

DULT

2021 Internship Programme –
May – July 2021



Shaping the way cities move

Directorate of Urban Land Transport

Urban Development Department

Government of Karnataka

Directorate of Urban Land Transport

Internship Programme - 2021



About DULT:

Directorate of Urban Land Transport (DULT), set up by the Government of Karnataka (GoK), functions under the Urban Development Department (UDD) with the objective to coordinate planning and implementation of Urban Transport projects and programs. The Directorate oversees all the urban land transport initiatives in Urban/ Local Planning Areas of Karnataka and administers the State Urban Transport Fund (SUTF).

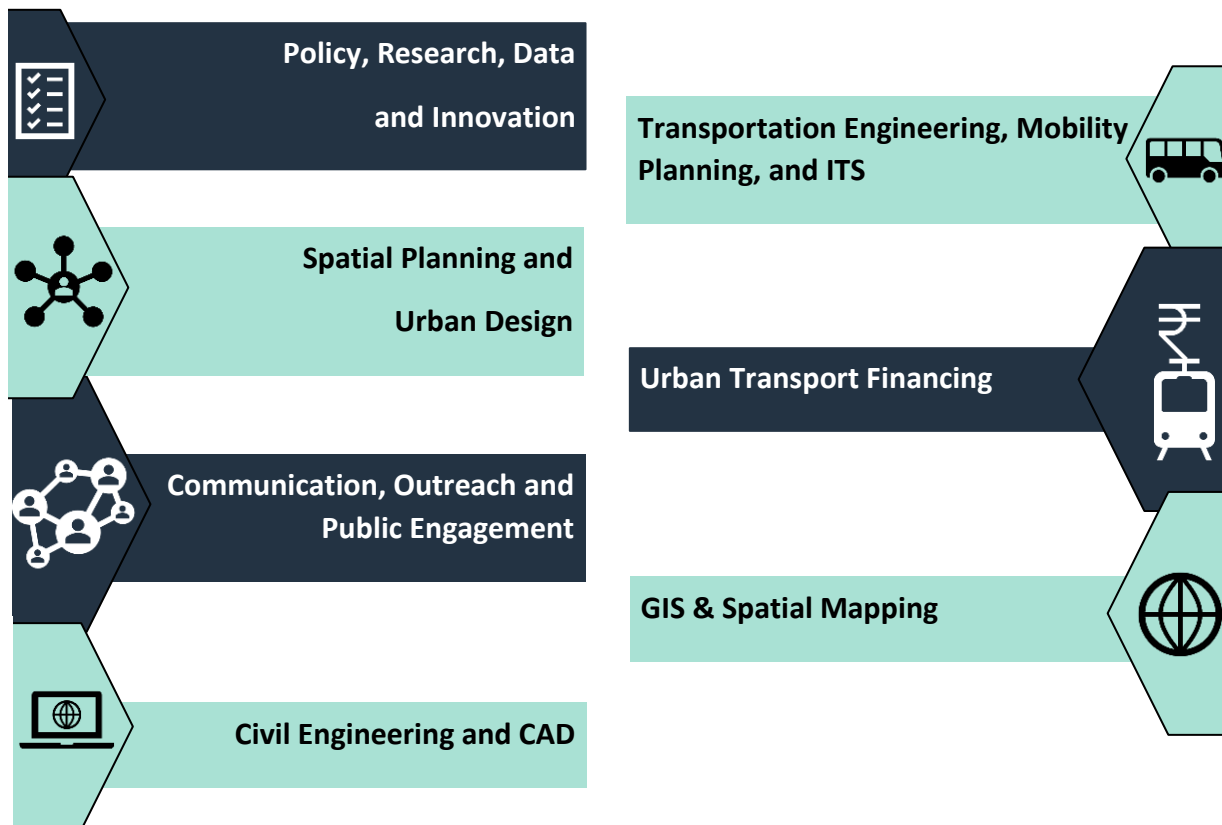
Our Vision:

To provide efficient, sustainable and integrated urban mobility that enhances Karnataka's economic competitiveness and prosperity while preserving the quality of our environment and communities.

DULT Internship Programme:

DULT conducts an offline internship programme every year for graduate and post-graduate students from all over the country. However, considering the situation due to COVID-19, an online internship programme was conducted last year. Following the same protocol, under special circumstances, the DULT internship programme – 2021 is offered online. It is a paid internship (INR 5,000/- per month) opportunity for two months to post-graduate students from all over the country. The two months online internship program is planned to start on 21st May 2021. This document provides a brief overview of the projects where internship opportunities are available.

