



A Sub-Scheme under Atal Mission for Rejuvenation and Urban Transformation 2.0

Formulation of GIS based Master Plans of Class-II Towns
with population of 50,000 - 99,999

Reform Agenda



Town & Country Planning Organisation
Ministry of Housing and Urban Affairs
Government of India

August 2022

Sub-Scheme on Formulation of GIS based Master Plans of Towns having population 50,000 - 99,999 under AMRUT 2.0

1.0 OBJECTIVE

To develop standardized base maps, land use maps, master plans, and urban geo-portal using Geographical Information System (GIS) for towns having population 50,000 - 99,999.

2.0 RATIONALE

AMRUT 2.0 is a step towards Aatmanirbhar Bharat with aim of making the cities 'water secure' and providing functional water tap connections to all households. Geo-database created under Sub-Scheme will help in urban planning through master plans, development plans, zonal plans, local area plans, town planning schemes, utility plans, and infrastructure plans etc. The master plans of cities will help in decision-making and efficient land use leading to holistic urban management. It is also expected to contribute to achieving AMRUT 2.0 objectives through better project planning in water sector

3.0 SCOPE AND COVERAGE

AMRUT 2.0 guidelines mandate this reform, which envisages covering all Class-II Towns with population of 50,000 - 99,999. However, in case of hilly and north-eastern States and UTs, alongside Class II towns, the next class of statutory towns may also be taken up. The number of cities/ towns proposed to be covered in the Sub-Scheme is 675.

The State Town & Country Planning Departments/ State Mission Directorates of AMRUT who are the implementing agencies shall prioritize and intimate the cities to be taken up in the sub-Scheme through State Action Plan (SAP).

4.0 MAJOR DELIVERABLES

The major deliverables are:

4.1 Creation of Geo-database: Final GIS-based base maps at the functional scales and defined layers as per Design & Standards documents of 'Sub-Scheme on Formulation of GIS based Master Plan for AMRUT Cities' and 'Application of Drone/UAV Technology for Formulation of GIS based Master Plan for Small and Medium Towns' published by Ministry of Housing and Urban Affairs (MoHUA) in May, 2016 and October, 2020 respectively.

4.2 Formulation of GIS based Master Plan: Formulation of GIS based master plans of cities as per State Town & Country Planning Act, which includes sector-wise data collection & analysis, demand assessment, identification of issues, projected requirements, development strategies and draft and final master plans using the geo-database created as per Design & Standards documents as mentioned at para 4.1.

4.3 Capacity Building: Build capacity amongst town planning, line departments and other concerned personnel at State and ULB levels including development authorities to create a

cadre of professionals proficient in the use of GIS technology for using and updating databases in urban planning and management.

The training programmes will include hands-on training on the use of open source GIS/RS technologies, generation/ updation of database for formulation/ revision of master plan etc. Operators, technicians, draftsmen, planning assistants, town planners and administrators will be trained during the program at different stages with regard to their role in implementing the Sub-Scheme. The duration of the training imparted will depend on the role of the personnel.

The course curriculum under Sub-Scheme on 'Formulation of GIS based Master Plan for AMRUT Cities' designed by a Committee constituted by MoHUA vide OM No. K-14011/2/2012-UCD(Pt.III) dated 30.11.2015 will be revised as per the requirements of Sub-Scheme under AMRUT 2.0. In this regard, the said Committee will be re-constituted by MOHUA.

National/Regional Workshops will be organized as and when required to meet this endeavor.

4.4 Development of Centralized National Urban Geo-portal

The existing and proposed geo-databases, and master plans, alongside Urban Water Information System (UWIS), Aquifer Management Information System (AMIS), Local Area Plan (LAP) & Town Planning Scheme (TPS) of towns/cities created/formulated under various Centrals Schemes like AMRUT and AMRUT 2.0 alongside State funded Schemes/ Projects available with State Governments are to be uploaded and integrated on a 'Centralized National Urban Geo-portal'. This portal would provide a single window services to States/ UTs/ ULBs and other departments to increase the efficiency, productivity and transparency.

