PATNA SMART CITY LIMITED

Addresss: 5th floor, Biscomaun Bhawan, Patna-800001, Email: patnasmartcity.pscl@gmail.com
Website: smartpatna.co.in

Extension of time of NIQ/RFQ: NIQ-04/MD/PSCL/2021-2022

(for determining rates)

Date-26.04.2021

The last date of submission of quotations in **RFQ No. NIQ-04/MD/PSCL/2021-22** for determining non SOR rates for **IOT Based Fully Automatic Multi-level Ca Parking and Semi-automatic Puzzle Parking** in extended up to 10.05.2021. Other conditions of RFQ/NIQ shall remain unchanged.

26/4/2021

Managing Director
Patna Smart City Limited

ज्ञापांक 3588, पटना, दिनांक– 26/04/2021 ई०।

...ों दोनों के लिए डिजाइन
...निम लैब्स सब-ब्रांड के
...के लिए ...
...को अपना ब्रॉन्ड अम्बेस्डर बनाया है। ...है।

Govt. of Bihar

PATNA SMART CITY LIMITED

Addresss: 5th floor, Biscomaun Bhawan, Patna-800001,
Email: patnasmartcity.pscl@gmail.com
Website: smartpatna.co.in

SHORT NOTICE INVITING QUOTATION

(for determining rates)

RFQ No.- NIQ-04/MD/PSCL/2021-22

Quotationsare invited by Patna Smart City Ltd. (PSCL) for determining rates of non SOR itemsrelated to **"IOT Based Fully Automatic Multi-Level Car Parking andSemi-automatic Puzzle Parking"**at centrally located areain Patnalatest by 17:00 hours on30.04.2021. The detailed specificationsetc.will be uploaded on PSCL website: www.smartpatna.co.in which can be referred to before providing quotation by e-mail to patnasmartcity.pscl @gmail.com.Alternately, if hard copies are submitted it shall reach PSCL office in Biscomaun Bhawan, in all case before the due date.

Managing Director
Patna Smart City Limited

PR- 00489 (Ni Ni) 2021-22

PATNA SMART CITY LIMITED

Addresss: 5th floor, Biscomaun Bhawan, Patna-800001, Email: patnasmartcity.pscl@gmail.com
Website: smartpatna.co.in

SHORT NOTICE INVITING QUOTATION

(for determining rates)

RFQ No.- NIQ-04/MD/ PSCL/2021-22 Dated-12.04.2021

Quotations are invited by Patna Smart City Ltd. (PSCL) for determining rates of non SOR items related to **"IOT Based Fully Automatic Multi-Level Car Parking and Semi-automatic Puzzle Parking"** at centrally located area in Patna latest by 17:00 hours on 30.04.2021. The detailed specifications etc. will be uploaded on PSCL website: - www.smartpatna.co.in which can be referred to before providing quotation by e-mail to patnasmartcity.pscl@gmail.com. Alternately, if hard copies are submitted it shall reach PSCL office in Biscomaun Bhawan, in all case before the due date.

12/4/2021

Managing Director
Patna Smart City Limited

ज्ञापांक 3550, पटना, दिनांक– 12/04/2021 ई०।

प्रतिलिपिः– निदेशक, सूचना एवं जन–संपर्क विभाग को स्थानीय/ महानगरीय स्तर के हिन्दी एवं अंग्रेजी दैनिक समाचार पत्र के संस्करण में प्रकाशित करने हेतु समर्पित।

12/4/2021

Managing Director
Patna Smart City Limited

1.1 PROJECT BACKGROUND:

Patna is the capital city of Bihar and the largest urban area. As per the census 2011, it is the 19th largest city in India with a population of 16,84,297. There are 75 wards in PMC and Ward Councillors have been elected for each ward.

As per the Government of India's guidelines, Patna Municipal Corporation has formed a separate Special Purpose Vehicle (SPV) as Patna Smart City Ltd. (PSCL) for the implementation of projects under the Smart City Mission for the city of Patna. This SPV shall carry end to end responsibility for vendor selection, implementation, and operationalization of various smart city projects.

Parking spaces are very important to cities. A city must have enough parking spaces to provide their residents and their visitors a place to park their car. Since cars are main mode of transportation, a city must meet the needs of the car owners/drivers. Patna Municipal Corporation is also responsible for providing proper parking facilities to citizens of Patna city. PMC would like to take various initiatives in the field of parking facilities so that citizens can park at suitable parking area in the city and thus make city roads decongested and look beautiful. The Multi-level car Parking (MLCP) and PUZZLE parking is proposed to be taken up at various locations under the Smart City Mission.

1.2 CHALLENGES FACED AT PRESENT:

As global living standards rise and urbanization accelerates, especially in India, cities around the world are seeing huge spikes in motor vehicle ownership accompanied by demand for parking.

Vehicles continue to outnumber existing parking spaces, thus clogging roads. Incidences of violence over occupancy, deformed cars due to a space crunch, and overcharging for parking are some problems that result. Parking on most streets in most Indian cities is un-managed and haphazard. People park any kind of vehicle in any location in any direction that they wish. Often parking occupies anywhere between a quarter to a half of the entire street right-of-way. Most streets lack footpaths (sidewalks) and many buildings have been required to have a significant front setback. Parking typically straddles the open frontage of the building, across what should be the footpath, and onto the street. The un-managed and haphazard parking is a traffic hazard also.

Patna is also facing similar problem.

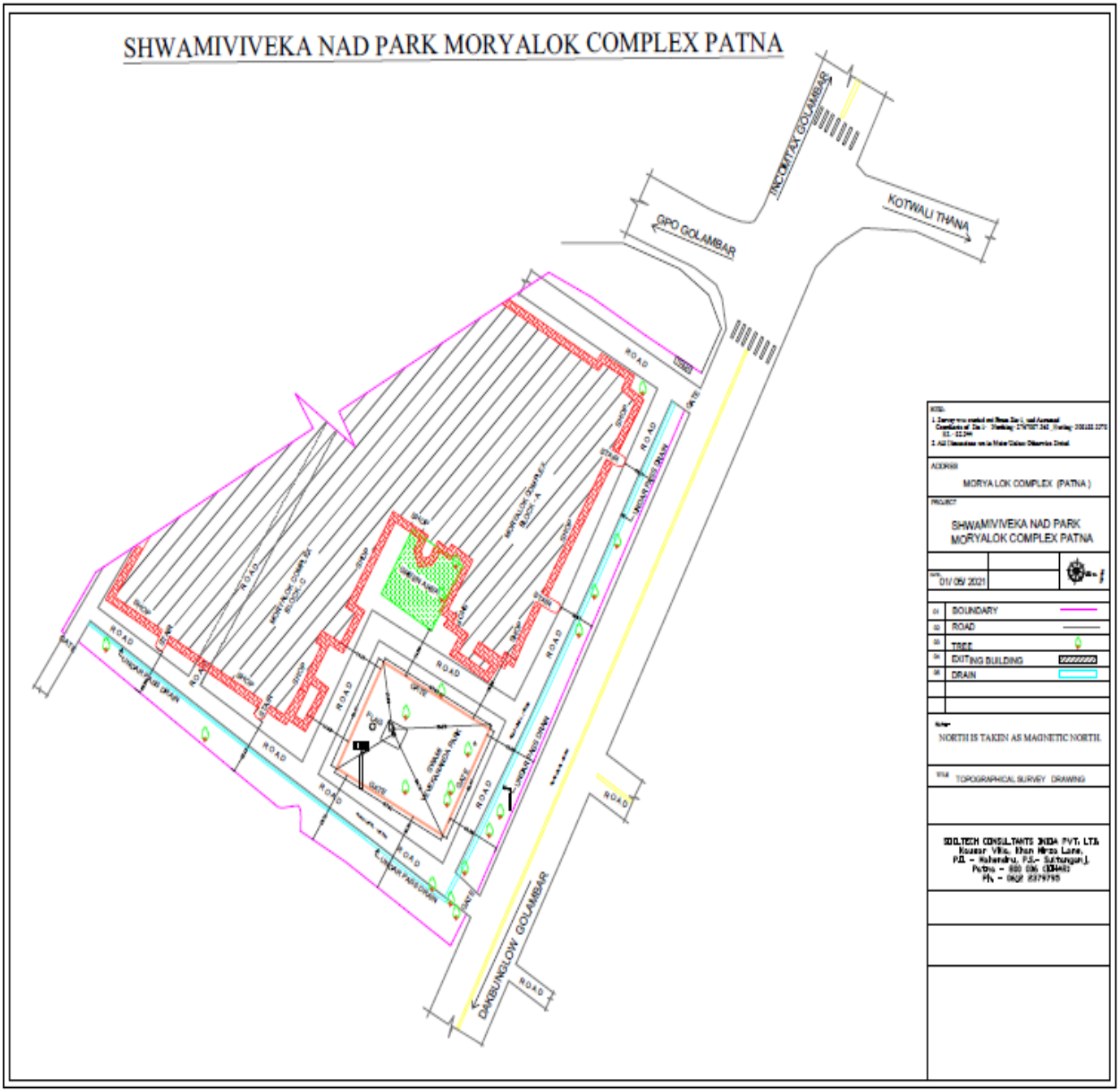
To provide proper parking space PMC under PSCL would like to create MLCP/PUZZLE parking (as per the requirement and space available) at Maurya Lok Complex, and at Boring Canal Road (Near Pili Kothi).

