr>
<tr>
<td>Implement a public bike sharing system, focusing especially on electrical bikes</td>
<td></td>
</tr>
<tr>
<td>Build Bike-Ride (B-R) facilities at major entrances in the area to facilitate intermodality/multimodality</td>
<td></td>
</tr>
<tr>
<td>Promotion and awareness raising actions regarding walking and cycling</td>
<td></td>
</tr>
<tr>
<td>Develop interactive/non-interactive walking and cycling maps and applications</td>
<td></td>
</tr>
<tr>
<td>Implement a Walking Bus for schools</td>
<td></td>
</tr>
</tbody>
</table>
### List of initial proposed long list of measures and projects

<table>
<thead>
<tr>
<th>Measure field</th>
<th>Measure name and description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PARKING</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop/ build parking infrastructure</td>
</tr>
<tr>
<td></td>
<td>Develop local parking garages (off-street)</td>
</tr>
<tr>
<td></td>
<td>Build a Park+Ride (P+R) facility at the southwest entrance Al Nashash (to/from Hebron) (in correlation with measure PT.H01 and NMT.H03)</td>
</tr>
<tr>
<td></td>
<td>Build a Park+Ride (P+R) facility at the northwest entrance (western rural areas and Al-Khader entry point) (in correlation with measure PT.H01 and NMT.H03), including a touristic bus parking</td>
</tr>
<tr>
<td></td>
<td>Build a Park+Ride (P+R) facility at the north entrance (checkpoint 300) (in correlation with measure PT.H01 and NMT.H03), including a touristic bus parking</td>
</tr>
<tr>
<td></td>
<td>Build a Park+Ride (P+R) facility on the Hebron-Jerusalem Road, in a central location (in correlation with measure PT.H01 and NMT.H03)</td>
</tr>
<tr>
<td></td>
<td>Provide parking places for people with disabilities in all major parking areas and in the proximity of main services, across the whole area</td>
</tr>
<tr>
<td></td>
<td>Develop a comprehensive parking plan and strategy</td>
</tr>
<tr>
<td></td>
<td>Develop a parking zoning system</td>
</tr>
<tr>
<td></td>
<td>Develop a pricing system for parking in Bethlehem conurbation (including integration of P+R and B+R fares)</td>
</tr>
<tr>
<td></td>
<td>Prohibit on-street parking in the old city centres of the municipalities in Bethlehem conurbation</td>
</tr>
<tr>
<td></td>
<td>Strengthen enforcement for parking regulations</td>
</tr>
<tr>
<td></td>
<td>Develop an integrated parking payment system (by mobile phone application, SMS, parking meters on the street), including pre-paid parking (Digital)</td>
</tr>
<tr>
<td></td>
<td>Develop an intelligent parking system, monitoring availability of parking places at any given moment</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure field</th>
<th>Measure name and description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>URBAN FREIGHT (DISTRIBUTION OF GOODS)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establish a tourist route within Bethlehem conurbation</td>
</tr>
<tr>
<td></td>
<td>Develop a touristic signalling plan for all transport modes</td>
</tr>
<tr>
<td></td>
<td>Develop several specialised touristic routes (religious route, nature route, culture route, other routes)</td>
</tr>
<tr>
<td></td>
<td>Introduce a touristic bus route for disabled people (tourists), operated by a small electrical bus with a capacity of 10-16 seats</td>
</tr>
<tr>
<td></td>
<td>Procure small electrical buses for operating the touristic routes, including their charging stations</td>
</tr>
<tr>
<td></td>
<td>Build parking facilities for large touristic buses at the main entrances in the area (in correlation with measures PK.H01, NMT.H03, PT.H02) and integrate these with the public transport system and the walking/cycling facilities</td>
</tr>
<tr>
<td></td>
<td>Develop interactive/ non-interactive walking and cycling maps and applications specifically targeting touristic attractions (in correlation with measure NMT.S02)</td>
</tr>
<tr>
<td></td>