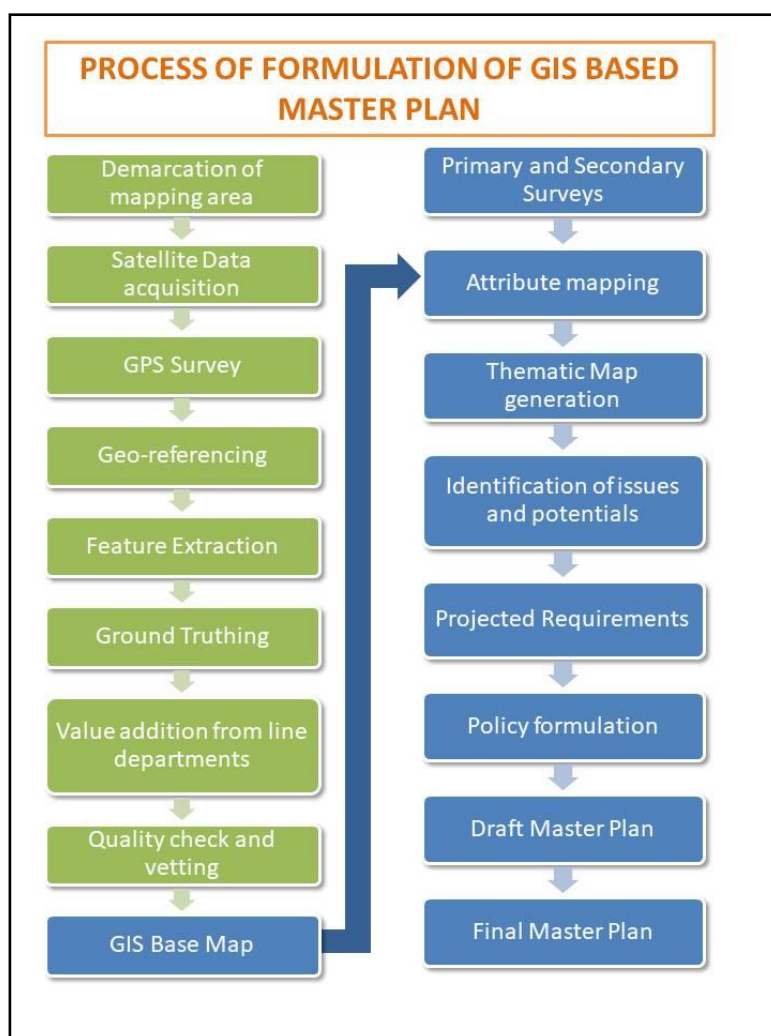
National Informatics Centre (NIC) will be roped in to develop a centralized Urban Geo-portal at national level on which all archives and latest geo-databases/master plans formulated will be uploaded by the States/ UTs. The Capacity Building in this regard will be provided by NIC.

States/UT Governments which will not be engaged with the said Sub-Scheme of AMRUT 2.0, due to absence of eligible towns, are however, mandated to upload final geo-database/s and approved master plans created/formulated under Sub-Scheme on 'Formulation of GIS based Master Plan for AMRUT Cities' on the Centralized National Urban Geo-portal.

4.5 Development of Integrated Mobile Application

As AMRUT 2.0 envisages the Sub-Scheme will also be paperless and all above deliverables will be primarily met on robust technology platform. In this endeavor, an Integrated Mobile Application for Vetting and Attribute Data collection to incorporate inputs from Satellite Imagery and Drone Technology in accordance with the Design & Standards documents mentioned at para 4.1 and primary data collection for Master Plan Formulation in an integrated manner, will be developed in coordination with Indian Institute of Remote Sensing (IIRS), Department of Space (DoS), Dehradun. Capacity Building in this regard will be provided by IIRS. A Committee will be constituted to look after the development and functioning of the Mobile App.

5.0 PROCESS OF FORMULATION OF GIS-BASED MASTER PLAN



6.0 ROLES & RESPONSIBILITIES

6.1 Role of Central Government

The MoHUA/ TCPO will monitor and coordinate the implementation of the Sub-Scheme besides preparation of State Action Plan template, model Request for Proposal (RFP) documents for procurement for consultancy services for creation of geo-database and master plan formulation components, course curriculum for capacity building etc. for States/Cities.

MoHUA/TCPO will coordinate with concerned agencies for the activities mentioned in para 4.0.

6.2 Role of State Government

The State Town & Country Planning Departments will be the nodal agency implementing the Reform at the State level in association with AMRUT State Mission Directorate.

