

PAPER • OPEN ACCESS

## Transport Systems and the Impact of the Sustainable Activities on the Permanence of Existing Cities

To cite this article: D M Al-Zubaidy *et al* 2019 *IOP Conf. Ser.: Mater. Sci. Eng.* **518** 022026

View the [article online](#) for updates and enhancements.

# Transport Systems and the Impact of the Sustainable Activities on the Permanence of Existing Cities

**D M Al-Zubaidy<sup>1</sup>, F A Majed<sup>1</sup> and S A Hassan<sup>2</sup>**

<sup>1</sup>Architecture Department, Al-Farabi University College, Baghdad, Iraq

<sup>2</sup>Architecture Department, University of Baghdad, Baghdad, Iraq

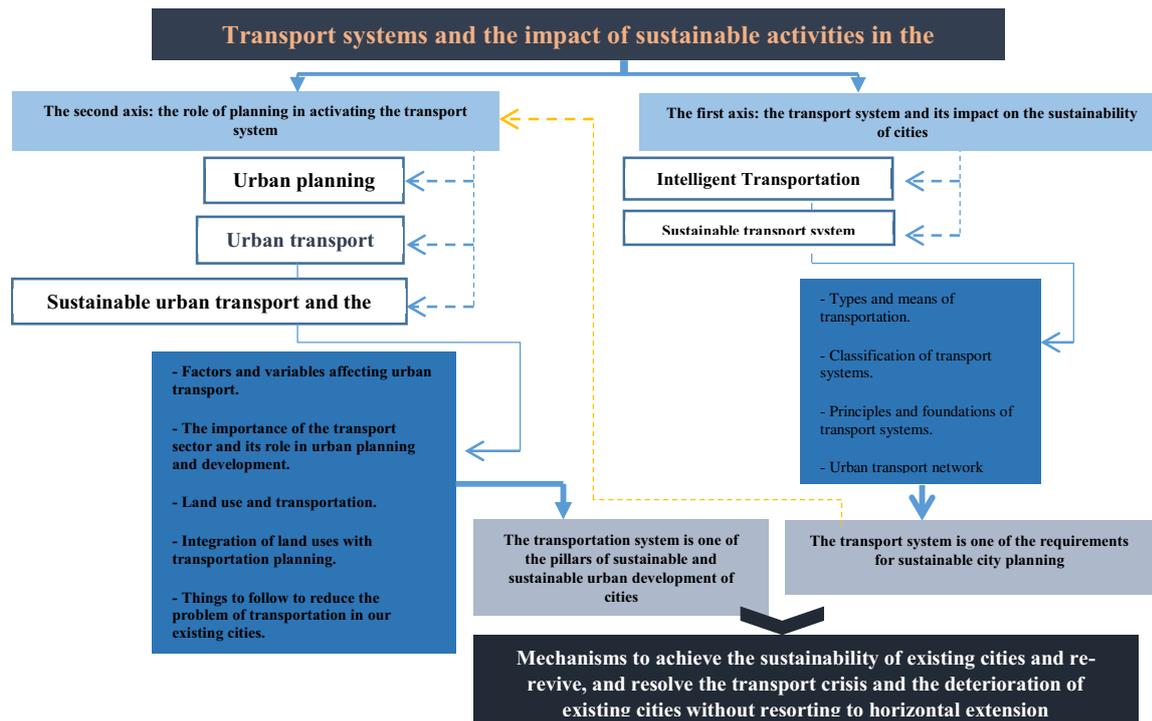
**Abstract.** The sustainable transport planning mechanism has recently emerged as a tool aimed at improving infrastructure interactively; integrated transport planning links transport planning and land use planning, and also coordinates the needs of both processes more effectively to seek to transform cities into an environmentally friendly place. However, it is a useful method for cities that intend to enter the future of sustainable transport, as the city can be more spectacular and sustainable if people are concerned with the concepts of urban planning. The existence of an impact relationship between intelligent transport systems and the environment through their contribution to reducing the negative effects of traffic congestion, which represents the transport infrastructure is an important social and economic cost. The planning of cities that are compatible with the environment should not be planned in a way that is specific to private transportation, but rather about the principle of public transport and the passageways. It should also move away from the trend towards urban planning that encourages the re-development of sites. The research problem, which lies in neglecting the role of a sustainable transport system in the revival of existing cities, has, in turn, put the hypothesis that the integration of sustainable urban planning with the sustainable transport system has a relationship related to activating the role of the transport system, and public transport is one of the factors of sustainability and sustainability of cities. Hence, the research is moving towards its goal of reaching clear strategies that can be used to activate the transport system to solve the problem of existing urban deterioration and to organize city planning so that we can formulate a future plan to absorb rapid growth with sustainable technologies. The second is the importance of the role of planning in activating the public transport system, in addition to the practical framework taken from the area of Victory Square in Baghdad case study to activate the sustainable public transport in Baghdad and connect the region With other transport stations to reactivate the sustainable transport system in Baghdad to solve the existing transport problems, to arrive at the research conclusions and final recommendations to achieve the research of its scientific purpose. Keyword: Sustainable transport, Transportation Systems, Urban transport planning, Transport strategy, Smart Systems.

