

Vizag Smart City



**Greater VISAKHAPATNAM Smart City
Corporation Limited (GVSCCL)**

Existing Site Conditions Modernizing GVMC Schools as Smart Campus – “Smart Classrooms”

Annexure 1

Introduction

A New Vision for Vizag

SCP - 2015

‘A Resilient and Healthy Metropolis for PEOPLE’

The city of destiny is envisioned to become a leader in sustainability, healthy living, equality and innovation

.....Liveability.....

INSPIRATIONS

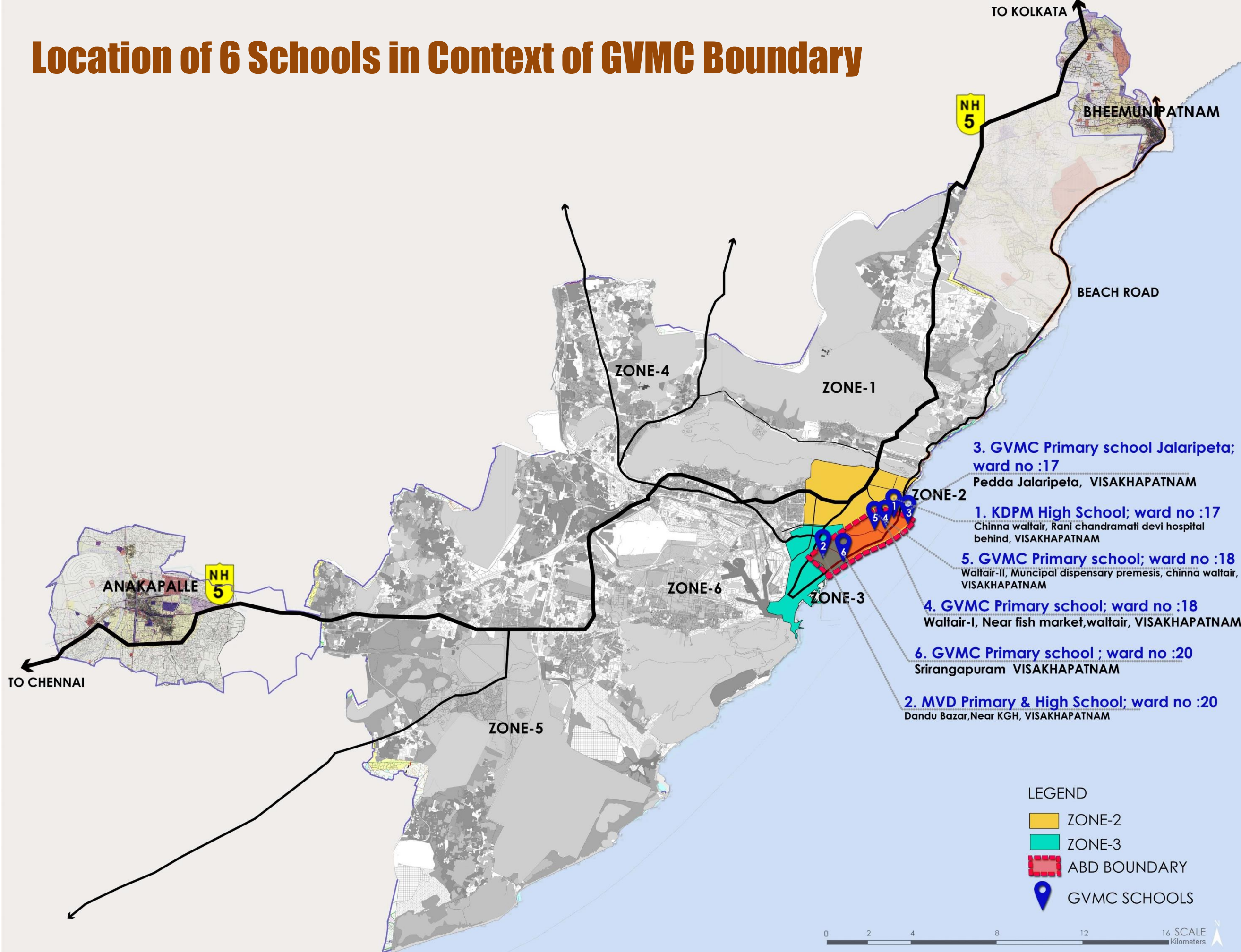
Giving an Identity to the City
placemaking

CANNES
FRANCE

BOULEVARD CROISSETTE, CANNES



Location of 6 Schools in Context of GVMC Boundary

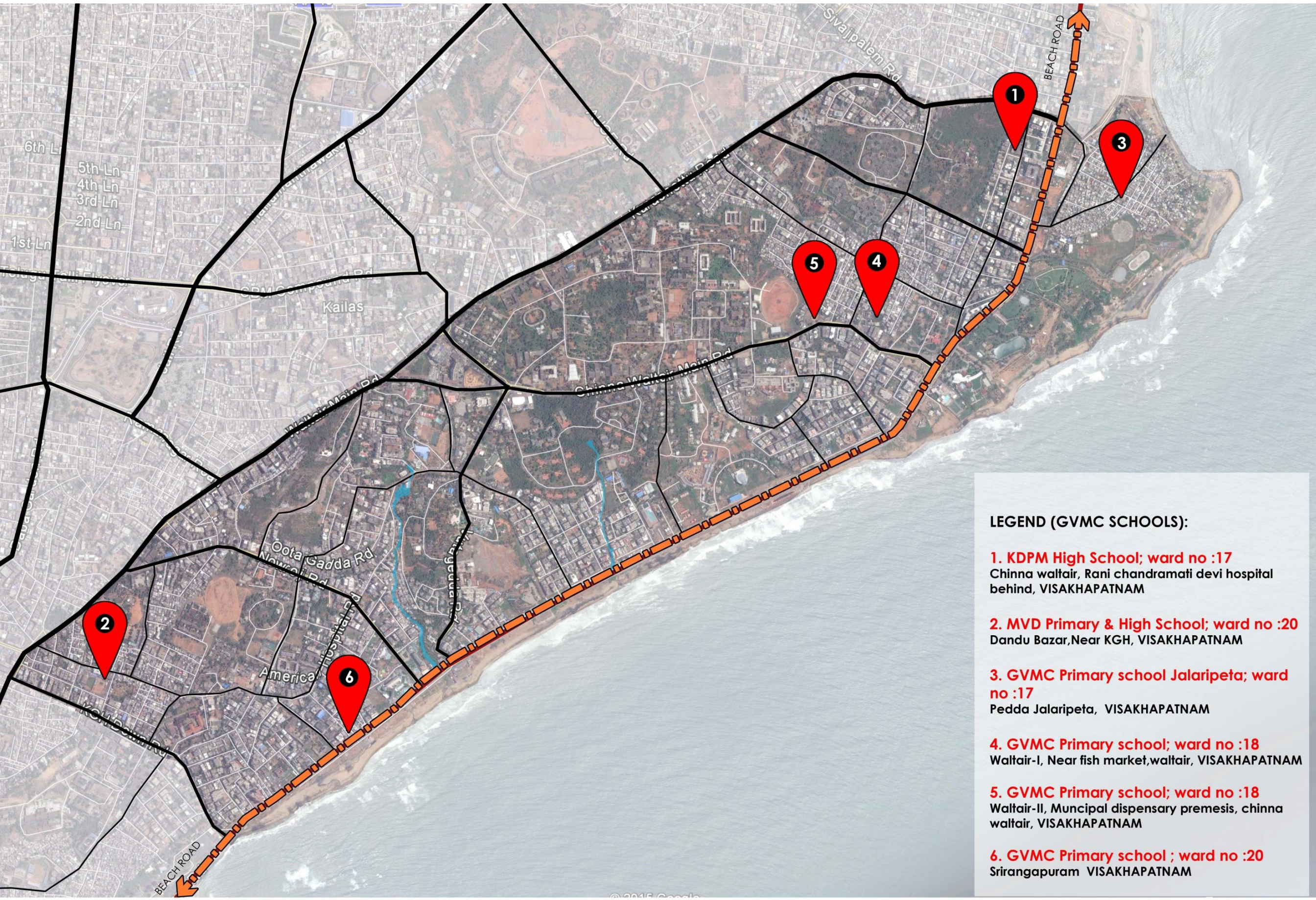


- 3. GVMC Primary school Jalaripeta; ward no :17**
Pedda Jalaripeta, VISAKHAPATNAM
- 1. KDPM High School; ward no :17**
Chinna waltair, Rani chandramati devi hospital behind, VISAKHAPATNAM
- 5. GVMC Primary school; ward no :18**
Waltair-II, Muncipal dispensary premissis, chinna waltair, VISAKHAPATNAM
- 4. GVMC Primary school; ward no :18**
Waltair-I, Near fish market,waltair, VISAKHAPATNAM
- 6. GVMC Primary school ; ward no :20**
Srirangapuram VISAKHAPATNAM
- 2. MVD Primary & High School; ward no :20**
Dandu Bazar,Near KGH, VISAKHAPATNAM

LEGEND

- ZONE-2
- ZONE-3
- ABD BOUNDARY
- GVMC SCHOOLS

Location of 6 Schools in Context of Area Based Development (ABD)



LEGEND (GVMC SCHOOLS):

- 1. KDPM High School; ward no :17**
Chinna Waltair, Rani Chandramati Devi Hospital behind, VISAKHAPATNAM
- 2. MVD Primary & High School; ward no :20**
Dandu Bazar, Near KGH, VISAKHAPATNAM
- 3. GVMC Primary school Jalaripeta; ward no :17**
Pedda Jalaripeta, VISAKHAPATNAM
- 4. GVMC Primary school; ward no :18**
Waltair-I, Near fish market, Waltair, VISAKHAPATNAM
- 5. GVMC Primary school; ward no :18**
Waltair-II, Municipal Dispensary premises, Chinna Waltair, VISAKHAPATNAM
- 6. GVMC Primary school ; ward no :20**
Srirangapuram VISAKHAPATNAM

Lot 1: KDPM High School (Ward no. 17) – Existing Infrastructure

		Existing condition	Remarks	Proposed condition
	Teacher student ratio	1:27		-
	Boys /girls	400/449		-
	Student toilet ratio	10:1		-
Play				
	Play ground	Nil	Small Play area	Proposed Multi-utility space with flexible play equipment
	Play equipment	Nil	Only internal play equipment available	
E-learning				
	Computer room	Yes		Both the computer room and library should be upgraded with better facilities.
	No of computers	10		
	Student computer ratio	85:1		
	Internet connection	Nil		
Digital class room	Nil			
	Library facility	Yes	Used as a class room No proper reading facility	
Basic Infra				
	Drinking RO system	Nil	Drinking water taps available but not RO	RO system with multiple taps
	Universally accessible	no		Toilets need ramps for access All blocks need ramps for better access
	Dust-bins	Nil		Bins at floor level and large bins at site level
Identity				
	Façade			Proposed improvements to create an unique identity to all GVMC schools
	Signage			Proposed signage to create an unique identity to all GVMC schools

Lot 2: MVD Primary & High School (Ward 20)– Existing Infrastructure

		Existing condition	Remarks	Proposed condition
	Teacher student ratio	1:20		-
	Boys girls ratio	174/205		-
	Student toilet ratio	35:1		-
Play				
	Play ground	Nil	Courtyard space	Proposed multi utility space
	Play equipment	Nil		Proposed flexible courts with badminton & volley ball courts
E-learning				
	Computer room	Yes		The facilities in library and computer has to be improved.
	No of computers	15		
	Student computer ratio	25:1		
	Internet connection	Nil		
Digital class room	Yes	Work in progress		
	Library facility	Yes	Dedicated room for library	
Basic Infra				
	Drinking RO system	Yes	A small plant with one tap	RO system with multiple taps
	Universally accessible	No	Ramps are not available	Need ramps for accessing girls toilet All building blocks need ramps
	Dust-bins	Nil		Bins at floor level and large bins at site level
Identity				
	Façade			Proposed improvements to create an unique identity to all GVMC schools
	Signage			Proposed signage to create an unique identity to all GVMC schools

Lot 3: GVMC Primary school Jalaripeta (Ward no 17) – Existing Infrastructure

		Existing condition	Remarks	Proposed condition
	Teacher student ratio	1:40		
	Boys : girls ratio	93 : 117		
	Student toilet ratio	32:1		
Play	Play ground	Very less open space	children play area can be created	Multi-Utility play areas in the available open space
	Play equipment	Nil		Children play equipment and multipurpose courts
E-learning	Computer room	Nil		Proposed refurbishment of the library into multi-purpose room with both Library facility, computers and digital class room with internet connection
	No of computers	Nil		
	Student computer ration	-		
	Internet connection	Nil		
	Digital class room	Nil		
	Library facility	Yes	Needs refurbishment with storage and seating	
Basic Infra	Drinking RO system	Nil		RO system with multiple taps
	Universally accessible	Nil		Proposed ramps for all building blocks
	Dust-bins	Nil		Bins at floor level and large bins at site level
Identity	Façade			Proposed improvements to create an unique identity to all GVMC schools
	Signage			Proposed signage to create an unique identity to all GVMC schools