<td>Develop information and promotion materials for touristic activities and routes, using public transport, walking and cycling</td>
</tr>
<tr>
<td></td>
<td>Strengthen enforcement regulations on tourist buses parking, prohibiting them to park everywhere around the city</td>
</tr>
<tr>
<td></td>
<td>Provide an integrated touristic transportation card (including all PT lines, bike sharing, information, entrance to museums, tours) per day, multiple days or a week</td>
</tr>
<tr>
<td><strong>TOURISM AND URBAN ACCELERATORS</strong></td>
<td>Establish of a working group dedicated to monitoring and evaluation of implementation of the plan</td>
</tr>
<tr>
<td></td>
<td>Rearrange the responsibilities and tasks of the Traffic Committee and enhance their jurisdiction to include the whole study area</td>
</tr>
<tr>
<td></td>
<td>Increase capacity related to traffic, urban mobility, financing of urban projects, modelling by establishing a training centre/ programme for local and national administration representatives, police and professionals</td>
</tr>
<tr>
<td></td>
<td>Develop and approve a methodology for PPP (Public-Private Partnership) regarding operation and delivery of transport service</td>
</tr>
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<td></td>
<td>Establish a municipal fund for investments in urban transport</td>
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<td></td>
<td>Increase the value of the traffic violation tickets, for both cars and pedestrians (funds should be earmarked for investments in transport and mobility)</td>
</tr>
<tr>
<td></td>
<td>Develop new participative and inclusive governance, including public consultation, participative budgeting, etc.</td>
</tr>
<tr>
<td></td>
<td>Establish a Joint Schools Committee, supported by the municipalities</td>
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<table>
<thead>
<tr>
<th>Measure field</th>
<th>Measure name and description</th>
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<tbody>
<tr>
<td><strong>TRAFFIC SAFETY</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Redesign the intersections and roundabouts where most accidents occur</td>
</tr>
<tr>
<td></td>
<td>Redesign and take traffic safety measures at the Ad Duhisha – Putin roundabout</td>
</tr>
<tr>
<td></td>
<td>Redesign and take traffic safety measures at the Ad Dohra roundabout</td>
</tr>
<tr>
<td></td>
<td>Improve traffic safety conditions near schools</td>
</tr>
<tr>
<td></td>
<td>Implement car free zones near school (forbid cars within 500 m from the schools) (in correlation with measures PT.H05 and NMT.S03)</td>
</tr>
<tr>
<td></td>
<td>Develop and implement large scale education campaign regarding traffic safety issues (targeting car and PT vehicle drivers, children, students, etc.)</td>
</tr>
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<td></td>
<td>Strengthen enforcement of traffic safety regulations</td>
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<thead>
<tr>
<th>Measure field</th>
<th>Measure name and description</th>
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<tr>
<td><strong>GOVERNANCE (ORGANISATION) AND ENFORCEMENT</strong></td>
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<tr>
<td></td>
<td>Establish a city logistics plan (delivery of goods strategy)</td>
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<tr>
<td></td>
<td>Develop an information and education platform (can be online or on paper) targeting freight distribution companies, lorry and truck drivers and companies receiving goods</td>
</tr>
<tr>
<td></td>
<td>Develop a mobile phone application for freight route finding and optimisation (preferably at regional/governorate level)</td>
</tr>
<tr>
<td></td>
<td>Strengthen enforcement for freight regulations and restrictions</td>
</tr>
<tr>
<td></td>
<td>Increase the value of the traffic violation tickets, for both cars and pedestrians (funds should be earmarked for investments in transport and mobility)</td>