## 1. Introduction:

The transport network in urban cities is that the backbone and also the most population additional versatile and quick in movement. Transport is closely associated with different sectors also as being one amongst the foremost necessary infrastructure elements that contribute to the success of the event method. Largely for the management of the state and inside its comprehensive development plans with its economic, social and strategic dimensions and for various levels (cities and regions). The transport system is that the common results of the land uses for the aim of transportation. The result's the passage of vehicles and also the horizontal movement of passengers on the transport network. Therefore, it includes roads, capability and capability of every route and intersection, a safe and legal speed of every road, a frequency of service



on every route and also the value of public and personal transportation. The flexibility to access associate economical transport system could be a continuous designing task to fulfill the necessities of the movement of individuals and product at grade that ensures development. Therefore, applicable designing of the transport network and also the development of potential various to the best alternative, the urban transport designing is associate integral a part of urban designing as a result of it's all-mains and continuous development in lightweight of the dynamical variables and also the totally different desires of society. (See Figure 1)



**Figure 1.** The Selection of Research / source: The Researcher

## 2. The first axis - the transport system and its impact on the sustainability of cities:

### 2.1. Transport and its importance within the development of cities:

Transportation is outlined because the system of movement of individuals, goods, facilities and suggests that necessary to try and do therefore. The movement of individuals could also be the foremost necessary, particularly among the cities, by linking the link between the population and land uses. However, the transfer merchandise of products} and goods from their sources to the places of selling and use is of least importance within the field of development and economic process, per the economic criterion, the artifact is useless and has no value unless it's out there within the time and place needed, that the movement of individuals and product along are the most factors within the economic and social development of society. This movement of individuals needs the presence of suggests that and systems of transport from roads, buses and different transport to facilitate this movement and succeed it to the simplest [1].

### 2.2. Elements and characteristics of the transport system:

The general conception of any system consisting of a group of reticular parts and parts is employed to realize a typical goal, and for the transport system it's a set of transport and facilities, whether or not land, air or sea, whether or not at the regional or urban level [2]. Transport systems square measure a part of the infrastructure and concrete infrastructure and economic infrastructure of the geographic region. The transport system is a crucial a part of alternative systems like water, electricity, sanitation and alternative elements of the urban system. [3]

the transport system consists of five basic elements (road, vehicle, station, stations and management systems).

### 2.3. General classification of transport types:

#### 2.3.1. CLASSIFICATION BY OPERATIONAL FIELD: It includes three types:

- Internal transport which is within the scope of the State.
- International (international) transit transport between States (outside the scope of one State).
- Urban transport is the transport within the city limits, which is intended for this study.

#### 2.3.2. Classification according to the track: It includes three types:

- Water transport (river and sea).
- Road transport (roads, railways, subway lines, buses, vehicles and pipes).
- Air and common transport (aircraft, airports and water jets).

#### 2.3.3. Classification by force: It includes three types:

- Human muscle (bicycle, trolley) or animal (cart drawn by animals).

#### 2.3.4. Classification by nature of transport: It includes two types (public transport and private transport): [3]

It is a classification that specialists within the field of urban transport designing are involved generally as a result of public and personal transport are thought of to be the foremost important factors within the transport method generally and in urban transport, particularly urban transport above all.

### 2.4. Modern transport systems: [4]

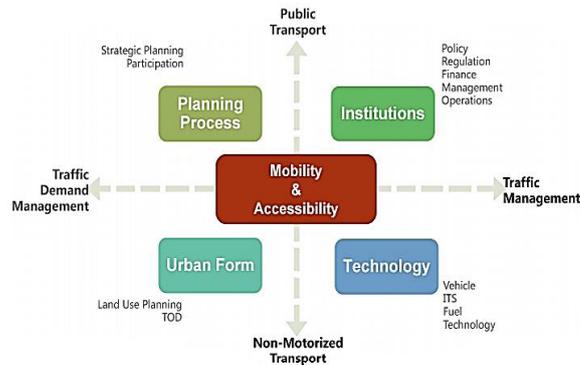
- 1- Sustainable transport system.
- 2- Intelligent transportation system.

### 2.5. Principles of Transportation Systems Planning: [5]

There are two main facts to consider:

- Transport should be planned to serve land uses in a very specific space. This implies taking under consideration however staff reach their work and daily wants, and therefore the flow necessities of raw materials and processed product.
- Transportation different to close neighborhood. However, the necessity for transport will increase once the space separating the relevant land uses will increase. This will increase the price of transport and its environmental impact. Therefore, the place to begin for designing associate degree economical and environmentally property transport system ought to be the land use theme that determines the character, location, density and pattern of land use at intervals the look space. So as to develop this pattern of designing, I'm a lot of doubtless to follow the subsequent principles. Of

course, it's straightforward to say a principle instead of applying it, however once it's understood, there square measure several sources on the way to implement it. [6] (See Figure 2).