Lot 4: GVMC Primary school Waltair 1– Existing Infrastructure

	Existing condition	Remarks	Proposed condition
Teacher student ratio	1:21		-
Boys : girls ratio	27:34		-
Student toilet ratio	10:1		-
Play	Play ground	Nil	Small Play area
	Play equipment	Nil	Proposed Multipurpose space with flexible play equipment Children play equipment and play courts
E-learning	Computer room	Nil	The unused room in the school can be converted into multiuse library/digital class room
	No of computers	1	
	Student computer ratio	62:1	
	Internet connection	Nil	
	Digital class room	Nil	
	Library facility	No	
Basic Infra	Drinking RO system	Nil	RO system with multiple taps
	Universally accessible	Yes	Toilets need ramps for access Improving the access with better guide rails
	Dust-bins	Nil	Bins at floor level and large bins at site level
Identity	Façade		Proposed improvements to create an unique identity to all GVMC schools
	Signage		Proposed signage to create an unique identity to all GVMC schools

Lot 5: GVMC Primary school Waltair II– Existing Infrastructure

	Existing condition	Remarks	Proposed condition
Teacher student ratio	1:25		
Boys : girls ratio	49:80		
Student toilet ratio	32:1		
Play	Play ground	Yes Large unused pockets	Proposed informal play areas, play courts, seating areas and multi purpose ground
	Play equipment	Nil	Children play equipment and play courts
E-learning	Computer room	Nil	A multi-use facility One class room will equipped with digital class facility, computers & seating for library purpose
	No of computers	1	
	Student computer ratio	129:1	
	Internet connection	Nil	
	Digital class room	Nil	
Library facility	No	Small storage with books no proper facility	
Basic Infra	Drinking RO system	Nil	RO system with multiple taps
	Universally accessible	Nil	Toilets are located in upper floors Convert one toilet in GF into universally accessible toilet Improving access by proposing ramps
	Dust-bins	Nil	Bins at floor level and large bins at site level
Identity	Façade		Proposed improvements to create an unique identity to all GVMC schools
	Signage		Proposed signage to create an unique identity to all GVMC schools

Lot 6: GVMC Primary school Srirangapuram– Existing Infrastructure

		Existing condition	Remarks	Proposed condition
	Teacher student ratio	1:22		
	Boys : girls ratio	22:21		
	Student toilet ratio	11:1		
Play				
	Play ground	Nil	No open space Pocket open space available	Proposed small play area with shade and seating
	Play equipment	Nil		Small play court
E-learning				
	Computer room	Nil		Proposed Smart class room
	No of computers	1		
	Student computer ration	43:1		
	Internet connection	Nil		
Digital class room	Nil			
	Library facility	No	Small storage with books no proper facility	
Basic Infra				
	Drinking RO system	Nil		RO system with multiple taps
	Universally accessible	Nil		Need ramps to improve access
	Dust-bins	Nil		Bins at floor level and large bins at site level
Identity				
	Façade			Proposed improvements to create an unique identity to all GVMC schools
	Signage			Proposed signage to create an unique identity to all GVMC schools

Vizag Smart City

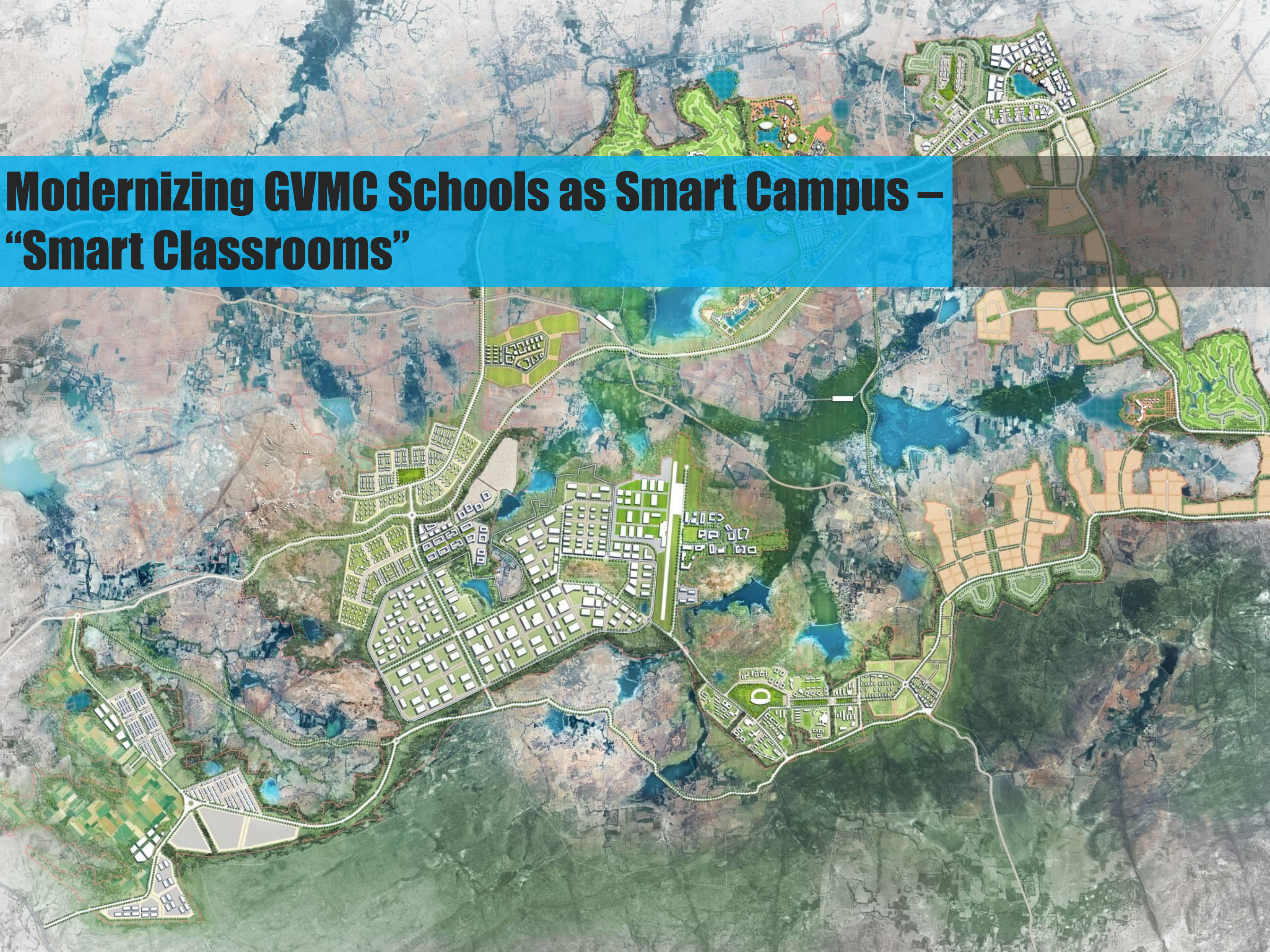


**Greater VISAKHAPATNAM Smart City
Corporation Limited (GVSCCL)**

Vision, Analysis & Benchmarking Modernizing GVMC Schools as Smart Campus – “Smart Classrooms”

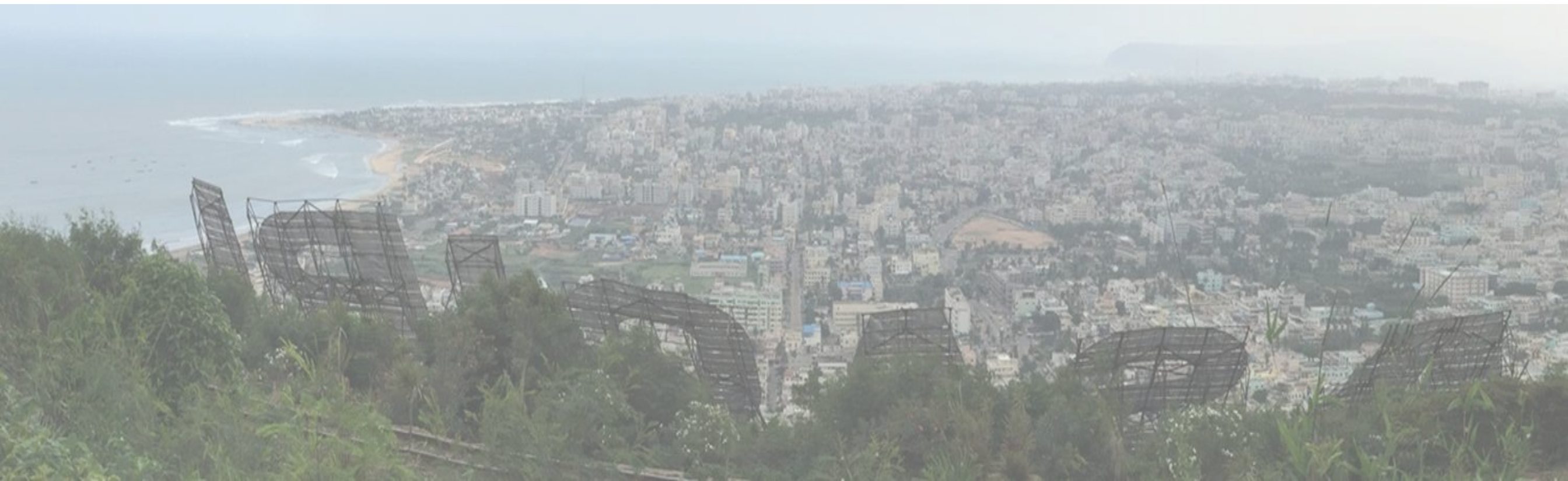
Annexure 2

Modernizing GVMC Schools as Smart Campus – “Smart Classrooms”



‘Benchmarking - Govt. Schools’

Modernization of GVMC Schools



Introduction:

- Total area of the school: **9.73 acres**
- Total strength of the school : **1621**
- Medium : **English**
- Standard: **I to XII**
- co-education
- Student teachers ratio- **30:1**

Facilities:

S.No.	Details	Number
1	Class rooms	37
2	Physics Lab	1
3	Chemistry Lab	1
4	Bio Lab	1
5	Jr. Science Lab	1
6	Language Lab	1
7	German Lab	1
8	Maths Lab	1
9	Art Room	1
10	Music Room	1
11	Sports Room	1
12	Auditorium	1
13	Library	1



Sports facilities:

S.No.	Details	Number
1	Volleyball Court	1
2	Tennis Court	1
3	Cricket ground	1
4	Basket ball Court	1
5	Football ground.	1

Computer education facilities:

S.No.	Details	Number
1	Total no of computers	108
2	Student computer ratio	10:1
3	Computer labs	3
4	Projectors	21
5	E-class rooms (interactive board, visualizer, wireless writing pad, projector etc.)	11

Government vocational higher secondary school for girls , Kozhikode

Introduction:

- Total area of the school: **3.4 acres**
- Total strength of the school : **2400**
- Medium : **English & Malayalam**
- Standard: Upper primary + Secondary+ Higher secondary + Vocational Higher secondary education
- Girls school
- Student teachers ratio- **30:1**

Facilities:

- Reading garden designed to encourage reading habit of the students
- Smart Class rooms, Labs, Libraries

Sports facilities:

- Indoor Stadium that houses a basket ball, volleyball, two badminton courts and a Gymnasium.
- Football cum Hockey ground

Other facilities:

- School building consists of a conserved architectural heritage building of 120 years and new buildings with latest construction techniques like pre-fab.



