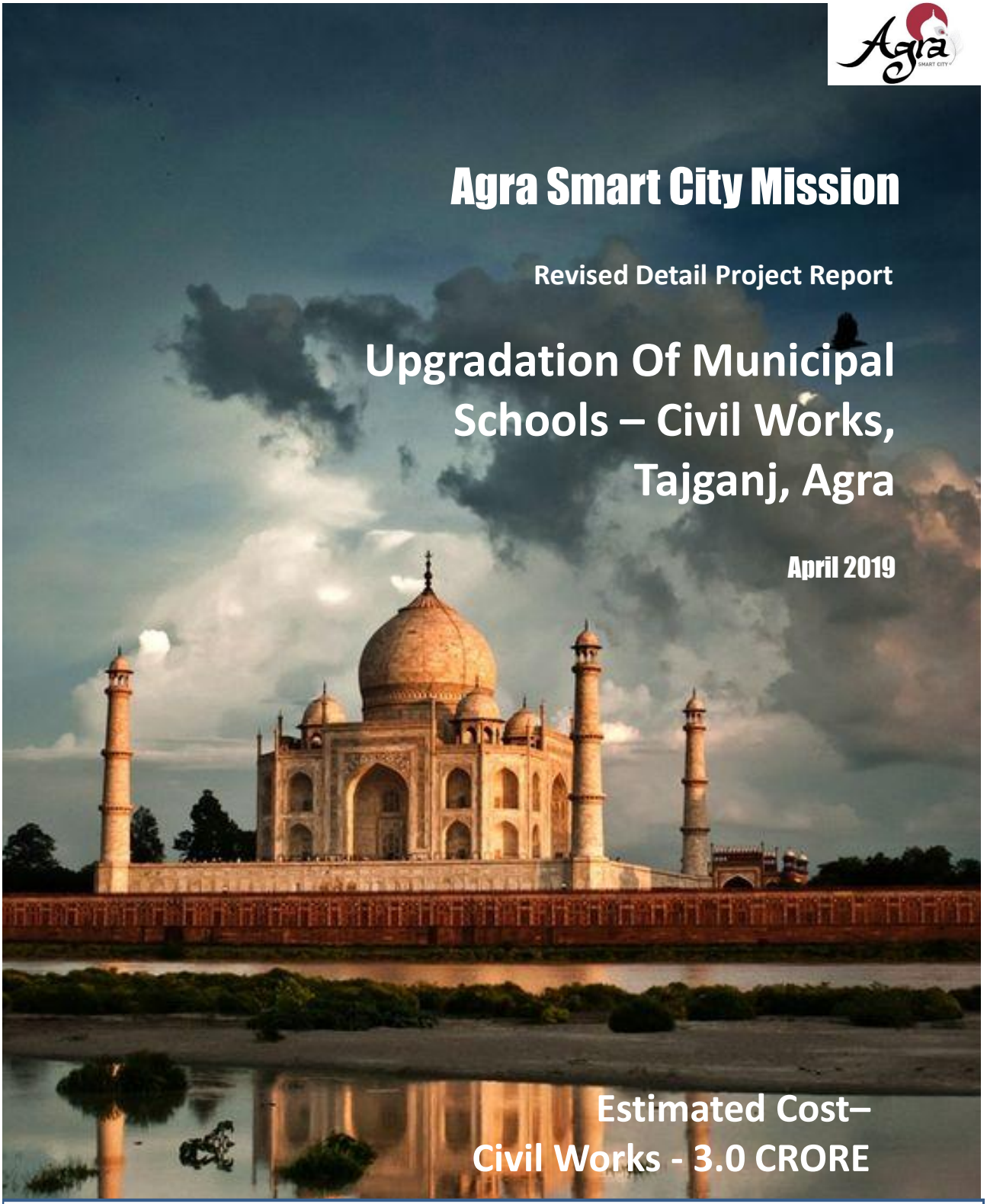

Agra Smart City Mission

Revised Detail Project Report

Upgradation Of Municipal Schools – Civil Works, Tajganj, Agra

April 2019

Estimated Cost–
Civil Works - 3.0 CRORE

Submitted by:

DARASHAW 1926 ALL ABOUT TRUST | gaia smart cities | STC

Submitted to:

Agra Smart City Limited

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Chapter 1. Executive Summary

A school's development can be seen in terms of 4 aspects which determines the quality of education:

a) Cognitive Environment: for a pervasive focus on learning
b) Social Environment: for a positive school culture
c) Administrative Environment: for effective professional relationships
d) Physical Environment: for a conducive learning atmosphere

Schools are made effective when all these 4 aspects are acted upon to create an active learning environment. Some NGO or contractor proposes to work with Municipal Corporation Agra through its Value programme to improve the active environment of the Municipal Schools. To improve the quality of education has conceptualized value a holistic quality improvement programme to impact an active environment in a school,focussing on improving learning outcomes. Under this programme the school would be equipped with a blend of teaching learning resources, technology infrastructure, administrative support, infrastructural improvements and relevant capacity building initiatives for teachers and the school management. These are supplemented by active Project Management and Monitoring & Evaluation to ensure that the programme is effective.

Municipal means associated with or belonging to a city or town that has its own local government. Here total Two municipal school upgradation proposed in this report. Agra Nagar Nigam inter college & Girls high school in tajganj area in ABD area.