Our Focus Areas:



Internship Projects:

Sl. No.	Project	Mentors	Supervisor	Number of Interns
1	Analysis of Master Plans for towns (Anekal, Hoskote and Bengaluru International Airport Area) in Bengaluru Metropolitan Region (BMR)	Bhavana Nadagoudar, Nikita Baliga, Navabharathi.T.N,	Monica Kashkari	3
2	Application and implementation of Tactical Interventions in promoting sustainable mobility	Ann Jacob, Priyadarshini Honnur Sushmita S. Mudhol	Monica Kashkari	2
3	Documentation and analysis of strategies by cities worldwide to promote Public Transport during COVID 19 Pandemic	Sylvia Prakash, Cheekati Sriharsha Chowdary, Shalini Choudhary	Shamanth Kuchangi	2
4	Documentation and analysis of strategies by cities worldwide to promote non-motorized transport (NMT) during COVID 19 Pandemic	Richa Pandey, Aditi Arya, Anusree P.P	Shamanth Kuchangi	2
5	Business Intelligence (BI) Research for Public Transport	Genesia Rodrigues, Nikita Baliga, Manohar Meena	Shamanth Kuchangi	1
6	Toolkit for Pedestrianization	Sonal Kulkarni, Manju George Pratiksha Surpuriya	Satyajit Arikutharam	2
7	Signage Development for Heritage Trail – Vijayapura	Anjeeta Sinha, Narendra Pattar, Saima Mujeeb	Monica Kashkari	2
8	Documentation and comparative analysis of regulations with respect to micro-mobility	Saurav Dhar, Shreya Satish Mokhashi, Saima Mujeeb,	Satyajit Arikutharam	2
9	Enhancing non-farebox revenue of mass transit – Analysis of use cases from various cities	Abhishek Ranjan, Ravindra Dhaded, Amshala Vijay Teja	Satyajit Arikutharam	2
10	Application of remote sensing and GIS technology in urban mobility	Deeshma M, Prashob Raj	Sanmay Bohidar	2
Total	10 Projects	27 mentors	4 Supervisors	20 Interns

Project Allocation

The 21 selected interns have been allocated to the 10 internship projects, based on project specific requirements. The team of interns is identified based on their university and specialization.

Sl. No.	Project	Mentors	Supervisor	Selected Interns	University	Specialization
1	Analysis of Master Plans for towns (Anekal, Hoskote and Bengaluru International Airport Area) in Bengaluru Metropolitan Region (BMR)	Bhavana Nadagoudar, Navabharathi.T.N, Nikita Baliga	Monica Kashkari	Ayushi Dhar	IIT - K	Urban Planner
				Kusha Goyal	CEPT	Urban Planner
				Gaurav Dambe	SPA Delhi	Urban Planner
2	Application and implementation of Tactical Interventions in promoting sustainable mobility	Ann Jacob, Priyadarshini Honnur Sushmita S. Mudhol	Monica Kashkari	Dipannita Kundu	SPA Delhi	Transport Planner
				Varsha S Venkatesh	CEPT	Urban Designer
3	Documentation and analysis of strategies by cities worldwide to promote Public Transport during COVID 19 Pandemic	Sylvia Prakash, Cheekati Sriharsha Chowdary, Shalini Choudhary	Shamanth Kuchangi	Sarah Alexander	CEPT	Transport Planner
				Megha Kashyap	SPA Delhi	Transport Planner
4	Documentation and analysis of strategies by cities worldwide to promote non-motorized transport (NMT) during COVID 19 Pandemic	Richa Pandey, Aditi Arya, Anusree P.P	Shamanth Kuchangi	Himani Rangoonwala	SPA Bhopal	Transport Planner
				Renjitha R N	CEPT	Transport Planner
5	Business Intelligence (BI) Research for Public Transport	Genesisia Rodrigues, Nikita Baliga, Manohar Meena	Shamanth Kuchangi	Prem Kumar	SPA Bhopal	Transport Planner
6	Toolkit for Pedestrianization	Sonal Kulkarni, Manju George Pratiksha Surpuriya	Satyajit Arikutharam	Lakshmi.R	CEPT	Transport Planner
				Aradhana Tripathy	IIT - K	Urban Planner
7	Signage Development for Heritage Trail – Vijaypura	Anjeeta Sinha, Narendra Pattar, Saima Mujeeb	Monica Kashkari	Kasturi Palit	IIT - K	Urban Planner
				Rutuja Nivate	CEPT	Urban Designer
8	Documentation and comparative analysis of regulations with respect to micro-mobility	Saurav Dhar, Shreya Satish Mokhashi, Saima Mujeeb	Satyajit Arikutharam	Tejatha A Hallur	Azim Premji	Policy Planner
				Tanuta Pal	CEPT	Transport Planner
9	Enhancing non-farebox revenue of mass transit – Analysis of use cases from various cities	Abhishek Ranjan, Ravindra Dhaded, Amshala Vijay Teja	Satyajit Arikutharam	Aishwarya	CEPT	Transport Planner
				Swaraj Bose	IIT - K	Urban Planner
10	Application of remote sensing and GIS technology in urban mobility	Deeshma M, Prashob Raj	Sanmay Bohidar	Karthikeyan Bhaskar	SPA Delhi	Urban Planner
				Shravya Narakula	CEPT	Transport Planner
Total	10 Projects	27 mentors, 4 Supervisors		20 Interns		

