# ASSESSING PROSPECTS AND CHALLENGES OF TRUCK TRANSIT PARKS MANAGEMENT IN NIGERIA

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**Abstract**
*The importance of truck transit parks or facilities cannot be overemphasized. This is because these facilities provide rest for drivers and vehicle maintenance services with a view to reducing accidents. In Nigeria, there is inadequate truck transit parking facilities for articulated vehicles and other long distance vehicles due to inefficient parking management practice. This has posed a lot of logistical challenges. This study assesses the prospects and challenges of truck transit parks/facilities in Nigeria based on the following objectives: the identification of truck transit parking management concepts, determination of the challenges hindering truck transit parking management practice and determination of the benefits of truck transits/facilities. A total of 300 questionnaires were administered to consultants, contractors, clients, commuters, drivers and transporters. One hundred and eighty questionnaires were returned representing 60% valid response rate and subsequently analyzed using descriptive and inferential statistics with the aid statistical package for social sciences (SPSS) software. The study determines the following: Facility costs: increased development and operating costs for parking facilities, Environmental impacts: loss of green space, air pollution, Sprawl: encouraging dispersed, urban fringe development, and discouraging multi-model, Inequity: distribution of costs, including cost burdens on people who do not use parking facilities among others as the problems hindering truck transit parking management practice in Kaduna. The benefits of truck transit parking management determined in this study include: Reduce accidents, support transit, support equity objectives, revenue generation and improved service qualityamong others.It can be deduced that challenges determined in this study affect or hinder TTP management practice. Conclusively, the benefits of TTP management practice determined in this study can only be achieved if suitable TTP management strategies are employed. Adopting suitable strategies for TTP management practice will help in mitigating these challenges determined in this study. In a nutshell, the current truck transit parks management practice is faced with some problems which in turn affects its practice. Conclusively, the benefits of TTP management practice can only be achieved if suitable TTP management strategies are employed.*
**Keywords***: Truck Transit Parks, Transportation, Logistical Challenge, Parking Management Benefits*

## INTRODUCTION

It is a recognised fact that infrastructural development is grossly inadequate in Nigeria relative to the nation's requirements. Nigeria is currently ranked the 119th out of 131 nations based on the state of its infrastructure. It is estimated that the country needs about USD15 billion annually over the next six –ten years to finance the shortage in her infrastructural requirements in order to achieve sustainable infrastructure (Jolaoso, Musa & Olatinwo, 2013). There is no doubt that infrastructure is the key component of the investment climate, leading to reduced costs of doing business and enabling people to access markets (Oyedele 2012). Infrastructure typically refers to the physical, technical and organisation structures that support and sustain societal living conditions, such as roads, water supply, sewers, power plants, electrical national grids, telecommunications, transportation and buildings needed to provide the commodities and services (Filmer, 2009; Montgomery 2015). Truck transit park is one of the critical infrastructure that drives economic growth in many nations by enabling easy trade, services and manufacturing (Montgomery, 2015). While in developing economies, investment in infrastructure is vital for

poverty reduction (Fay et al., 2011; Nuramo &. Haupt, 2017).The importance of truck transit parks of facilities cannot be overemphasized. This is because these facilities provide rest for drivers and vehicle maintenance services with a view to reducing accidents, and other social and economic benefits.

Parking facilities that serve multiple destinations are efficiently regulated or priced to favor higher value users (for example, delivery vehicles and customers over commuters and residents) tend to be efficiently used. Often, city officials presume that the provision of more parking spaces for the citizens means meeting the mobility needs. On the contrary, every car that is on the road needs a place to be parked: it is a key issue in almost all urban areas and some highways.The current parking planning practices are inefficient, resulting in economically excessive parking supply, increased automobile traffic, and more dispersed destinations, contributing to various economic, social and environmental problems. Furthermore, other problems faced in this area include high traffic and over congestion. So in view of the foregoing, this paper aims to assess the prospects and challenges of Truck Transit Parks (TTP) in Nigeria based on the following objectives: the identification of truck transit parking management concepts, determination of the challenges hindering truck transit parking management practice and determination of the benefits of truck transits/facilities Nigeria.