Improvement of the Physical environment

a) RO plant for safe drinking water.
b) improve the condition of the toilets and minor repairs in the school.
c) The environment of the school can be improved by BaLA (Building as Learning Aid) painting on the walls and the corridors which illustrate concepts from the curriculum.
d) Proposing two-wheeler/ Cycle parking for students with solar panel covering.
e) Car parking for Staffs over Grass pavers.
f) Trimix flooring for Basketball court.
g) Pathways of interlocking pavers.
h) Children play equipment for playing.

Smart components

a) Interactive Multimedia Content
b) Projection Equipment
c) Rooftop Rainwater Harvesting
d) Storm water harvesting – Rain Garden
e) Decomposing waste pit (converting plant waste into a manure)
f) Using local materials like Mandana stone, red sand stone, sand stone & Kota stone.
g) Boundary plantation for screening with native plant species.
h) School garden

Chapter 2. Upgradation of Municipal School - Scope & Methodology

2.1 Introduction

Agra city is governed by Municipal Corporation which comes under Agra Metropolitan Region. The Agra city is located in Uttar Pradesh state of India.

As per provisional reports of Census India, population of Agra in 2011 is 1,585,704; of which male and female are 845,902 and 739,802 respectively. Although Agra city has population of 1,585,704; its urban / metropolitan population is 1,760,285 of which 939,875 are males and 820,410 are females.

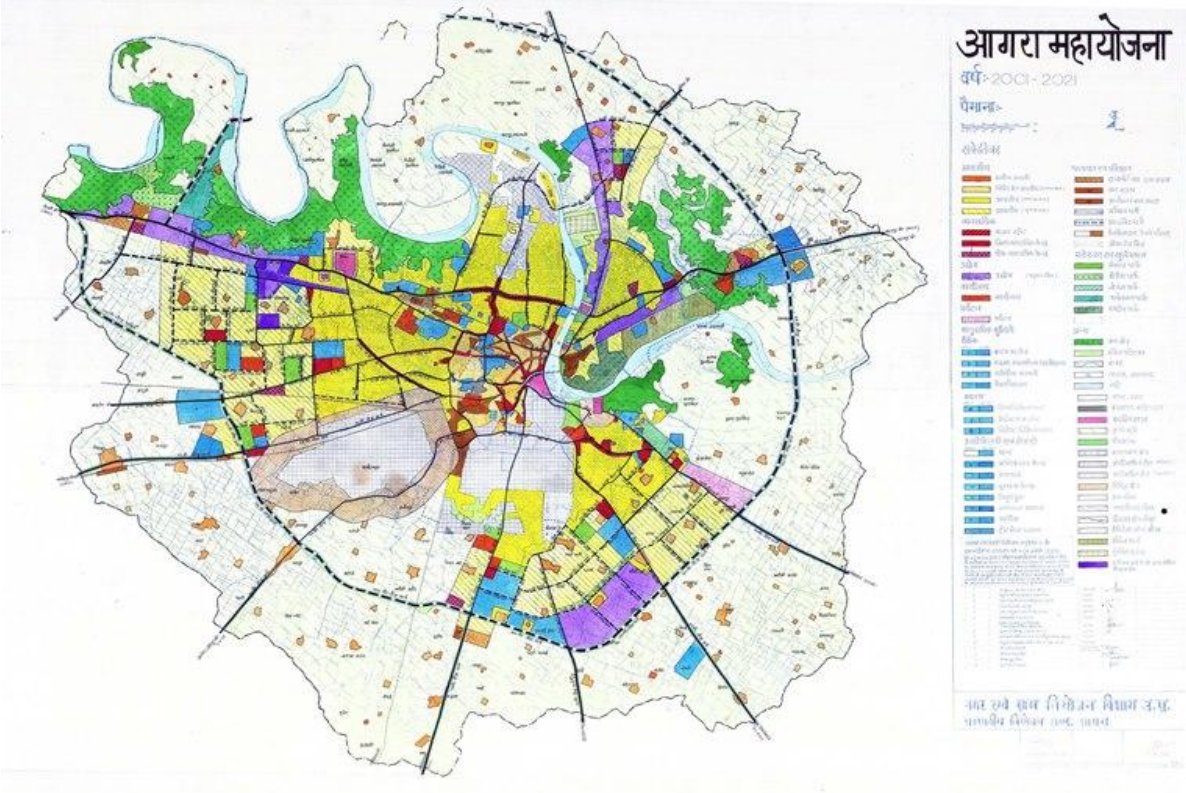


Figure 1:Agra Master Plan 2021

Figure 2:Agra District Map

2.2 Project Brief

Agra is the city of the inimitable Taj Mahal. It is as loved by Indians as it is by foreigners who throng here in large numbers to admire its beauty. Along with Delhi and Jaipur, Agra forms the Golden Triangle of tourism in India. Situated in Uttar Pradesh, Agra is synonymous with the Taj Mahal however there's lot more to the city than this world-famous monument. Right from the epic Mahabharata to the Mughal Dynasty, Agra has been monumental and has played a significant role in shaping India's history. Agra has two UNESCO World Heritage sites which is Agra fort and Taj Mahal however Taj Mahal features in the 50 most popular tourist destinations in the world.

A school's development can be seen in terms of 4 aspects which determines the quality of education:

e) Cognitive Environment: for a pervasive focus on learning
f) Social Environment: for a positive school culture
g) Administrative Environment: for effective professional relationships
h) Physical Environment: for a conducive learning atmosphere

Schools are made effective when all these 4 aspects are acted upon to create an active learning environment. Some NGO or contractor proposes to work with Municipal Corporation Agra through its Value programme to improve the active environment of the Municipal Schools. To improve the quality of education has conceptualized value a holistic quality improvement programme to impact an active environment in a school,focussing on improving learning outcomes. Under this programme the school would be equipped with a blend of teaching learning resources, technology infrastructure, administrative support, infrastructural improvements and relevant capacity building

initiatives for teachers and the school management. These are supplemented by active Project Management and Monitoring & Evaluation to ensure that the programme is effective.