Project 1: Analysis of Master Plans for towns (Anekal, Hoskote and Bengaluru International Airport Area) in Bengaluru Metropolitan Region (BMR)

Number of Positions: 3

Specialization: Urban Planner

Internship Duration: 8 weeks

Introduction: The development authorities regulate the spatial growth of the cities through Master Plan which structures the land use and development. The integration of transportation infrastructure with Master Plan plays prominent role for promoting sustainable urban growth. The study focuses on three towns of Bengaluru metropolitan Region namely Anekal, Hoskote and Bengaluru International Airport Area. The study aims to measure the level of land use and transport integration in the Master Plan.

Project Brief: The study aims to understand the implementation and maintenance of traffic and transportation infrastructure through the prospects of Anekal, Hoskote and Bengaluru International Airport Area Master Planning process. The study aims to facilitate the detailed analysis of the proposals in the Master Plans based on the future requirements. Study of master planning process of similar sized cities from various parts of the world is also expected to be undertaken. The findings of the study will help to understand the gaps in the transportation infrastructure of the selected cities.

Tentative Work Plan:

Week 1	Review of previous Master Plans. Study of the existing Masterplans (BIAAPA, Anekal, Hoskote)– To understand the vision, goals, aims, objectives, future proposals and the methodology of implementation. Study of supporting polices and guidelines.
Week 2	Case study of various master plan reviews- To understand the methodology. Framing the methodology and identifying the relevant strategies of traffic and transportation
Week 3	Presenting the strategies to DULT team and finalizing the same for further analysis. Detail analysis of strategies
Week 4	Detail analysis of strategies.
Week 5	
Week 6	
Week 7	Discussion of conclusion with DULT team and Draft report preparation
Week 8	Preparation of final report and presentation

Related Documents: Master Plan, Comprehensive Traffic and Transportation Plan, Comprehensive Mobility Plan, Transit Oriented Development guidelines, National Urban Transport Policy

Mentors:

Bhavana Nadagoudar,

Nikita Baliga,

Navabharathi.T.N

Supervisor: Monica Kashkari

Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare:

- a. **Progress report** of the tasks completed at the end of **every week**, for review conducted by the **mentors**. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools.
- b. **Review Report** will be prepared **every 15 days**, to be assessed by the **supervisors**.
- c. **A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8.**

Project 2: Application and implementation of Tactical Interventions in promoting sustainable mobility