</tr>
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<td>Develop new participative and inclusive governance, including public consultation, participative budgeting, etc.</td>
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<td>Establish a Joint Schools Committee, supported by the municipalities</td>
</tr>
<tr>
<td>Task Number</td>
<td>Task Name</td>
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<td>-------------</td>
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<tr>
<td>BETH001</td>
<td>Strengthen the Mobility Committee</td>
</tr>
<tr>
<td>BETH002</td>
<td>Increase capacity related to urban transport and mobility</td>
</tr>
<tr>
<td>BETH003</td>
<td>Strengthen enforcement of traffic regulations</td>
</tr>
<tr>
<td>BETH004</td>
<td>Establish a responsible body for local public transport organization</td>
</tr>
<tr>
<td>BETH005</td>
<td>Develop and implement an information, education and communication strategy</td>
</tr>
<tr>
<td>BETH006A</td>
<td>Hebron-Jerusalem Road</td>
</tr>
<tr>
<td>BETH006B</td>
<td>Al Sahel Road - Beit Jala</td>
</tr>
<tr>
<td>BETH006C</td>
<td>Main Beit Sahur Road</td>
</tr>
<tr>
<td>BETH006D</td>
<td>Manger Road</td>
</tr>
<tr>
<td>BETH006E</td>
<td>Dr. Gemeiner (Al Kharkafeh) road</td>
</tr>
<tr>
<td>BETH011</td>
<td>Modernise and revitalise Bethlehem City Centre</td>
</tr>
<tr>
<td>BETH012</td>
<td>Modernise and revitalise Beit Sahur City Centre</td>
</tr>
<tr>
<td>BETH013</td>
<td>Modernise and revitalise Beit Jala City Centre</td>
</tr>
<tr>
<td>BETH014</td>
<td>Build new road segments in Wadi Musalam, south of Beit Sahur, north of Beit Sahour</td>
</tr>
<tr>
<td>BETH015</td>
<td>Build a new road segment in Irtas</td>
</tr>
<tr>
<td>BETH016</td>
<td>Upgrade and modernise the West section of the ring road El-Amal Road</td>
</tr>
<tr>
<td>BETH017</td>
<td>Implement 30 km/h zones and home-zones in residential areas</td>
</tr>
<tr>
<td>BETH018</td>
<td>Improve traffic safety conditions near schools</td>
</tr>
<tr>
<td>BETH019</td>
<td>Improve traffic safety conditions near schools</td>
</tr>
<tr>
<td>BETH020</td>
<td>Develop a car-sharing system with electrical vehicles</td>
</tr>
<tr>
<td>BETH021</td>
<td>Encourage and support car-pooling</td>
</tr>
<tr>
<td>BETH022</td>
<td>Implement the parking strategy and pricing over the whole area</td>
</tr>
<tr>
<td>BETH023</td>
<td>Develop a Park+Ride (P+R) facility at the east entrance</td>
</tr>
<tr>
<td>BETH024</td>
<td>Develop a Park+Ride (P+R) facility at the southwest entrance Al Nashash</td>
</tr>
<tr>
<td>BETH025</td>
<td>Build new off-street parking garages</td>
</tr>
<tr>
<td>BETH026</td>
<td>Develop a city-wide parking information and management system</td>
</tr>
<tr>
<td>BETH027</td>
<td>Reorganise current public transport system</td>
</tr>
<tr>
<td>BETH028</td>
<td>Build PT stops (outside the main corridors)</td>
</tr>
<tr>
<td>BETH029</td>
<td>Develop a scheduled PT system outside the main corridors</td>
</tr>
<tr>
<td>BETH030</td>
<td>Introduce a touristic bus route, operated by electrical buses</td>
</tr>
<tr>
<td>BETH031</td>
<td>Introduce an on-demand public transport system (e.g., similar to Via Van)</td>
</tr>
<tr>
<td>BETH032</td>
<td>Phase out old, polluting PT vehicles</td>
</tr>
<tr>
<td>BETH033</td>
<td>Develop and approve a methodology for PPP (Public-Private Partnership)</td>
</tr>
<tr>
<td>BETH034</td>
<td>Introduce/acquire electrical buses</td>
</tr>
<tr>
<td>BETH035</td>
<td>Develop a city-wide parking information and management system</td>
</tr>
<tr>
<td>BETH036</td>
<td>Develop a coherent walking (pedestrian network)</td>
</tr>
<tr>
<td>BETH037</td>
<td>Implement a walking school bus (WSB)</td>
</tr>
<tr>
<td>BETH038</td>
<td>Develop online/offline applications for walking routes/wayfinding</td>
</tr>
<tr>
<td>BETH039</td>
<td>Develop and implement a city-wide freight delivery strategy</td>
</tr>
</tbody>
</table>