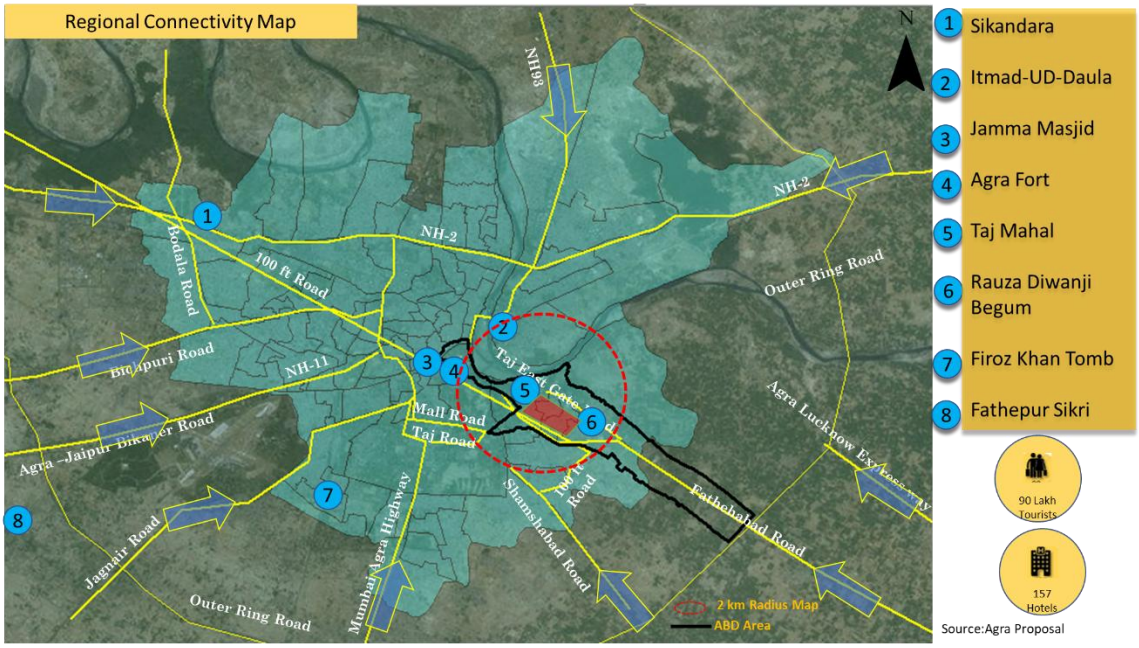


Figure 3:ABD Area and Regional connectivity map

2.3 Scope of Project

Main task:

Preparation of a Detailed Concept Plan, drawings and upgrade the existing situation of Municipal schools one is inter college Agra, one is girls high school in Tajganj area.

Upgradation of Municipal Schools including:

- *Smart features of smart classroom*
- *Improvement of the Physical environment*

2.3.1 Detailed Scope of Work

2.3.1.1 Identifying Municipal School locations in ABD area

Scope of work included Identification of Municipal Schools location and analyze existing condition of building and proposed smart features in that schools

The following tasks are to be undertaken for detailed concept plan:

A. Identification of Requirements for smart municipal schools

Based on smart city proposal and preliminary survey PMC identified two municipal schools in Tajganj area. Analyze the existing condition of schools PMC proposed different necessary buildings retrofitting and equipment at municipal schools.

B. smart features at municipal schools

Based on the preliminary survey and market survey there are different types of smart equipment available in market to enhance the education very well. This types of features will cover in this municipal schools

2.4 Methodology

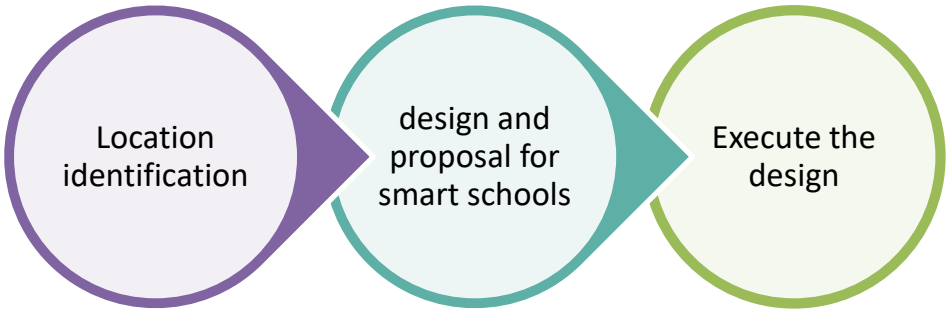


Figure 4:Methodology for Project

Chapter 3. Identification of locations for Municipal Schools

3.1 Introduction to Municipal Schools

Municipal means associated with or belonging to a city or town that has its own local government.

The earliest evidence of local management of civic administration in India can be traced to Indus Valley civilization (around 2300 B.C) which was essentially an urban civilization. Commenting on the Indus Valley civilization, Golden Childe says “well planned streets and a magnificent system of drains, regularly cleared out; reflect the vigilance of some regular municipal government”. The nature of society and governance at local level underwent a significant change over the changing course of Indian history. It is beyond the scope of this paper to trace the process of this evolution and therefore one moves straight to the modern civic administration in urban India. The first Municipal Corporation in modern India was set up in the former Presidency town of Madras in 1688. This was followed by Municipal Corporations of Calcutta in 1876 and Bombay in 1888. Lord Ripon (1880-84), the Viceroy of India introduced an element of elections in the Municipal Corporation and is known as “father of Local Self-government in India” for his pioneering work in this direction. The reforms introduced by Lord Ripon continue to have its traces in the existing local self-governments.