The identification of cities/towns as mentioned in para 3 and demarcation of planning area will be done by respective State Town & Country Planning Departments in consultation with State Mission Directorate and the ULB concerned under the Sub-Scheme of AMRUT 2.0.

Cities may be prioritized as below -

- The first priority may be given to cities which do not have master plans followed by whose existing Master Plans are about to expire.
- The State, keeping in mind the size and importance of cities

The State Town & Country Planning Departments in association with State Mission Directorates will formulate the GIS based master/ development plans.

In case of creation of geo-database and master plan formulation component/s being done through out-sourcing; the procurement of consultancy services for will be done by State Town & Country Planning Departments in association with AMRUT State Mission Directorates.

The proposal has to be approved by SLTC and SHPSC as per AMRUT 2.0 Guidelines.

6.3 Role of Urban Local Bodies

Urban Local Bodies will assist State Nodal Agencies in collection of urban database including socio-economic data collection and analysis report for master plan formulation. ULBs will also assist for the spatial attribute data collection and vetting of maps, in association with State Nodal Agencies as per the Design & Standards mentioned in para 4.1.

Once prepared, the States/ ULBs will have the mandate to put these GIS based maps to maximum use for planning, monitoring and other requirements.

7. TIMELINES

The AMRUT 2.0 Mission desires Reforms to be implemented in first four years of the Scheme. In this regard, total time period for base map generation including data acquisition, geo-referencing, GPS survey, data processing, vetting and attribute data collection, generation of final base maps, etc. as per the technology specified in above mentioned Design & Standards documents will be implemented within the first three years of AMRUT 2.0 Mission.

Time period for urban data collection, data analysis and master plan formulation will be implemented within the first four years of AMRUT 2.0 Mission.

Development of Centralized National Urban Geo-portal and Development of Integrated Mobile Application will be implemented within the first year of AMRUT 2.0 Mission.

8. BUDGET ESTIMATE

MoHUA has worked out unit cost norms and estimated expenditure for supporting this activity for 675 cities/towns. These will be subject to approval by Apex Committee.

As per the estimates, the total cost to support this reform activity is estimated to be Rs. 631.13 crores, of which Creation of Geo-database is Rs. 121.50 crores, Formulation of GIS based Master Plan including vetting & attribute data collection is Rs. 472.50 crores, Capacity Building

is Rs. 14 crores, Development of Centralized National Urban Geo-portal is Rs. 22.23 crores and Development of Integrated Mobile Application is Rs. 0.90 crores.

This will be met out of AMRUT 2.0 funds under relevant heads. No separate budget head or scheme is proposed for this.

The year wise budget allocation is estimated as under:

Sl. No.	Year	Budget (Rs. Cr)*
1	2022-23	100.00
2	2023-24	200.00
3	2024-25	200.00
4	2025-26	131.13
	Total	631.13

* Budget requirement is subject to the demand from the States.

The detailed cost estimates are at Annexure-1.

9. STRUCTURE OF FUND MANAGEMENT

As per AMRUT 2.0 Guidelines, funds under the Mission will be allocated by MoHUA to States/UTs through the Apex Committee following the Mission Guidelines.

There are five main steps for achieving this reform:

1. Creation of Geo-database
2. Formulation of GIS based Master Plan
3. Capacity Building
4. Development of Centralized National Urban Geo-portal
5. Development of Integrated Mobile Application

The over and above of estimated cost (component wise) will be borne by the respective State/UT governments.

Component wise funds will be released on the basis of States/UTs performance in the AMRUT GIS Sub-Scheme on 'Formulation of GIS based Master Plan for AMRUT Cities'. State/UTs which will achieve 50% physical milestones in all AMRUT Cities in their respective States/UTs, will be eligible to draw funds for Creation of Geodatabase and Formulation of Master Plan, however funds for Capacity Building can be drawn by all interested States/UTs. This criterion can be met by the States/UTs till the closing of AMRUT GIS Sub-Scheme.

50% physical milestones may be defined as Cities having draft master plan and ready to publish the same for objections and suggestions. Incase States, have opted for 'Creation of Geo-database' only, 50% physical milestones will be defined as completion of draft geo-database.

9.1 Funding for Creation of Geo-database

The creation of Geo-database may be taken up in-house, out-sourcing or through National Mapping Agencies like National Remote Sensing Centre (NRSC) and Survey of India (SOI). Based

on requirement of State/UTs Governments, MoHUA will sign Memorandum of Understanding (MoU)s for geo-database creation with NRSC and SOI.