1.3 Scope of Work and Technical Specifications

(A) For MLCP at Mayuralok (Dolly Shuttle Type):

1.3.1 Location of the Site

The site for constructing the proposed fully automatic multi-level car parking complex is at Mayuralok, Patna city. The following drawing shows the location of thesite.



1.3.2 Site Specifications for MLCP:

The plot for the parking complex measures Approx. 75000 Sqft area and is for developing multi-levelparking facility for Patna City. The Approximate area and floor wise Parking requirement is given below. The floor wise parking given below is tentative. Building may be constructed based on final area available and approval given by local authority. Accordingly, if the area available is reduced from the proposed one (given below), the no of floors may be increased to 7 or 8 floors. Based on area parking facilities for no of four-wheeler and two-wheeler may change. Hence the estimate will be arrived based on per car budgetary price for four-wheeler and two-wheeler. Other equipment and services should be proposed accordingly, and budgetary price will be taken as it is for estimate purpose.

Parking Block	Parking	SQ MT	SQ FT
Basement Floor Area	240 Nos. 2 Wheeler	917.00	9871.00
Ground Floor	Entry/ Exit	835.00	8988.00
1st Floor	48 Nos. 4 Wheeler	835.00	8988.00
2nd Floor	48 Nos. 4 Wheeler	835.00	8988.00
3rd Floor	48 Nos. 4 Wheeler	835.00	8988.00
4th Floor	48 Nos. 4 Wheeler	835.00	8988.00
5th Floor	48 Nos. 4 Wheeler	835.00	8988.00
	Total=		**63799.00**
Add 15% Contingencies for LMR / Staircase / U.G & O.H Tank / Parking Office			**9570.00**
	Total		**73369.00**

General Terms & Conditions:

1.0 For the proposed Fully Automated MLCP building, the number of car parking are 48 car spaces per floor. The total count for car parking spaces is 240 for the complete multi-level car parking building. Ground floor level of the building shall be used as transfer area, wherein thecontrol room, utility room, and driver room are planned. Also parking for 240 scooters is also required to be planned, preferably in ground floor area. Minimum Two entrances, two exists, two elevators in the building with two fire staircases are required to be planned in the building.

1.1 The project is to be completed in all respect on EPC (Turn Key) basis as per Technical Specifications. The technical specifications given are only minimum requirement. The agency shall submit the technical proposal with all the technical details of the car parking system during bidding. The scope of work is to be carried out complete in all respect

including services and rates quoted by the Agency shall be considered for entire scope of work which includes all activities and work starting from the given concept to completion till handing over of completed project in operational mode in all respect. The maintenance period shall be 5 years.

1.2 The contractor shall obtain all the necessary approvals from concern department with the help of PSCL, required before starting the work and after completion. There can be changes in the scope of work as per requirement of Local body, Fire Services etc. Agency shall carry out such changes which occur due to Building byelaws or statuary requirements at a mutually agreed terms and conditions.

1.3 The contractor will hand over the assets after completion of work with as built drawings, services route plans, Maintenance manuals, Warrantees / Guarantees or any other document required by the Engineer-in-charge for maintaining these establishments.

2.0 PROJECT DEFINITION

2.1 Introduction

While quoting for supply & installation of parking equipment with UPS, DG set, Mobile application, Ticketing solution etc., it must be borne in mind by the tenderer that the parking solution for the Patna City shall be aesthetic, state-of-art and world class standard. The contractor scope is to design and supply and maintain the parking facility as per his mechanical parking technology.

2.2 Scope of Work: Automated Multilevel Car Parking

A Parking complex with fully automatic parking facility is to be provided. The fees / charges of proof checking/vetting of designs etc. shall be paid by contractor.

Following component structures/Systems as listed below need to be developed as a part of proposed parking complex: -

(i) Multi-level parking structure for a minimum 240 ECS and 240 scooters.

(ii) 'Automated parking' Equipment/System (Hardware/Software).

(iii) Supply/Installation of UPS and DG Set required providing 100% power back up.

(iv) Ticketing solution, Mobile application, display system indicating vacant space etc.

(v) Comprehensively maintenance and operation of the Parking facility for 5 years.

2.2.1. The contractor has the obligation to make as many changes /modification(s) as required in Architectural drawings on instructions of Local Statutory Authorities.

2.2.2. The contractor shall provide the structural stability certificate to Authorities. However, the checking and vetting of design/drawings shall not absolve the contractor from the responsibilities of any failure in the structural design during construction as well as during the specified life period ofthe structures.

2.2.3. The contractor shall submit all the submittals like designs, Good for Construction (GFC) drawings, documents, reports, schedules etc. in minimum six number of hard and six number ofsoft (CD/DVD) copies.

2.2.4. Patna Smart City Ltd (PSCL) shall provide soil investigation report to the bidder for design purpose. However, it shallbe got re-checked by the bidder at his own cost as per relevant IS code.

2.2.5. Design and Drawings prepared by the Agency shall be the property of Patna Smart City and Agency cannot issue the same to any other person / organization or use for any other project.

2.2.6. PSCL will not be responsible for any lapse/s and /or losses, if so occurs, due to absence of any data /knowledge.

2.2.7. The Contractor shall make his own arrangement for obtaining electric connection (s). PSCL will however make all reasonable recommendations to the authority concerned in this regard and make necessary payment directly to the department concerned.

2.2.8. The rates quoted by the contractor are inclusive of all these activities required to complete the system as per byelaws and No extra payment, whatsoever, shall be payable to the contractor on this account.

2.2.9. The contractor shall take all necessary precautions/temporary measures to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties and any pollution. He shall make good at his own cost and to the satisfaction of the Project-in-charge, any damage to roads, paths, underground/overhead services, drainage works or public or private property whatsoever caused by the execution of the work or by traffic brought thereon by the Agency.

2.2.10. The barricading shall be provided continuously during the execution of the entire work till completion and shall not be removed at any stage without prior approval of the Project-in-Charge. Cleaning of barricading and dust accumulated along the barricades on the carriageway shall be removed on regular interval.

2.2.11. For execution of any items of work where incidental works such as bailing out water, shoring etc. are actually required but not specifically stated in the scope of item and/ or tender document, it is to be understood that the contract amount quoted by the agency shall cover such charges also and nothing extra on account of such incidental charges, if any, shall be paid.

2.2.12. The Agency shall bear full risk in and take full responsibility for the care of the works and materials, goods and equipment for incorporation therein from the commencement date until the Completion Certificate is issued, except and to the extent that any loss of or damage to the same shall arise out of any default or neglect of the Employer.

2.2.13. The Agency shall be responsible throughout the execution of the Works including the carrying out of any testing, commissioning (including Integrated Testing and Commissioning), or remedying of any defect.

2.2.14. Take full responsibility for the adequacy, stability, safety and security of the Works, Plant, Goods, Agency's Equipment, Temporary Works, operations on Site and methods of manufacture, installation, construction and transportation.

2.3 Parking Structure

The parking structure shall be developed in the area described under para 1.3.1 Location of the Site. This is standalone structure along the proposed area to accommodate a minimum number of 240 ECS and 240 scooters at Mayuralok location.

2.3.1 The dimensions of cars/SUVs to be accommodated in the parking structure are given in the following table (Table 1).

Table 1: Dimensions of Cars/SUVs

Vehicle Type	Dimensions
SUVs	Length: 5.00m Width: 2.20m Height: 2.20m Weight: 2500kg

2.3.2 The parking structure shall be designed in such a way that it can accommodate 100% SUVs.

2.3.4 Parking structure will be provided with vehicles' riding surfaces wherever required, waterproofing & Drainage works and all necessary E&M installations; Lighting/Mechanical ventilation/Fire protection/ Signages etc complete with all fittings/ fixtures fully functional (except architectural finishes). but including well designed landscaped deck.