Government vocational higher secondary school for girls , Kozhikode



Before:



After :

Kendriya Vidyalaya no-1, Uppal, Hyderabad

Introduction:

- Total area of the school: **7.9 acres**
- Total strength of the school : **2285**
- Medium : **English**
- Standard: **I to XII**
- co-education
- Student teachers ratio- **40:1**

Facilities:

S.No.	Details	Number
1	Class rooms	47
2	Science lab	3
3	Jr. Science Lab	1
4	Maths Lab	1
5	Library	1
6	Auditorium	1

Computer education facilities:

S.No.	Details	Number
1	Total no of computers	107
2	Student computer ratio	13:1
3	Computer labs	4
4	Projectors	17
5	E-class rooms (interactive board, visualizer, wireless writing pad, projector etc.)	5

Sports facilities:

Indoor Activities

: IT

Outdoor Activities

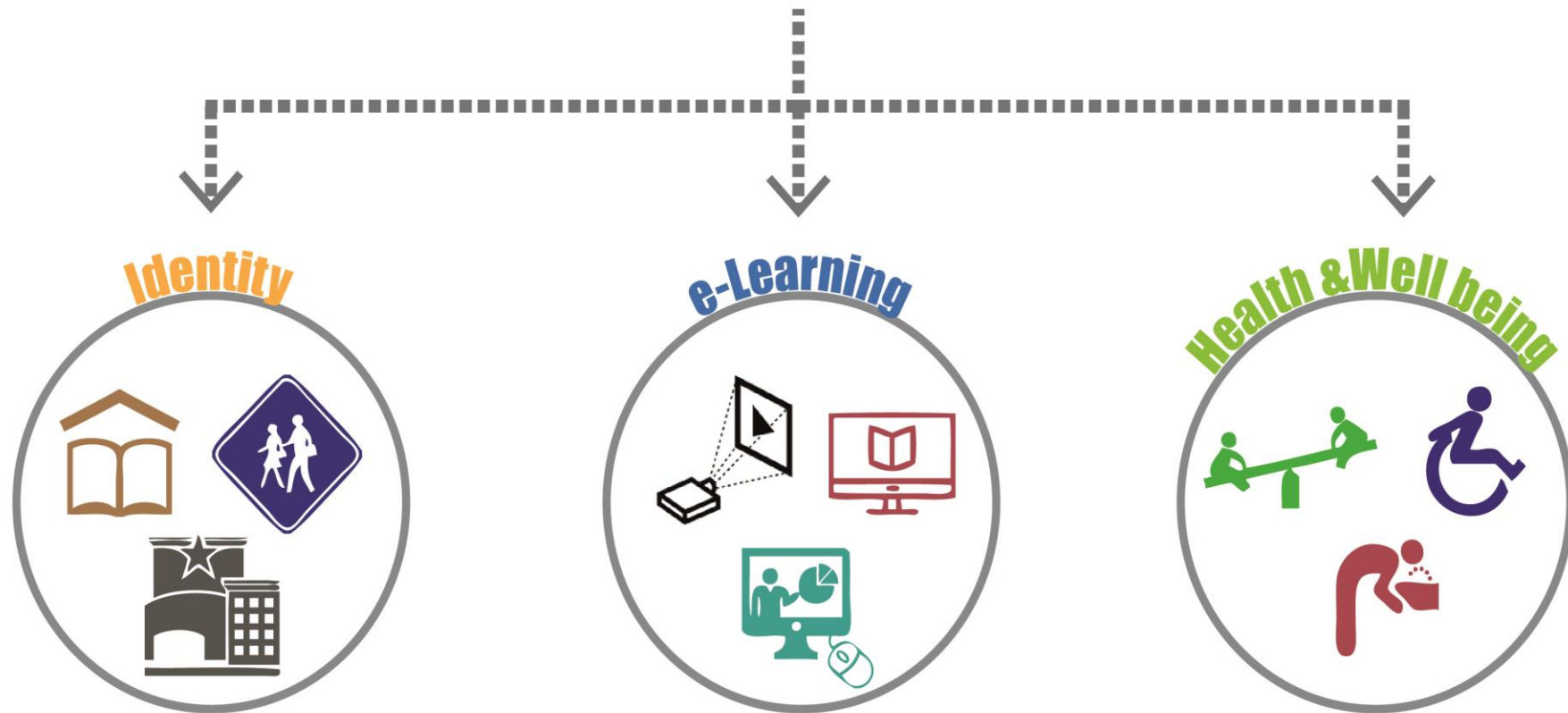
: Cricket ,Hockey, Basket ball ,Volley ball etc.



	Kendriya Vidyalaya, IIT Madras	Government vocational higher secondary school for girls , Nadakkavu , Kozhikode, Kerala	Kendriya Vidyalaya no.1, Uppal, Hyderabad
Position in the survey conducted for best government schools	1 st	5 th	9 th
Type of school	Primary + Secondary+ Higher secondary (I –XII); co-education	Upper primary + Secondary+ Higher secondary + Vocational Higher secondary education; Girls school	Primary + Secondary+ Higher secondary (I –XII); Co-education
Medium	English	English & Malayalam	English
Area of the school	9.73 acres	3.4 acres	7.9 acres
Total no of students	1621	2400	2285
Student teacher ratio <i>(Right To Education (RTE) Act recommends a PTR of 30:1 for primary classes and 35:1 for upper primary classes)</i>	30:1	30:1	40:1
Class rooms	37		47
Labs	4 labs(chemistry, physics, Bio etc.) 3 labs(language, maths, German)	Yes (no not specified)	4 labs(chemistry, physics, Bio etc.) 2 labs(language, maths,)
Extra circular activity rooms & auditorium	Music room, Sports room, Art room, Resource room, Auditorium	Auditorium, Music room, Sports Room	Auditorium room, music room, art room
Computer labs	3	1	4
No of computers	108		107
Student computer ration	10:1		13:1
Library	yes	Yes (Reading garden designed to encourage reading habit of the students)	yes
E-class rooms (interactive board, visualizer, wireless writing pad, projector etc.)	11	Multimedia Class rooms with digital projectors and Internet connectivity	5
Indoor sports activities	Indoor sports activities like TT, Gymnasium etc.	Indoor Stadium that houses a basket ball, volleyball, two badminton courts and a Gymnasium	TT
Out door games	Volleyball court, cricket ground, tennis court, food ball ground	Football cum Hockey ground	Cricket ,Hockey, Basket ball ,Volley ball etc.

VISION & OBJECTIVE - Components of the project

Modernisation of GVMC schools

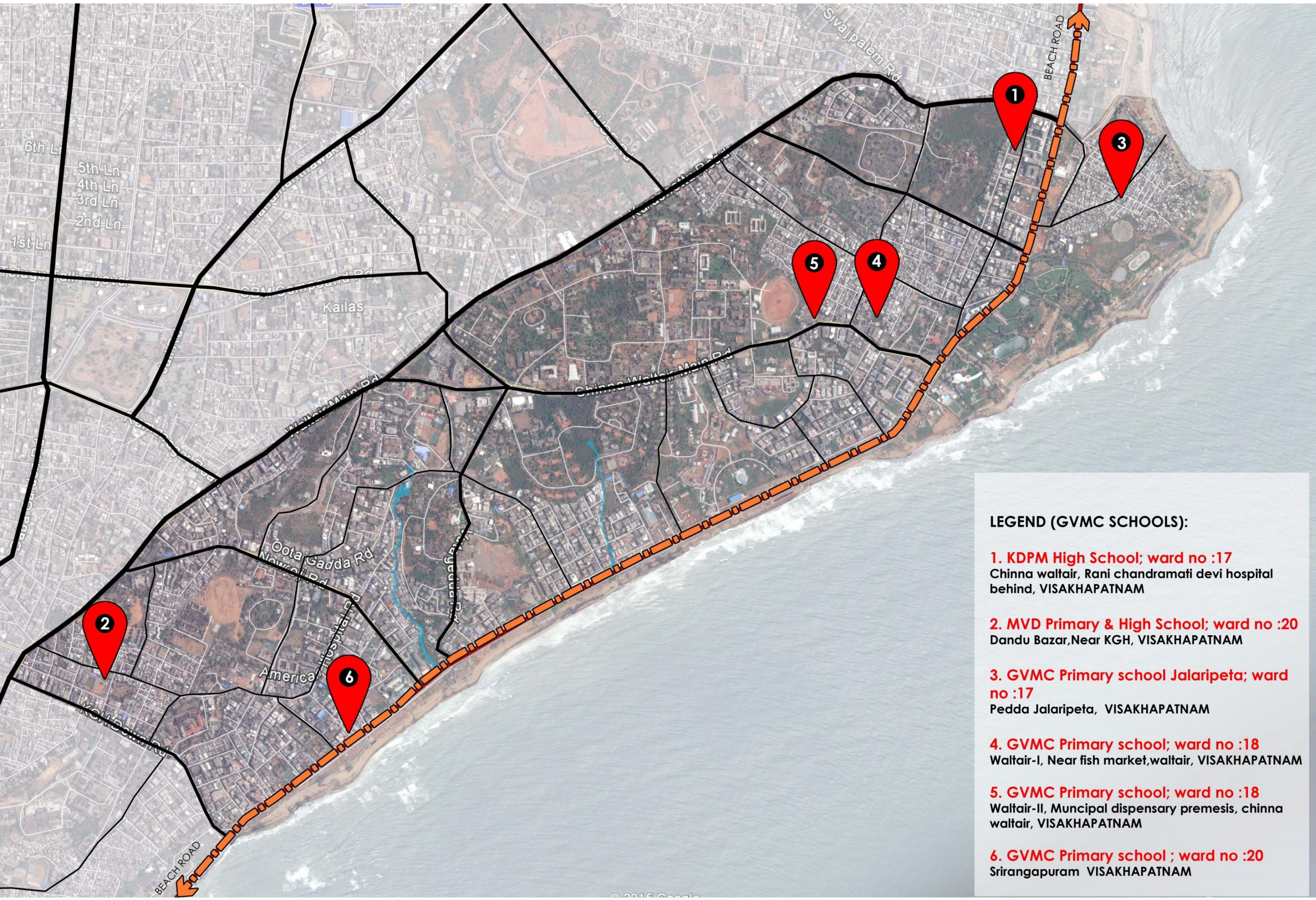


- Facade improvement
- Standard school signage

- Digital class rooms
- Digital library facility

- Sports infrastructure
- Improvement of toilets
- RO system in schools with water connection
- Barrier free access to the buildings and class rooms

Location of schools



LEGEND (GVMC SCHOOLS):

- 1. KDPM High School; ward no :17**
Chinna Waltair, Rani Chandramati Devi Hospital behind, VISAKHAPATNAM
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Srirangapuram VISAKHAPATNAM

creating an identity

EXISTING SITUATION



Existing Architectural Vocabulary

Most GVMC schools have a courtyard-corridor typology. The horizontal band of chajjas running over windows and doors along with columns at regular intervals break the monotony of the solid surface.

PROPOSED SITUATION

Option 01

creating a play of light and shade through colorful screens, extruded frames & projections on facade



art wall colorful projection box projection and contrasting school gate with colorful screens boundary wall painting (panchatantra)

architectural vocabulary

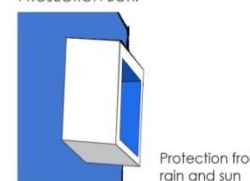
SCREENS:

Contrasting Screens repeating at regular intervals not only add color to the environment but also ensure safety of children.

colors used:

R: 255 G: 0 B: 0	R: 0 G: 36 B: 255	R: 0 G: 255 B: 192	R: 240 G: 255 B: 0	R: 55 G: 112 B: 205
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PROJECTION BOX:



Option 02

breaking the monotony of a solid surface by highlighting the voids through frames



contrasting frames bright solid color facade jaalis for safety white band defining parapet projection with contrasting color school gate boundary wall with contrasting coping

architectural vocabulary

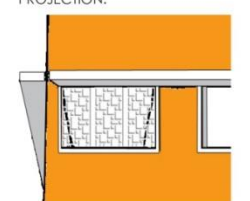
SCREENS:

Screens of a single color repeating at regular intervals to ensure safety of children.

colors used:

R: 245 G: 138 B: 0	R: 244 G: 241 B: 235
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PROJECTION:



Option 03

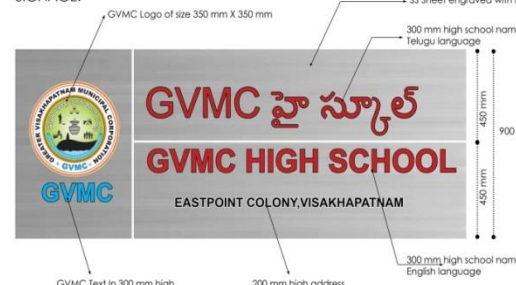
playing with vertical and horizontal surfaces at different levels using contrasting colors



vertical bands bright solid color facade internal walls painted in vibrant color window & door frames band defining parapet window & door frames school gate in the form of color pencils boundary wall with contrasting coping

architectural vocabulary

SIGNAGE:



RE-defining learning environment

CLASSROOMS- EXISTING SITUATION



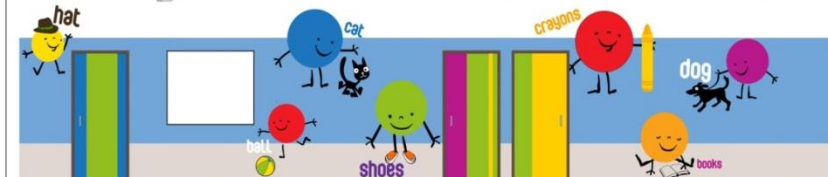
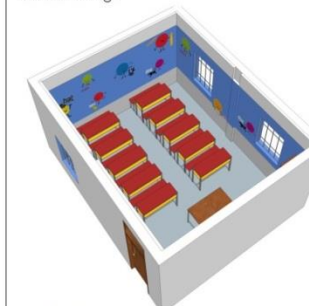
Most of the schools complain of insufficient classrooms. Those that exist are in dilapidated state and lack basic facilities like storage, notice boards, furniture, computers etc. While major interventions to improve daylighting and ventilation are necessary in the long run; introducing Wall and Floor Graphics, Smart Boards, lighting fixtures etc. are cost and time- effective solutions to revive classroom interiors and re-invent teaching/learning process.