**Figure 2.** The navigation and accessibility / Source: The Geographical Encyclopedia 2011

- Principle 1: Protection of agricultural lands and open areas.
- Principle 2: Planning future growth in terms of social unity such as neighborhood, village or settlement.
- Principle 3: Planning green infrastructure.
- Principle 4: Adoption and implementation of the road classification system for roads.

#### 2.6. Sustainable transport:

Sustainable transport was formed as a thought of property development and was wont to describe transport, designing and transportation systems that were according to broader issues for property. There are several definitions of property transport, or connected terms like property transport and property transport (green transportation), that refers to any suggests that of transport that contains a low impact on the atmosphere, as well as non-mechanized transport, hiking, biking, inexperienced vehicles, vehicle participation, construction or protection Urban transport systems that are fuel economical, save area and promote healthy lifestyles. Property transport systems create a positive contribution to socio-economic and environmental property and therefore the communities they serve [7]. Transport systems are found to produce social and economic links; thus, individuals can take the opportunities offered by enlarged quality quickly. The advantages of enlarged quality ought to balance the environmental, social and economic prices of transport systems. Transport systems have vital impacts on the atmosphere, accounting for between two hundredth and twenty fifth of world energy consumption and CO<sub>2</sub>emissions. Gas emissions from the transport sector are growing quicker than the other energy sector. Road transport may be a major contributor to native pollution and air pollution yet. Communities that promote the property of their transport networks are a part of a broad program to form a lot of property and habitable cities [6]. One of the goals of property urban transport is access to a transportation that's affordable, functioning fairly and with efficiency, providing choices in selecting the mode of transport, and supporting a competitive economy and balanced regional development. Scale back emissions and wastes at intervals the planet's capability to soak up them, use renewable resources at or lower production rates, and use non-renewable resources at rates of development of renewable energy alternatives or less, whereas reducing the impact toward land use and noise generation.

### 2.7. Sustainable transport mechanisms: [8]

- Encourage the departure of personal cars.
- Uses of public vehicles and bicycles (activating the general public transport system).
- Activating the roads of the army unit and also the Sable and revive it inside the plans for the event of cities.
- Adoption of recent transport systems and property development-oriented transport system.
- Development of the structural arrange for the transport system and road networks.
- Use of multimodal transport for cargo.
- Adoption of the system of transport management and development.
- Sustainability of the infrastructure of a property transport system.
- The use of air transportation that doesn't rely on fuel.
- Sustainable transport infrastructure (Green).

### 2.8. Fundamental principles of sustainable transport: [9]

- Access insurance.
- Achieving social justice.
- Integrated transport planning: decision-makers within the transport coming up with method have a responsibility to set up, which has systems and solutions that area unit property and integrated among themselves, not simply partial or temporary solutions or systems, through the subsequent steps:
  - Ensure coordination between all public and personal sectors and stakeholders within the coming up with, implementation and operation of transport systems, and transport choices ought to be integrated with the surroundings, health, energy and land use in urban areas.
  - Making choices on the transfer method open and inclusive, and informing the general public regarding transport choices and their implications.
  - Future predictions of the expected social or environmental impacts of the employment of transport and therefore the preparation of the mandatory choices, instead of attempting to deal with them once they occur.
  - Consider all the world and native social, economic and environmental impacts of choices associated with the transport coming up with method, counting on the extent of transportation coming up with and its objectives.
  - Concentrate growth and cut back urban encroachment and supply additional consistent distribution of land use in urban areas, thereby reducing the demand for transport, particularly for personal automobile journeys, by creating the start and finish of the journey confined to identical space through the look of systems Transport that achieves potency in land use and different natural resources.
  - Design of transport systems that provide pedestrian and bicycle routes in urban areas, also as providing alternatives to vehicles for transport, engaging and safe.
- Integrating modes of transport, each for passengers and product, to extend the potency of products movement, also as providing a good vary of transport choices.
- Preservation of historic and archeology sites, noise reduction and audio pollution, once coming up with, planning and building transport networks.

- Prioritize environmental concerns within the coming up with method to scale back environmental pollution, cut back the impact of transport on the surroundings, and suits the wants of conservation of biological diversity.

### 2.9. *Smart City Sustainable:*

People move to urban areas within the hope of recuperating jobs and enjoying the next normal of living. However, the increasing range of migrant staff to cities is overcrowding, swing pressure on restricted resources (such as energy and water) the demand for services like sanitation, health care and education.

Sustainable sensible town is associate innovative town supported the employment of knowledge and communication technologies (ICTs) and alternative means that to enhance the standard of life, potency of processes and concrete services and aggressiveness whereas making certain that the wants of gift and future generations square measurement in terms of economic, social and environmental aspects [10]. Though the role of ICTs has not been absolutely framed, the services which will facilitate this technology square measure acknowledge, like water resource management, energy potency, and transport infrastructure.