*Plate. 1.1: Izuwa (Current situation of Truck Parking Management Practice in some places Nigeria). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*



*Plate. 1.2: Izuwa (Current situation of Truck Parking Management Practice in some places Nigeria). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*




*Plate. 1.3: Izuwa (Current situation of Truck Parking Management Practice in some places Nigeria). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*



*Plate. 1.4: Izuwa (Current situation of Truck Parking Management Practice in some places Nigeria). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*

## Literature Review

### Introduction

**Parking Management** is a general term for strategies that encourage more efficient use of existing parking facilities, reduce parking demand and shift travel to non- Single-Occupant Vehicle (SOV) modes (Seattle Urban Mobility Plan Report, 2008). Parking management refers to various policies and programs that result in more efficient use of parking resources (Barter 2014).

Managing parking helps to reduce the undesirable impacts of parking demand on local and regional traffic levels and the resulting impacts on community liveability and design. At the same time, smart management of parking helps to ensure access to retail businesses, provides access for visitors to regional and neighbourhood attractions and supports neighbourhood vitality. The supply of free or inexpensive parking at the final destination is a key decision factor cited for choosing to drive a personal auto rather than taking bus, bike, walk or carpool. And, when free or inexpensive parking is offered, it leads to overuse, often by long-term or all-day parkers who occupy valuable spaces at the expense of short-term parkers, limiting access to retail businesses and service industries catering to short-term users(i.e. healthcare and medical services).Parking demand that exceeds supply results in the common phenomenon of "circling"—cars going round and round the local area searching for limited parking, leading to more congestion and delay. Cost-effective parking management programs can usually reduce parking requirements by 20-40% compared with conventional planning requirements, providing many economic, social and environmental benefits.

A look at several recent studies show that "parking search" traffic accounts for between30% and 45% of all traffic in dense urban districts(see sidebar). Therefore, parking management is integral to any transportation demand management program.

**Parking Management Principles**

These ten (10) general principles can help guide planning decision to support parking management.

i. Consumer choice. People should have viable parking and travel options.
ii. User information. Motorists should have information on their parking and travel options.
iii. Sharing. Parking facilities should serve multiple users and destinations.
iv. Efficient utilization. Parking facilities should be sized and managed so spaces are frequently occupied.
v. Flexibility. Parking plans should accommodate uncertainty and change.
vi. Prioritization. The most desirable spaces should be managed to favour higher-priority uses.
vii. Pricing. As much as possible, users should pay directly for the parking facilities they use.
viii. Peak management. Special efforts should be made to deal with peak-demand.
ix. Quality. Parking facility quality (aesthetics, convenience, safety, etc.) is as important as quantity.
x. Comprehensive analysis. All significant costs and benefits should be considered in parking planning.

Litmann, (2019)

**Parking Management Benefits**

i. *Facility cost savings.* Reduces costs to governments, businesses, developers and consumers.
ii. *Improved service quality.* Many strategies improve service quality by increasing consumer options, reducing congestion, improving user information, and creating more attractive facilities.
iii. *More flexible facility location and design.* Parking management gives architects, designers and planners more ways to address parking requirements.
iv. *Revenue generation.* Some management strategies generate revenues that can fund parking facilities, transportation improvements, or other important projects.
v. *Reduces land consumption.* Parking management can reduce land requirements and so helps preserve green space and other valuable ecological, historic and cultural resources.
vi. *Supports mobility management.* Parking management is an important component of efforts to encourage more efficient transportation patterns, which helps reduce problems such as traffic congestion, roadway costs, pollution emissions, energy consumption and traffic accidents.
vii. *Supports Smart Growth.* Parking management helps create more accessible and efficient land use patterns, and support other land use planning objectives.
viii. *Improved walkability.* By allowing more clustered development and buildings located closer to sidewalks and streets, parking management helps create more walkable communities.
ix. *Supports transit.* Parking management supports transit oriented development and transit use.
x. *Reduced storm water management costs, water pollution and heat island effects.* Parking management can reduce total pavement area and incorporate better design features.
xi. *Supports equity objectives.* Management strategies can reduce the need for subsidies, improve travel options for non-drivers, and increase affordability for lower-income households.
xii. *More liveable communities.* Parking management can help create more attractive and efficient communities by reducing paved areas, increasing
xiii. Walkability and allowing more flexible design.