3.2 Locations of Municipal Schools

Total two numbers of location identified in ABD Area.

Table 1:Locations of municipal schools

S. No	Location Name	Proposal
1	Agra nagar nigam inter college school	Retrofitting and equipment
2	Girls High school,Tajganj	Retrofitting and equipment

3.3 Existing condition of Municipal Schools

3.3.1 Location of Agra nagar Nigam inter college school

As per the smart city proposal ABD area cover two municipal schools which are located in Tajganj area.one is called as nagar Nigam inter college and one girls high school

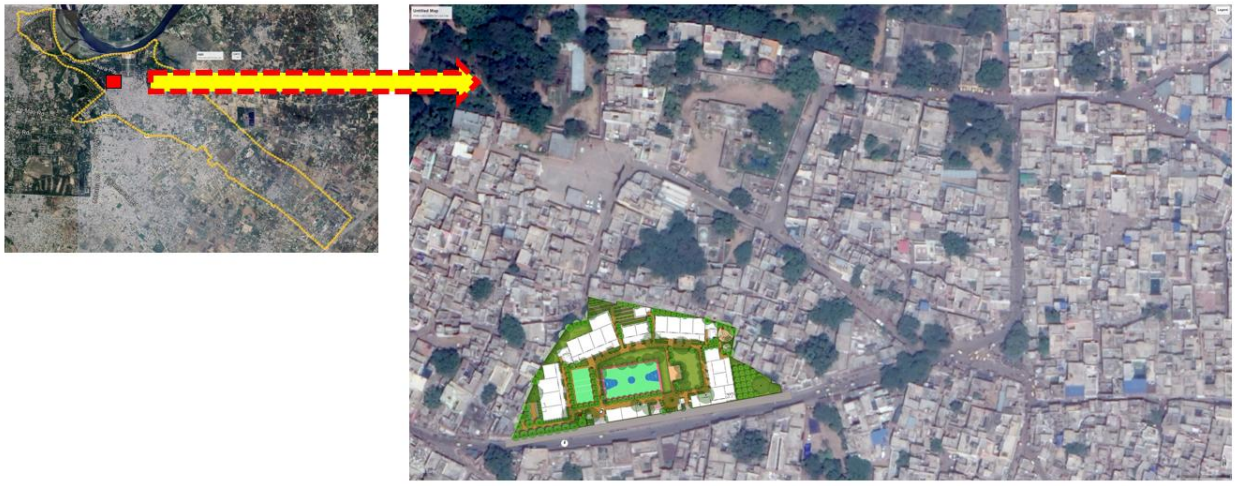


Figure 5:Satelite image of Inter college school

3.3.2 Existing condition of Municipal Schools

Based on Preliminary survey following components are present at municipal schools.