CLASSROOMS- PROPOSED SITUATION

Wall graphics

creating a lively learning space

- Telling kids about colors, sizes and objects through cartoonish characters
- Depicting certain DIY activities for the kids to get involved, think and do. This hones their analytical and creative thinking
- Teaching kids about the water cycle, to teach them the process, also the importance of water
- Instilling the idea of school being a place for both fun & learning.



source: inCUBIS Classroom & E-board Concepts for Upgradation of Spaces

e-LEARNING

Encourage critical thinking and problem-solving through digital workspace and Intuitive design



source: TaCCL lab; Indian Education Society (Manik Vidya Mandir, Bandra); The Tribune (The Gurukul, Panchkula)

E-Learning

Components:

- Interactive Boards
- E-Library
- Computers
- Internet connectivity



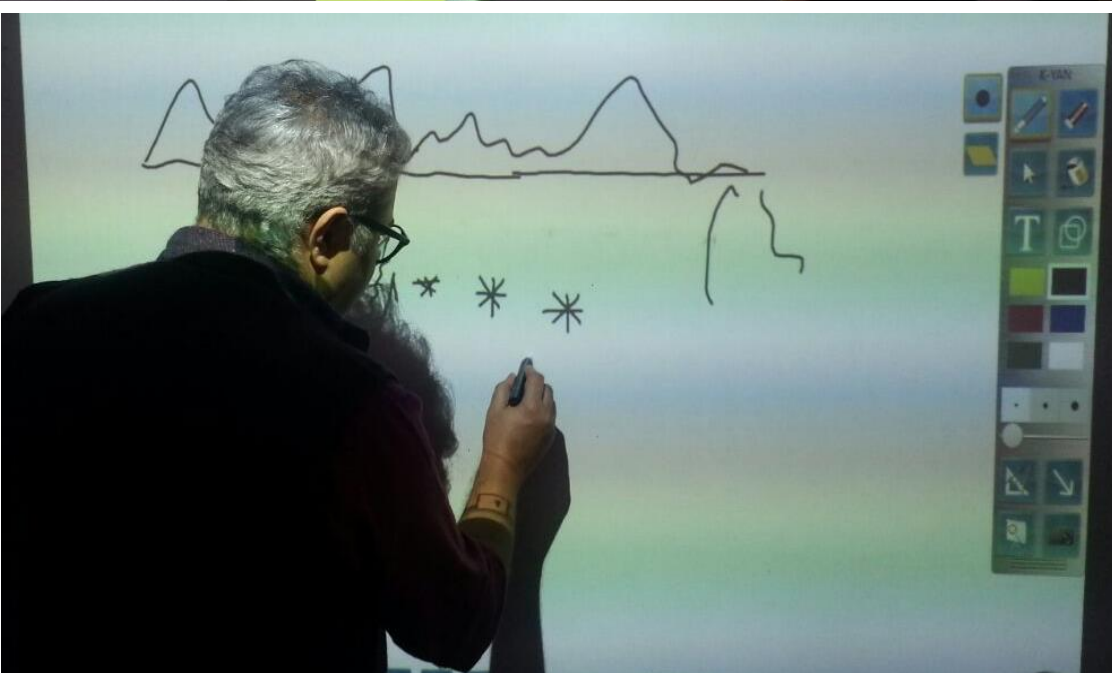
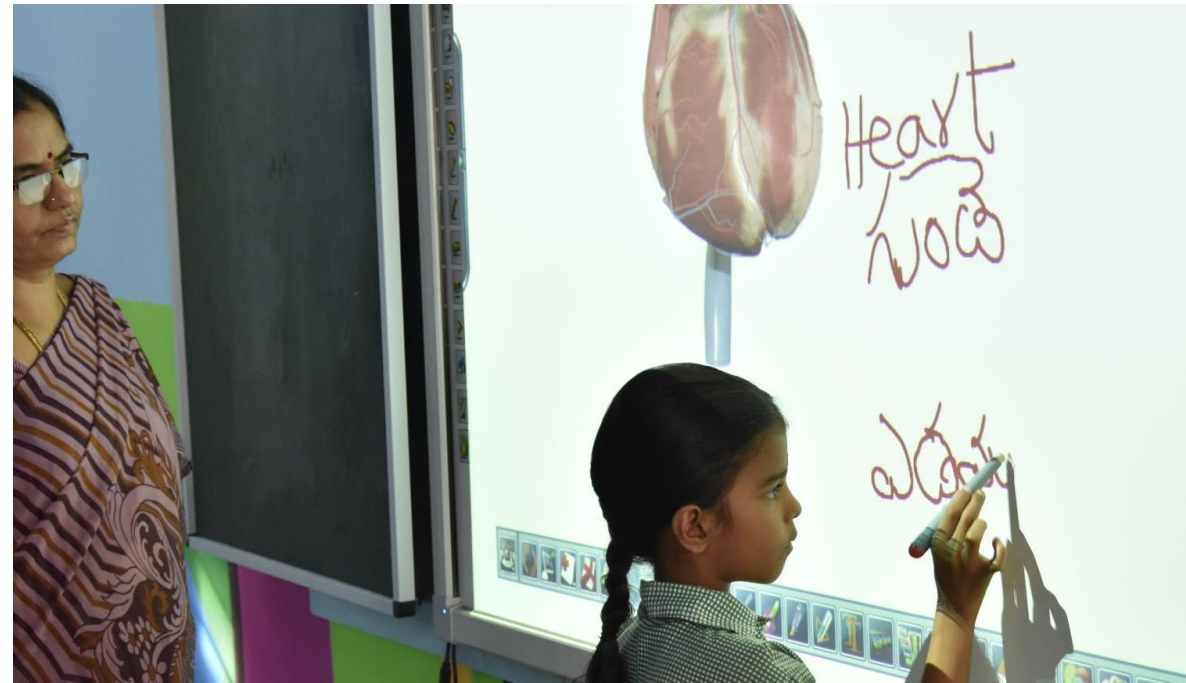
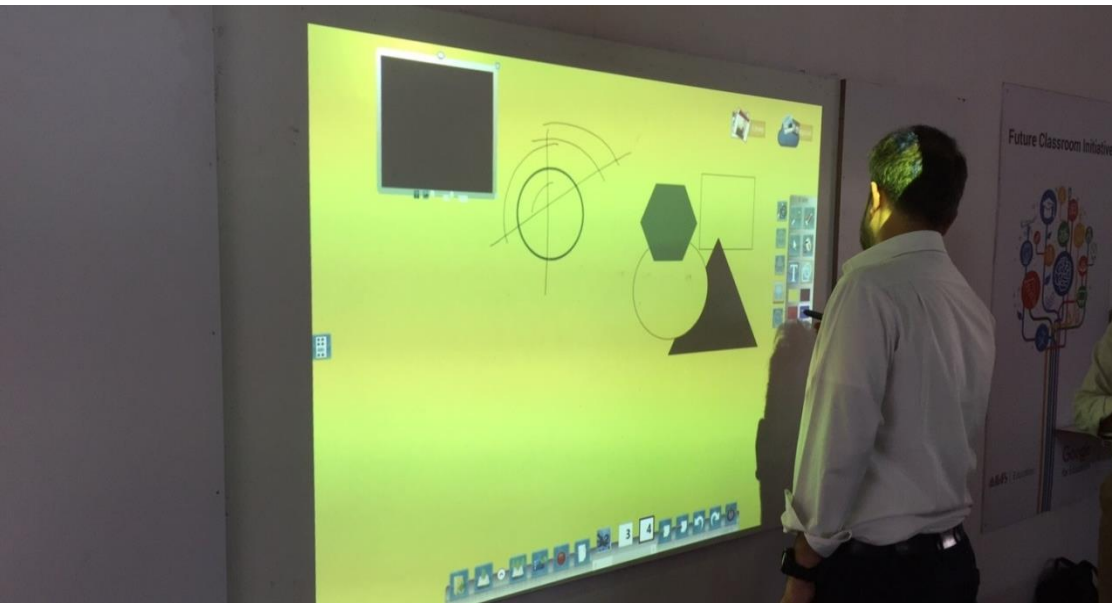
Examples of digital class room in other parts of the state (Tirupati Smart City)



E-Learning

Components:

- Interactive Classroom
- E-Library
- Virtual Boards, Laptops/chromebooks for students
- Internet connectivity



Examples of digital class room in Vizag (GVMC Primary and High School, Maduranagar, Visakhapatnam)

Examples of digital class room in other parts of the State (Tirupati Smart City)

STAKEHOLDER ENGAGEMENT –GVMC, Students & Parents – Nov 22/23



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STAKEHOLDER ENGAGEMENT –GVMC, Students & Parents – Nov 22/23



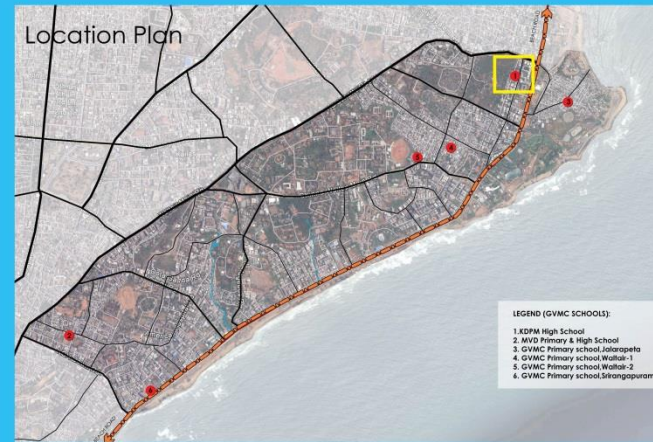
STAKEHOLDER ENGAGEMENT –GVMC, Students & Parents – Nov 22/23



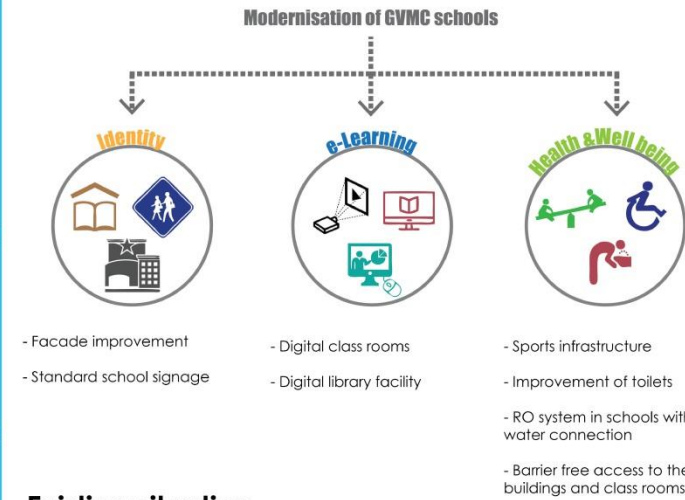
01 | KDPM High School

East point colony, Visakhapatnam

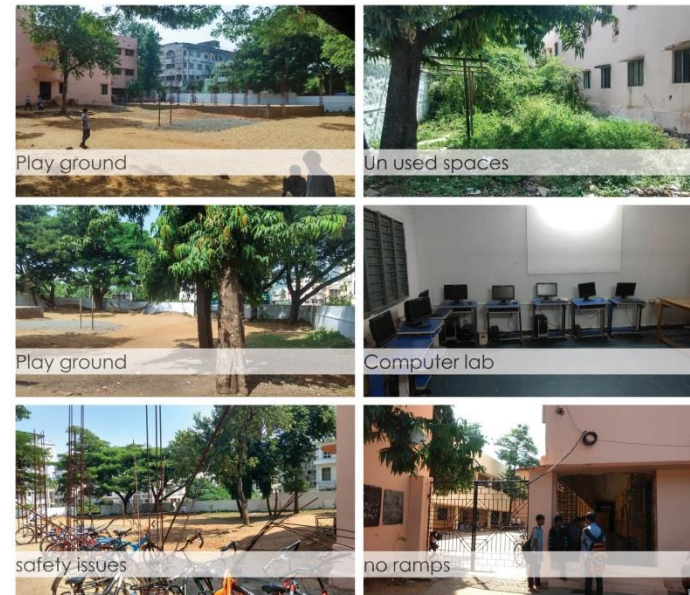
HIGH SCHOOL
 849 STUDENTS
 BOYS GIRLS STRENGTH 400;449
 TEACHER STUDENT RATIO 1:27
 SITE AREA : 3021 Sq.mt
 OPEN SPACE/STUDENT 2.9 Sq.mt
 STUDENT TOILET RATIO 10:1