Litmann (2019).

**Problems of TTP Management Practice**

i. *Parking congestion.* Too many vehicles trying to use available parking facilities.
ii. *Spill over.* Problems from motorists parking where they are not wanted.
iii. *Facility costs.* Increased development and operating costs for parking facilities.
iv. *Traffic congestion.* Too many vehicles for existing road capacity.
v. *Inequity.* Distribution of costs, including cost burdens on people who do not use parking facilities, and the quality of accessibility options for `disadvantaged people.
vi. *Tax costs.* Tax burden required to subsidize parking facilities.
vii. *Environmental impacts*. Loss of green space, storm water management costs, air pollution, unattractive landscapes.
viii. *Sprawl.* Encouraging dispersed, urban fringe development, and discouraging multi-modal, urban infill development.
ix. Rate of accidents.

***Paradigm Shifts and Innovations***

Parking planning is undergoing a paradigm shift, a fundamental change in how problems are perceived and solutions evaluated (Belmore, 2019; Economist, 2017). The old paradigm assumed that "transportation" means driving, parking lots should almost never fill, parking costs should be borne indirectly by governments and businesses, and every destination should satisfy its own parking needs. It assumed that the goal is to maximize parking supply and minimize prices.

The new paradigm strives to provide optimal parking supply and price. It assumes that transportation can include multiple modes and not everybody drives. It considers too much supply as harmful as too little, and prices that are too low as harmful as those that are too high. The new paradigm strives to use parking facilities efficiently. It considers full lots to be acceptable, provided that additional parking is available nearby and any spillover problems are addressed. It favors charging parking facility costs directly to users, and providing financial rewards to people who reduce their parking demand.

The old paradigm places a heavy burden of proof on innovation. The new paradigm recognizes that transport and land use conditions evolve, so parking planning practices need frequent adjustment. It shifts the burden of proof, allowing new approached to be tried to test their effectiveness, or lack thereof. Table 2.1 compares old and new parking paradigms.

**Table 2.1 Old and New Parking Paradigms Compared**

| **Old Paradigm** | **New Paradigm** |
|---|---|
| *Parking problem* means inadequate parking supply. | There can be many types of parking problems, including inadequate or excessive supply, too low or high prices, inadequate user information, and inefficient management. |
| *Transportation* means driving. | Travellers may use various modes. Not everybody drives. |
| Abundant parking supply is always desirable. | Too much supply is as harmful as too little. |
| All parking demand should be satisfied on-site. | Parking can often be provided off-site, allowing sharing of parking facilities among various destinations. |
| Motorists should not be forced to walk to their cars. | |
| Parking should generally be provided free, funded indirectly, through rents and taxes. | As much as possible, users should pay directly for parking facilities. |
| Parking should be available on a first-come basis. | Parking should be regulated to favour higher priority uses and encourage efficiency. |
| Parking requirements should be applied rigidly, without exception or variation. | Parking requirements should reflect each particular situation, and should be applied flexibly. |
| Innovation faces a high burden of proof and should only be applied if proven and widely accepted. | Innovations should be encouraged, since even unsuccessful experiments can provide useful information. |
| Parking management is a last resort, to be | Parking management programs should be widely |

| | |
|---|---|
| applied only if increasing supply is infeasible. | applied to prevent parking problems. |
| Land use dispersion (sprawl) is acceptable or even desirable. | Dispersed, automobile-dependent development can be harmful |

***Source: Litmann (2019).***

The old paradigm results in predict and provide planning, in which past trends are extrapolated to predict future demand, which planners try to satisfy. This often creates a self-fulfilling prophecy, since abundant parking supply increases vehicle use and sprawl, creating a cycle of increased automobile dependency, as illustrated in Figure 2.1.