### 2.10. *Intelligent Transport Systems:*

Products (such as technologies, services that support intelligent quality, service suppliers, and concrete planning) use period of time information to supply unvaried info. Slowly, people and repair suppliers use sensible technologies within the marketplace; typically shaped from little personal sectors. In some cases, town councils and concrete coming up with authorities attempt to maximize the economic potential of those technologies. [11]

Intelligent transport systems use communication technologies and computer-managed machines and natural philosophy to get info on the performance of transport facilities - roads, streets, transport, and trains - and also the demand for transport and mutual communication between vehicles themselves and between road-based devices, Of the national transport infrastructure by modernizing it to address the data age. Intelligent transport systems can facilitate to supply larger capability and potency while not the entire reliance on the institution of recent transport facilities. [12]

### 2.11. *Intelligent navigation structure and objectives:*

This system can utilize physical infrastructure, operational technologies, communication technologies and information; the total potential of the intelligent quality product won't be realized if one in all the higher than elements fails; as a result it'll not be able to manage the operational potency and meet user needs; Among the elements is a necessary part, and has many objectives including:

- Increase the operational potency of the transport system and increase its capability.
- Improving mobile traffic and convenience levels.
- Improving the extent of traffic safety and economic productivity.
- Reduce energy consumption and cut back environmental impacts.

One of the necessities for the implementation of sensible transport systems in cities is that the existence of a unified national design. The framework chart is that the common framework for the ability of intelligent transport systems that defines the following:

- Functions associated with user services for intelligent transport systems (logical chart)

- Natural elements or subsystems that perform these functions (natural landscape)
- Data communication and knowledge flow between natural subsystems
- Communications necessities related to data flow.

### 2.12. Sustainability and sustainability of cities:

Humans This system can utilize physical infrastructure, operational technologies, communication technologies and information; the total potential of the

intelligent quality product won't be realized if one in all the higher than elements fails; as a result it'll not be able to manage the operational potency and meet user needs; Among the elements is a necessary part, and has many objectives including: [13]

- Increase the operational potency of the transport system and increase its capability.
- Improving mobile traffic and convenience levels.
- Improving the extent of traffic safety and economic productivity.
- Reduce energy consumption and cut back environmental impacts.

One of the necessities for the implementation of sensible transport systems in cities is that the existence of a unified national design design. The framework chart is that the common framework for the ability of intelligent transport systems, that defines the following:

- Functions associated with user services for intelligent transport systems (logical chart)
- Natural elements or subsystems that perform these functions (natural landscape)
- Data communication and knowledge flow between natural subsystems
- Communications necessities related to data flow.

### 2.13. Urban Transport Network:

The transport system is that the common results of the land uses for the aim of transportation. The result's the passage of vehicles and also the horizontal movement of passengers on the transport network. Therefore, it includes roads, capability and capability of every route and intersection, safe and legal speed of every road, the frequency of service on every route and also the price of public and personal transportation. So as to make sure a decent interaction between transport factors, thought should tend to the problem of transport coming up with. Method the method} of transport coming up with is that the process of developing and sustaining data to help higher cognitive process by the transport departments and also the accountable authorities. Transportation will have important impacts on quality, economic development, the setting, government funding and quality of life. Correct coming up with during this space is needed to assist give top quality transport services at reasonable prices with less impact on the setting and to enhance economic activity. On the opposite hand, the absence of transport coming up with ends up in severe traffic jam, retardation economic process, negative environmental impact, waste of public cash and a waste of energy. [14] Access to AN economical transport system may be continuous coming up with task to satisfy needs the wants the necessities} of the movement of individuals And merchandise at tier {the coming up with the design the look} of the great transport among cities is an integral a part of urban planning as a result of it's subject to constant adjustment and development within lightweight of the ever-changing variables and also the totally different requirements of society. By up the city's transport infrastructure, travel demand ought to be reduced to the most extent; this could be achieved by an inventive urban coming up with conception that reduces the distances between necessary installations in everyday life.

An example of property urban coming up with is that the Canadian town of Vancouver, wherever the policy-makers not solely centered ashore use, however conjointly centered on up the standard of life within the town. With the exception of cultivating the town and environment-oriented construction,

the amount of cars among the town has been reduced over the past twenty years despite the growing population. Vancouver is currently one amongst the foremost vivacious cities within the world. The key behind this can be to grant priority to traffic followed by sport, and third use conveyance as a final resort automotive [10].

Moreover, reducing the requirement for quality has a very important social facet, particularly for low-income voters WHO area unit lucky once major facilities like looking malls, health care facilities and education area unit among walking or biking. Another chance of a method of dodging is to encourage telecommuting.

One of the best challenges to urban property is to take care of the vitality of economic activity whereas at identical time reducing the utilization of resources. Several developing cities respond by building infrastructure (roads, railways, bicycle ways, etc.); however, that's not enough. The answer is to maximize the use of the present infrastructure that is to be created by distributing pressure on quality per roads, routes, and time. Here, analysis shows that the transport system is one amongst the pillars of property coming up with for the property and revivification of cities, thus we tend to should march on to know what coming up with and coming up with urban transport within the second axis.