2.4 Parking System

2.4.1 The parking system shall be fully automatic and shall accommodate the 240 cars and 240 scooters.

2.4.2 System shall be capable of handling cars/SUVs defined in Section 2.3.1.

2.4.3 System shall have internationally state-of-the-art technology and shall conform to the minimumspecifications laid out in Section 3.

2.4.4 Tenderer shall consider the following guidelines while selecting a particular parking system:

- Provide Fully Automatic, Multilevel car parking system. Manual and semi-automatic parking systems shall not be considered for Mayuralok.

- System must have sufficient redundancy for every system/ sub-system of the car park equipment. It must be possible to evacuate each & every parked vehicle, even during partial equipment breakdown state.
- Entry boxes, input/ output terminals, turntables, etc., must not have any tripping hazards, and designed for wheelchair access. The system shall be women, physically challenged and elderly people friendly.
- Parking technology supplier must prove their technology worthiness to PSCL by demonstrating at least one similar parking facility working without breakdown for minimum period of five years anywhere in the world, supported by client's (Facility Owner) satisfaction letter.
- Car park equipment preferably use pallet-less technology.
- Car park equipment design must be modular.
- Incorporates *state of the art* Safety and Security features.
- System must have 24 hrs. live remote dial–up links with the manufacturing/ operations base of the original equipment supplier, to enable remote troubleshooting, and prevent breakdowns. Tenderer shall enter into an agreement with PSCL for comprehensive maintenance support for 5 (five) years. Similarly, there shall be an agreement between the tenderer and the technology provider for complete maintenance support for 5 (five) years.
- System offered must be capable of catering to heavy parking and retrieval demand during morning and evening peak periods
- Maximum retrieval time under the worst-case scenario, for any car must be less than 180s (i.e., 3minutes). The bidder shall prove this with detailed time calculations and simulations.
- During normal operations period, at least 90% of the system must always be available for parking in and parking out procedures. This is applicable even for maintenance and/ or breakdown situations.
- The system must be capable to transfer out (evacuate) all parked vehicles in maximum time of 2 hours, if ever required in emergency. The design calculations in support this must be provided.

3.0 TECHNICAL SPECIFICATIONS

3.1 General

The technical specifications outlined in this chapter are to provide guidelines to the Contractors to formulate technical proposals for the project. The specifications given in this Schedule are minimum specifications, bidder shall follow best international practices and provide state-of-the-art technology, as directed and approved by PSCL.

3.2 Parking Facility

3.2.1 Requirements for Parking Structure (Civil)

- The requirements under this head shall include construction of parking structure (civil) along with complete waterproofing & Drainage, fully functional Fire Protection systems, E&M installations etc. e.g., lighting/Mechanical Ventilation/ Signages with all the fittings & fixtures.
- The parking structure shall above ground.
- Parking bays must be designed and made (in RCC) finished in flat surfaces compatible to thefully automated parking system.
- Entry boxes, input/ output terminals, turntables, etc., must not have any tripping hazards, and must be designed for wheelchair access.
- Design of structure shall take into account the water table depth at site.
- Required water proofing shall be provided i/c for deck slab.
- The structure shall be earthquake resistant.
- The driveways at I/O level shall have rigid pavement.

Entire circulation area shall have state-of-the art road signs (including variable message signs) and markings to guide the traffic (vehicular as well as pedestrian). Signs shall be of Type VIII or better and paint for markings shall be of the state-of-the-art. Variable sign boards shall be sufficient to guide the traffic at I/O level.

- Parking structure shall have *state-of-the-art*& best possible fittings/ finishes.

The following table presents the minimum specifications to be considered for the parking structure.

Table 2: Specifications for Parking Structure

S. No:	**Item**	**Requirement**
1	Height of Building	It should be as per Govt laws.
2	Depth of the Building below Ground Level	Basements may be proposed in the MLCP
3	Space per car	As per the system, to accommodate the car dimensions in Section 2(Table 1)
4	Parking bay dimension	As per the system, to accommodate the car dimensions Section 2 (Table 1)
5	Fire Protection	Sprinkler or any other system acceptable to 'Fire' authority, for multi-level car parks.

3.2.2 The Contractor may adopt appropriate designs conforming to Approved plan and the detailed project report and the above covenants for the Parking Facility.

3.2.3 Appropriate arrangements shall be done to prevent grease/oil due to leakages and washing of floors does not contaminate ground water table.

3.2.3.1 Provisions shall be made in an Automated Parking Facility that leakage of gasoline tanks or other flammable fluids are collected during transportation and storage of the vehicle and a suitable & technically sound arrangement for draining of the same.

3.2.3.2 Construct the Automated Parking Facilities' structure and the equipment with non-combustible construction without a specified fire resistance. In addition, those portions of the facility used for the transport and / or storage shall have a finish of non-absorbent, noncombustible material. Where the Automated Parking Facility is located below a building, a 2-hour fire resistance rated separation shall be provided between the Automated Parking Facility and the adjacent space use.

3.2.3.3 As the nature of an Automated Parking Facility provides the means to transport a vehicle without human interference, provisions shall be made to detect a vehicle on fire and to extinguish the fire immediately.

3.2.3.4 . The parking structure shall conform to NBC 2016 and other relevant codes, and various provisions for fire and structural safety.

3.2.4 Signages:

The Contractor shall provide illuminated signs in accordance with National Building Codes (NBC)/ Indian Roads Congress (IRC) Codes and Standards at suitable locations within the Parking Facilities. The signs shall be of Type VIII or better. The scheme for signals shall be finalized in consultation with the Project Officer. The signage leading to the I/O terminal shall be clear and visible form sufficient distance to navigate drivers to the I/O terminals without any ambiguity. The Contractor shall provide safety barriers at appropriate locations, to effectively manage pedestrian and vehicular traffic.

3.2.5 Power Backup:

Contractor shall develop space for power back-up adequate for 100% of the designed power load of the Parking Facility. The generator will have a switch-over mechanism so as to be activated automatically in the event of power failure. The generator shall be installed in a separate soundproof enclosure.

3.2.6 Accessibility for Maintenance & access to top floor

The Parking Structure shall be designed such that maintenance personnel have access to all storage spaces, machinery and electrical and electronic components in a safe manner.

3.3 Requirements for Parking System

3.3.1 As described earlier, the parking system to be developed at site shall have fully automatic parking system.

3.3.2 For the purpose of clarity, a fully automatic system is a parking system where all the processes of conveying to/from and parking/retrieving of the vehicle within the parking structure beyond a designated entry area (I/O terminal area) are fully mechanized. It is presumed that there is no human involvement with the vehicle (either by the owner/driver or by the designated operator) for parking or retrieving the vehicle from the storage area.

3.3.3 Contractor shall ensure that the technology chosen is:

(a) Appropriate to the site and ground situation.

(b) Accommodates proposed number of Equivalent Car Spaces (ECS)

(c) Has a precedent use in a project of similar nature and size?

(d) Is supported by the technology/service provider for design, supply, implementation, and ongoing maintenance.

(e) Addresses all issues of Security and safety, operational safety and environmental safety.

(f) Does not add to circulation problems for pedestrians and traffic in the contiguous area

(g) Shall have full support from the system provider during the system installation and Operationand Maintenance stage

(h) System shall be compatible with ambient maximum and minimum temperatures, humidity andother local conditions.

3.3.4 After the Maintenance/operation period of Project Facilities, PSCL desires to take over an asset that would

- have the most appropriate technology under the circumstances.
- be operationally the most safe and convenient design.
- Environmentally the most friendly and aesthetic structure

3.3.5 The parameters listed in the table would co-exist with the best industry standards. They shall be read with and applied in conjunction with the development control norms, as appropriate. Any deviations, from these parameters, however, being within the compliance of the approved development control norms, shall be accepted by PSCL only at its sole discretion.

Table 3: System Specifications

	Item	**Requirement**
	Retrieval time	Not more than 3 min/180 seconds
	Evacuation Time	Not more than 2 hours
	Sound emissions	Maximum of 40dB
	Power backup	Not less than 100% with automatic switchover mechanism
	Queuing at entry, exit and within the system	Not more than 6 vehicles and 3 minutes
	Heat and Smoke detection systems	To be provided

	Security Systems	To be provided shall include CC TVs, I/O terminals equipped with motion detectors

3.3.6 The fully automatic system shall have sufficient redundancy to ensure functionality even in case of failure of one component. In case of failure, the system shall have a mechanism to retrieve the cars parked in the system.

3.3.7 The system should accommodate a 100% of SUVs. 2% ECS shall be reserved / developed for physically handicapped (PH) if the fully automatic system considered by the Contractor is not PH friendly.