### Integrated Mobility Corridors and Cross-Sectoral Interventions

- Phase 1
  - BETH040: Develop and implement a city-wide freight delivery strategy
  - BETH041: Introduce an on-demand public transport system (e.g., similar to Via Van)
  - BETH042: Develop a scheduled PT system outside the main corridors

- Phase 2
  - BETH043: Develop a Park+Ride (P+R) facility at the west entrance Al Quds Road
  - BETH044: Develop a Park+Ride (P+R) facility at the south entrance Al Nashash

- Phase 3
  - BETH045: Improve traffic safety conditions near schools
  - BETH046: Upgrade and modernise the integrated mobility corridor

### Non-Motorised Transport

- BETH047: Develop and implement a responsible body for local public transport organization
- BETH048: Develop and approve a methodology for PPP (Public-Private Partnership)
- BETH049: Introduce an on-demand public transport system (e.g., similar to Via Van)
- BETH050: Develop a scheduled PT system outside the main corridors

### Freight

- BETH051: Develop a city-wide freight delivery strategy
- BETH052: Introduce a touristic bus route, operated by electrical buses

### Road Network and Car Modes

- BETH053: Develop a city-wide parking information and management system
- BETH054: Improve traffic safety conditions near schools
Map 1. Main "Hardware"/ Infrastructure Interventions in Bethlehem Conurbation for the Period 2020 - 2030
MOBILITY STUDY – TRANSPORT AND MOBILITY STRATEGY FOR THE CONURBATION OF BETHLEHEM

FINAL REPORT

Appendix 4: Other maps
Maps 1-60 in Mobility Plan

1. Study Area
2. Population growth forecast in Bethlehem conurbation, based on a 2.6% uniform annual growth
3. Road categorization and main roundabouts in the study area
4. Main bottlenecks in the study area
5. Internal public transport routes coverage – 400 m distance
6. Parking locations in the study area
7. Road safety blackspots in the study area
8. Main “Hardware“/infrastructure interventions in Bethlehem Conurbation 2020-2030
9. Main “Hardware“/infrastructure interventions in Bethlehem Conurbation 2020-2030
10. Master Plan for Bethlehem Conurbation Integrated Mobility Corridors
11. Touristic / Attraction Route Map
12. Integrated mobility corridor Jerusalem- Hebron Road
13. Integrated mobility corridor Hebron-Jerusalem Road
14. Touristic/ Attraction Route map Jerusalem - Hebron
15. Integrated Mobility Corridor – Al Sahel Road
16. Existing PT routes at Al Sahel Road
17. Touristic /Attraction route Al Sahel
18. Integrated Mobility Corridor – main Beit Sahour Road
19. Beit Sahour Public Transportation & Touristic / Attraction Routes & Bus Stops
20. Touristic/ Attraction Route map Beit Sahour
21. Roads Pedestrian Crossing map\ Integrated Mobility Corridor – Manger Road
22. Touristic / Attraction Routes & Public Transportation Manger Road
23. Touristic Attraction Master Plan
25a. Integrated Mobility Corridor – Dr. Gemeiner (Al Kharkafeh) Road
25b. Integrated Mobility Corridor – Dr. Gemeiner (Al Kharkafeh) Road
26. Touristic bus stops and attraction routes
27. Master Plan for Bethlehem conurbation city centers
28. Master Plan Bethlehem city center
29  Beit Jala city center
30  Beit Sahour city center
31  Touristic Attraction Routes
32  Bethlehem city centers Master Plan routes, stops & parking lots
33  Master Plan for the Ring (Through) Road
34  Master Plan for the Ring (Through) Road
35  Wadi Musalem Segment of the Ring (Through) Road
36  North Beit Sahour Segment of the Ring (Through) Road
37  South Beit Sahour Segment of the Ring (Through) Road
38  Artas Road Segment of the Ring (Through) Road
39  Al Amal Road Segment of the Ring (Through) Road
40  Implementation of 30 km/h zones in Residential Area
41  Rehabilitation of the quality of road surface and sidewalk
42  Location and capacity of schools in Bethlehem conurbation
43  Implement a parking strategy and pricing policy in the whole conurbation
44  Implement a parking strategy and pricing policy in the whole conurbation
45  Proposed and existing off street parking locations
46  Implement a parking strategy and pricing policy in the whole conurbation
47  Proposed and existing off street parking locations
48  Public Transport interventions
49  Current Public Transport lines
50  Area of influence lines and areas not covered (grey)
51  Public Transport lines 2020-2021 coverage 400 m
52  Area of influence Public Transport lines (new lines included)
53  Public Transport interventions
54  Introduce electrical buses on PT routes
55  Touristic Attraction routes
56  Bethlehem city centers Master Plan routes, stops & parking lots
57  Main walking (pedestrian) network
58  Main walking (pedestrian) network
59  Location and capacity of schools in Bethlehem conurbation
60  Delivery of goods plan for Bethlehem city center
Main Bottlenecks in the Study Area