### **3. The second axis - the role of planning in activating the public transport system:**

#### *3.1. Urban planning:*

Urban planning is to try to form a climate that permits communities to seek out the mandatory suggests that to attain associate acceptable living framework for his or her inhabitants that offer comfort and well-being at intervals cities. In general, once property is related to urban designing, it's referred to as property urban designing, that is associate application of property theories and adaptability within the style, management and operation of urban communities. There square measure several organizations that support and examine this approach to urban designing, as well as governmental and non-governmental organizations and skilled establishments round the world. Property designing is related to supposed "environmental cities", conjointly referred to as environmental design, that specifically aims to create cities supported friendly principles of the surroundings whereas cities square measure versatile in style, so resources square measure saved from access through acceptable distribution and use to interchange world consumption of environmental resources in things of disturbance and misdirection. [15], "Green" urban designing has a similar concepts and property designing is shared in its principles. Each specializing in style that's in line with nature, moreover, as forming communities that live a more robust life style. Inexperienced designing principles admit the zero zero framework: Zero energy use of fossil fuels, zero waste and 0 emissions. On the opposite hand, property designing focuses on planning pedestrian cities and providing conveyance services so residents will meet their daily desires.

#### *3.2. Urban transport planning (concept, objectives and requirements):*

The world has witnessed an excellent development within the field of transport improvement, particularly urban transport, in terms of the event of transportation means that and systems on the one hand, and roads, streets and associated facilities, like bridges, tunnels, airports, ports, etc. in the midst of issues the issues} of transport in several of the streets of cities like holdup and traffic accidents and environmental problems related to differing kinds of audio and visual and pollution due to the waste and waste of your time and cash, health and public safety in communities[15].

The urban transport designing method may be a multi-faceted and multi-stage issue, with the aim of

creating the mandatory rules to make sure the permanent stability of transport systems to suit the method of continuous urban development in keeping with specific programs and objectives that, to the extent potential, satisfy the needs of the population to maneuver simply, safely And at an applicable level of service.

### 3.3. *Types of transport planning:*

There square measure many sorts of transport about to replicate the various levels and objectives of the look process: [2]

- Transport plans for a selected scenario or space to work out ways in which to enhance a specific scenario (walking, biking, transport, etc.) or space (campus, center, industrial space, etc.).
- Local transport planning: that is bothered with plans to develop municipal or native transportation among the districts.
- Urban and regional transport designing: a better level planning that focuses on the event of urban and regional integrated transport plans for giant cities.
- Planning of national transport: it's involved with the event of transport plans for an outsized state or variety of provinces, to be enforced by the National Transport Agency.
- Transport improvement plans or operational plans of action to spot specific comes and programs to be enforced.

### 3.4. *Transport objectives and requirements:*

Transport planning consists of various sorts of problems and procedures that adjust in keeping with the amount designing of designing of coming up with} and also the objectives to be achieved. It's going to be so as to find a selected road, associate trade plans its own installation or a main road network at intervals associate geographical area, Transport aiming to meet the national wants of various modes of transport. [16]

some of the everyday goals of urban transport planning:

- Enhancing the flow of traffic and so reducing congestion and the congestion of traffic.
- Reduce the transition time.
- Improving the amount of traffic safety.
- Reducing transportation prices.
- Facilitate access to all or any land uses or facilitate access to a selected a part of the land.
- Increase the frequency of service and increase accessibility.
- Serving the aged, disabled persons with special wants, kid's et al UN agency cannot drive.
- Secure the service below all climatic conditions.
- Preserving or ever-changing existing patterns of land use.
- Reduce environmental pollution (air, water, land, visual and audio).

### 3.5. *Area for urban transport:*

Today, transportation networks and roads represent an outsized a part of town and its important facilities. Roads square measure the arteries of town as a result of them supply them with life. Additionally, town the town town}'s network of streets and their varied patterns and forms contributed to the morphological form and identity of the city. The elements of the transport sector represent thirty second of the entire space of town and thirty seventh of the land in Canada, and within the u. s. of America tater accounts for thirty fourth of the city's area [17]. While Pederson found that 15-25% of town space is allotted to highways and five-hitter of the realm consumed by second transport facilities together with ports and airports. Some issues associated with the transport

and traffic sector in our existing cities: accidents, overcrowding, lack of respect for traffic rules, pollution.

### *3.6. Factors and variables affecting urban transport:*

As a results of the studies associated with the design of transport and concrete traffic, it absolutely was found that there are several urban factors touching the transport sector and therefore the generation of traffic visits, as well as land use within the geographical area and therefore the urban development described by horizontal urban extension or excessive urban density in some regions or cities because of vertical growth in construction , as well as the standard of traffic (internal or external, whether or not it's generated or in force). It is affiliation to the urban road network, its patterns, assimilatory capability and potency in meeting existing traffic desires, Cars at intervals the geographical area, particularly in central places, has been noted that each one through the paragraphs of this study. However, these factors are usually related to some vital variables that have the best impact in generating these factors for daily transport [18]. Many factors (population increase, low income, increase of private vehicles) can be used as indicators indicating the need to use sustainable transport and taking into consideration the sustainable planning of the transport system and its integration with the future urban planning system.