Components of the project



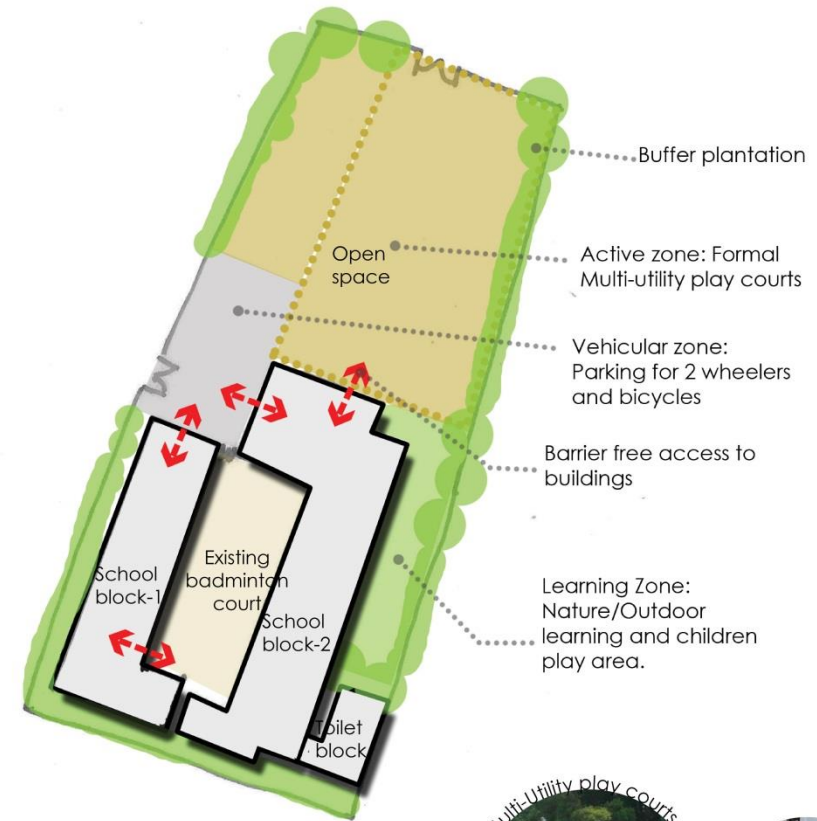
Existing situation



Infrastructure strategy

	Existing condition	Remarks	Proposed condition
Play	Play ground	Nil	Small Play area
	Play equipment	Nil	Only internal play equipment available
E-learning	Computer room	Yes	Both the computer room and library should be upgraded with better facilities.
	No of computers	10	
	Student computer ratio	85:1	
	Internet connection	Nil	
Library facility	Digital class room	Nil	Used as a class room No proper reading facility
	Library facility	Yes	
Basic infra	Drinking RO system	Nil	Drinking water taps available but not RO
	Universally accessible	no	Toilets need ramps for access All blocks need ramps for better access
	Dust-bins	Nil	Bins at floor level and large bins at site level
Identity	Façade		Proposed improvements to create an unique identity to all GVMC schools
	Signage		Proposed signage to create an unique identity to all GVMC schools

Conceptual diagram



Open space strategy



Identity | e-learning | Health & well being

Modernisation of GVMC schools

02 MVD Primary & High School

KGH Down, Visakhapatnam



PRIMARY & HIGH SCHOOL



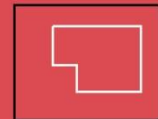
PRIMARY 150
HIGH 379



BOYS GIRLS STRENGTH
HIGH - 174;205



TEACHER STUDENT RATIO (HIGH)
1:20



SITE AREA : 1268 Sq.mt
OPEN SPACE : 233 Sq.mt



OPEN SPACE/STUDENT
0.6 Sq.mt



STUDENT TOILET RATIO
35:1

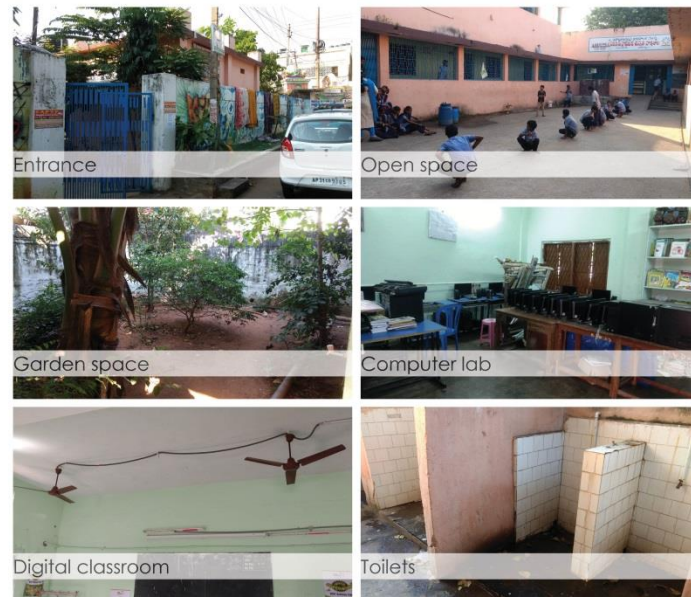
Components of the project

Modernisation of GVMC schools



- Identity**
 - Facade improvement
 - Standard school signage
- e-Learning**
 - Digital class rooms
 - Digital library facility
- Health & Well being**
 - Sports infrastructure
 - Improvement of toilets
 - RO system in schools with water connection
 - Barrier free access to the buildings and class rooms

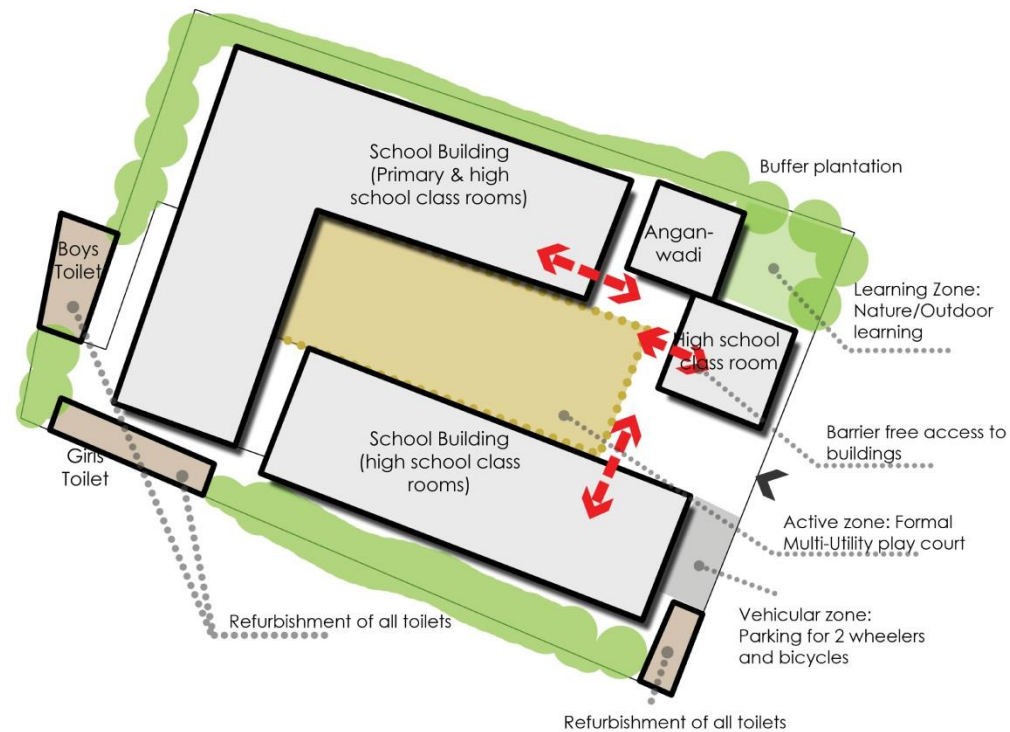
Existing situation



Infrastructure strategy

	Existing condition	Remarks	Proposed condition
Play	Play ground	Nil	Courtyard space
	Play equipment	Nil	Proposed multi utility space
E-learning	Computer room	Yes	The facilities in library and computer has to be improved.
	No of computers	15	
	Student computer ratio	25:1	
	Internet connection	Nil	
	Digital class room	Yes	
Basic infra	Library facility	Yes	Dedicated room for library
	Drinking RO system	Yes	A small plant with one tap
Identity	Universally accessible	No	Need ramps for accessing girls toilet All building blocks need ramps
	Dust-bins	Nil	Bins at floor level and large bins at site level
Identity	Façade		Proposed improvements to create an unique identity to all GVMC schools
	Signage		Proposed signage to create an unique identity to all GVMC schools

Conceptual diagram



Open space strategy



Modernisation of GVMC schools



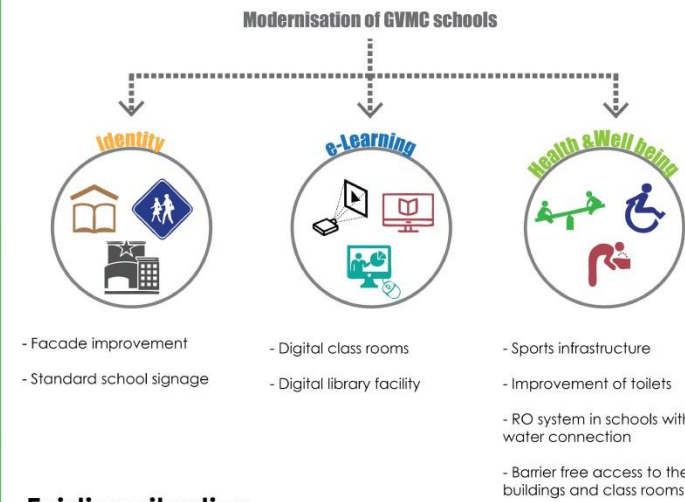
AECOM pwc

03 | GVMC Primary School

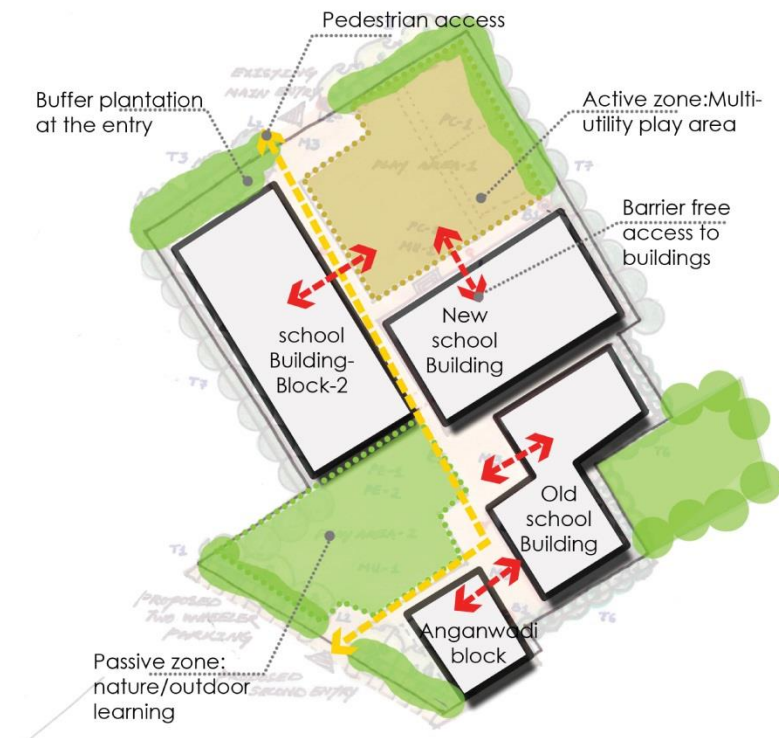
Jalaripeta, Visakhapatnam

PRIMARY SCHOOL
 250 STUDENTS
 BOYS GIRLS STRENGTH 120;130
 TEACHER STUDENT RATIO 1:40
 SITE AREA : 1133 Sq.mt
 OPEN SPACE/STUDENT 1.15 Sq.mt
 STUDENT TOILET RATIO 32:1

Components of the project



Conceptual diagram



Existing situation



Open space strategy



Infrastructure strategy

	Existing condition	Remarks	Proposed condition	
Play	Play ground	Very less open space	children play area can be created	
	Play equipment	Nil	Multi-Utility play areas in the available open space Children play equipment and multipurpose courts	
E-learning	Computer room	Nil	Proposed refurbishment of the library into multi-purpose room with both Library facility, computers and digital class room with internet connection	
	No of computers	Nil		
	Student computer ration	-		
	Internet connection	Nil		
Basic infra	Digital class room	Nil	Needs refurbishment with storage and seating	
	Library facility	Yes		
	Drinking RO system	Nil		RO system with multiple taps
	Universally accessible	Nil		Proposed ramps for all building blocks
Identity	Dust-bins	Nil	Bins at floor level and large bins at site level	
	Façade		Proposed improvements to create an unique identity to all GVMC schools	
	Signage		Proposed signage to create an unique identity to all GVMC schools	