3.3.8 Throughput Capability

3.3.8.1 The Throughput of a system is the minimum number of cars a system can store or retrieve (measured in any random one-way traffic), in the timeframe of one hour. The system provided should have throughput of 50% of the total ECS proposed in the bid.

3.3.8.2 The parking system shall be designed for minimum throughput corresponding to the peak traffic requirement. However, it must be taken into consideration that the drivers drive their car into or from the Entry and Exit Areas based on the technology proposed. A reasonable average dwell time of 45 seconds per car driving into the Entry and Exit Areas can be assumed if physical drive-in guidance is provided. In the absence of such physical guidance system, an average dwell time of 60 seconds shall be considered.

3.4 D.G. Set for Power Back-up

The Contractor shall develop space for power back-up adequate for 100% of the designed power load of the Parking Facility (except Walkways), and Toilet Area. The generator will have a switch-over mechanism so as to be activated automatically in the event of power failure. The generator shall be installed in a separate sound proof enclosure. The subway and stairways, Toilets and Entry and Exit Areas however shall be provided with auxiliary emergency lighting system such that in case of a failure the system is activated immediately.

3.5 Overall Design Parameters

3.5.1 Fixed Parameters: The Contractor cannot alter the fixed parameters. The fixed parameters for the project are given in table 1 to 3. Also, the contractor cannot change the size and façade of the building.

3.6.2 General Guidelines for Automated Parking Facilities

The Contractor shall incorporate the following guidelines while submitting drawings as mentioned under this Agreement:

3.6.2.1 Location

All entries shall be located away from the traffic junctions and exit locations. The preferred location of the Entry and Exit Areas and of the driveways serving it is near the center of the

Parking structure on the perimeters. The preferred elevation of the entry and exit areas is that of the connecting road systems.

The entry and exit of vehicles shall be provided so that it does not hinder pedestrianmovements.

3.6.2.2 Size

The Entry and Exit Areas be sized to allow drivers to safely and comfortably drive in and drive out the vehicle. Turning radii and width of drive aisles and minimum clear width of Entry and Exit Area shall be designed according to the respective needs and leaving adequate space to the left and right of the car for passengers to leave / enter the car and in accordance with Applicable Codes Listed earlier in this Schedule.

The length of the Entry and Exit Area and unobstructed height inside the Entry and Exit Areas shall be in accordance with Applicable codes listed earlier in this Schedule.

3.6.2.3 Components

3.6.2.3.1 The Entry and Exit Areas shall be equipped with sensors to ensure the right positioning of the vehicle to be transported as well as determine the presence of the system. Within the parking complex, Motion detectors and CCTV cameras or similar devices shall be installed inside the Entry and Exit Areas or the vehicle when the machine starts moving.

3.6.2.3.2 The Entry and Exit Areas entrance doors shall be mounted, secured and operated safely, isolating the passengers from the Entry and Exit Areas during movement of the machinery and vehicles. Safety locks / emergency switches shall be installed to stop any machinery if a person or animal is detected in this area.

3.6.2.3.3 Cameras shall be installed to record digital photos of the physical condition of the car entering and exiting the premises. The images are also helpful to locate cars for drivers with a lost ticket and to validate damage claims.

3.6.2.3.4 Recesses in the floor area shall be minimized to the need of guiding the drivers in the “drive- in” process. All other areas shall be flat for pedestrian traffic. Flaps between moving parts and platforms need to be limited as per Applicable Codes mentioned in this Schedule.

3.6.2.3.5 All Entry and Exit Areas must comply with disability requirements.

3.6.2.4 Function of Entry and Exit Areas

3.6.2.4.1 The Entry and Exit Areas are the exchange point between drivers and machine or authorized operators as the case may be, as applicable, based on the technology provided and therefore special attention shall be paid to the smooth functioning of this exchange center.

3.6.2.4.2 Each of the entry locations of the Parking Facility shall be provided with electronically controlled real time bay availability positions.

3.6.2.4.3 The driveways for inbound and outbound traffic shall be designed to provide sufficient queuing spaces; simple visual signage and guidance shall clearly direct approaching traffic off the street and into Entry and Exit Areas. Respective commands via a visual

message center shall be applied inside the Terminals for the drivers in such manner that an easy use of the system is possible.

3.6.2.4.4 Inbound / outbound traffic crossing shall be prevented.

3.6.2.4.5 Inside and outside Entry and Exit doors shall be provided to prevent drivers and animals fromcoming into contact with any moving elements of the system.

3.6.2.4.6 As Entry and Exit Area are the exchange station of the Parking Structure, special attention shall be directed to ease "drive-in" and positioning of the car by the drivers (preferably by means of physical aids);

3.6.2.4.7Means for catching of debris and dripping from the incoming cars shall be applied to avoid such dripping to cars and machinery inside the terminals, during transportation and storage inside the system.

3.6.2.4.8 A modern state of the art collection system such as Automated Parking Ticket Issuing Machine shall be designed for computation and collection of tolls. The toll shall be collected from the vehicles at the exit point. A mechanized barrier gate shall be designed and synchronized with the toll collection system for regulating entry/exit of vehicles into and out of the Parking Facility. Uninterrupted Power Supply (UPS) of adequate capacity shall be provided in the toll collection booths for uninterrupted power supply to the computer and smart card readers and ticket dispensers. The Ticketing Station or access system shall be located outside the Entry and Exit Areas on the right side of the inbound traffic.

3.6.2.4.9 System shall have installed a radio frequency access system; the readers shall have enough range to detect approaching vehicles from at least 9 Meter outside of the Entry and Exit Areas.

3.6.2.4.10 The facility shall be equipped with sufficient lobby space to hold the expected peak accumulation of drivers waiting for retrieval of their cars. The pay stations or other access readers shall also be located inside the Lobby. Also, sufficient electronic message centers shall be provided to guide the drivers to the respective location to collect their car.

3.6.2.4.11 In case toilets are not available in the near vicinity of the lobby, the same shall be provided in sufficient quantity to accommodate the driver's needs close to the lobby.

3.6.2.4.12 The operator room shall be located suitably, so as to be most effective to assist driversand to oversee the operation of the Parking Structure.

3.6.2.4.13 All areas accessible for the public shall be well illuminated.

3.6.2.5 Traffic Effect and Queuing

1) The queuing issue shall be addressed taking peak traffic volume. Based on peak volume data, adequate number of Entry and Exit Areas shall be provided. The bid shall, through application of queuing theory, shall clearly establish the queue lengths and waiting times under the worst-case scenario.

3.8 O&M REQUIREMENTS FOR PARKING FACILITY

3.8.1 Graphical User Interface/ Online Support

Automated parking facilities shall be furnished with a graphical user interface (hereafter referred to as "GUI"), or human –machine interface (hereinafter referred to as "HMI"). This interface shall be positioned in the control room. The GUI shall show the geometry of the system with occupancy and all installed machines moving in real time. The GUI shall be capable of running fully automated system without human assistance. It shall have manual and maintenance mode and the capability of system diagnostic of all critical mechanical, electrical and electronic equipment.

The parking facility shall have an installed and all-time workable dial in capability to the manufacturer/technical operator with a short response time to handle any alarms generated by the system.

3.8.2 Diagnostics

(i) The automated systems shall include a Graphical User Interface (GUI), or Human Machine Interface (HMI). These devises are computer models of the layout of the parking facility illustrating the movement of the various transport/lift devises within the Parking Structure and Entry / Exit Areas, and are designed into the software and displayed on the computer screen. This interface shall be positioned in the control room. The GUI shall show the geometry of the entire parking facility with actual occupancy with all installed machines reflecting real time movements / positions of the machinery and parked vehicles.

(ii) The GUI shall be capable of running fully automated without human assistance. It shall have manual mode and maintenance mode operations and the capability of the system diagnostic of all critical, mechanical, electrical and electronic equipment components.

(iii) The Parking Facility may have an installed and real time, online connection to the manufacturer / technical operator which allows for resolution of most errors remotely with a short response time in reaction to any trouble alarms generated by the system.

(iv) The Parking Facility shall be capable of reporting in different classes according to their severity for the system functionality. It shall report the need of component checks for proper performance of the different components. Preferably, a hotline support line shall be implemented to enable a remote system support.

3.8.3 Maintenance/ Operator

(i) In order to ensure operational safety, the Contractor shall enter into Contract(s) with Equipment Supplier(s) for maintenance of the Equipment(s) during the entire O&M Period of 5 year in order to avoid system interruptions as much as possible and to remedy such interruptions in a reasonable time.

