



shaping the way cities move

DULT Internship Booklet

June 2022

30th APRIL 2022

**Directorate of Urban Land Transport,
Urban Development Department,
Government of Karnataka**



1. Internship at DULT

Since its inception, DULT has been at the forefront of planning and implementing several initiatives in the urban mobility space. DULT has also established key partnerships with academic institutions, community organizations, industry etc. over the years. DULT considers internship as an impactful opportunity for creating a future talent pool for the industry.

The robust internship program at DULT began in 2011. Since then, every year DULT provides opportunities to master's students from all over the country for two-month internship programs at its headquarters in Bengaluru . Occasionally, the internship program is also offered to bachelor's students. The purpose of DULT's internship programme is to:

- a) provide a framework by which students from diverse academic backgrounds may be assigned to projects, where their educational experience can be enhanced and enriched through exposure to actual and practical work.
- b) immerse students in the real working environment of a government organization.
- c) introduce DULT's goals, principles, and activities to the student community.
- d) provide DULT with the assistance of qualified students specialized in various professional fields.

Internship programs are aligned with academic calendars and conducted twice every year. The first internship program is conducted during May-July with students from all over India and the second internship program is conducted during September-November with students from Karnataka.



Image: September-November 2021 SuMA Internship Exhibition

2. Internship-June 2022 Projects

Project 1: Infrastructure Audit for Core TOD Zones of Chikabanawara and Banaswadi Sub-urban Stations

Introduction/ Background:

The Suburban rail for a length of 148 km is being planned for implementation along the four corridors in Bengaluru in phases. Currently, in the first phase phase, suburban rail connecting Chikabanawara and Benigenehalli (Corridor-2) is being taken up for implementation. The planned suburban rail network complements the existing metro network of 42km and new metro network lines of about 130 km under implementation. In addition to the mass transit network, the city has well established bus services operated by BMTC. Currently, buses cater to more than 36% of trips in the city.

The Comprehensive Mobility Plan (CMP) Bengaluru (2020) targets to increase of mode share by public transport from 42% to 70% by 2035. To achieve this target, in addition to developing the mass transit infrastructure it is important to ensure that more people have convenient access to public transport nodes (terminals), as improving access tends to encourage more people to use PT rather than using their personal motorized vehicles.

TOD is a tool used worldwide to increase densities around mass stations in tandem with improving the built environment in those areas, which enables safe and convenient access to transit stations, bus stops and other destinations in the station area by non-motorized modes like walking and cycling.

In this regard, a TOD policy for the city of Bengaluru has been formulated to achieve the following objectives:

1. Achieve high mode share of public transport.
2. Provide built environment and associated infrastructure conducive for Non-Motorized Transport (NMT) use.
3. Implement mixed-land use that leads to shorter commutes and reduced travel demand.
4. Ensure inclusivity for all economic classes, gender, age, and abilities in the design of TOD interventions.
5. Enable high-quality of life through place making and sustainable practices.
6. Build enabling framework to deliver TOD projects of high-quality.

One of the primary objectives of the draft Transit oriented development policy of Bengaluru is to develop the core and standard TOD zones as walkable and cyclable areas. First and last mile connectivity is important to ensure greater use of public transit, and the Bengaluru suburban rail project provides an opportunity to plan for the improvement of the built environment around the stations in tandem with the implementation of the suburban rail project.

Project Brief: In the above context, DULT plans to take up an infrastructure audit around two sub-urban stations of Corridor 2 namely, Chikkabhanavara and Banaswadi stations, through local area mobility parameters (LAMP) Audit. The LAMP Audit will be used to assess the walkability, cyclability and access to public transport, in line with the objectives of the TOD Policy.