Number of Positions: 2	Specialization: Transport Planner, Urban Designer	Internship Duration: 8 weeks
<p>Introduction: Tactical urbanism refers to low-cost, temporary changes to the built environment, usually in cities, intended to improve local neighborhoods and city gathering places. World over, tactical interventions have been used to test ideas and solutions. The internship aims to methodically document case examples to understand the types of tactical interventions, the issues they typically address, the various scales of interventions and the modalities of implementation such as materials and maintenance. The internship will also focus on understanding applicability of tactical interventions to test/improve NMT and PT facilities.</p>		
<p>Project Brief:</p> <ol style="list-style-type: none"> Identification of issues that have been commonly addressed through Tactical Interventions. Understanding the scope and applicability of tactical interventions through documentation of diverse case examples. Looking at case studies with a specific focus on planning for tactical interventions including best practices to undertake before deploying the final intervention. Understanding the modalities of implementation such as – materials used, post implementation maintenance Documentation of Case Studies / Best Practices of tactical interventions from around the World that specifically addresses improvement of PT and NMT infrastructure. Documentation of case studies where post implementation assessments were carried out. Preparation of a toolkit that outlines the process for planning and implementing a tactical intervention with a documentation of various assessments to evaluate the impact (the structure of the toolkit and its objective maybe refined mid-way through the internship based on the outcome of the study). 		
<p>Tentative Work Plan:</p>		
Week 1	<ul style="list-style-type: none"> - Understanding how tactical intervention (TI) is understood world over through a general documentation of successful examples. - The common issues that are typically addressed through TI. 	
Week 2	<ul style="list-style-type: none"> - Understanding scenarios where a tactical intervention is best suited. - Documentation of examples with diverse applications. - Understanding the process of planning for implementing a TI. 	
Week 3	Understanding Modalities of implementation – material choices.	
Week 4	Understanding Modalities of implementation – management post implementation.	
Week 5 and Week 6	Documentation of Case Studies / Best Practices of tactical interventions from around the World that specifically addresses improvement of PT and NMT infrastructure.	
Week 7 and Week 8	Working on structuring and writing toolkit.	
<p>Mentors: Ann Jacob, Priyadarshini Honnur, Sushmita S. Mudhol</p> <p>Supervisor: Monica Kashkari</p>	<p>Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare:</p> <ol style="list-style-type: none"> Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools. Review Report will be prepared every 15 days, to be assessed by the supervisors. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8. 	

Project 3: Documentation and analysis of strategies by cities worldwide to promote Public Transport during COVID 19 Pandemic

Number of Positions: 2

Specialization: Transport Planner

Internship Duration: 8 weeks

Introduction: The COVID-19 pandemic has an impact on all walks of life and public transportation is no exception to this. Cities worldwide have restricted or banned services, operated with lower load factor due to the requirement of maintaining social distancing due to pandemic situation being faced worldwide. Furthermore, commuters may prefer to use personal vehicles for mobility than use of public transport due to anxiety of having to encounter crowd in public transportation, even during the receding phases of the pandemic and maybe for some time thereafter. In this situation public transport is having immense challenges to retain existing customers or attract new customers. However, public transport continues to be the backbone for sustainable mobility in cities and hence, it is important to ensure that public transport systems are encouraged in various ways to help them regain its mode share. Many cities worldwide are trying various means to this extent to support public transport operators to ride through these challenging times.

Project Brief: The main objective of this study is to document various strategies that cities worldwide have taken to promote public transportation (Bus & Rail based system) during Covid-19 pandemic, critically evaluate the effectiveness of those strategies. Such documentation could guide agencies like DULT, public transport operators, etc. to consider appropriate strategies and adopt to Indian cities as needed.

Tentative Work Plan:

Week 1	Review of existing (Pre-Covid) public transportation system (pertaining to Bus & Metro system) characteristics of International case study cities– Documentation of their importance to city mobility, details of operational & financial parameters.
Week 2 and Week 3	Review of the strategies adopted in promoting the public transportation (Bus and Rail based system) during COVID-19 pandemic with regards to operations, communication and outreach, public health safety and financial mechanism. These strategies shall be studied in detail on how they were implemented and enforced. Efforts should be made to critically appraise the strategies to understand if these strategies helped the cities to promote public transport and if not, possible reasons for failure of strategies. In week 2 & 3, case studies of European and Asian Cities will be researched to understand best practices adopted worldwide.
Week 4 and Week 5	Review of the strategies adopted in promoting the public transportation (Bus and Rail based system) during COVID-19 pandemic with regards to operations, communication and outreach, public health safety and financial mechanism. These strategies shall be studied in detail on how they were implemented and enforced. Efforts should be made to critically appraise the strategies to understand if these strategies helped the cities to promote public transport and if not, possible reasons for failure of strategies. In week 4 & 5, case studies of North American and South American cities will be researched to understand best practices adopted worldwide.
Week 6 & 7	The list of key strategies studied from cities worldwide shall be compiled and critically appraised for their adaptation to Indian cities. In these two weeks, efforts should be made to categorize the potential strategies studied and prepare a draft user-friendly handbook that decision makers can utilize to refer to strategies.
Week 8	Preparation of Final Report and Presentation