Identity | e-learning | Health & well being

Modernisation of GVMC schools



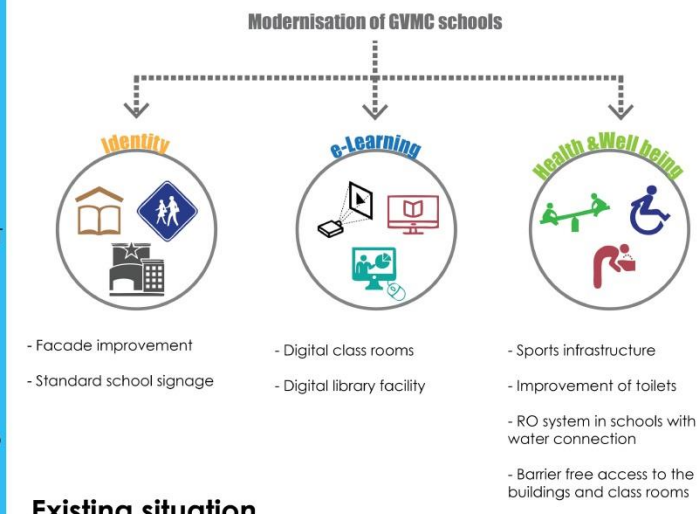
04 | GVMC Primary School

Waltair-I, Visakhapatnam

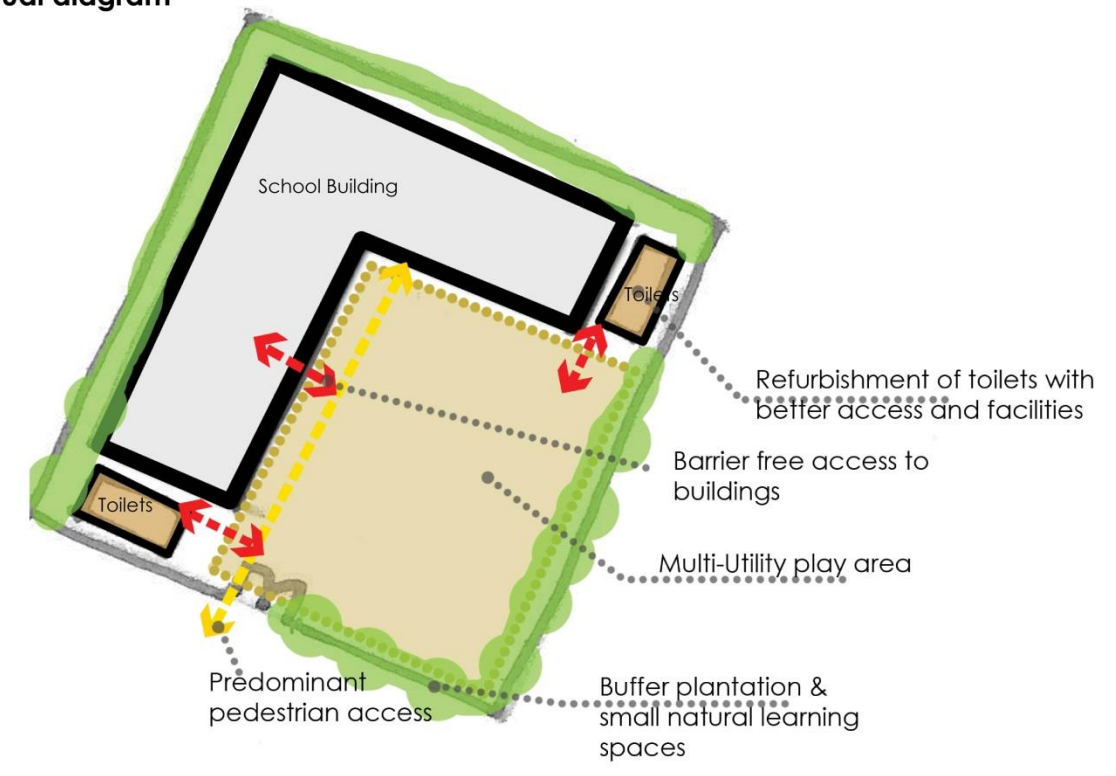
PRIMARY SCHOOL
62 STUDENTS
BOYS GIRLS STRENGTH
27:34
TEACHER STUDENT RATIO
1:21

SITE AREA : 395 Sq.mt
OPEN SPACE : 280 Sq.mt
OPEN SPACE/STUDENT
3.9 Sq.mt
STUDENT TOILET RATIO
10:1

Components of the project



Conceptual diagram



Existing situation



Open space strategy



Infrastructure strategy

	Existing condition	Remarks	Proposed condition
Play	Play ground	Nil	Small Play area
	Play equipment	Nil	Proposed Multipurpose space with flexible play equipment
e-learning	Computer room	Nil	The unused room in the school can be converted into multiuse library/digital class room
	No of computers	1	
	Student computer ratio	62:1	
	Internet connection	Nil	
Library facility	Digital class room	Nil	Small storage with books no proper facility
	Library facility	No	
Basic infra	Drinking RO system	Nil	RO system with multiple taps
	Universally accessible	Yes	Toilets need ramps for access Improving the access with better guide rails
	Dust-bins	Nil	Bins at floor level and large bins at site level
Identity	Façade		Proposed improvements to create an unique identity to all GVMC schools
	Signage		Proposed signage to create an unique identity to all GVMC schools

Identity | e-learning | Health & well being

Modernisation of GVMC schools

PRIMARY SCHOOL

129 STUDENTS

BOYS GIRLS STRENGTH
49:80

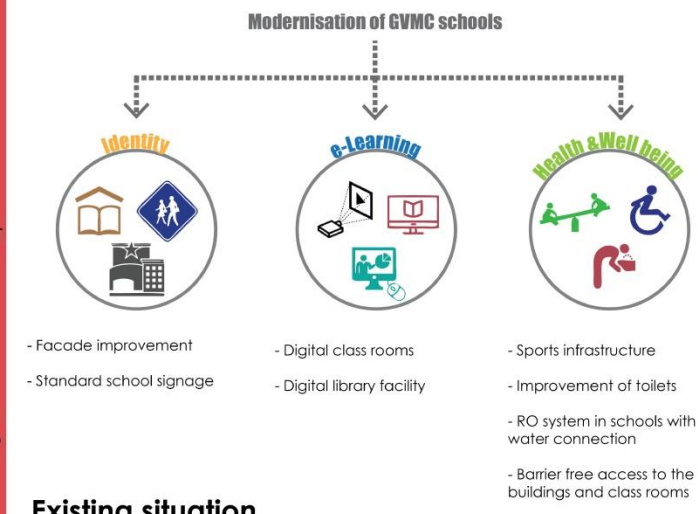
TEACHER STUDENT RATIO
1:25

SITE AREA : 2973 Sq.mt
OPEN SPACE : 2400 Sq.mt

OPEN SPACE/STUDENT
18 Sq.mt

STUDENT TOILET RATIO
32:1

Components of the project



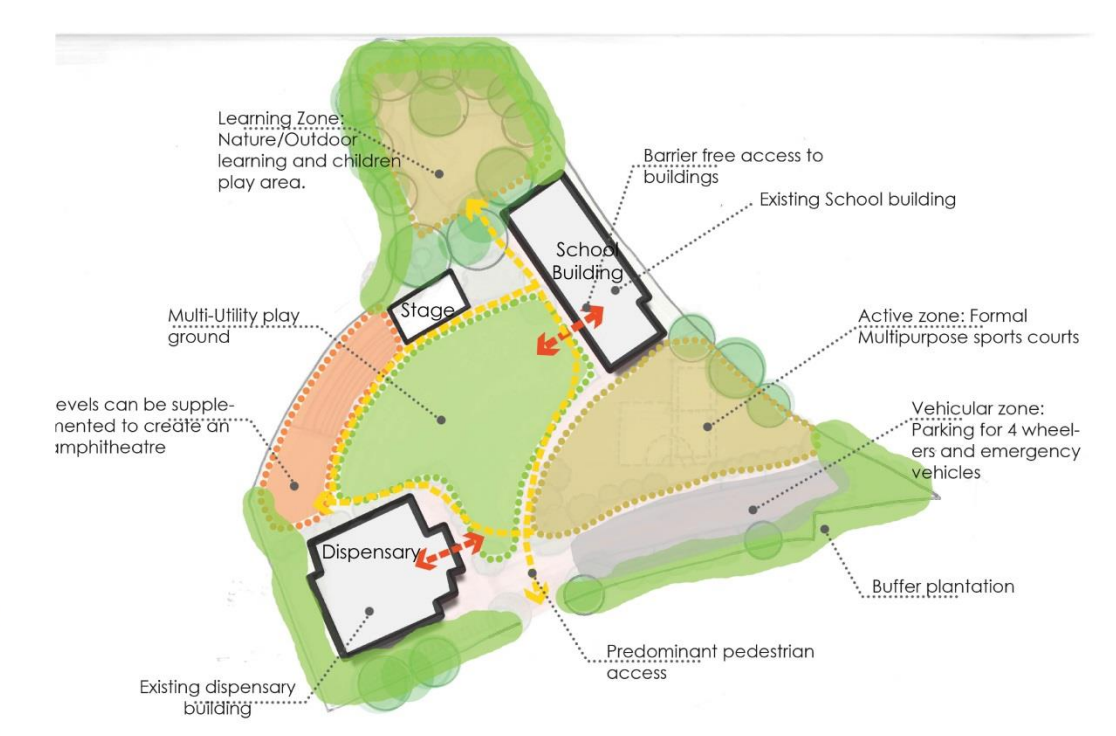
Existing situation



Infrastructure strategy

	Existing condition	Remarks	Proposed condition
Play	Play ground	Yes	Large unused pockets
	Play equipment	Nil	Children play equipment and play courts
e-learning	Computer room	Nil	A multi-use facility. One class room will be equipped with digital class facility, computers & seating for library purpose
	No of computers	1	
	Student computer ratio	129:1	
	Internet connection	Nil	
Library facility	Digital class room	Nil	Small storage with books no proper facility
	Library facility	No	
Basic infra	Drinking RO system	Nil	RO system with multiple taps
	Universally accessible	Nil	Convert one toilet in GF into universally accessible toilet. Improving access by proposing ramps
	Dust-bins	Nil	Bins at floor level and large bins at site level
Identity	Façade		Proposed improvements to create an unique identity to all GVMC schools
	Signage		Proposed signage to create an unique identity to all GVMC schools

Conceptual diagram



Open space strategy



06 GVMC Primary School

Srirangapuram, Visakhapatnam

PRIMARY SCHOOL
 43 STUDENTS
 BOYS GIRLS STRENGTH 22:21
 TEACHER STUDENT RATIO 1:22
 SITE AREA : 79 Sq.mt
 OPEN SPACE : 20 Sq.mt
 OPEN SPACE/STUDENT 0.45 Sq.mt
 STUDENT TOILET RATIO 11:1

Components of the project

Modernisation of GVMC schools

Identity

- Facade improvement
- Standard school signage

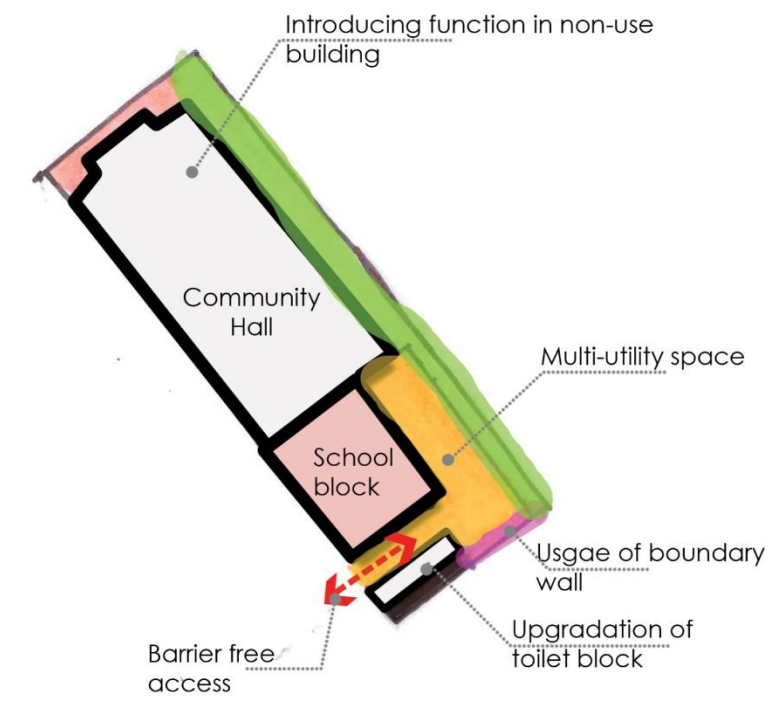
e-Learning

- Digital class rooms
- Digital library facility

Health & Well being

- Sports infrastructure
- Improvement of toilets
- RO system in schools with water connection
- Barrier free access to the buildings and class rooms