MoHUA/ TCPO proposes to coordinate and facilitate creation of geo-database including payments directly to National Mapping Agencies on pro-rata basis for the extent of area mapped as proposed and required by State/UT Governments, calculated on the basis of the cost provided by the National Mapping Agencies.

9.2 Funding for Formulation of GIS-based Master Plan

The State Mission Directorate/ State Town & Country Planning Departments will manage the funds for formulation of GIS based Master Plan. The exact quantum of funds to be sanctioned and released will depend upon the following:

- The total number of cities for which GIS-based Master Plan Formulation is being taken up and approved by Apex Committee.
- Whether work is taken up in-house or it is outsourced to a Consultant.
- If it is outsourced to Consultant, then the cost quoted by the Consultant and approved by SHPSC/ SLTC/ will be applicable.
- The RFP document lays down a schedule of submission and approval of stage reports followed by fund release to the Consultant.

9.3 Funding for Capacity Building

The State Mission Directorate/State Town & Country Planning Departments will manage the funds for the capacity building component. The pattern for fund sanction and release for capacity building component of the Reform will be as per the cost and schedule of training proposed by the State Mission Directorate and approved by SHSPC/ SLTC under the overall framework for capacity building.

9.4 Funding for Development of Centralized National Urban Geo-portal

MoHUA/ TCPO proposes to coordinate and facilitate the development of Centralized National Urban Geo-portal with NIC, GoI. Payments will be made directly to NIC according to cost provided for development of the said portal. An MOU will be signed between MoHUA and NIC in this regard.

9.5 Funding for Development of Integrated Mobile Application

MoHUA/ TCPO proposes to coordinate and facilitate the development of Integrated Mobile Application with IIRS, DoS, GoI. Payments will be made directly to IIRS according to cost provided.

9.6 Fund Flow

9.6.1 State/ UT Governments: The Scheme envisages a pattern of release of funds in four installments i.e 20-40-20-20 as per details provided below.

- 20% of the project cost will be released as an advance on approval of the SAP for image acquisition and collection of socio-economic data
- 40% of the project cost on completion of draft geo-database creation, vetting and attribute data collection using Integrated Mobile Application developed by MoHUA/ IIRS, and uploading of final geo-databases and approved GIS based master plans created/ formulated under AMRUT Sub-Scheme on 'Formulation of GIS based Master Plan for AMRUT Cities' or through any other State/UT Initiatives on Centralized National Urban Geo-portal.
- Next 20% on creation of final geo-database, submission of draft master plan and uploading of final Geo-databases of towns/cities created under AMRUT 2.0 Sub-Scheme on Centralized National Urban Geo-portal.
- Final 20% installment on approval of final master plan and uploading the same on Centralized National Urban Geo-portal.
- Funds at every stage will be released subject to furnishing of the utilization certificate and physical milestone achievement of deliverables duly reported by competent authority.

9.6.2 National Mapping Agencies/ NIC/ IIRS

Funds for creation of geo-database through National Mapping Agencies viz. NRSC and SOI, development of Centralized National Urban Geo-portal by NIC and development of Integrated Mobile Application by IIRS will be released according to the fund pattern in the respective MOUs/ proposals signed and approved by MoHUA.

9.7 Admissible Components: Satellite data acquisition, data generation through primary, secondary and data analysis, value addition, vetting, capacity building, Urban Geo-portal, Mobile Application, master plan formulation and hardware & software required for Centralized National Urban Geo-portal.

9.8 Inadmissible Components: Site development, wages & staff component, furniture and fixtures and hardware & software. Further the funding under the Scheme shall not include any recurring costs.

10. REVIEW AND MONITORING MECHANISM

Although, all the Reform activities under AMRUT 2.0 are proposed to be reviewed on a regular basis, this particular reform will be monitored as follows:

At Central Level:

- Periodic and detailed monitoring and review of the reform state-wise will be carried out by TCPO/MoHUA.
- TCPO/MoHUA will periodically visit the National Mapping Agencies, State/UT Governments, NIC and IIRS, to oversee the progress of the AMRUT 2.0 Sub-Scheme, and will report to the National Monitoring and Review Committee (NMRC).