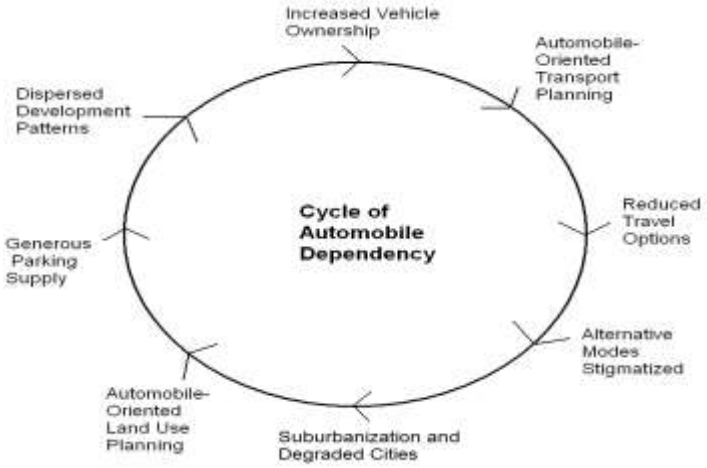



*Figure 2.1 Cycle of Automobile Dependency: Generous parking supply is part of a cycle that leads to increased automobile dependency. Parking management can help break this cycle.*



*Plate. 2.2: Izuwa (Modern TTP Facility). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*



*Plate. 2.3: Izuwa (Modern TTP plus Logistics Park). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*



***Plate**. 2.4: Izuwa (Modern TTP plus Logistics Park). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*



*Plate. 2.5: Izuwa (Modern TTP plus Logistics Park). From Infrastructure Concession Regulatory Commission, Nigeria (2018).*

**Improve User Information and Marketing**

User information refers to information for travelers about parking availability, regulations and price, and about travel options, such as walking, ridesharing and transit. Many parking problems result in part from inadequate user information. User information can be provided by signs, maps, brochures, websites, and electronic guidance systems (Poon, 2018). Advanced parking management systems that provide real-time information on parking availability and price can increase motorist satisfaction, increase parking space utilization and encourage shifts to alternative modes (Kimbler, 2010).

Local governments can produce brochures and websites that identify the location of parking facilities, indicate parking prices, describe parking planning and management activities, explain parking regulations, describe opportunities for citizen involvement, and answer other common questions about parking issues. An access guide is a document that provides concise, customized information on how to reach a particular destination, including information on parking options. Parking information can be incorporated into other visitor materials, such as event announcements, yellow pages and newspaper advertisements. All materials should have parking program contact information, such as a telephone number or website.

User information is one component of marketing. Marketing is concerned with determining consumer needs and preferences, and providing suitable information and encouragement to help achieve an objective. It involves studies to help understand consumer needs, preferences and attitudes, plus barriers and opportunities for changing parking and travel behavior. It can also involve outreach campaigns to involve stakeholders in parking planning activities. Marketing can help planners anticipate and address possible objections to parking management. It is often useful to educate the public about the full costs of expanding parking supply, and the benefits of parking management programs, to help build community support for innovations.

**Summary**

Management and maintenance of today's truck transit parks/facilities present many challenges. The approach to truck transit parks management and maintenance is increasingly influenced by emerging factors, measures, strategies and management systems among others.
Other trends that will probably influence future management and maintenance practices in this field include increased attention to determination of strategies, frameworks as well as determination of suitable procurement approaches/methods towards achieving desired goal.