### *3.7. Importance of the transport sector and its role in national planning and comprehensive development:*

The transport sector is taken into account one in every of the foremost necessary sectors of comprehensive development in any of the developed countries. Urban transport coming up with (or questionable urban transport) could be a multi-faceted issue Associate in Nursing is taken into account an integral a part of the urban coming up with method and its development as an entire. It is one in every of the foremost necessary factors for generating journeys [16]. The upgrading of the transport and communication sector is presently one in every of the standards or indicators of the extent of urban development and concrete development, wherever the progress of states is measured by the progress of suggests that and systems of transport within the context of the complementary relationship between it and every one different development sectors, particularly if connected to the existence of advanced transport systems supported intelligent technological applications and trendy systems [19]. Transport is that the mainstay of the economy, wherever the transport sector represents its varied activities as a pillar of progress. It's unthinkable that balanced growth between the economy sectors of a rustic are often achieved while not guaranteeing the transportation wants of those sectors, smart for the transport sector is closely associated with the plans of different economic sectors.

The transport sector additionally contributes to economic development by linking the assembly areas with consumption areas, in securing the movement of people, transporting raw materials and product from and to investment areas. It's additionally an element within the exploitation of natural resources that are usually targeted in remote areas. The most contributions of the transport sector to the event method of a rustic are often summarized as follows: Figure 3.

- Selection of localization of industries that give the economy with the best edges of reducing production, transport and distribution prices.
- Expanding the world of lowland.
- The growth and prosperity of cities and concrete centers.
- Balancing the method of provide and demand of products.

The transportation sector additionally plays a job in influencing social life. The transport sector is taken into account to be the mainstay of the economy and at an equivalent time directly or indirectly

affects the social lifetime of people through the method of communication and alter in social and cultural behavior.

Where transport contributes greatly to social modification among members of society at giant by facilitating social communication between the country and therefore the town, between the country, on the one hand, and between the opposite countries, on the opposite, that contributes effectively to the any development of social development as backward societies square measure closed thanks to the issue of communication with different communities. This is often seen in some societies in Africa and Asia, wherever these communities still live at the extent of primitive man, maybe thanks to the shortage of communication between these isolated human teams and different societies.

### *3.8. Sustainable urban transport and the environment:*

Environmental damage caused by the use of means of transport in all its forms and forms, especially private and public vehicles, is one of the most serious threats to human life (and, in general, threatens the entire planet with all its creatures and its integrated environmental system). And all current and future applied scientists, including what is now known as sustainable transport planning as one of the branches of sustainable development. [18]

### *3.9. Land use and transport:*

The first study by archangel & Perkin of the University of Pennsylvania, 2004, showed that traffic may be a operate of land use which land-use amendment generates differing kinds of traffic movements. Blunden aforementioned that the traffic is that the link between transportation and land use which not only 1 is answerable for generating traffic, however traffic needs the presence of each parts, because the uses of the world generate a particular traffic and transport system conjointly (for example, the creation of a road to a particular space) can generate traffic thereto area and this traffic can successively within the emergence of uses and activities radiotelegraphic signal on the road, like the institution of a mill or traveler activities. The land use theme defines the connection between transport networks, particularly roads, and also the current and planned transportation and use stations for encompassing areas. It conjointly outlines the categories and classification of existing and future road and transport networks within the town as key and powerful parts of development management systems [18]. Urban transportation coming up with and analysis have shown that transport is one among the foremost vital daily parts of individuals. It provides them with movement and movement between places within and outdoors town, and also the economic structure of the society desires transportation facilities and movement expressed within the totally different modes of transport.

Since the transport traffic may be a operate of urban land use, and there's a reciprocal useful relationship between the movement issue and also the alternative uses of the land delineated by the various activities within the town, it's inconceivable to set up and develop the complete space with the coverage of the road set up. Linking them to info on transport, land use, population, economic, social, urban and repair characteristics at intervals the populated area to be planned.

This method needs variety of procedures, together with field surveys, to estimate the dimensions of the variables poignant the relation to move once deviating from the study space to be coated by the transport study.

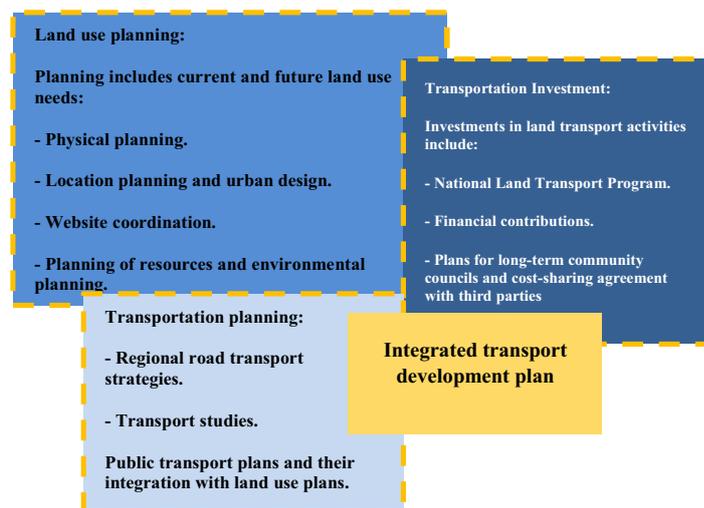
### *3.10. Integration of land uses with transport planning:*

The integration of the land uses with transport coming up with within the program of every town is vital in setting standards to make sure the combination between the distribution of land uses and numerous urban activities and also the development of parts of the transport system in a very method that helps rationalize the utilization of this method and shorten the distances and scale back the utilization of personal vehicles in daily visits [18]. (See Figure 3).