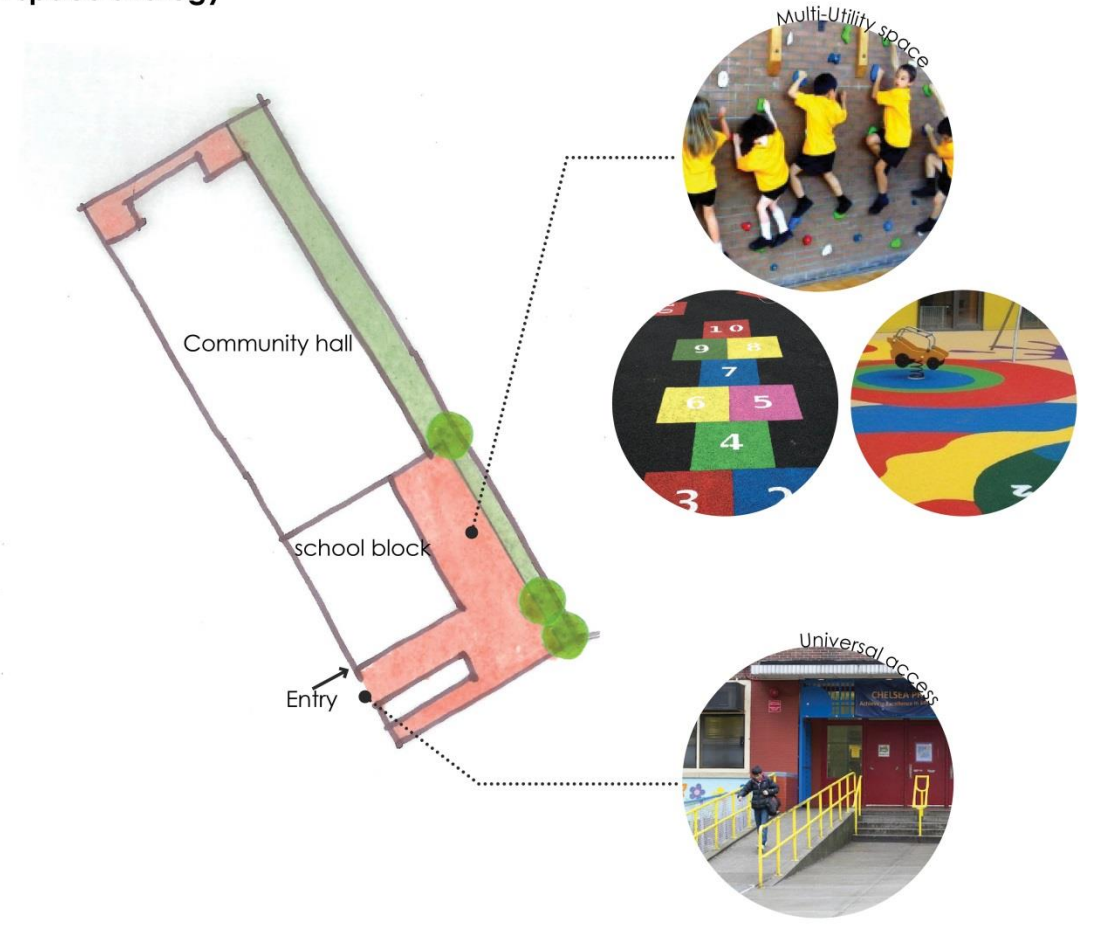
Conceptual diagram



Existing situation



Open space strategy



Infrastructure strategy

	Existing condition	Remarks	Proposed condition
Play	Play ground	Nil	No open space Pocket open space available
	Play equipment	Nil	Proposed small play area with shade and seating Small play court
e-learning	Computer room	Nil	
	No of computers	1	
	Student computer ration	43:1	
	Internet connection	Nil	
Basic Infra	Digital class room	Nil	
	Library facility	No	Small storage with books no proper facility
Basic Infra	Drinking RO system	Nil	RO system with multiple taps
	Universally accessible	Nil	Need ramps to improve access
	Dust-bins	Nil	Bins at floor level and large bins at site level
Identity	Façade		Proposed improvements to create an unique identity to all GVMC schools
	Signage		Proposed signage to create an unique identity to all GVMC schools

Identity | e-learning | Health & well being

Modernisation of GVMC schools



ANNEXURE 3

Bill of Quantities

Annexure 4: General Specifications for Various Works to be followed in the project duration including O&M period, by the Selected Bidder

1. QUALITY STANDARDS AND CONTROL

1.1. PRODUCTS AND EXECUTION

1.1.1. INCOMPLETE DOCUMENTATION

- Where and to an extent that products are not fully documented they should be:
 - of standard appropriate to the nature and character of that part of works where they will be used;
 - suitable for the purpose stated or reasonably to be inferred from the project documents;
- Omissions or errors in description or quantity shall not vitiate the Contract nor release the Contractor from any obligations or liabilities.

1.1.2. INSTALLER QUALIFICATIONS & SKILLS

- Operatives should be appropriately skilled and experienced for the type and quality of work.
- Operatives should be able to produce evidence of their qualifications when requested.

1.1.3. PRODUCTS

- Products should be new and unused, properly wrapped, boxed and shipped to site (and approved by the Client/Client's representative);
- Supply of the product should be from the same source or manufacturer;
- Whole quantity of the product should be of consistent kind, size, quality and overall appearance;
- Where critical, measure a sufficient quantity to determine compliance;
- Deterioration should be prevented during the lifecycle of the project, products should be ordered in suitable quantities to a programme and used in appropriate sequence.

1.1.4. EXECUTION

- Generally fix, lay, apply, install products securely, accurately, plumb, neatly and in specified alignment;
- Do not use different colour batches where they can be seen together;
- Check on-site dimensions;
- Finished work should be free of defects, not damaged, disfigured, dirty, and faulty or out of tolerance;
- Adjust joints open to views so they are even and regular.

1.1.5. PROTECTION

- The Contractor shall exercise extreme care in the execution of his work, will provide all necessary safeguards and exercise caution against injury or defacement of existing site. He will ensure that his works in no way shall adversely affect the work of others or adjoining properties;
- The Contractor/Landscape Contractor will prevent vehicles of any kind from passing over sidewalks, curbs, etc., unless adequate protection is provided. If

any damage to existing roads or kerbs occurred, they shall be rectified immediately by the contractor at his own cost to the original or better condition;

- The Contractor/Landscape Contractor is responsible for any damages resulting from hard landscape operations, and will repair all damages and return the area to its previous condition at his own expense.

1.1.6. COMPLIANCE

- Proprietary specifications should be followed;
- Evidence that the proprietary product specified has been supplied and used on site should be retained by Contractor;
- Should specified product being not available, notify the Client's Representative with both available substitution and reasonable explanation for approval of Client's Representative.

1.1.7. INSPECTIONS

- Notify Client's Representative in writing 2 days in advance when reasonable sections of the following stages are ready for inspection on the works quality. Obtain confirmation from Client's Representative before proceeding to next stage. Inspections should be done at the following stages:
 - Delivery of each shipment of materials to site,
 - After spreading and levelling site area,
 - At ready for Substantial Completion inspection,
 - At completion of every three-months of maintenance period.
- Inspection or any other action must not be taken as approval unless confirmed in writing. Written statement should include:
 - Date of the inspection,
 - Part of the work inspected,
 - Characteristics which are approved,
 - Extent and purpose of the approval,
 - Any associated conditions.

1.1.8. RELATED OR NEW WORK

- Provide all traders with necessary details of related types of work;
- Before commencing new type/section of work ensure previous work is:
 - Appropriately complete,
 - In accordance with project documents,
 - To suitable standard,
 - In suitable condition to receive new work,
- Ensure all necessary preparatory work has been carried out.

1.1.9. MANUFACTURERS RECOMMENDATIONS/INSTRUCTIONS

- Always comply with manufacturers printed recommendations and instructions current on the date of the invitation to tender;
- If there are any changes to recommendations or instructions – submit details to Clients Representative prior to ordering for approval.

1.2. SAMPLES AND APPROVALS

1.2.1. GENERAL

- Products or installations should comply with all specification requirements and in respect of the stated or implied characteristics to match a sample expressly approved as a standard for the purpose.

1.2.2. APPROVAL OF PRODUCTS

- Submissions, samples, inspections and tests should be undertaken and arranged to suit the Works programme;
- Do not confirm orders or use the product until approval of the sample has been obtained;
- Approved sample should be retained in good, clean condition on site. Remove when no longer required.

1.2.3. APPROVAL OF EXECUTION

- Submissions, samples, inspections and tests should be undertaken and arranged to suit the Works programme;
- Do not conceal, or proceed with affected work until compliance with requirements is confirmed.

1.2.4. SETTING OUT/ACCURACY

- If tolerances and dimensions likely to be critical to execution or difficult to achieve proposal or site inspection of the appearance should be arranged for as early as possible;
- General tolerances (maximum) should comply with approved local standards.

1.3. WORK RELATED TO OR AROUND SERVICES

1.3.1. COMPLIANCE WITH REGULATIONS

- Work related to or around any existing or new services should comply with the Bylaws and Regulations of the relevant statutory authority;
- Any relevant documentation required to start the work or at the completion to be submitted to relevant statutory authorities. This should be included in Detailed Programme of Work;
- Site organisation staff must include one or more persons with appropriate knowledge and experience of mechanical and electrical engineering services to ensure compatibility between engineering and the Works generally;
- Submit when requested CVs or other documentary evidence relating to the staff concerned;
- If you have read this document please contact the Clients Representative.

1.4. SUPERVISION/INSPECTION/DEFECTIVE WORK

1.4.1. KICK-OFF MEETING

- Prior to commencing work, the Contractor will meet the PMC and all other concerned parties on the site to review the work under this section. The Contractor will request this meeting in writing one (1) week prior to the desired meeting time;

- The meeting will define the scope of work of the Contractor, and also identify all key stakeholders involved in the overall site works;
- The sequence and schedule for Works, key contacts and communication protocol shall be discussed;
- Contractor to highlight if any additional information is required by him prior to commencement of works.

1.4.2. SUPERVISION

- In addition to the constant management and supervision of the Works provided by the Contractor's person in charge, all significant types of work must be under the close control of competent site supervisors to ensure maintenance of satisfactory quality and progress. C.V's of proposed Works Superintendent and Site Supervisors with their documented experience to be submitted with Tender documents;
- Replacement of the person in charge on site should be notified to the Client/Client's representative minimum one week in advance and approval in writing received prior to replacement of said person.

1.4.3. OVERTIME WORKING

- Overtime work shall be planned in advance with due consultation of the Client's Representative. Prior to overtime being worked, submit details of times, types and locations of work to be done for approval. Minimum one week notice is required;
- If works have been executed during overtime for which notice has not been given, it may be required to be opened up for inspection and reinstated at the Contractor's expense.

1.4.4. DEFECTS IN EXISTING WORK

- When defects discovered, immediately give notice. Do not proceed with affected related work until response from the Clients Representative has been received;
- Documented remedial work. Do not execute work which may
 - hinder access to defective products or work;
 - be rendered abortive by remedial work.

1.4.5. ACCESS FOR INSPECTION

- Before removing scaffolding or other facilities for access, give notice of not less than 48 hours.

1.4.6. TESTS AND INSPECTIONS

- Agree and record dates and times of tests and inspections to enable all affected parties to be represented;
- Confirm each test or inspection minimum 2 days in advance. If sample or test is not ready, agree a new date and time;
- Always submit a copy of test certificates to Clients Representative upon receipt and retain copies on site.

1.4.7. RECTIFICATION OF DEFECTIVE PRODUCTS/ EXECUTIONS

- Immediately after any execution or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection,

testing, making good, adjustment of the Contract Sum, or removal and re-execution of works;

- Such proposals may be unacceptable and contrary instructions may be issued.

1.4.8. MEASURES TO ESTABLISH ACCEPTABILITY

- Wherever inspection or testing shows that the work, materials or goods are not in accordance with the contract and measures (e.g. testing, opening up, experimental making good) are taken to help in establishing whether or not the work is acceptable, such measures:
 - **Will** be at the expense of the Contractor;
 - **Will not** be considered as grounds for extension of time.

1.4.9. QUALITY CONTROL

- Establish and maintain procedures to ensure that the Works, including the work of subcontractors, comply with specified requirements;
- Maintain full records, keep copies on site for inspection, and submit copies on request;
- Records should include:
 - Identification of the element, item, batch or lot including location in the Project Works,
 - Nature and dates of inspections, tests and approvals,
 - Nature and extent of non-conforming work found,
 - Details of corrective action.

1.5. WORK AT OR AFTER COMPLETION

1.5.1. WORK BEFORE COMPLETION

- Make good (correct/repair) all damage consequent upon the Works;
- Remove all temporary markings, coverings and protective wrappings unless otherwise instructed,
- Clean work site, thoroughly inside and out, including all accessible ducts and voids. Remove all splashes deposits, efflorescence, rubbish and surplus materials,
- Cleaning materials and methods for proprietary products should follow recommendations by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction,
- Substances hazardous to health information sheets to be obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers,
- For minor faults - touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions,
- Any moving parts of new work should be adjusted, eased and lubricated as necessary to ensure easy and efficient operation.

1.5.2. SECURITY AT COMPLETION

- Leave the Works and storage areas secure with, where appropriate, all accesses closed and locked. Account for and adequately label all keys and hand over to Client.

1.5.3. MAKING GOOD DEFECTS

- For any remedial work arrange access with the Client's Representative,
- For rectification give reasonable notice for access to the various parts of the Works,

- For completion notify when remedial works have been completed
 - Code of practice for external facings and veneers: Part I
 - Stone facing
 - Precast concrete blocks for paving

2. HEALTH AND SAFETY

2.1. GENERAL

The safe completion of the works is a primary aim of the contract. All works should be executed in compliance with all applicable statutory requirements. Below listed are general requirements and items, contractor should take care of and provide in respect to Health and Safety onsite.