**Gap/Outstanding issue**

The current parking planning practices are inefficient, resulting in economically excessive parking supply, increased automobile traffic, and more dispersed destinations, contributing to various economic, social and environmental problems. There are many reasons to use management strategies that result in more efficient use of parking resources, in order to address parking problems without expanding supply.

**Research Methodology**

**Research Approach**

A quantitative research approach was employed using questionnaire survey for this study. Quantitative research deals with the collection and analysis of data in numeric form or nature (Hughes, 2006). The questionnaire survey helped in getting the needed data for the purpose of actualizing the research objectives by evaluating the data using suitable statistical analytical tools.

Fellows and Liu (1999) stated that quantitative research approach is suitable for collecting data and in examining relationships between facts and help in linking those facts with theories and findings of any research carried out. It deals with measurable and quantifiable issues under research. Furthermore, it also deals with aspects for the measurement of quantity and amount (Eboh, 2009). Quantitative research approaches used scientific techniques to obtain measurements (quantified data) from social surveys such as; questionnaires, interview surveys, telephone survey, etc. Lastly, reason of adopting quantitative research approach was to help in achieving the research objectives.

**Data Collection Method**

In order to achieve the aim of this research, data was collected via the following:

***Literature review:***
The research first started with the review of relevant literature. Specifically, extensive literature review on Truck Transit Parks' Management concepts was carried out. This was done purposely to compile the list of benefits and challenges established around the globe for TTP management. The review focused on primary sources of data such as journal articles and conference papers.

***Questionnaire survey***
Having identified theof benefits, strategies and challenges generally, the benefits, strategies and challenges identified were used to construct a structured questionnaire used for field survey. The questionnaire survey assessed the challenges and benefits of Truck Transit Parks management in Nigeria. Naom (1998), Enshassi et al. (2010) stated that the questionnaire is a widely used approach for descriptive and analytical surveys to find out the facts, opinions and views of respondents. Questionnaires are structured in a precise and concise way in order to avoid ambiguity and checked for expression. Another reason for chosen questionnaire survey is because it offers researchers the opportunity to reach a large number of potential respondents in different locations (Russell, 2006). In general, questionnaire survey helps in collecting information on facts, activities, level of knowledge, opinions, expectations and aspirations, membership of various groups, and attitudes and perceptions relevant to the study (Siniscalco and Auriat, 1998).

**Population of the Study**
A finite population is a collection of a known number of identifiable units. In this case, the known number is called the population size. The population of this study, therefore, consists of six (6) categories of respondents; consultants, contractors, clients, commuters, drivers, and transporters that are concerned with truck transit parks design, construction, management and maintenance.

**Sample**
Inferences about the population can be made on the basis of a properly designed and well selected sample. A sample is a fraction or a subset of the population. Samples are usually drawn with the aim of estimating the population parameters. Sampling is the act of drawing samples from the population which essentially saves time and cost. Usually some units are selected from the entire units of the population. In this case, the selected units are called the sample size.

Moreover, in this research, samples were drawn from the target population based on a statistically determined, efficient sample size so as to estimate some parameters of the population. The estimated population quantities were then used to assess the prospects and challenges of Truck Transit Parks management in Nigeria.

**Sample Size Determination**
The determination of sample size is a common task for many empirical researchers. Inappropriate, inadequate, or excessive sample sizes continue to influence the quality and accuracy of research. A formula for selecting the sample size for a research problem based on a level of significance and a chosen margin of error was proposed by (Levy &Lemeshow, 2008).