The land use arrange is one in every of the operational mechanisms for the strategy of urban development and property of cities. so as to develop the town decide to suit the growing growth and horizontal growth and avoid the issues of urban travel, a report ought to be ready as well as the look criteria necessary to make sure the combination of land uses with the transport system includes the subsequent steps:

- Reviewing the accessible standards at the instant.
- Organizing a workshop involving the involved parties to develop the town and guarantee its property.
- Characterizeing studies and analysis to ascertain standards for integration.

Characterize studies and research to establish standards for Integration.



**Figure 3.** The integrated plan for the development of the transport sector / Source by the Researchers

### 3.11. Sustainability of existing cities and revitalization:

The existing cities suffer from an absence of basic human living condition. This can be manifested by the dearth of services and therefore the lack of adequate population, like the unfold of diseases, the destruction of infrastructure, the organization of coming up with and housing, the urbanization outside town limits and therefore the lack of management. And therefore, the impact on the daily movement and therefore the emergence of personal transport, that paralytic the movement of conveyance and therefore the neglect of streets and roads of assorted use that function the arteries of town that broadcasts life [19]. In observant the measures taken by the developed countries to take care of the property of their cities and therefore the application of the property mechanism in them to revive life to those cities and to preserve their depleted energies. That is shield cities from environmental pollution and random designing. We discover many major methods that lead North American country to revive our cities and sustain them environmentally, economically and socially, the strategy of control the uses of the land, particularly at intersections of roads, centers of cities,

residential and neighborhoods within and out of doors town. The result of the organization of uses within the method of future designing of cities helps to cut back the distances of the population to supply their desires in mixed use space additionally to activating conveyance to attach between within and out of doors town and its center and neighborhood. Town of random use and designing and so defend them from pollution additionally to increasing their economic returns.

- Public transport strategy.
- Strategy for utilities and services.
- Environmental strategy and environmental property.
- Housing strategy.

Here comes the analysis to attain the premise that the combination of property urban designing with the transport system contains a relationship associated with activating the role of the transport system, and conveyance may be a part of property and broadcast life, reaching its goal to achieve clear methods that may be employed inactivating the transport system to resolve the matter of the deterioration of existing cities and therefore the organization of urban designing and conservation while not resorting to random growth, to be ready to develop a thought to soak up future growth accelerated technologies property.

### *3.12. Mechanisms to be followed to develop the transport sector and the sustainability of our existing cities:*

- Conducting analysis and field studies associated with the transport sector to get the required data for the needs of designing that mirror the truth of urban developments in cities like changes in population density and the reckoning of traffic accidents.
- Separation of movement of vehicles and a spotlight to pedestrian crossings and style in accordance with the standards of health, safety and surroundings.
- Integrative Americas of the land with the transport system within the set up of future urban development of cities attributable to their impact on the come of transport traffic and scale back distances and so encourage the departure of the personal automotive and since of their role in decisive the kinds of transport networks per use and this integration brings us to 1 of the pillars of property cities and Revived.
- To promote conveyance and develop its own systems conterminous with trendy technologies and applications and to fulfill the particular wants of town, as attention to the general public transport sector features a vital role in reducing tie up, attributable to the high assimilative capability that's characterised by successively scale back environmental pollution and scale back of power consumption.
- Review the areas allotted to parking vehicles and use them optimally.
- Improving the network of existing roads and a spotlight to intersections in urban areas and also the continuous maintenance of the transport network per trendy strategies that maintain the continuity of movement throughout maintenance operations.
- The removal of traffic to urban areas, that doesn't have to be compelled to stop within the town or its center to cut back tie up and its harmful effects.

### **4. Practical study: study area (Baghdad – Al-Naser Square / Al-Saadoun Street)**

The study area is located in Baghdad (in the area between Al Saadoun Street and Al Nidhal Street) near Al Tahrir Square, east of Baghdad, to the left of Al Tahrir Square, through Al Rasheed Street to Al Midan Square, Al Saadoun Street, Al Fardous Square and Al Karrada. As in (See Figure 4) The region is experiencing heavy traffic and there are mixed uses (single trade, doctors' clinics, hotels, ticket offices, etc.).



**Figure 4.** The location of the study area (Al-Naser Square - Baghdad)

The area of (Al-Naser Square) previously a position for public transport buses and a place dedicated to it, after keeping pace with the development and increase population growth in addition to the wars that have raged on the country deterioration of the situation of the region and stop public transport and the refugee population to use private cars, creating overcrowding due to the large number of people This area in addition to environmental pollution created by cars and other problems. As in (See Figure 5).