(ii) Under all circumstances without any exception, trained personnel must be available round the clock at short notice. The Contractor shall enter into Contract with manufacturer to provide a trained technician for the prevention and remedy of interruptions during all

hours of operation of the Parking Facility. The Contractor shall enter into agreement with the Manufacturer for training Contractor's on-site personnel to the degree, that they are capable of retrieving a car in semi-automatic mode of operation. Explicit provisions relating to training and know-how transfer, including sharing of manuals and procedures would have to be reflected in the Agreement that the Contractor may enter into with the Manufacturer.

(iii) The entire Parking Facility shall be adequately illuminated primarily for maintenance access. Portable task lighting outlets shall be provided for enhanced lighting Facility, machinery and electrical and electronic components in a safe manner.

3.8.4 Spare Parts Package

(i) For the parking systems, enough spare parts shall be stored at the Parking Facility to ensure an immediate availability of exchange components in any case of component failure.

(ii) In order to ensure needed repairs to be performed in a timely manner, the manufacturer and the Contractor shall agree for a respective maintenance contract, covering the operating timesof the Facility including a sufficient on-site spare parts package.

3.8.5 Operational Requirements

For smooth operations, following minimum requirements shall be ensured:

(i) Collection of parking fee in such a way that maximum queuing at the entry/exit does not exceed 6 cars and 3 minutes

(ii) Queuing at no time spills onto the main roads outside the parking complex

(iii) No queuing at I/O terminals

(iv) Traffic within the complex to be guided for smooth and safe movement

(v) Checking the vehicles for security, through dog legged mirrors, checking of the boot space, and by other means

(vi) Round the clock security at the site

(vii) Keep the facility neat, tidy and orderly condition without debris, litter, etc.

(viii) Operate the entire system as per the good practice of the industry

(ix) Maintenance Requirements

For un-interrupted service at the parking complex, as a minimum, the developer shall adhere to the following maintenance practice:

(x) Repairs to the parking system, parking structure, approach roads leading to the site, etc.

(xi) Replacement of equipment/consumables as per the designed life of the system

(xii) Removing and disposing of any material, as per the relevant codes, rules and applicable laws

3.8.6 Manufacturer's maintenance manual and inspection schedule, for smooth and un-interrupted operation of the facility, shall be provided and adhered to by the Contractor. Given below is an indicative inspection mechanism:

(i) Visual Inspection

Visual inspections are general macro level inspections, which shall be carried on a daily basis. These shall be carried out by trained and qualified personnel. The purpose of visual inspections is to identify obvious defects in the system, and other faults in lighting, plumbing,operational deviations, etc.

(ii) Close Inspection

Close inspection could be visual or by means of instruments, and shall be generally for system components. Close inspection shall be carried out by qualified engineers and technicians deputed for the system maintenance.

(iii) Comprehensive Inspection

Comprehensive inspection shall be carried out against a detailed checklist prepared for the purpose, and is to ensure that the entire parking system, including allied services, like, power back-up, fire safety equipment, lighting systems, air conditioning systems, etc., are as per theconstruction requirements.

(iv) The following table presents the frequency as well as the type of inspections.

Asset	Daily	Monthly	Quarterly	Before and After Monsoon
Parking System	Yes	Yes	Yes	Yes
Entry and Exit Area	Yes	Yes	Yes	Yes
Floors and Walls	Yes	Yes	Yes	Yes
Chairs /Seats in Pedestrian / DriverWaiting Area	Yes	Yes	Yes	
Drinking Water Facilities	Yes	Yes	Yes	
Toilets	Yes	Yes	Yes	
Signs	Yes	Yes	Yes	Yes
Markings	Yes	Yes	Yes	Yes
Pavements/Ramps	Yes	Yes	Yes	Yes
Access Roads / Underpasses	Yes	Yes	Yes	Yes
Stair cases	Yes	Yes	Yes	
Lifts	Yes	Yes	Yes	
Doors and Windows	Yes	Yes	Yes	
Entry and Exit Gates	Yes	Yes	Yes	
Fee Collection Systems	Yes	Yes	Yes	

Power Backup	Yes	Yes	Yes	Yes
Lighting	Yes	Yes	Yes	
Firefighting System	Yes	Yes	Yes	Yes
Air Conditioning	Yes	Yes	Yes	YES before summer.
Painting		Yes	Yes	Yes
General Cleanliness	Yes	Yes		

3.8.7 Reporting Requirements

Monthly O&M reports shall be submitted by 7th of every month, capturing the O&M activities carried out in the previous month. The O&M report shall clearly specify the interruptions to the parking system. The report shall also capture the parking and retrieval times during peak periods and under worst case scenario as and when they arise.

Relevant pages of the complaint register on complains and the action take, including the time taken for resolving the complaint shall be appended to the O&M reports.

3.8.8 Miscellaneous Requirements

(i) The developer shall maintain an inventory of all items in the parking complex and deferentheadings, like, parking system, Lighting, Power Back-up, etc,

(ii) Through the project period, the developer shall update the inventory, as per the up-gradationand replacements as they happen.

(iii) A copy of the inventory shall be maintained and shall be available for inspection any timeduring the project period.

3.8.9 Non-adherence to the agreed operation and maintenance / performance standards and time schedule would attract penalty provisions in addition to liquidity damages, levy penalty by the engineer which will be final & binding and the payment due violation occurs.

3.9 Applicable Permits (Indicative but not Exhaustive)

- Municipal Corporation of Patna City
- Fire Department (Chief Fire Officer)
- Environmental Clearances (Ministry of Environment)
- State Pollution Board
- Services Agencies / Road Owning Agencies
- Traffic Police (for traffic management schemes during and after the Construction)
- Land/drain owning agencies
- Forest Officer
- Archaeological Survey of India
- Any other applicable permits

3.10 Applicable Codes and Standards

The Project and Project Facilities are to be designed based on IS standards, CPWD Specifications, other BIS and NBC Codes, IRC Codes & Standards, Building Bylaws and latest Master Plan of Bihar

Electrical system, structure safety etc. shall be provided as per IS standards,

3.11 Other Guidelines

(i) A detailed schedule of implementation for putting up and operationalizing the Parking Facilities, and which shall specify at least 6 major milestones;

(ii) Advise to PSCL on alternate regulation of parking, if applicable, until such time that the parking facility is operational and operate the approved Scheme by PSCL during the construction period;

(iii) Advise PSCL on the details of the utilities that are necessary to be shifted, including suggestions on the alternate routing, and the estimates of the costs associated with such shifting;

(iv) The Critical Path Method (CPM) / Program Evaluation and Review Technique (PERT) charts or similar activity planning techniques / methods for monitoring. This shall cover all stages and aspects of the Project Implementation including design and engineering, procurement of materials and equipment, installation, construction, testing, etc.

(v) Manpower deployment plan, including the designation of Key Personnel for the management and supervision of all Project Activities. This would include the designation of suitably qualified and experienced personnel for areas such as Contract Administration and Supervision, , Traffic & Safety, Environmental Management, Plant & Equipment Maintenance, Procurement, Materials Management, Quality Control & Assurance, etc. The manpower to be provided by the Contractor, shall match that of IE, in qualification and experience.

(vi) Format of the monthly report giving details of the physical progress in implementation of the Project and Operations & Maintenance Activities undertaken (Monthly Progress Report).

3.11.1.2 The Contractor shall, in consultation with the Project Officer workout an appropriate schedule for submission of documents to the Project Officer.

3.11.1.3 Prior to commencement of construction of any of the Project Facilities, the Contractor shall take necessary permission from appropriate authority under the help of PSCL. Necessary payment and govt documents will be provided by PSCL:

(i) Obtain all such applicable permits which are necessary to commence the Project Facilities;

(ii) Obtain the approval of local authority with regard to:

- Detailed schemes as per stipulated norms along with layout plan of the area under reference and integrating surrounding road network and land uses
- A traffic management scheme in the influence of the project so that there is no hindrance to smooth flow of traffic

(iii) Mobilize the requisite resources, personnel and organization necessary for the same and designate and appoint suitable offices / representatives as it may deem appropriate with responsibility to supervise implementation of the Project and for exchange of information with the Project Officer and PSCL;

(iv) Finalize in consultation with Project Officer a method statement setting out details of the actual methods that would be adopted by the Contractor for the construction of such Project Facilities, including details of equipment and machinery that would be used, their locations, and arrangements for conveying and handling materials;

(v) Finalize in consultation with the Project Officer, quality assurance and quality control procedures to cover all aspects of the work so as to ensure the desired quality.

(i) Deploy adequate number of qualified and competent personnel having relevant experiences and skills for implementation of the Project and interaction with the Project Officer / the Government Agency.

3.11.1.2 Position and Levels

The Contractor shall be responsible for:

a) The accurate setting of the Project Site.

b) The correctness of the positions, levels, dimensions and alignment of all parts of the work.

c) The provision of all necessary instruments, appliances and labour in connection with the foregoing responsibilities.