**Stratified Random Sampling**
Stratified random sampling was used in determining of the sample size. This is because the population of the study is not known. In stratified random sampling, the population units are divided into a number of strata. Samples of predetermined sizes are drawn independently from each stratum by simple random sampling. Since a stratified random sampling consists of units selected separately from each stratum (respondents' category), such a sample is expected to be better representation of the population (Levy &Lemeshow, 2008). The following table summarizes the sample allocation in this stratified random sampling:

**Table 3.1: Sample Sizes in Each Stratum**

| Strata (Type of Respondents) | Sample size |
|---|---|
| Clients | 50 |
| Consultants | 50 |
| Contractors | 50 |
| Drivers | 50 |
| Transporters | 50 |
| Commuters 50 | |
| Total | 300 |

**Result, Analysis and Discussions**

**RESULTS**

**Survey Results**

**Responses**

A total of three hundred (300) questionnaires were distributed to some stakeholders (clients, contractors, consultants, drivers, transporters and commuters) of truck transit parks management. In all, a total of one hundred and eighty (180) valid questionnaires were retrieved from the survey representing 60% effective response rate.

**Characteristics of respondents**

***Type of Respondents***

The frequency for the survey is as follows: twenty-nine (29) form the response from Clients representing 16.11%, twenty-seven (27) form response from Consultants representing 15%, and twenty-four (24) form response from Contractors representing 13.33%, forty-one (41) form response from Drivers representing 22.78%, twenty-eight (28) form response from Transporters representing 15.55%, thirty-one (31) form response from Commuters representing17.23%.

Distribution of data collection on respondents' type/status involved in truck transit parks management practice shows reasonable response from each category of respondents. This is because each category of respondents' response forms more than 50% of questionnaire they receive.

***Respondents' Experience in Truck Transit Parks Management Business:***

The distribution of data collection on respondents' experience is as follows: 5-15years form 33%; 16-25years form 35.56% ; 26-35years form 31.44%. Survey on respondents' experience shows that majority of them are conversant with TTP management practice.

**Determining the challenges hindering Truck Transit Parks management practice in Nigeria**

To determine the challenges hindering Truck Transit Parks management, the challenges identified in literature were examined. The severity for each of the challenge was determined using the criteria established and discussed earlier. The assessment of the TTP was done based on the challenges affecting TTP management practice. The results of the assessment are provided below.

The rating scales for mean values are as follows: 0-1.49= Not Severe (NS), 1.5-2.4= Least Severe (LS), 2.5-3.4= Fairly Severe(FS), 3.5-4.4= Severe(S), 4.5-5.00 = Very Severe(VS)

**Table 4.1: Challenges hindering TTP management practice in Nigeria**

| S/No. | Challenges | Mean | Std. Deviation | Ranking | Remarks |
|---|---|---|---|---|---|
| 1 | Facility costs: increased development and operating costs for parking facilities | 4.645 | 0.0389 | 1 | VS |
| 2 | Environmental impacts: loss of green space, air pollution | 4.631 | 1.1 | 2 | VS |

| S/No. | Challenges | Mean | Std. Deviation | Ranking | Remarks |
|---|---|---|---|---|---|
| 3 | Sprawl: encouraging dispersed, urban fringe development, and discouraging multi-model | 4.587 | 0.0756 | 2 | VS |
| 4 | Inequity: distribution of costs, including cost burdens on people who do not use parking face | 4.468 | 1.3189 | 3 | VS |
| 5 | Parking congestion | 4.308 | 0.9843 | 4 | S |
| 6 | Poor vehicle maintenance | 3.922 | 0.1022 | 5 | S |
| 7 | Squatter settlements | 3.8 | 1.3405 | 6 | S |
| 8 | Spillover: problems from motorists where they are not wanted | 3.681 | 0.0924 | 7 | S |
| 9 | Rate of accidents | 3.605 | 0.0904 | 8 | S |
| 10 | Tax costs: tax burden required to subsidized parking facilities | 3.480 | 0.3413 | 9 | FS |
| 11 | Traffic congestion | 3.266 | 0.2072 | 7 | FS |
| 12 | Driver fatique | 3.145 | 0.0946 | 8 | FS |
| 13 | High way shoulder defacing | 3.304 | 1.8354 | 9 | FS |

***Source:*** *Research survey (2020).*

**Determining the benefits of Truck Transit Parks management practice**

To determine the benefits of Truck Transit Parks management practice, the benefits identified in literature were examined. The importance of each of the benefits was determined using the criteria established and discussed earlier. The assessment of the benefits was done based on the respective truck transit management. The results of the assessment are provided below.