**Figure 5.** The land use in study area (Al-Naser Square - Baghdad)

It is therefore proposed to activate the sustainable public transport system for certain areas of Baghdad and connect them with other regions as a model for the development of other areas as a first step towards the development of sustainable urban planning for Baghdad which in turn depends on the complementarity of the sustainable public transport system and its signature with mixed uses to return efficiency to these degraded areas. In several practical mechanisms, including:

- The proposal to return the public transport system to the study area (Al-Naser Square) because of the importance of the strategy of the link between Rusafa towards Tahrir Square and Karkh on the one hand and the Kahramana square in addition to its connection to the highway (Mohammad Qassim).
- Linking the Victory Square to the field square by means of sustainable public transport stations placed in each yard and preventing the use of private cars in the road connecting the two areas and the use of electric trains or buses instead of cars to create a central hub for public transport in Baghdad.
- Public transport in this area (Al-Naser Square) is necessary because of multiple uses (commerce, clinics, hotels, administrative offices, etc.). Public transport will be an effective tool to reach the region and to stay late at night. Centralization in Baghdad and the solution of part of the traffic momentum and the organization of urban and environmental.
- The area of study within the areas included in the future (Baghdad Metro) project, as stated in the plan of the Municipality of Baghdad will facilitate the application of the proposal in the future and the application of sustainability, as in (See Figure 6).



Figure 6. Shown the Proposal Design

## 5. Conclusion:

- Improving the standard of life and also the social cohesion of the population is that the real essence of urban development and also the property and revival of cities.
- Encouraging and developing the suggests that of mass transport, that are positive within the pollution, increase the potency of roads, and increase the potency of the pedestrian system, particularly within the residential and business areas.
- Setting strict laws concerning the protection of the surroundings and also the rationalization of energy consumption as a result of it contributes to the property of cities.
- Keeping pace with the world development within the transport sector and following the experiences of different countries within the property of transport.
- Integrity between land use and transport system is one in all the pillars of urban property.
- Encourage the departure of personal vehicles as a result of this may facilitate environmental and

social property additionally to the revival of cities by transport.

- Reduce the utilization of gear harmful to the surroundings and conservation and protection of environmental resources.
- Enhancing the potency of transport systems helps to unfold life in cities.

## 6. References:

- [1] Abdel Moneim, Ali Mohamed, 1994. *Transport and Traffic Engineering (Principles of Transport Planning and Urban Traffic)*, University Salary House.
- [2] Khalil Ahmed, 1998. *Design and Engineering Planning for Urban and Cellular Roads*, University Salary House.
- [3] Mohammed Tawfiq, 1999. *Introduction to Transportation Engineering*, King Saud University Press.
- [4] Clarkson, 2010. *Road Engineering*, (translation by Dr. Ali Suleiman Hazin et al.), Publisher John Dar and Sons, New York.
- [5] Zine El Abidine Ali, 2000. *Principles of urban transport planning*, Dar Safa for Publishing and Distribution, Amman.
- [6] Sabah Mahmoud, 2002. *The Introduction to Urban Transport Planning*, Al-Warraq Foundation for Publishing and Distribution Amman / Jordan.
- [7] Kamouna, Haidar, 2010. *The importance of the transport sector and traffic in economic and social development*, research published on the website of the newspaper Mada.
- [8] Bulqawas, Ibtisam, 2014. *Intelligent Transport Systems Technology as a Strategy for the Development of the Transport Sector*, *Journal of Economic Perspectives*.
- [9] *Guiding Principle for Sustainable Transportation*, The Global Development Research Center, 1996.
- [10] Pederson, E.O., 1980, "*Transportation in Cities*", Pergamon Press offices, New York, USA, 2000.
- [11] *Development of Transport and Communication*, Research published on Science Road, 2011.
- [12] Kamouna, Haidar, 2007. *The Relationship between Urbanization and the Evolution of Services* published in the *Journal of Social Sciences*.
- [13] Elhamy, Mohamed Atef, 2001. *Urban Development and Future City*, Faculty of Engineering Conference, Cairo University.
- [14] Al-Fayez, Abdullah Ibrahim, 2007. *Town Planning and Problems of Energy Dependence is a Must*, Research published in the *Economical Journal*.
- [15] Todd Littman, 2008. *Introduction to Multi-Modal Transportation Planning Principles and Practices*, Transport Policy Institute.
- [16] Fawzan, Fahd Bin Khalid, *Transport Sector and its role in economic development*, research published on the Internet at the following link: <http://www.suhuf.net.sa/2001jazhd/jun/26/ec.htm>
- [17] *The Transportation Planning Process: Key Issues – Part-1*, Federal Highway Administration, Federal Transit Administration Updated September 2007 Publication Number: FHWA-HEP-07-039
- [18] Mustafa Abdul Jalil, 2008. *The Interrelationship between Land Use and the Network of Traffic and Roads*, *Journal of Planning and Development*.
- [19] Salem, Mohamed Tawfiq, 1985. *Transport and Traffic Engineering*, University Salary House.