Schedule	Task details	Weekly Deliverables	Review
Week 1	Day 1: Introduction to TOD concepts and Suburban Rail Project. Familiarization, presentation and preparation of the study area context (major roads, landmarks etc.).	1. Presentation on site context. 2. Presentation on observations from the Reconnaissance survey.	
	Day 2: Introduction to LAMP Audit and Tag Along Surveys. Understanding the parameters of audits -		Bi-weekly mentors review. (Presentation on site context)

	familiarization on data collection process pertaining to the above (what and how) including data collection formats.		
	Day 3: Demo LAMP Audit.		
	Day 4: Reconnaissance survey of the project area. Undertake LAMP Audit for a sample stretch.		
	Day 5: Presentation preparation on initial observations from Reconnaissance survey and sample LAMP Audit.		Bi-weekly mentors review (Presentation on observations from the Reconnaissance survey and sample LAMP Audit).
Week 2	Conducting Audit/survey for the identified parameters (walkability, cyclability, public transport, amenities etc.)	Presentation of survey data collected.	Bi-weekly mentors review on Tuesday and Thursday (data verification).
Week 3	Data collation.		Supervisor's Review (Presentation of survey data collected).
Week 4	Identifying data gaps and rectifying the gaps. Initiate data analysis.	Presentation of final data.	Review of survey data collection report.
Week 5	Data analysis.	Presentation on data analysis.	Review of data analysis report.
Week 6	Data analysis Preparation of action plan for walkable and cyclable core zone.	Presentation on data analysis and initial ideas for action plan.	Supervisor's Review (Presentation of data collection and data analysis).
Week 7	Preparation of action plan for walkable and cyclable core zone.	Presentation and report of action plan for walkable and cyclable core zone.	Commissioner's Review
Week 8	(presentation and report)		Panel Review
Number of Interns Required: 8			
Qualification Required: Masters in Urban Design/ Urban Planning/ Transport Planning/ Transport Engineering/ Highway Design/ Architecture etc.			
Skills Required: GIS, Auto CAD, Photoshop, Data Analysis, MS Office.			
Mentors: Station 1 – Mrs. Sonal Kulkarni, Mrs. Manju George, Mrs. Saima Mujeeb Station 2 – Mrs. Ann Jacob, Mrs. Shreya Mokhashi, Mr. Gaurang		Internship Deliverables:	
Co-mentors: Hariharasudhan (data analysis), Prashob (GIS), Sundarajan		A presentation shall be prepared for the scheduled reviews, in accordance with the template shared.	
Supervisor: Mr. Sanmay Bohidar		A final report shall be submitted at the end of week 8, in accordance with the template shared.	

Project 2: Spatial assessment of suburban stations at Chikkabhanavara and Banaswadi

Introduction/ Background:

The Suburban rail for a length of 148 km is being planned for implementation along the four corridors in Bengaluru in phases. Currently, in the first phase phase, suburban rail connecting Chikabanawara and Benigenehalli (Corridor-2) is being taken up for implementation. The planned suburban rail network complements the existing metro network of 42km and new metro network lines of about 130 km under implementation. In addition to the mass transit network, the city has well established bus services operated by BMTC. Currently, buses cater to more than 36% of trips in the city.

The Comprehensive Mobility Plan (CMP) Bengaluru (2020) targets to increase of mode share by public transport from 42% to 70% by 2035. To achieve this target, in addition to developing the mass transit infrastructure it is important to ensure that more people have convenient access to public transport nodes (terminals), as improving access tends to encourage more people to use PT rather than using their personal motorized vehicles.

TOD is a tool used worldwide to increase densities around mass stations in tandem with improving the built environment in those areas, which enables safe and convenient access to transit stations, bus stops and other destinations in the station area by non-motorized modes like walking and cycling.

In this regard, a TOD policy for the city of Bengaluru has been formulated to achieve the following objectives:

7. Achieve high mode share of public transport.
8. Provide built environment and associated infrastructure conducive for Non-Motorized Transport (NMT) use.
9. Implement mixed-land use that leads to shorter commutes and reduced travel demand.
10. Ensure inclusivity for all economic classes, gender, age, and abilities in the design of TOD interventions.
11. Enable high-quality of life through place making and sustainable practices.
12. Build enabling framework to deliver TOD projects of high-quality.