The rating scales for mean values are as follows: 0-1.49= Not Important (NI), 1.5-2.4= Least Important (LI), 2.5-3.4= Fairly Important (FI), 3.5-4.4= Important (I), 4.5-5.00 = Most Important (MI).

**Table 4.2: Benefits/prospects of TTP management practice**

| S/No. | Benefits | Mean | Std. Deviation | Ranking | Remarks |
|---|---|---|---|---|---|
| 1 | Reduce accidents | 4.761 | 0.3855 | 1 | MI |
| 2 | Supports transit | 4.68 | 0.2324 | 2 | MI |
| 3 | Support equity objectives | 4.68 | 0.2208 | 2 | MI |
| 4 | Revenue generation | 4.591 | 0.2137 | 3 | MI |
| 5 | Improved service quality | 4.542 | 1.4917 | 4 | MI |
| 6 | Supports mobility management | 4.481 | 0.4082 | 5 | I |
| 7 | Facility cost savings | 3.871 | 0.0199 | 6 | I |
| 8 | Revenue generation | 3.871 | 0.2071 | 6 | I |
| 9 | Supports Smart Growth | 3.557 | 1.0426 | 7 | I |
| 10 | Reduced storm water management costs, water pollution | 3.380 | 1.8515 | 8 | LI |
| 11 | More liveable communities | 3.369 | 0.1214 | 9 | LI |
| 12 | Reduces land consumption | 3.45 | 0.0880 | 10 | LI |
| 13 | Improved walkability | 3.309 | 1.359 | 11 | LI |
| 14 | More flexible facility location and design | 3.309 | 1.440 | 11 | LI |
| 15 | Walkability and allowing more flexible design | 3.180 | 0.5569 | 12 | LI |

***Source:*** *Research survey (2020)*

**Testing respondents' extent of differences on the severity of the challenges of TTP management practice in Nigeria and importance of the benefits of TTP management practice established**

To test whether significant differences exist in terms of the opinions of the respondents regarding the severity or otherwise of the challenges of TTP management practice in Nigeria, and importance of TTP management practice, Analysis of Variances (ANOVA) was employed. The study assumed a normally distributed sample. The ANOVA test results was interpreted using the following:

a. If P-value is 0.05 and above, this implies that there is a Significant Difference (SDf) in ranking among respondents. In a nutshell, the ranking is in disagreement
b. If P-value is <0.05, this implies that there is No Significant (NDf) difference in ranking between or among respondents. In a nutshell, the ranking is in agreement

**Table 4.6: Respondents' extent of differences in opinion on the challenges hindering TTP management practice in Nigeria established**

***Interpretation of P-values: Significant Difference= SDf, No Significant Difference= NDf***

| S/No. | Challenges | P-value | Remarks |
|---|---|---|---|
| 1 | Facility costs: increased development and operating costs for parking facilities | 0.012664 | NDf |
| 2 | Environmental impacts: loss of greenspace, air pollution | 1.660892 | SDf |
| 3 | Sprawl: encouraging dispersed, urban fringe development, and discouraging multi-model | 0.022937 | NDf |
| 4 | Inequity: distribution of costs, including cost burdens on people who do not use parking facility | 0.879022 | SDf |
| 5 | Parking congestion | 0.064454 | SDf |
| 6 | Poor vehicle maintenance | 0.036678 | NDf |
| 7 | Squatter settlements | 1.977034 | SDf |
| 8 | Spillover: problems from motorists where they are not wanted | 0.053809 | NDf |
| 9 | Rate of accidents | 0.045127 | NDf |
| 10 | Tax costs: tax burden required to subsidized parking facilities | 0.035701 | NDf |
| 11 | Traffic congestion | 0.027029 | NDf |
| 12 | Driver fatique | 0.612775 | SDf |
| 13 | High way shoulder defacing | 1.835021 | SDf |