1. Entry/Exit Point Jerusalem, Checkpoint 300
2. Almourda Street between Murra Building Intersection and Gijon Roundabout
3. Al Sahel Str.
4. Jerusalem Hebron Rd.
5. Jamal Abed Alnaser Str.
6. Bethlehem old City Centre
7. Central Bus Station / Church of Nativity Junction / WSSA Intersection
8. Gross Market and Governmental and Universities Zone
9. Hebron Rd. next to Ad Duheisha Camp
10. Beit Sahour Main Road
11. Beit Sahour old City Centre
Beit Sahour Public Transportation & Touristic / Attraction Routes & Bus Stops

Legend

- **Heritage Sites**
- **Bus Stops**
- **Touristic / Attraction Bus Stops**
- **Proposed Bus Route 9 - 1, Phase 1**
- **Proposed Bus Route 9 - 2, Phase 2**
- **Touristic / Attraction Bus Route**
- **Roads Network**
- **Area Covered by Bus Route 9 - 1,( 200m from Road Center)**
- **Historical City Centre Area**
- **Study Area Boundary**

Heritage Sites

- Nativity Church
- Milk Grotto
- Greek Orthodox Shepherds Field
- Nativitiy Church
- Franciscan Shepherds Field
- Beit Sahur Public Transportation & Touristic / Attraction Routes & Bus Stops
- Dhahrat an Nada
- Khallet Hamad
- Osh Ghourab

Bus Stops

- P + R

Touristic / Attraction Bus Stops

- Proposed Bus Route 9 - 1, Phase 1
- Proposed Bus Route 9 - 2, Phase 2

Touristic / Attraction Bus Route

- New parking garage & Tourists' bus parking - BETH020
- Beit Sahur Public Transportation & Touristic / Attraction Routes & Bus Stops
- Dhahrat an Nada
- Khallet Hamad
- Osh Ghourab

Roads Network

- Historical City Centre Area
- Study Area Boundary

Legend:

- **Heritage Sites**
- **Bus Stops**
- **Touristic / Attraction Bus Stops**
- **Proposed Bus Route 9 - 1, Phase 1**
- **Proposed Bus Route 9 - 2, Phase 2**
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Master Plan for the Ring (Through) Road

Legend:
- Heritage Sites
- Wadi Musalam Road Segment
- North Beit Sahour Road Segment
- South Beit Sahour Road Segment
- Al Amal Road Segment
- Artas Road Segment
- Existing Main Road
- Ring Road Sections to be Implemented after 2030

Heritage Sites:
- Wadi Umm Qara
- Cremisan Convent
- Sant'Abbas of Fury
- Madaba Crosses
- Fatima Bint Maimun
- Dr. Gmeiner (Al Kharkafeh) Convent
- Caves of the Patriarchs
- Manger Site
- Dipylon Gate
- phosphate mines

Roads Network:
- Jerusalem - Hebron Corridor
- Al Sahel Corridor
- Main Beit Sahour Corridor
- North Beit Sahour Road Segment
- South Beit Sahour Road Segment
- Al Amal Road Segment
- Artas Road Segment
- Existing Main Road
- Ring Road Sections to be Implemented after 2030

Governorate Boundary
Study Area Boundary

Heritage Sites:
- Wadi Umm Qara
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- Sant'Abbas of Fury
- Madaba Crosses
- Fatima Bint Maimun
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- Al Amal Road Segment
- Artas Road Segment
- Existing Main Road
- Ring Road Sections to be Implemented after 2030

Governorate Boundary
Study Area Boundary
North Beit Sahour Road Segment of the Ring (Through) Road

Legend
- Heritage Sites
- North Beit Sahour Road Segment
- Roads Network
- Historical City Centre Area
- Study Area Boundary

Beit Sahur
Franciscan Shepherds Field
Greek Orthodox Shepherds Field

North Beit Sahour Road Segment of the Ring (Through) Road

500 Meters

Legend
- Heritage Sites
- North Beit Sahour Road Segment
- Roads Network
- Historical City Centre Area
- Study Area Boundary
Implementation of 30 km/h Zones in Residential Areas Map