The draft TOD policy proposes mixed land use and densification with focus on affordable housing in the TOD zones. It also proposes development of regulations that help in achieving its objectives. It is important to understand the transformation potential in the TOD zones for coming up with suitable regulations.

Project Brief: The objective of the study is to document and assess the existing spatial characteristics like plot sizes, land use, built form, densities, parking provisions and property value and socio-economic conditions around the suburban stations for 500m core zone. The study will further assess land use transformation with respect to the revised Master Plan 2015 and undertake a perception survey to understand the future development prospects for delineated study area.

Work Schedule	Day wise task details	Weekly Deliverables	Review
Week 1	Day 1: <ul style="list-style-type: none"> • Introduction to the TOD policy for Bengaluru. • Introduction to the Spatial Impact. Assessment (SIA). • Introduction to site. • Briefing on data collection process and perception surveys. • Undertake literature study. 	<ol style="list-style-type: none"> 1. Presentation on site context. 2. Presentation on observations from the reconnaissance survey. 	
	Day 2: Site visit with mentors, hands-on testing of collector app and site		

	recce by interns to understand existing site characteristics.		
	Day 3: Compile and present the findings from literature study and site recce.		Bi-weekly mentors review. (Presentation on site context)
	Day 4 & 5: Station 1: Banasawadi <ul style="list-style-type: none"> Ground truthing of plots of the base map. Land use survey for each plot. Data rectification based on ground scenario. 		Bi-weekly mentors review. (Presentation on findings from Reconnaissance survey)
Week 2 & 3	Station 1: Banasawadi <ul style="list-style-type: none"> Ground truthing of plots of the base map. Land use survey for each plot. Data rectification based on ground scenario. User Perception Survey. 	1. Presentation on findings from land-use survey.	Bi-weekly mentors review and Supervisor's Review. (Presentation on findings from land-use survey and perception survey for Banaswadi station)
Week 4 & 5	Station 2: Chikkabanawara <ul style="list-style-type: none"> Ground truthing of plots of the base map. Land use survey for each plot. Data rectification based on ground scenario. User Perception Survey. 	2. Presentation on perception survey. 3. Data rectification and compilation.	Bi-weekly mentors review and Supervisor's Review. (Presentation on findings from land-use survey and perception survey for Chikkabanawara station)
Week 6	Generation of maps from GIS, Data analysis and preparation of presentation. (Each group of 6 students will take up individual stations and prepare the presentation)	GIS maps (plot sizes, land use, building heights, typology, built v/s open, density, land value). Comparative study of land use transformation (if any) with RMP 2015.	Supervisor's Review. (Draft presentation with background information of the station area, maps, findings from the perception survey, data analysis and comparative study of land use transformation).
Week 7	Preparation of detailed presentation and report.	Detailed presentation and report.	Commissioner's Review
Week 8			Panel Review

Number of Interns Required: 12 (6 for each station)

Qualification Required: (Masters in Urban Planning/ Transport Planning)

Skills Required: (Knowledge of GIS/ MS Office / Photoshop etc.). Kannada speaking people required to conduct perception surveys

Mentors: Mrs. Bhavana N, Mrs. Nikita Baliga, Ms. Navabharathi T.N, Ms. Sushmita Mudhol

Co-mentors: Hariharasudhan (data analysis), Prashob (GIS), Sundarajan

Supervisor: Mrs. Monika Kashkari

Internship Deliverables:

- A presentation shall be prepared for the scheduled reviews, in accordance with the template shared.
- A final presentation and report shall be submitted at the end of week 8, in accordance with the template shared.