- The composition of NMRC is as under:

• Chief Planner, TCPO	Chairman
• Addl Chief Planner, TCPO	Member
• Representative of NRSC	Member
• Representative of Sol	Member
• Representative of NIC	Member
• Town & Country Planner, TCPO	Member Convener
- The Monitoring and Review Committee will report to the Technical Advisory Committee under the Chairmanship of Joint Secretary (Mission Director – AMRUT), MoHUA, constituted vide order no. K-14011/2/2012-UCD (part) dated 17.03.2015, which will further report to Apex Committee of AMRUT.
- The Apex Committee will monitor/ review overall progress and achievements and address any inter-agency issues.

At State Level:

The Consultant's work will be monitored and reviewed by a Consultancy Evaluation and Review Committee (CERC) while in-house work will be administered by a Monitoring and Review Committee (MRC). The CERC/ MRC will report to State Level Technical Committee (SLTC). The indicative composition of the CERC may be as follows:

- | | | |
|-----|---------------------------------------------------------------------|-----------------|
| i | Principal Secretary (UD)/ Director, State Mission Directorate AMRUT | Chairman |
| ii | Director/ CTP, Town & Country Planning Dept. | Member |
| iii | Municipal Commissioner of the AMRUT Town | Member |
| iv | Chief Engineer, PWD & PHE | Member |
| v | Representative of Disaster Management Authority | Member |
| vi | Representative of MoHUA/ TCPO | Member |
| vii | Senior Town Planner of concerned State/ UT | Member-Convener |

[The composition of the CERC/MRC may be modified as per State Government requirements]

- SLTC will administer the progress of the technical implementation of the Reform.
- State level High Powered Steering Committee (SHPS) will look into overall coordination and implementation of the Reform.

Annexure-1**A. Cost of Creation of Geo-database**

No. of towns	Avg. Area/ Town (sq. km.) #	Total Area (Sq. Km.)	Cost * (Rs. in Cr.)
675	100	67500	121.50

* The Cost is based on the estimates for creation of geo-database using drone technology Rs. 18000/- per sq. km (approx) excluding vetting and attribute data collection will be applicable; as worked out by Survey of India (Sol) as per Design and Standards document published by MoHUA in October, 2020.

In case States/UTs desires to create geo-database using VHRS data, the unit rate cost of Rs. 12894/- per sq. km (approx), as submitted by National Remote Sensing Centre (NRSC) for creation of geo-database using AMRUT Sub-Scheme on 'Formulation of GIS based Master Plan for AMRUT Cities' Design and Standards document published by MoHUA in May, 2016; excluding vetting and attribute data collection; will be applicable.

Average area of a town has been worked out on the basis of information obtained from State/UTs. Actual area will be worked out in SAP by State Government for each town and accordingly cost will be calculated.

B. Cost of Formulation of GIS based Master Plan

No. of towns	Unit Cost (Rs. crores/town)*	Total Cost (Rs. in crore)
675	0.70	472.5

*As per the rates obtained from State Town & Country Planning Departments

C. Cost of Capacity Building

S. N.	Capacity Building	Total Cost (Rs. in crore)
1.	GIS-based master plan formulation and Integrated Mobile App*	13.50
2.	National/Regional Workshops**	0.50
Total		14.00

* Cost for Capacity Building for GIS-based master plan formulation as per the Course Curriculum of MoHUA and Integrated Mobile App during the tenure of the Sub-Scheme is estimated to be approximately Rs. 13.00 Crores @ Rs. 2 lakhs per towns for 675 towns.

** Cost for organizing 10 National/Regional Workshops during the tenure of the Sub-Scheme is estimated to be approximately Rs. 0.5 Crores @ Rs. 5 lakhs per Workshop

D. Cost of Development of Centralized National Urban Geo-portal

The rates for development of Centralized National Urban Geo-portal have been obtained from NIC, Gol. The total estimated cost is Rs. 22.23 crores.

E. Cost of Development of Integrated Mobile Application

The rates for development of Integrated Mobile Application have been obtained from IIRS, DoS, Dehradun. The total estimated cost is Rs. 0.90 crores.

F. TOTAL SUB SCHEME COST

S. N.	Components	Cost * (Rs. In Cr.)
1.	Creation of Geo-database	121.50
2.	Formulation of GIS based Master Plan	472.50
3.	Capacity Building	14.00
4.	Centralized National Urban Geo-portal	22.23
5.	Integrated Mobile Application	0.90
TOTAL		631.13