3.11.1.3 Tests

(i) Various quality control tests would be undertaken for the project as per the standards prescribed by the Bureau of Indian Standards/ International standards. Where no testing methods are specified by the said standards, details of the test to be carried out and specifications to be achieved for the respective Project Facilities or part thereof shall be agreed upon with the Project Officer prior to the start of work.

(ii) The tests would be carried out at a location (place of manufacture, fabrication or preparation, at site or any specialized testing laboratory) that the Project Officer may responsibly require, at the cost and expense of the Contractor.

3.11.1.4 The Contractor shall arrange for all the material requirements for the project and disposal of all material wastes. The applicable permits in this regard would have to be obtained by the Contractor.

3.11.1.5 Prior to making the request for the issue of the Completion Certificate for the Parking Facility, the Contractor shall submit to the Project Officer / PSCL the following, duly finalized in consultation with the Project Officer.

(i) The Operation and Maintenance Manual for the Project (O&M Manual), setting out in details the standards, schedules, procedures, type, periodicity and other details of the Operation and Maintenance activities to be carried out for the Project during the operations period so as to meet the O&M Requirements as well as the details of the Management Information System to be incorporated, reports to be submitted and procedure for reviews.

(ii) As built drawings.

(iii) O&M contract with the System Provider for the automatic parking systems.

(IV) Three hard copies and two copies in electronic form (two Compact Disks) of the Operations &Maintenance Manual

(V)Three hard copies and two copies in electronic form (two Compact Disks) of the As-built Drawings

QUALITY ASSURANCE

The Contractor shall implement a Project Quality Management Plan in accordance with ISO-9001 "Quality System - Model for Quality Assurance in Design/Development, Production, Installation and Servicing" to ensure that all materials, workmanship, plant and equipment supplied and work done under the contract meets the requirements of the contract. This plan shall apply to all activities related to the quality of items, including designing, purchasing, inspecting, handling, assembling, testing, storing, and shipping of materials and equipment and different elements of construction work and installations of system components.

The Quality Plan to be prepared by the Contractor and submitted to the Engineer shall follow the requirements of ISO 9000 and address each element therein.

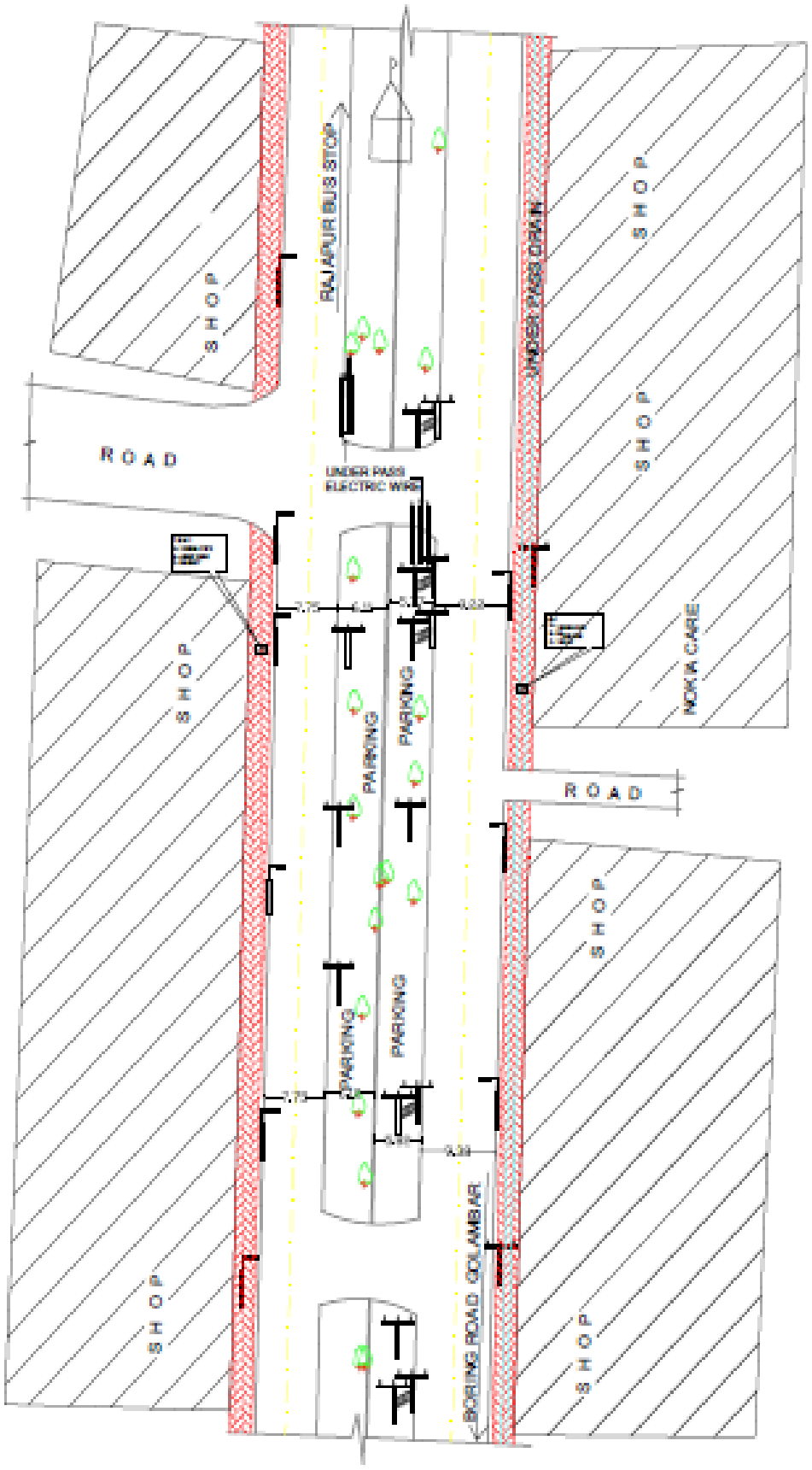
(B) PUZZAL PARKING AT BORING CANAL ROAD

Location Of the site:

Two nos of Puzzle parking with 33 cars and 66 Cars are required at Boring Canal Road.

The location drawing is given below:

BORING ROAD (1)