Project 3: Understanding travel characteristics, existing road network capacity and public transport accessibility levels at Banasawadi and Chikkabanawara Sub Urban Railway station areas

Introduction/ Background: The Suburban rail for a length of 148 km is being planned for implementation along the four corridors in Bengaluru in phases. Currently, in the first phase phase, suburban rail connecting Chikabanawara and Benigenehalli (Corridor-2) is being taken up for implementation. The planned suburban rail network complements the existing metro network of 42km and new metro network lines of about 130 km under implementation. In addition to the mass transit network, the city has well established bus services operated by BMTC. Currently, buses cater to more than 36% of trips in the city.

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In this regard, a TOD policy for the city of Bengaluru has been formulated to achieve the following objectives:

13. Achieve high mode share of public transport.
14. Provide built environment and associated infrastructure conducive for Non-Motorized Transport (NMT) use.
15. Implement mixed-land use that leads to shorter commutes and reduced travel demand.
16. Ensure inclusivity for all economic classes, gender, age, and abilities in the design of TOD interventions.
17. Enable high-quality of life through place making and sustainable practices.
18. Build enabling framework to deliver TOD projects of high-quality.

DULT intends to prepare the TOD plans around the proposed Suburban rail stations. In order to inform the preparation of the TOD plans, it is required to assess the existing station area conditions like travel patterns, road network capacity, public transport accessibility etc.

Project Brief: To inform the preparation of the TOD plans around two SRS station namely, Banaswadi and Chikkabanawara following studies are being planned as part of this internship:

1. Household survey to capture travel characteristics along with demographic and socio-economic characteristics.
2. Traffic counts along with pedestrian and cyclists' counts will be carried out at mid blocks and intersections to understand the holding capacity of the road network.
3. The public transport service levels in the station area.

Work Schedule	Day wise task details	Weekly Deliverables	Review
Week 1	Day 1: TOD policy and SAP Designs: Introduction to the TOD policy for Bengaluru, introduction to Station Accessibility Planning (SAP) and brief overview on the proposed SRS and its design principles.	1.Presentation on site context. 2.Presentation on existing travel characteristic.	Bi-weekly mentors review: (Presentation on site context and existing travel characteristic)
	Day 2, 3, 4: Preparation for Surveys: - Understanding the site context: proposed sub-urban station, its design, and the catchment area. - Documentation of the existing travel characteristics (operational Bus/rail services, junctions, parking facilities, etc.) in the catchment area.	3.Survey formats 4.Sampling plan	

	- Preparation of survey formats and survey sampling plan for: i. Household survey i. Turning Volume Counts/Mid-block Counts.		
	Day 5 and 6: Site visit to the station locations for reconnaissance (obtain site familiarity) and validation of sampling plan. Finalization of Work Plan and Timelines.		Bi-weekly mentors review (Presentation on survey formats and sample sizes)
Week 2 + Week 3	Data collection for Station 1- Banasawadi Chikkabanawara a. Turning Volume Counts (<i>Peak Hours only</i>). b. Household Surveys	1. Turning Volume Counts Survey Data.	Bi-weekly mentors review and Supervisor's Review (Presentation on TVCs and Household Surveys for Banaswadi)
Week 4 + Week 5	Data collection for Station 1- Chikkabanawara a. Turning Volume Counts (<i>Peak Hours only</i>). b. Household Surveys	2. Household Survey Data.	Bi-weekly mentors review and Supervisor's Review (Presentation on TVCs and Household Surveys for Chikkabanawara)
Week 6	Data assessment, gap identification and data analysis: Data validation and analysis	Data Analysis Report.	Bi-weekly mentors review and Supervisor's Review (Presentation on data collated and data analysis)
Week 7	Assessment of Public Transport accessibility levels through secondary data. Teams of 5 per station [Chikkabanawara and Banaswadi station area] would assess of PT accessibility levels.	Public Transport Accessibility Assessment Report.	Bi-weekly mentors review, Supervisor's review (Presentation on assessment of PT accessibility) Commissioner's Review
Week 8	Preparation of presentation and report	Final Presentation and Report.	Panel Review

Number of Interns Required: 10

Qualification Required:

(Masters in Urban Design/ Urban Planning/ Transport Planning/ Transport Engineering etc.)
10 Transport planners/Engineers

Skills Required: Knowledge of GIS/ Auto CAD

Mentors:

Team 1: Banaswadi SRS

Mr. Sourav Dhar, Mrs. Sylvia Prakash,
Mrs. Pratiksha Surpriya

Team 2: Chikkabanawara-

Mrs. Aditi Arya, Mr. Sriharsha Chowdary,
Ms. Shalini Choudary

Co-mentors: Hariharasudhan
(data analysis), Prashob (GIS), Sundarajan

Supervisor: Mr. Shamanth Kuchangi

Internship Deliverables:

- A presentation shall be prepared for the scheduled reviews, in accordance with the template shared.
- A final report shall be submitted at the end of week 8, in accordance with the template shared.

3. Internship Program Details

3.1 Responsibility of Interns: The intern shall;

- a. observe all applicable rules, regulations, instructions, procedures, and directives of the Department.
- b. bring their own laptops to office.
- c. intimate their mentors, supervisor, and coordinator through formal communication for any leave, at least 3 days in advance.
- d. check in with their respective mentors daily so that the necessary tasks can be assigned to them.
- e. ensure that they are available throughout the working hours to enable coordination and communication.
- f. prepare daily work log of the tasks completed at the end of every day, as per the format in Annexure 4 and submit to the respective mentors.
- g. prepare review reports, in accordance with the template shared for the supervisor's review scheduled every 15 days.
- h. prepare a presentation for the Commissioner's review at the end of Week 7 and a final report and final presentation for the panel's review at the end of week 8.
- i. adhere to the formal dress code and maintain cleanliness/ personal hygiene. Mentors are accountable for the standards of appropriate attire of his/ her team. Commissioner, DULT and the immediate head reserves the right to point out any inappropriate attire/dress.
- j. adhere to the office timings. As per rules and regulations of Government of Karnataka, DULT follows a 6(six) days week schedule, other than 2nd (second) Saturday and 4th (fourth) Saturday of every month which shall be considered as off with exceptions on special duties. Sunday is the regular Weekly Off day. The working hours are 10:00 am to 5:30 pm on all working days which will be monitored via Bio metric attendance. Late coming will attract deductions in entitled leave and pay. The coordinator, mentors and the immediate head reserves the right to point out any deviation in adhering to the office timings.
- k. strictly follow the timings for lunch break of 45 (forty-five) minutes, from 1:30 pm to 2:15 pm.
- l. complete the internship reliever form in line with the format attached in Annexure 3. The intern shall ensure that the form is authorised by the mentors and supervisor. The form shall be submitted to the coordinator.
- m. complete the feedback form and submit the same to the coordinator.
- n. adhere to any format/ guidelines shared by DULT.

Unsatisfactory performance or failure to conform to the standards of conduct set out above may lead to termination of the internship, for cause, at the initiative of DULT. A two-week notice shall be given in such cases. Certification of completion shall be issued only to those, who have consistently performed well throughout the internship period, with full attendance (except the two days leave) and have complied with the scheduled deliverables.

3.2 Internship Benefits

- a. **Stipend:** A stipend of INR 10,000 (inclusive of travel allowance: INR 2,500/) shall be provided every month.
- b. **Certificate:** An internship certificate shall be provided after successful completion of the internship period.
- c. **Leave Policy:** The interns can avail a maximum of 2 leaves during the internship period, after obtaining prior permission from the mentors and supervisor. A formal email should be sent to the mentors, supervisor, and coordinator for the record. Any leave availed in addition to the 2 granted leaves must be compensated at the end of the internship period. Interns shall intimate their mentors, supervisor, and coordinator through formal communication for any leave, at least 3 days in advance.

*Note: Interns should bring their own laptops to office. They will be provided with a workstation and internet access.



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Urban Development Department,
Govt. of Karnataka

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Cycle Day Facebook Page: www.facebook.com/blrcycleday

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