Legend
- Heritage Sites
- Pedestrianised Streets (Car Free Streets)
- Proposed Ring (Through) Road
- Ring Road Sections to be Implemented after 2030 (the drawing does not show the actual location)
- Activity Streets Connectors between Neighbourhoods and Localities
- Secondary Local Roads-max. 30 km/h
- Tertiary Local Roads-max. 10 km/h (home streets)
- Historical City Centre Area
- Study Area Boundary
- Governorate Boundary

The Number Show the Sequence of Implementation

0  
1  
2  
3  
4  
5  
6  
7  
8  

30 km/h zones Proposed for Phase 1
30 km/h zones Proposed for Phase 2
30 km/h zones Proposed for Phase 3

Nativity Church
Greek Orthodox Shepherds Field
Shepherds Field
Al Khas
Al Fureidis
Ras al Wad
Abu Naja
Kherbet an Nahla
Khallet al Qaranin
Khallet al Louza
Khallet an Nu'man
Khallet Hamad
Bureid'a
Al Beida
Dhahat an Nada
Rehabilitation the Quality of Road Surface & Sidewalk Map
Locations and Capacity of Schools in Bethlehem Conurbation

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethlehem North Entrance</td>
<td>166000</td>
</tr>
<tr>
<td>Osh Ghourab</td>
<td>168000</td>
</tr>
<tr>
<td>Al Makhrout Valley</td>
<td>170000</td>
</tr>
<tr>
<td>Shepherds Field Convention Palace</td>
<td>172000</td>
</tr>
<tr>
<td>Milk Grotto</td>
<td>174000</td>
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<tr>
<td>St. George Convent (Deir al-Khader)</td>
<td>122000</td>
</tr>
<tr>
<td>Monastery of Artas</td>
<td>124000</td>
</tr>
<tr>
<td>Nativity Church</td>
<td>126000</td>
</tr>
<tr>
<td>Cremisan Convent</td>
<td>126000</td>
</tr>
<tr>
<td>Al Khader</td>
<td>128000</td>
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<tr>
<td>St. George Convent (Deir al-Khader)</td>
<td>128000</td>
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<tr>
<td>Road Network</td>
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<tr>
<td>Study Area Boundary</td>
<td></td>
</tr>
<tr>
<td>Governorate Boundary</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- **Heritage Sites**
- **Number of Students**
  - 0 - 128
  - 129 - 278
  - 279 - 451
  - 452 - 673
  - 674 - 1295

Roads Network
- Study Area Boundary
- Governorate Boundary
Implement a Parking Strategy and Pricing Policy in the Whole Conurbation Plan

Legend:
- **Heritage Sites**
- Main (Higher Capacity) Roads - No on-Street Parking Allowed
- Activity Streets - Paid on-Street Parking Allowed, where traffic is not hindered
- Pedestrianised Streets (Car Free Streets) - No on-Street Parking Allowed
- Local Roads: max. 30 km/h, Some "Home Streets" - on-Street Parking Allowed
- P+R 1 to/from Hebron and Southern Rural Areas
- P+R 2 to/from Ramallah, Nablus, Eastern Rural Areas
- P+R 3 to/from Checkpoint 300 (after 2030)
- P+R 4 to/from Road 60 (after 2030)
- City Centre Area - No Vehicles Entrance & No on-Street Parking
- Red Zones - Central Areas
- Blue Zones - Activity Areas
- Beige Zones - Residential Areas
- Study Area Boundary
- Governorate Boundary

- **P+R 1** to/from Hebron and Southern Rural Areas
- **P+R 2** to/from Ramallah, Nablus, Eastern Rural Areas
- **P+R 3** to/from Checkpoint 300 (after 2030)
- **P+R 4** to/from Road 60 (after 2030)
- City Centre Area - No Vehicles Entrance & No on-Street Parking
- Red Zones - Central Areas
- Blue Zones - Activity Areas
- Beige Zones - Residential Areas
- Study Area Boundary
- Governorate Boundary
Delivery of Goods Plan for Bethlehem City Centre

Legend:
- Heritage Sites
- Access Control Poles
- No Motorised Vehicles Allowed Signs
- Loading / Unloading Bays for Goods Distribution
- Main Roads
- Pedestrianised Streets
- Pilot Routes for Clean, Electrical Goods Distribution Vehicles
- Roads Network
- Pedestrianization City Centre Area