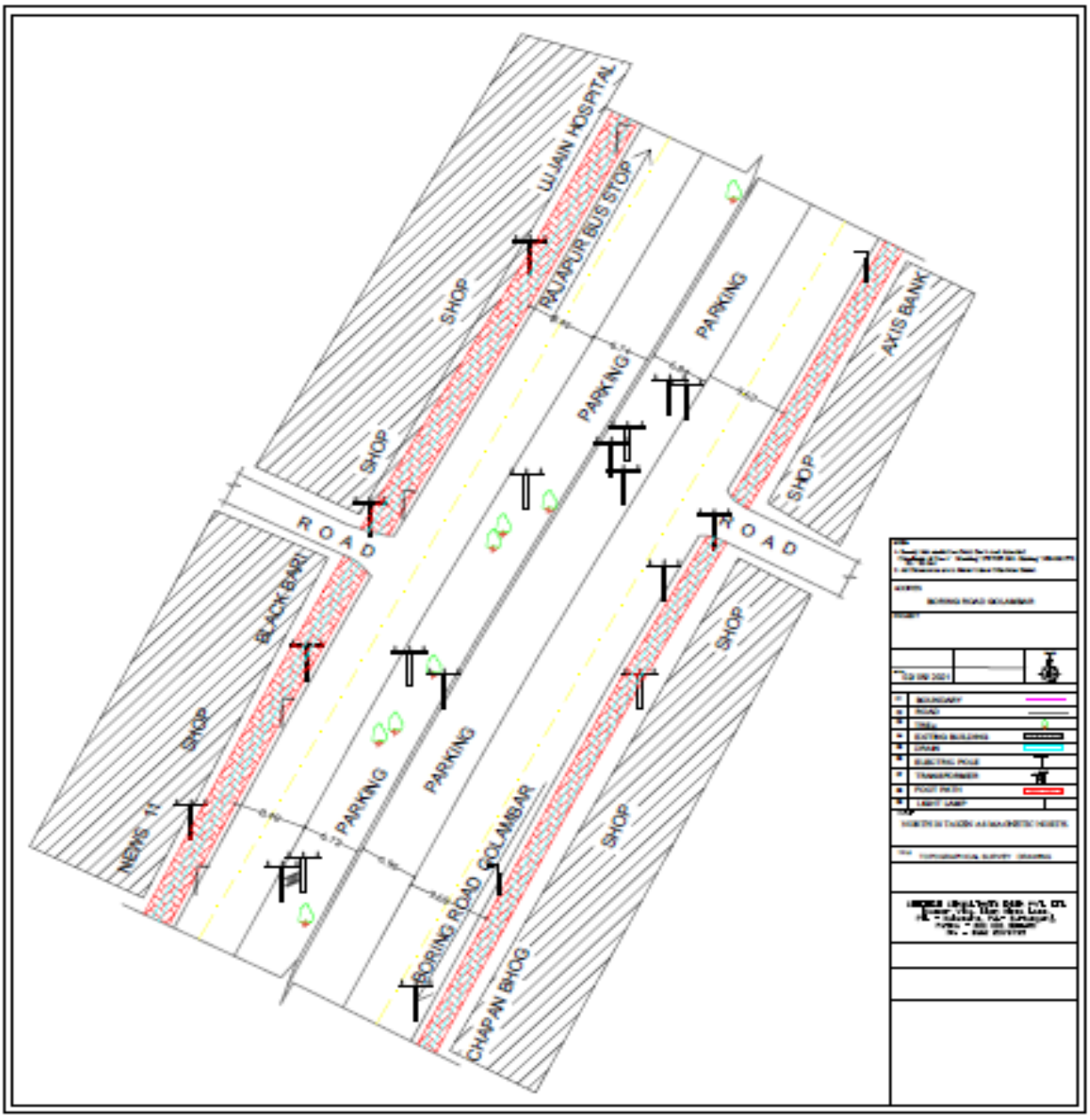


BORING ROAD GOLAMBAR

BOUNDARY
ROAD
TREE
EXISTING BUILDING
DRAIN
ELECTRIC POLE
TRANSFORMER
FOOT PATH
LIGHT LAMP

NORTH IS TAKEN AS MAGNETIC NORTH.

TOPOGRAPHICAL SURVEY DRAWING


LU JAIN HOSPITAL
RAJAPUR BUS STOP
SHOP
PARKING
AXIS BANK
ROAD
BLACK BARI
NEWS 11
BORING ROAD
GOLAMBAR
CHAPAN BHOG

System Specifications of Puzzle Parking System with Electro Mechanical Technology

S. No	Item	Detail Description
		Electro Mechanical
1.	Model Proposed	Puzzle Parking
2.	No. of Levels	For accommodating 33 Cars and 66 Cars.
	No. of Grids	It shall be decided as per layout and design proposed by the agency
	No. of Modules	
	No. of Car Spaces Per Module	
	Total Number of Car Spaces	
3.	Clear Length of the System	As Per Design Proposed by the agency
4.	Clear Width of the System	As Per Design Proposed by the agency
5.	Car Weight	2500kg for SUV 2000 kg for Sedan
6.	Allowable Car Dimensions on Ground & First Floor (SUV)	2000 kg for Sedan
7.	Allowable Car Dimensions on Second to Fifth Floor (Sedan)	5200mmX1800mmX2100mm (L x H x W)
8.	Usable Pallet Width	Min. 2100 mm
9.	Usable Pallet Length	Min. 5200 mm
10.	No. of Front Columns	As Per Structural Design
11.	No. of Rear Columns	As Per Structural Design
12.	Load on each Front Column	As Per Structural Design
13.	Load on each Rear Column	As Per Structural Design
14.	Power rating of the Lifting Motor	1.5Kw,2.2Kw
15.	Power rating of Motor for Horizontal movement	Min. 0.4Kw
16.	Type of Motor	Induction Geared Motor with inbuilt Brake system
17.	Type of Pallet	Galvanized Corrugated sheet
18.	Type of System	Chain & Rope System

19.	Wheel Stopper	To be Provided
20.	Type of Operation	KEYSWITCH PUSH BUTTON
21.	**Safety Devices**	
	(a) Photo sensors	To be Provided as per recommendations of technology provider
	(b) Antenna Type Limit Switch	
	(c) Cam limit Switch	
	(d) Geared Motor With Brake	
	(e) Emergency Stop	
22.	Average Retrieval Time per Operation	It should not be more than 180 sec in ideal condition
23.	Operating Panel	Touch Screen with Alpha Numeric & password protection
24.	Control Panel	PLC Based
25.	Total No of Motors Connected with break up for KW	To be Provided as per recommendations of technology provider
26.	Overall Connected Load of the Total	To be Provided as per recommendations of technology provider
27.	Maximum usage of Load at any Cycle of Parking	To be Provided as per recommendations of technology provider
28.	Noise Level	It should be less than 65 DB
29.	Fire Rating	All structural members and Pallets shall be finished with 2hour fire rated paint (system shall be of 2 hour fire rated as per NBC and Delhi Fire
30.	Warranty	24 months for whole system after commissioning

SAFETY FEATURES TO BE INBUILT IN THE SYSTEM	
Design safety factor	The safety factor of transmission/ lifting system should not be **less than 3**, to make sure all structure and connections are strong and safe enough. Third party certification shall be provided in this regard.
Emergency stop button	The emergency stop button can be activated to stop the system and cut off power supply at once in an emergency situation.
Operation protection	After emergency stop button is activated, the equipment should not work until it is reset manually and started again.

Over length detection	If a car, longer than rated length is parked on the platform, the sensor should stop the system and raise the alarm
Over height detection	If a car higher than rated height is entering, the sensor should stop the system and raise the alarm
Accidental detection entrance	When a person or car is trying to enter into the system in operation, the sensor should stop the system at once and the alarm should activate.
Alarm lamp	Alarm lamps should blink when system is in operation.
Buzzer	The buzzer will be activated to raise the alarm if there is an error of over length, over height, over loading or accidental entrance, etc., as well as error indicator displayed on operation
Motor protection overloading	If the motor is over loaded due to some reason, the protection will cut off the power supply at once to protect the motor and carson the platforms and should be functional only
Phase failure & anti-phase protection	The control loop will stop the motor working at once if there is phase failure or anti-phase occurs.
Over voltage protection	The control loop will cut off power supply at PLC front-end to protect PLC, if over voltage is occurring.
Positioning &end point limit switches	Positioning limit switches are placed to stop platform moving when the platform reaches desired position; the end point limit switch is an extra protection in case any positioning limit switch fails and the platform keeps moving.
Self-locking protection	if there is an electrical failure or emergency situation, sliding motor can apply the brake,
Elevating and sliding interlock protection	The interlock protection always works to prevent elevating movement and sliding movement from simultaneity
Operation Under or Over timed	In the movement of elevating or sliding, an operation time under or over the given safety time range will be detected by the control system, and the equipment will be stopped and not work until trouble removal by the administrator or authorized person
Platform over travel protection	Each platform is elevated by electric motor which travels in a certain stroke and will prevent platform from unnecessary moving in case limit switches fail

Password safety protection	Password protection shall be provided so that only authorized person can operate the equipment
Easy operation	Centralized control panel in front of the system allows users to operate conveniently by code, IC/ID card
Modularized structure	Modularized structure makes structural parts and transmission parts standard and suitable for various projects, it could simplify the fabrication and installation, therefore, it should be followed.
Extra strong MC nylon sheaves	All the sheaves shall be made of high quality extra strong MC nylon with oil-retaining bearing. They are wear resistant, and 4 times as long as the
	lifetime of steel-cast sheaves; self- lubricating to protect wire ropes very well; low noise and low vibration; the usage temperature can be from -
Features	Platform buffering, anti-slip, anti-sway and positioning devices: Each platform is well protected during movement by multiple nylon- cushions and positioning plates for buffering, anti- slip, anti-sway and positioning
Leak proof platforms	Specially bent side rails and galvanized waving plates prevent oil or water from dripping
Round bolts fixed on side rails	Instead of common hexagon bolts, the round bolts are specially adopted to fix the side rails and platforms to avoid any tire damage during cars driving in and out

NOTE: - The above technical specifications described are minimum in nature. Any proposal with better specifications may suggested by the agency along with the documents in the support of claim that the proposed specifications are better and have been used in some other works for at least for the last 3 years and the performance is satisfactory.

Scope & Specifications for Electrical & Mechanical works for Puzzle Car Parking work:

1.0 Scope of electrical and mechanical work:

Designing and construction of puzzle type multilevel electro mechanical car parking including foundation, structure, Fire-fighting, fire alarm, all electrical works, all associated works complete.

Scope of work include preparation of civil structural drawings, structural drawings for 33 and 66 car parking and foundation drawings. Main structure of the car parking should include in designing of

structure required provision for erecting façade. Car parking will be standalone. Scope of work also includes preparation of architectural plan, facade drawings and complete parking system drawings.