**Source:** Research survey (2020).

**Table 4.6: Respondents' extent of differences in opinion on the benefits of TTP management practice established.** ***Interpretation of P-values: Significant Difference= SDf, No Significant Difference= NDf***

| S/No. | Benefits | P-value | Remarks |
|---|---|---|---|
| 1 | Reduce accidents | 0.0221385 | NDf |
| 2 | Supports transit | 0.5683612 | SDf |
| 3 | Support equity objectives | 0.0043937 | NDf |
| 4 | Revenue generation | 0.8046028 | SDf |
| 5 | Improved service quality | 0.0284644 | NDf |
| 6 | Supports mobility management | 0.0469121 | NDf |
| 7 | Facility cost savings | 0.0117034 | NDf |
| 8 | Revenue generation | 0.0578029 | NDf |
| 10 | Reduced storm water management costs, water pollution | 0.8357021 | SDf |
| **S/No.** | **Benefits** | **P-value** | **Remarks** |

| | | | |
|---|---|---|---|
| 11 | More liveable communities | 0.0111029 | NDf |
| 12 | Reduces land consumption | 0.0333775 | NDf |
| 13 | Improved walkability | 0.8357021 | SDf |
| 14 | More flexible facility location and design | 0.9357021 | SDf |
| 15 | Walkability and allowing more flexible design | 0.3522223 | SDf |

**Source:** Research survey (2020).

**Discussion of Findings**

**Challenges Hindering TTP Management Practice in Nigeria**

The results in table 4.1 show the TTP management challenges that were determined in order of their severity to include: ***facility costs****: increased development and operating costs for parking facilities, environmental impacts: loss of greenspace, air pollution,* ***Environmental impacts:*** *loss of greenspace, air pollution,* ***sprawl****: encouraging dispersed, urban fringe development, and discouraging multi-model,* ***Inequity****: distribution of costs, including cost burdens on people who do not use parking facilities.* These challenges are considered very severe and significantly hinder or hamper TTP Management practice in Nigeria. This is because ratings on the severity of those challenges are within the range of 4.5 – 5.00.

However, the respondents considered these two remaining challenges (driver fatique and highway shoulder defacing) as severe and fairly severe because their ratings are within mean values of 2.5-4.4. These challenges also hinder TTP management practice.

**Benefits of TTP management practice**

The results in table 4.2show the TTP management benefits in order of their importance to include: *Reduce accidents, support transit, support equity objectives, revenue generation* and *improved service quality.* The foregoing are considered as the major or most important benefits of TTP Management practice. This is because ratings on the importance of those benefits are within the range of 3.5 – 4.4.

However, the respondents considered the remaining benefits of TTP management practice as important and fairly important because their ratings are within mean values of 2.5-4.4. These benefits are:

The results determined in this study show that all the challenges are severe in hindering TTP management practice and that conforms to assertions by (Litmann, 2019). Furthermore, the results also showed that these benefits can be derived in an effective TTP management practice and it conforms with assertion by (Victoria Transport Policy Institute, 2019).

**Conclusion**

The current truck transit parks management practice in Nigeria is bedeviled with some challenges which affect or hinder TTP management practice. The challenges determined in this study increased automobile traffic and accidents, encourage and disperse urban fringe development among others which contribute to various economic, social and environmental problems. Conclusively, the benefits of TTP management practice determined in this study can only be achieved if suitable TTP management strategies are employed.

**Recommendations**

i. Adopting suitable strategies for TTP management practice will help in mitigating these challenges determined in this study.
ii. There should be an effective collaboration among the key stakeholders in TTP management practice so that the TTP benefits determined in this study can be derived.
iii. There should be government legislation that forces drivers to stop for compulsory rest.
iv. Safer and befitting trucks transits facilities are needed.

**Recommended Area for Further Studies**

Subsequent work in this subject area should determine effective strategies that will enhance TTP management practice.

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