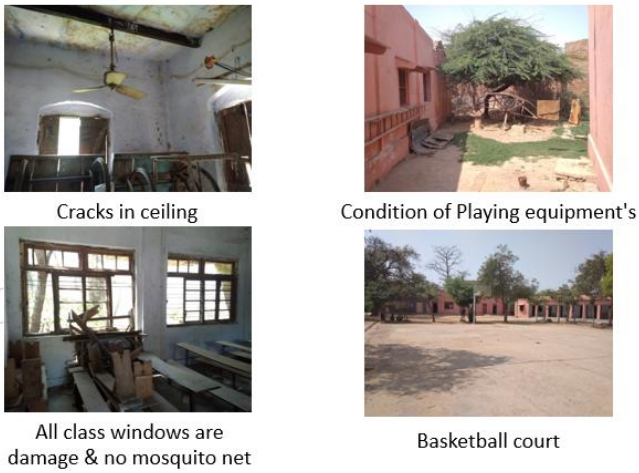


Figure 6:Existing Conditions of Municipals Schools

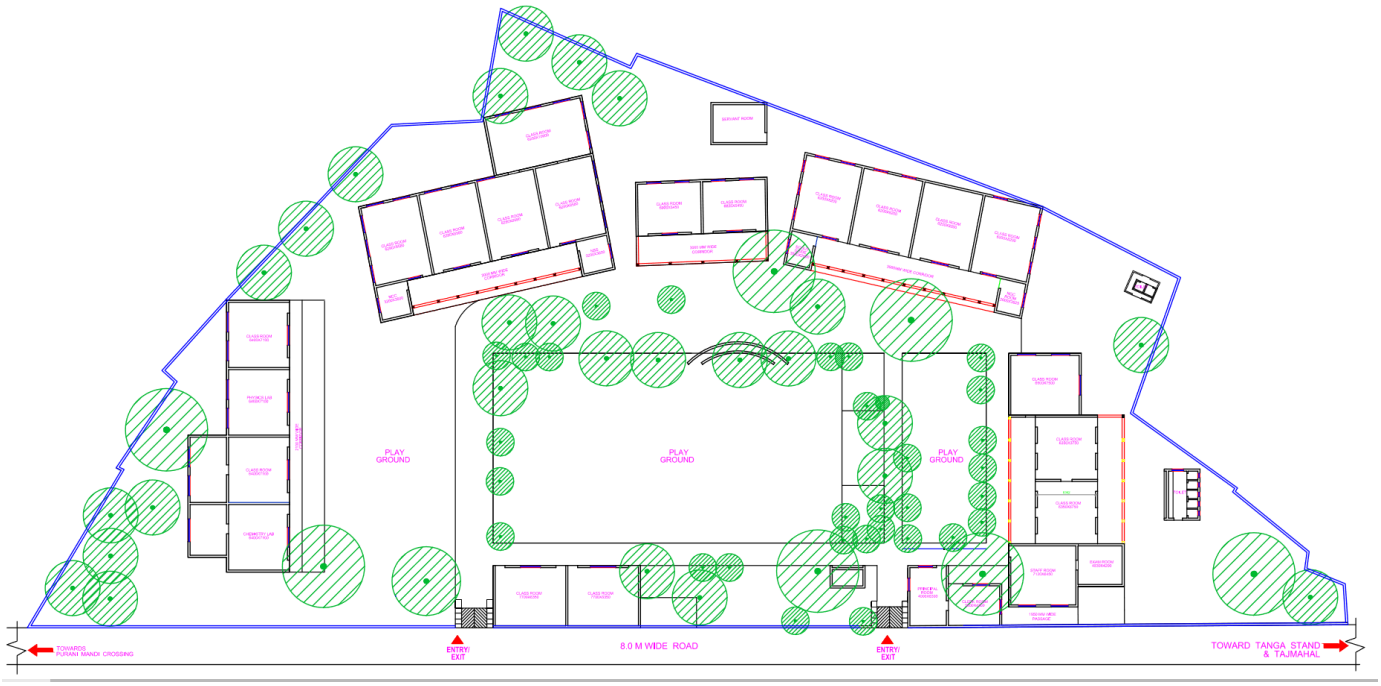


Figure 7: Existing Plan layout of Inter college school

Figure 8: Existing Plan layout of Girls High school

3.3.2.1 *Existing conditions at inter college school*

C. CLASS ROOMS

- Construction of school building classified as very old construction and recent construction.
- Damage in Cement Flooring
- To many cracks in ceiling
- No mosquito net fix in class windows and all the door & window are damage.
- Dampness & Water seepage through roof.
- Insufficient illumination in class rooms

Figure 8:Existing conditions of Classrooms

D. Furnitures and equipment

- Condition of furniture is not good for study on it.
- Ceiling fans are in less number as compare to size of class rooms
- No Pin up boards for display
- Each class room has been equipped with CCTV camera system
- Some of the green boards are damage due to dampness on wall.

Most of the Furniture are not in condition

No pin up boards

Irregular arrangement of ceiling fans

CCTV Camera

Figure 9:Existing conditions of furniture

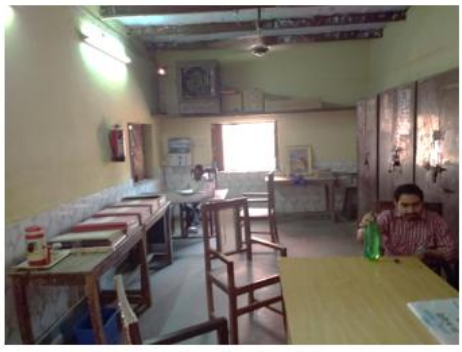
E. Staff Rooms

- Furniture is damage and need maintenance.
- Dampness on wall and ceiling.
- No toilets for female staff.
- Condition of male toilets are very bed due to this no one is using it in present days.

More or less Principle room is in good condition but some of there furniture is also breaking and they need repairing of it.

Toilets are in very bed condition need to be repair.

Library door is closed my making wall on it and used as a store for staff room.



Ceiling and wall of staff room is damage by dampness and need proper maintenance of it

Figure 10:Existing conditions of Staff rooms

F. Toilets & Drinking water

- There is no proper facility of drinking water in the school
- There is no R.O. facility for drinking water.
- Toilets are in less numbers as compare to students' capacity.
- Urinals are not provided in boy's toilet.

No urinals in boys toilet

Toilets is in bed condition & not in use today

No R.O. is installed for drinking water in the school.

Girls toilet is in bed working condition

Figure 11:Existing conditions of Toilets and Drinking water

G. Play ground

- No playing equipment in school campus.
- Volleyball and basketball court are in bed condition and whole court are filled with massive cracks.
- No outdoor seating furniture for students

Volleyball court

Condition of Playing equipment's

Basketball court

Cracks in basketball court

Figure 12:Existing conditions of Playground

H. . Landscape

- There is no pattern in plantation of trees.
- Site is filled with Acacia arabica (kikar) trees which do not allow any other species to grow.
- There is no covered pathway in playground area.
- No outdoor seating for students
- Corners of the site used as a dumping ground for waste of the school.

Near children play

Condition of Playing equipment's

Dumping waste

Cracks in basketball court

Figure 13:Existing conditions of Landscaping

I. Lack of Amenities

- No sufficient toilets for students
- No R.O. facility for drinking water & water tanks are in bed condition.
- Condition of Staff male toilets are very bed due to this no one is using it in present days.
- No toilets for female staff.
- Playing equipment are missing in school campus.
- No outdoor seating for students
- There is no defined parking space for students.