Contractor should always liaise with Client's Health and Safety Representative during pre-construction, construction and post construction/maintenance stage of work.

Client's Health and Safety Representative responsibilities should include the following;

- advise and assist the Client, Contractor and Consultants involved in project with their Health and Safety duties,
- notify details of the project to respective Health and Safety authorities,
- co-ordinate health and safety aspects of construction work and co-operate with others involved with the project,
- facilitate good communication between the client, designers and contractors,
- liaise with the principal contractor regarding ongoing work,
- identify, collect and pass on pre-construction information,
- prepare/update the health and safety file on a weekly basis.

2.2. PRE-CONSTRUCTION HEALTH AND SAFETY INFORMATION

2.2.1. TENDER STAGE

- Health and Safety should be taken into consideration at tender stage. Any major Health and Safety items which may affect the tender should be included in the proposal.

2.2.2. POST TENDER

- Post tender and prior to commencing works on site Contractor to submit detailed Health and Safety Plan (Construction Stage Health and Safety Plan);
- Health and Safety Plan to be approved by the Client/Client's representative prior to handing the site to Contractor and start of any works.

2.2.3. HEALTH AND SAFETY PLAN

- Health and Safety Plan to be submitted by Contractor to the Client/Client's representative for written approval;
- Following items should be included as part of the plan
 - Method statements on how risks from hazards identified in pre-construction information and other hazards identified by the Contractor will be addressed,
 - Details of management structure and responsibilities, with clearly stated point of contact in case of emergency,
 - Arrangements for issuing health and safety directions,

- Selection procedures for ensuring competency of other contractors,
- Procedures for informing other contractors and employees of health and safety hazards,
- Procedures for communications between the project team, other contractors and site operatives,
- Arrangements for coordination and cooperation between contractors,
- Procedures for carrying out risk assessments and for managing and controlling the risks,
- Emergency procedures including those for fire prevention and escape,
- Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded,
- Arrangements for welfare facilities,
- Procedures for ensuring that all persons on site have all the required safety gear and have received relevant health and safety information and training,
- Arrangements for ensuring that all visitors to site receive the required safety gear and training prior to entering the site,
- Arrangements for consulting with and taking views of people on site,
- Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance,
- Monitoring procedures to ensure compliance with site rules, health and safety standards and statutory requirements.
- In addition, all statutory health and safety requirements should be included as part of the Health and Safety Plan.

2.3. CONSTRUCTION

2.3.1. SITE PREPARATION - GENERAL

- All health and safety measures and procedures as stated in Health and Safety Plan should be followed during site preparation,
- Construction site should be fenced off from general public. No unauthorised access should be possible,
- Any fencing and barriers should be clearly visible during the day and night time,
- If public pedestrian/vehicular roads are blocked due to construction works, alternative route should be provided and clearly labelled,
- Any excavated areas, particularly pits and deep excavation, should be fenced off and clearly identified.

2.3.2. GENERAL EXECUTION HAZARDS

- All common hazards during execution should be controlled by good management and common practice.

2.3.3. GENERAL PRODUCT HAZARDS

- When dealing with hazardous substances site personnel exposure levels must not exceed occupational exposure standards (upper limit on the acceptable concentration of a hazardous substance in workplace) and maximum exposure limits stated in the relevant local regulations.

2.3.4. SECURITY

- Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft,
- Take all reasonable precautions to prevent unauthorized access to the site storage areas, site facilities, the Works and adjoining property,
- Liaise with Client's Health and Safety Representative.

2.3.5. STABILITY

- Maintain the stability and structural integrity of the Works and adjacent structures during the Contract,
- When design loads included, obtain details, support as necessary and prevent overloading.

2.3.6. OCCUPIED PREMISES

- Any existing buildings on or along the site will be occupied and/ or used during the Contract as follows need to be secured and provided an access if required,
- All works should be carried out without undue inconvenience and nuisance and without danger to occupants and users.

2.3.7. COMMUNICATION

- Clear communication procedures should be established and followed as per Health and Safety Plan on daily basis,
- Health and Safety information should be provided across the site by clearly marked access points, emergency exits, medical points etc.

2.3.8. EMPLOYEES HEALTH AND SAFETY

- All employees should be given health and safety training prior to start of any new works,
- All employees should be aware of Health and Safety Plan and items related to their work,
- All employees should be provided with health and safety compliant protective clothing and equipment,
- If required contractor shall provide site quarters for Employees. These should be equipped with water, electricity and sanitary facilities (toilets, showers etc.) to comply with statutory Health and Safety regulations.

2.3.9. SITE VISITS BY CLIENT REPRESENTATIVE

- Submit in advance, to the Client/Client's Representative details of safety provisions and procedures (including those relating to materials, which may be deleterious), which will require their compliance when visiting the site,
- Protective clothing and/ or equipment should be provided and maintained on site for the Client/Client's representative and other visitors to the site,
- Visitors to site must be trained in basic site safety procedures prior to entering the site.

2.3.10. TEMPORARY STRUCTURES

- If required the Contractor shall provide adequate offices, toilet and sheds for the protection of equipment and materials from theft and weather conditions,
- Any temporary structures should comply with local Health and Safety regulations.

2.3.11. PROTECT AGAINST THE FOLLOWING

- Noise control

- Comply with local regulations and minimise the noise level where possible.
- Pollution
 - Protect the site, the Works and the general environment including the atmosphere, land, streams and waterways against pollution. If pollution occurs inform immediately, including to the appropriate authorities and provide relevant information.
- Nuisance
 - Prevent nuisance from smoke, dust, rubbish, vermin and other causes. Prevent hazardous build-up on site, in excavations and to surrounding areas and roads,
 - No dumping of material in the surrounding areas is permitted.
- Asbestos containing materials
 - Report immediately any suspected materials discovered during execution of the Works. Agree methods for safe removal or encapsulation.
- Fire prevention
 - Prevent personal injury or death, and damage to the Works or other property from fire. Comply with local statutory fire regulations.
- Smoking on site
 - Smoking on site not permitted.
- Burning on site
 - Burning on site not permitted.
- Moisture
 - Prevent from wetness and dampness where this may cause damage to the works.
- Contaminated materials
 - Where instructed to remove material affected by contamination from the site, minimize the risk of infecting other parts of the site.
- Waste
 - Waste includes rubbish, debris, spoil, containers and surplus material. Keep site and works clean and tidy,
 - Remove waste frequently and dispose off site in a manner approved by Waste Regulation Authority and as per Waste Management Plan.

2.3.12. PROTECT THE FOLLOWING

- Existing services
 - Notify all service authorities, statutory undertakers and/ or adjacent owners of proposed works not less than one week before commencing site operations,
 - Before starting work, check and mark positions of mains/ services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners,
 - To identify services below ground prior to commencing works, use signboards, giving type and depth,
 - Damage to services; If damage to services as results from execution of the Works immediately give notice and notify appropriate service authority/

- statutory undertaker. Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or other owner as appropriate,
- Marker tapes or protective covers - replace, if disturbed during site operations, to service authority's/statutory undertakers recommendations.
 - Roads and footpaths
 - Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris,
 - If any damage occurs as a result of the Works, make good to the satisfaction of the Client, Local Authority or the Owner.
 - Existing features
 - Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features, which are to remain in position during execution of the Works
 - Existing work
 - Prevent damage to existing work, structures or other property during the course of the work.
 - Adjoining property
 - Obtain permissions as necessary from owners if is required to erect scaffolding on or otherwise using adjoining property.
 - Materials for recycling/reuse
 - Sort and prevent damage to stated products or materials, clean off bedding and jointing materials and other contaminants,
 - Stack neatly and protect until required by the Employer or for use in the Works as instructed.

2.4. POST CONSTRUCTION AND MAINTENANCE

2.4.1. MAINTENANCE

- Contractor should follow Health and Safety Plan during the maintenance period.

2.4.2. HEALTH AND SAFETY FILE

- The Health and Safety File should be prepared or revised by Client's Health and Safety Representative, for the project. The file should contain information necessary for future construction, maintenance, refurbishment or demolition to be carried out safely, and should be retained by the client or any future owner of the property.
- All necessary information for Health and Safety File should be provided to Client's Health and safety Representative at the end of works and maintenance.

3. SITEMANAGEMENT

3.1. GENERAL As below.

3.2. SITEMANAGEMENT

3.2.1. SITE MANAGEMENT PLAN

- Plan to be prepared by Contractor and approved by the Client/Client's representative prior to handover of the site.
- Plan should be followed during Construction.
- Plan should comply with all relevant statutory regulations as well as Health and safety requirements as per international standards..
- Plan should include and detail the following items;
 - Detailed information on site preparation measures to be taken up before commencement of works as well as during the works and maintenance period,
 - Clear site arrangement layout for temporary structures, storage, water, electricity supply, vehicular circulation and parking areas etc.,
 - Method statements on how site management will be carried out,
 - Details of management structure and responsibilities, with clearly stated points of contact,
 - Communication procedure within site team,
 - Procedures for informing other contractors and employees of site management issues,
 - Procedures for communications between the project team, other contractors and site operatives,
 - Procedures for keeping the records of site queries, obtained approvals, tests, any documentation that affects the site works etc.,
 - Storage of the materials and equipment on site,
 - Any additional information required by statutory regulations.

3.2.2. CONTRACTOR'S TEMPORARY STRUCTURES

- Any temporary structures should comply with Health and Safety requirements and relevant statutory regulations.
- Positioning of these facilities shall be on the approval of the Client's Representative and shall be done in co-operation with him.
- Cost of these facilities shall be for the account of the Contractor, unless agreed otherwise.
- The Contractor shall make provision for installation and removal, as agreed, of toilets, and the eventual clearing of the site to the satisfaction of the health

inspector. The Contractor shall ensure that the toilets are, indeed used by his staff.

- After the contract is fulfilled, the Contractor shall remove all structures and leave the site in a tidy condition to the satisfaction of the Client's Representative.

3.2.3. STORAGE FOR MATERIALS/EQUIPMENT ON SITE

- The Contractor should allow for a storage area for materials and equipment used onsite.
- The Contractor shall ensure that no material is delivered, dumped or off loaded on the site unless the Client's Representative has approved the area for it.
- Storage area should follow Health and Safety requirements as per "*B. General Requirements, Section 4.0. Health and Safety*" in respect to security, protection from weather conditions etc.

3.2.4. SITE BOARD AND INFORMATION BOARDS

- The erection of the site board on the site shall be at the commencement of the contract, and shall be removed when the contract is completed.
- The Contractor shall make provision for Health and Safety information boards across the site.

3.2.5. COMMUNICATION PROCEDURES

- Contractor should communicate with the Client through a single point of contact, as proposed in Site Management Plan.
- Clear communication procedures between the site team should be established and followed, as per Management Plan.
- All Employees should be provided with the training on communication on site, site team structure and responsibilities.
- All design queries shall be communicated and clarified with the Client/Client's Representative and records of the communication should be kept on site.
- Any major issues affecting the works and programme should be immediately communicated to the Client and mitigation procedures should be established.

3.2.6. EXISTING WORKS

- Special precautions shall be taken by the Contractor to avoid damage to existing buildings, structures, sewerage pipes, storm water drains, and pipes, storm water grids, and inlets, manholes, valve casings, water pipes and taps, fire hydrants, irrigation pipes and equipment, cables, completed landscaping works, telephone and light poles, vegetation and other services.
- Contractor to follow Health and Safety requirements as per international standards
- Where manholes, valve castings and other services have to be adjusted to fit in with the construction work or for any other reason, the Client's Representative shall be notified in good time, so that the necessary arrangements can be made. Manholes, valve casings, meter casings, fire hydrants etc., shall always be easy to reach and visible.

3.2.7. PROTECTION OF PROPERTY

- The Contractor shall take all necessary precautions against damage that might occur to any person, animal, building, structure, services, vegetation, vehicles

etc. Enough warning signs, railings, lighting etc. shall be placed around excavations, obstacles, and heaps. Foot bridges, shall be placed over trenches, where necessary for the convenience of the public. Construction activity is to be limited to pre-designated areas.

3.2.8. CLEANLINESS & MAINTENANCE OF PUBLIC ROADS

- The Contractor shall maintain the cleanliness of public roads and drains used by his vehicles throughout the Contract Period. He shall be responsible for cleaning up all deposits left by his vehicles on the road and sufficient workers shall be employed for this operation every day.

3.2.9. TRAFFIC

- Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Client's Representative and authorities having jurisdiction.
- Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction so that traffic movement around the site is not hampered.

3.2.10. ADJOINING PROPERTY

- Authority for performing site clearing indicated on property adjoining Project site will be obtained by Client's Representative before award of Contract.
- Do not proceed with work on adjoining property until directed by Client's Representative.

3.2.11. CLEARING UP

- Upon completion of the work, the Contractor shall remove all waste materials or rubbish from and around the work areas, together with all tools, equipment and materials, and shall leave said areas in a condition satisfactory to Client's Representative.
- Carefully remove items indicated to be salvaged and stored the site where indicated.