1.1. The Various works that comprise in the scope of work shall be provided and executed as per all applicable codes as per various Indian standard and if not covered in Indian codes, then international codes, good engineering practice shall be followed.

1.2. Investigations, designing, planning, risk of engineering and construction, safety, quality lies with the bidder

1.3. Approval from local body authorities for construction of car parking and NOC after completion of work are to be obtained by the bidder, if approval and NOC are required from these authorities. PSCL will provide all help in obtaining the permission.

1.4. All electrical work, control system & control cabling, programmable logic controller, fire-fighting, addressable fire alarm works are in the scope of bidder. Main power supply source is to be tapped from existing sub-station in the same complex by laying underground cables as per direction of PSCL representatives and LT panels, feeders pillars, distribution boards etc. required for parking systems/blocks are also to be provided by bidder. Scope of work also include providing IP CC cameras etc...

2.0 Specifications of electro mechanical multilevel car parking system:

2.1 Designing of puzzle type electro mechanical multilevel car parking shall meet and achieved minimum parking and retrieval time. All required design considerations for achieving lowest minimum parking and retrieval time should be made by bidders for their planning and designing.

2.2 Car parking system and structure of parking system shall be designed to meet the safety requirement for resistance to Seismic effect. And the parking system shall be designed and constructed accordingly.

2.3 The contractor should submit the shop drawings as per approved design scheme for approval of authorized person of PSCL.

2.4 The contractor shall give performance test of the entire installation(s) as per the standing specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test

2.5 Steel

2.5.1 All finished steel shall be well and cleanly rolled to the dimensions and weight specified by BIS subject to permissible to tolerances as per IS: 1852. The finished materials shall be reasonable free from cracks, surface flaws laminations, rough and imperfect edges and all other harmful defects.

2.5.2 Steel Sections, shall be free from excessive rust, scaling and pitting and shall be well protected.

2.6 Fabrication & Erection:

Fabrication shall generally be done as specified in IS: 800. All industry standards will be followed for all fabrication work. Steel work shall be hoisted and erected in position carefully, without any damage to itself other structures and equipment and injury to workmen.

2.7 Internal and external electrical installation: Internal electric installations, external electrical installation and earthing shall be provided and executed as per industry standard & best practice.

2.8 Contractor is required to be provide UPS, DG Set, Ticketing solution, Mobile app for citizen of Patna. The specification should be as per industry standard.

2.9 All test and All maintenance activities will be similar to described in MLCP at Mayuralok area.

Mobile Application and Ticketing solution:

(a) The Mobile App should be one for all three-parking location and it should provide details of availability of parking space from all three location. The application should update real-time the availability of parking space.

(b) The Ticketing solution is required at all three location. However, the software should be one only running preferably at one location as per individual design.

(c) The H/w requirement for Mobile Application as well as Ticketing solution may be separate, as per the individual design.

(d) This is to avoid unnecessary software/hardware duplicity. Accordingly, quotation is required to be provided for Mobile Application and Ticketing solution for all three location.

4.1 REQUEST FOR QUOTATIONS:

Keeping in view the scope of work the system integrator, OEM, authorized sellers/resellers and vendors in this field are required to quote the rates inclusive of all taxes which should be competitive so that the same can be utilized for framing the estimate for MLCP at Mayuralok of Patna Municipal Corporation area and Puzzle Parking at various other locations. Even if the quoted rates are adopted, PSCL is not bound to give the work order to any questions at this stage because this is being collected only for finalization of estimates.

The quotations are being invited by the **Managing Director, PSCL, 5th Floor, Biscomaun Bhawan, Patna – 800001** in two parts, CAPEX and OPEX.

The quotations are required considering the following while providing the solution document along with quotation:

(I) UPS (as per the capacity required based on the solution proposed) in N+N mode with suitable battery backup.

(II) DG SET as per the capacity required based on the solution proposed.

(III) Any other item/equipment which is necessary for the solution like lift for building, light arrangement in the building, all necessary facilities in the building etc as well as to provide safe and uninterrupted service to the citizens.

(IV) Citizen App including Mobile App to find out empty parking space etc .

(V) Solution for ticket printing for user and payment collection including H/w and s/w

(VI) Display Unit to indicate vacant parking space

(VII) Detailed specifications to be provided for each and every item/equipment/major component proposed in the solutions.

(VIII) Any other information which is required for the project.

5.1 CAPEX PORTION MAURYA LOK				
Description of Item	**Quantity**	**Rate (Exclusive of all Taxes)**	**All Taxes (GST…)**	**Total Amount (Including all taxes)**
Supplying, Installing Testing and Commissioning Multilevel Electromechanical Car Parking (Robotic Shuttle & Dolly) system	240 Cars			
UPS requirement in N+N Mode with suitable battery backup	1 Set			
DGSET	1Set			
Mobile APP for Citizen for all THREE Location	APP			
Ticket Printing and payment collections H/W AND S/W for all THREE Location	SET			
Any Qqiument Required for Scooter Parking	240 scooters			
Display Unit 3 Nos	Set			
Any other equipment /requirement to make safe Parking for				
Total Cost of the Project (CAPEX):	**Rs**			
Tax on total cost of the Project (CAPEX):	**Rs**			
Total cost including Tax (CAPEX):	**Rs**			

5.2 OPEX PORTION : MAURYA LOK

Description of item	**Year 1 (Inclusive all Taxes & GST)**	**Year 2 (Inclusive all Taxes & GST)**	**Year 3 (Inclusive all taxes & GST)**	**Year 4 (Inclusive all Taxes & GST)**	**Year 5 (Inclusive all Taxes & GST)**
Comprehensive maintenance of Parking System, UPS, DGSET, Citizen Portal, Ticketing solution etc. Operation of Parking System including all necessary staff in three shift and materials as required for 5 Years. with lighting and CCTV Camera maintenance					
Total Opex cost including All Taxes:					

5.3 PUZZLE PARKING SYSTEM CAPEX FOR 33 CARS					
Parking Requirement	**UNIT**	**Unit Cost**	**Total Cost**	**All Taxes (GST)**	**Total Cost (Including All Taxes)**
Supplying ,Installing ,Testing and Commissioning Electromechanical Puzzle Car Parking System	33				
UPS Requirement in N+N Mode with suitable battery backup (SET)	1				
Display Unit 1 Nos	1				
DGSET (SET)	1				
Total Cost of the Project(CAPEX) :	**Rs**				
Tax on total cost of the Project (CAPEX) :	**Rs**				
Total cost including Tax (CAPEX):	**Rs**				

5.3.1 <u>PUZZLE PARKING SYSTEM PRICE SCHEDULE OPEX FOR 33 CARS</u>					
Description of item	**Year 1 (Inclusive all Taxes & GST)**	**Year 2 (Inclusive all Taxes & GST)**	**Year 3 (Inclusive all taxes & GST)**	**Year 4 (Inclusive all Taxes & GST)**	**Year 5 (Inclusive all Taxes & GST)**
Comprehensive maintenance of Parking System, UPS, DGSET, Citizen Portal, Ticketing solution etc. Painting once in two years ,Operation of Parking System including all necessary staff in three shift and material as required for 5 Years. with all equipment /item supplied for the proper functioning of parking solutions					
Total Opex cost including All Taxes :					

5.4 PUZZLE PARKING SYSTEM PRICE SCHEDULE CAPEX FOR 66CARS					
Parking Requirement	**UNIT**	**Unit Cost**	**Total Cost**	**All Taxes (GST)**	**Total Cost (Including All Taxes)**
Supplying ,Installing ,Testing and Commissioning Electromechanical Puzzle Car Parking System	66				
UPS Requirement in N+N Mode with suitable battery backup (SET)	1				
DGSET ((SET))	1				
Display Unit 2 Nos ((SET))	1				
Any other equipment /requirement to make safe Parking for citizen					
Total Cost of the Project(CAPEX) :	**Rs**				
Tax on total cost of the Project (CAPEX):	**Rs**				
Total cost including Tax (CAPEX):	**Rs**				

5.4 .1 PUZZLE PARKING SYSTEM PRICE SCHEDULE OPEX FOR 66CARS

Description of item	**Year 1 (Inclusive all Taxes & GST)**	**Year 2 (Inclusive all Taxes & GST)**	**Year 3 (Inclusive all taxes & GST)**	**Year 4 (Inclusive all Taxes & GST)**	**Year 5 (Inclusive all Taxes & GST)**
Comprehensive maintenance of Parking System, UPS, DGSET, Citizen Portal, Ticketing solution etc. Painting once in two years ,Operation of Parking System including all necessary staff in three shift and materials as required for 5 Years. with all equipment /item supplied for the proper functioning of parking solutions .					
Total Opex cost including All Taxes:					