Staff Toilets are in very bed condition

Cracks in basketball court

No R.O. is installed for drinking water

Figure 14:Existing Conditions of Amenities

Figure 15: Condition Assessment Plan of Inter College

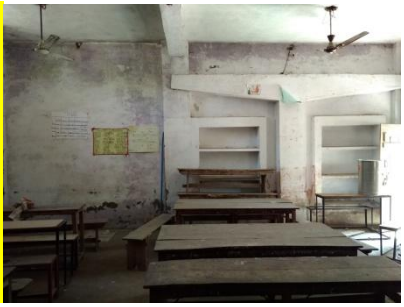
3.3.2.2 Existing conditions at Girls high school

A. CLASS ROOMS

- Construction of school building classified as old construction and recent construction.
- Damage in Cement Flooring
- To many cracks in ceiling
- No mosquito net fix in class windows and all the door & window are damage.
- Dampness & Water seepage through roof.
- Insufficient illumination in class rooms

Cracks in ceiling

Dampness & Water Seepage



Cracks on wall

B. Furnitures and equipment

- Condition of furniture is not good for study on it.
- Ceiling fans are in less number as compare to size of class rooms
- No Pin up boards for display
- Each class room has been equipped with CCTV camera system
- Some of the black boards are damage due to dampness on wall.

Furniture is in bad condition

Black Board Damage due to Dampness

C. Toilets & Drinking water

- There is no proper drinking water facility in the school

- There is no R.O. facility for drinking water.
- Toilets are recently constructed but need to be some maintenance.
- No toilets are provided for staffs in school.

Condition of Toilets doors

No shaded passage for approaching toilets

D. Play ground

- No playing equipment in school campus.
- Basketball court is in bed condition and whole court are filled with massive cracks.
- No outdoor seating furniture for students
- No Playing equipment

Basketball court is in bed condition

No outdoor seating furniture

E. Lack of Amenities

- No covered passage for approaching toilets.
- No R.O. facility for drinking water & water tanks are in bed condition.
- There is no provision for staff toilets.
- Playing equipment is missing in school campus.
- No outdoor seating for students
- There is no defined parking space for students.
- Lack of covered connectivity to all class rooms.

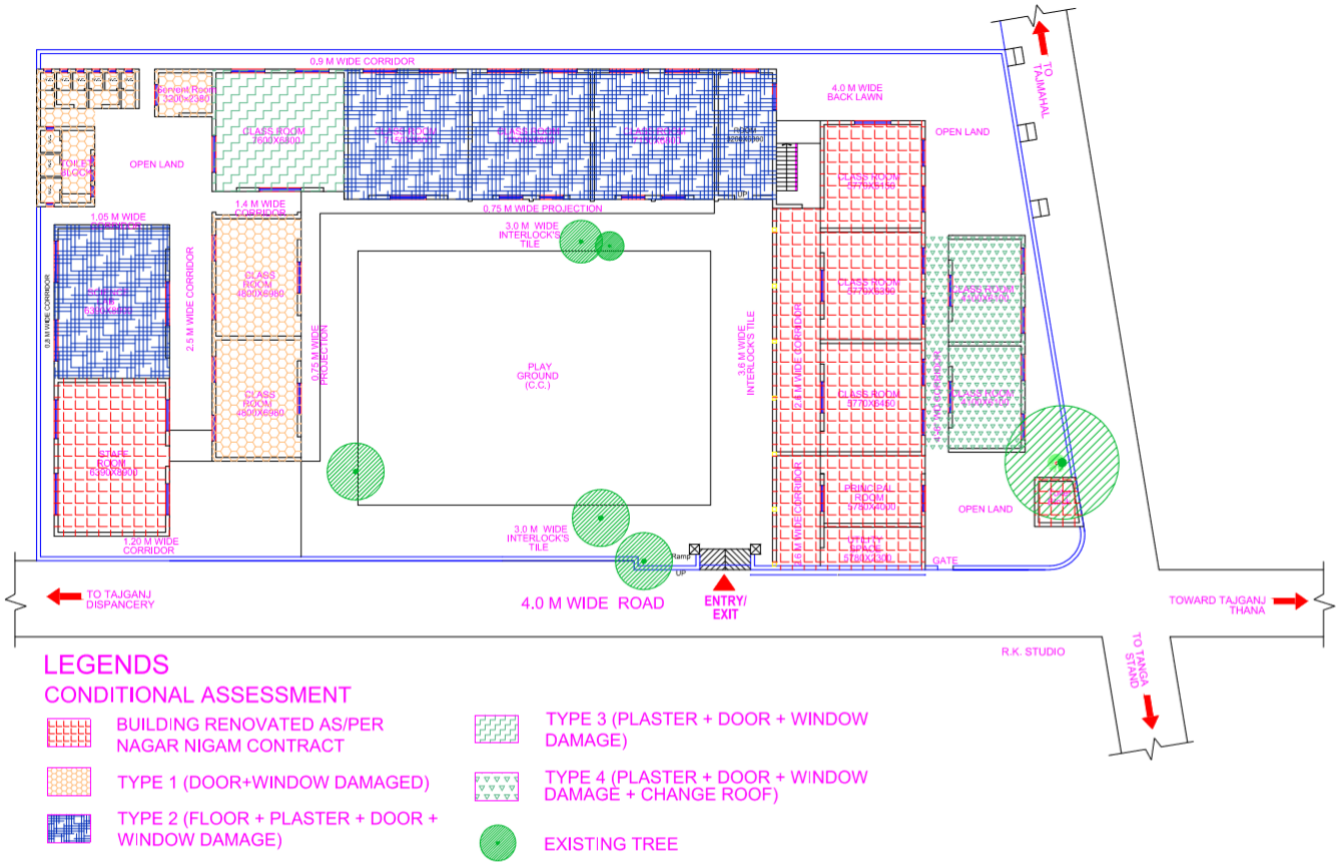


Figure 16: Conditions Assessment of Girls High School

3.3.3 Basic requirements at municipal Schools

Improvement of the Physical environment: While the infrastructure of the School is adequate there is need for some minor improvements:

a) The school needs an RO plant for safe drinking water.
b) There could also be a case to improve the condition of the toilets and minor repairs in the school.
c) The environment of the school can be improved by BaLA (Building as Learning Aid) painting on the walls in the classrooms and the corridors which illustrate concepts from the curriculum and provide a vibrant learning environment in the school. Children subconsciously imbibe inputs from their surroundings and are constantly receptive to multiple sensory perceptions. To harness this potential, the school environment can be enriched to provide a learning opportunity at every step and turn of the building contours.
d) The execution of this aspect can be taken up by Municipal Corporation directly and contractors can provide need-based support in identifying areas for improvement and sharing designs where applicable.

Computer Lab: Technology-based learning solutions provide a simulative learning environment that makes education interactive and enriching. The IT Based Education Solution program creates an environment, where learning and assessment is fun and the opportunities to learn is equitable among the rural and urban children.

Figure 17:Computer Lab

The main objective of the program is to attract the children, retain them in the schools and to improve the quality of the education through animated multimedia based educational content and also in the process, enhance the quality of learning by making "Learning Play", "Assessment Fun" and "Equal knowledge for all". It is proposed to gradually integrate technology classrooms in the school to improve student retention and teacher effectiveness. Under this the following aspects will be covered under Ed-Value:

a) **Computers:** A connected modern digital lab will be set up for the school equipped with computers, scanner and printer and other relevant hardware/software to impart Technology enabled learning as well as IT skills and training for students and teachers.
b) **Projection equipment:** Touch an interactive projection device as described below along with a good quality projection system.
c) **Extended Curriculum:** The existing computer lab in the school can be strengthened with the inclusion of a relevant computer education programme, which will ensure that students are well-equipped for the challenges of the modern workplace and that they will be able to benefit from the global digital revolution. Computer labs which can be used for computer-aided learning of academic subjects as well as for teaching IT to students. The program framework focuses on holistic development of the student and preparing him/her as a Global Citizen. It encompasses Life Skills laid down by WHO, 4Cs of 21st Century Skills (creativity, critical thinking, collaboration and communication) and information /media/technology skills).

Smart Class:

- **Interactive Multimedia Content:** The interactive multimedia content for classes I to X, covering the subjects, English, Math, Science and Social Science, aligned to the NCERT curriculum. This includes a variety of animation and video-based modules and simulation-based interactive virtual experiments which help bring real-world examples into the classroom, thus greatly enhancing conceptual understanding.
- **Projection Equipment:** classrooms are dedicated to simplify the way technology is used in the classroom with a compact, simple yet powerful device called the Projector. Attached to any Projection System, it can be fully adopted by teachers. Teachers who are not comfortable using technology in the classroom will easily embrace digital teaching and learning environment.

Figure 18:Projector at classrooms

- **Online support for students and teachers:** creating a shared learning ecosystem for students and teachers on the platform where everyone associated will have an account, user name and password. This platform can be used by students to interact amongst each other, share ideas etc. The platform will also host all the content in the form of manuals, write ups, videos. Using the ask-an-expert option students and teachers can interact with the experts of their field via online.

- **Capacity building of teachers:** Capacity creation of teachers will include practical demonstrations in constructivist approaches like inquiry, activity and project-based learning. This training will build on the existing skill sets of the teachers so that any transition will be achieved sensitively, seamlessly and surely. Teacher Capacity Building shall be conducted in two sessions of 5 days each in each semester and will be supported by online sessions and handholding. The capacity creation will focus on the following areas:

- Effective lesson plans: unlocking learning blocks, creating learning triggers and authentic resources, learning outcomes and developing tightly aligned assessments.
- Pedagogical techniques: blended with domain competency, collaborative teaching, self/peer learning, flipped classrooms, blended learning. The teachers will be familiarized on how to improve their classroom practice with constructivist approaches using technology resources. The teachers will be made comfortable operating the technology infrastructure and resources provided under the project. The teachers will be sensitized in classroom management skills
- Sensitizing teachers in using assessments for and of learning and in designing variety of assessments, assessing differential learning, group/ peer/ self-assessments.

Chapter 4. Proposal for Upgradation of Municipal School

4.1 Proposed Layout Plan of Nagar Nigam inter college school

LEGENDS

1. MAIN ENTRY/ EXIT
2. CYCLE PARKING
3. SCULPTURE WITH PLANTATION
4. SITTING WITH PLANTER
5. OUTDOOR SITTING UNDER TREES
6. VOLLEY BALL COURT
7. BASKET BALL COURT
8. KIDS' PLAY AREA
9. SCHOOL GARDEN
10. DRINKING WATER TAPS
11. STAGE FOR ASSEMBLY
12. LAWN
13. ORCHID
14. SCREENING/ BOUNDARY PLANTATION

SCULPTURE
ENTRY/ EXIT
CAR PARKING
SITE AREA : 1.5 ACRE (6072.98 SQ.M)
EXISTING TREE
PROPOSED TREES

LEGEND
- LABS
- TOILETS
- CLASS ROOMS
- LIBRARY
- PARKING
- ADMINISTRATION
- CORRIDOR

Figure 19:Proposed Layout Plan of Inter college school

Figure 20: Proposed Elevations of Inter college school

4.1.1 Improvement of the Physical environment

i) RO plant for safe drinking water.
j) improve the condition of the toilets and minor repairs in the school.
k) The environment of the school can be improved by BaLA (Building as Learning Aid) painting on the walls and the corridors which illustrate concepts from the curriculum.
l) Proposing two-wheeler/ Cycle parking for students with solar panel covering.
m) Car parking for Staffs over Grass pavers.
n) Trimix flooring for Basketball court.
o) Pathways of interlocking pavers.
p) Children play equipment for playing.

Children play area

Pathway

Parking on grass pavers

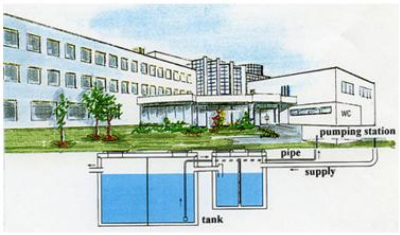
Cycle parking

Basket ball Trimix flooring

Figure 21:Proposed Physical Interventions

4.1.2 Smart components

i) Interactive Multimedia Content
j) Projection Equipment
k) Rooftop Rainwater Harvesting
l) Storm water harvesting – Rain Garden
m) Decomposing waste pit (converting plant waste into a manure)
n) Using local materials like Mandana stone, red sand stone, sand stone & Kota stone.
o) Boundary plantation for screening with native plant species.
p) School garden



Rooftop rainwater harvesting

School Garden

Boundary plantation for screening

Decomposing waste pit

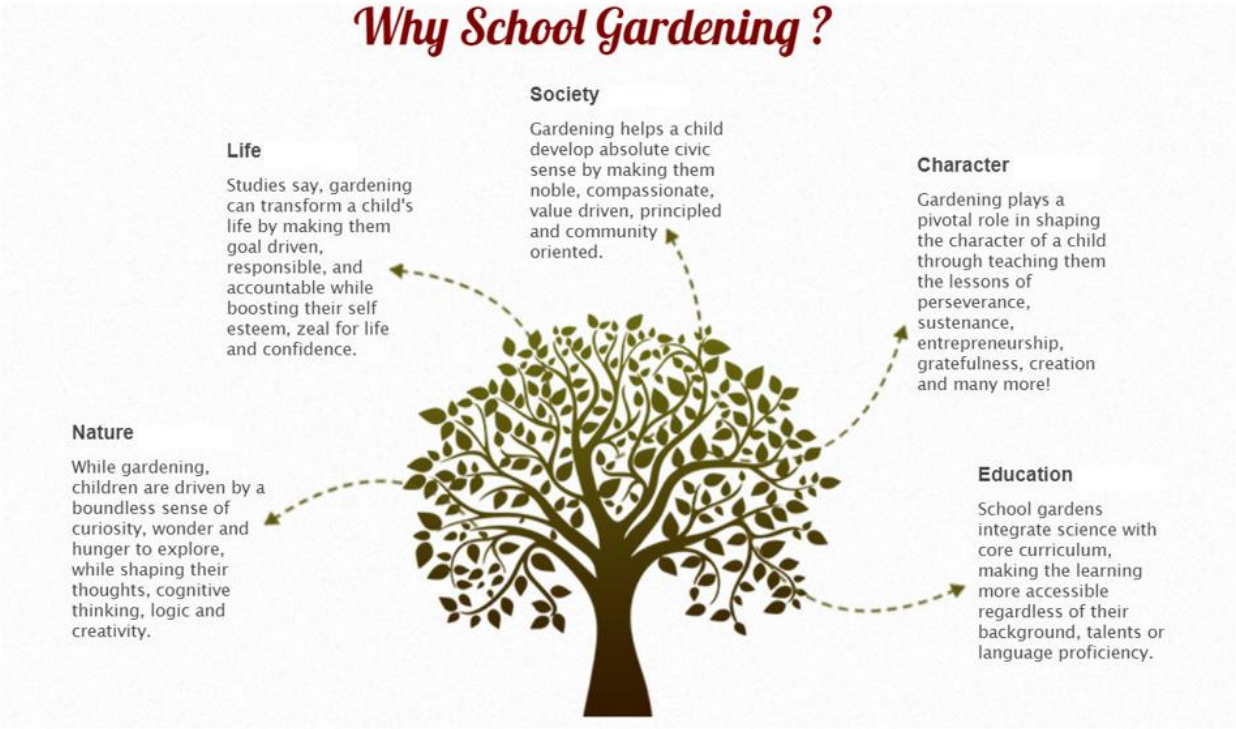
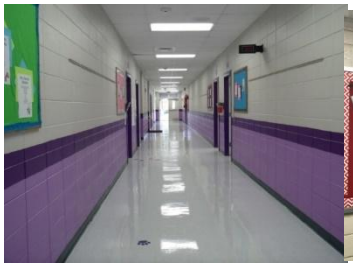


Figure 22:smart components at Schools

4.1.3 Proposed Interventions for Municipal Schools

- Re-designing both the entrance gate complex for the school campus.
- Designing new boundary wall with sand stone cladding similar to entrance gate complex.
- Redeveloping the toilets and drinking water facility.
- Proposing new Doors and window with mosquito mat fix on it for all the class rooms & labs.
- Proposing Biology lab.
- Tile work up to the skill level in all the class rooms & Labs
- Pin up boards for displaying works of the student.
- Dampness treatment and Wall finish in all the rooms
- Electric fitting with electric fixtures.

- Changing tin shade room into concrete slab



Tile cladding up to sill level

Pin up board for display work

Outdoor sitting

4.2 Proposed Layout Plan of Girls High School

Figure 23:Proposed Layout Plan of Girls High school

Figure 24: Proposed Elevations of Girls High school

Chapter 5. Block Estimates

Annexures

Detailed Design of Agra nagar Nigam Inter college school

Detailed design of Girls high school

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ALL ABOUT TRUST

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