Mentors: Sylvia Prakash,
Cheekati Sriharsha
Chowdary
Shalini Choudhary
Supervisors: Shamanth
Kuchangi

Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare:

- Progress report** of the tasks completed at the end of **every week**, for review conducted by the **mentors**. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools.
- Review Report** will be prepared **every 15 days**, to be assessed by the **supervisors**.
- A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8.**

Project 4. Documentation and analysis of strategies by cities worldwide to promote non-motorized transport (NMT) during COVID 19 Pandemic

Number of Positions: 2	Specialization: Transport Planner, Urban Planner	Internship Duration: 8 weeks
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Introduction: The COVID-19 pandemic has changed the way people travel across the world. The fundamental norm of social distancing in this situation has pushed people to adopt cycling and walking as main mode of their travel, at least for short distances. Many countries took some innovative efforts to quickly promote NMT the travel needs of the citizens to not only cater during the pandemic situation, but to use this as an opportunity entice commuters to shift towards NMT use by creation of infrastructure, positive communication for healthy living, etc.

Project Brief: This project aims to research and document various strategies to promote NMT that has been tried/ adopted worldwide during COVID-19 pandemic through case studies and critically evaluate the effectiveness of those strategies. Such documentation could guide agencies like DULT, ULBs etc. to consider appropriate strategies and adapt to Indian cities as needed.

Tentative Work Plan:

Week 1	Understanding the impact (physical changes and perspective shift) of COVID-19 on travel pattern pertaining to movement of people/Travel of people in cities across the world.
Week 2 and Week 3	Review of the strategies adopted by Asian and European cities to promote NMT during COVID-19 pandemic with regards to: <ol style="list-style-type: none"> 1. Infrastructure development/changes 2. Use of tactical interventions (like pop-up lanes, traffic calming) 3. Piloting of new systems/ projects pertaining to NMT 4. Incentivization (reduction of traffic lanes to provide for cycling and walking) 5. Parking and cycle storing strategies 6. Public health strategies (Sanitization /distancing strategies) 7. Outreach/Awareness messaging 8. Any other innovations
Week 4 and Week 5	Review of the strategies adopted by North American and South American cities to promote NMT during COVID-19 pandemic with regards to: <ol style="list-style-type: none"> 1. Infrastructure development/changes 2. Use of tactical interventions (like pop-up lanes, traffic calming) 3. Piloting of new systems/ projects pertaining to NMT 4. Incentivization (reduction of traffic lanes to provide for cycling and walking) 5. Parking and cycle storing strategies 6. Public health strategies (Sanitization /distancing strategies) 7. Outreach/Awareness messaging 8. Any other innovations
Week 6 & 7	The list of key strategies studied from cities worldwide shall be compiled and critically appraised for their adaptation to Indian cities. In these two weeks, efforts should be made to categorize the potential strategies studied and prepare a draft user-friendly handbook that decision makers can utilize to refer to strategies.
Week 8	Report writing and preparation of presentation

<p>Mentors: Richa Pandey, Aditi Arya, Anushree P P</p> <p>Supervisor: Shamanth Kuchangi</p>	<p>Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare:</p> <ol style="list-style-type: none"> a. Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools. b. Review Report will be prepared every 15 days, to be assessed by the supervisors. c. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8.
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Project 5. Business Intelligence (BI) Best Practices for Operations and Monitoring of Public Transport

Number of Positions: 2	Specialization: Transport Planner with inclination towards data analytics	Internship Duration: 8 weeks
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Introduction: In a city, the bus-based public transport system is one of the most reliable, accessible and affordable means to access basic services such as education, health, work, etc. In the last few years, harvesting the benefits of the technological and data revolution, the public transport systems have also invested heavily in deploying technological systems capable of generating and storing vast amounts of real-time data e.g. kilometers travelled, ridership, sales of tickets, driving hours, etc. Therefore, there is a huge potential for the public transport operators to further turn these data points into Business Intelligence (BI) / Key Performance Indicators (KPI), which can be used for making data-driven decisions at various levels of operations (e.g. Management, Depot, Route level, etc.) and thereby improve the quality of public transport service in the city.

Project Brief: This project would involve in researching the key performance indicators that are used at different levels of management to monitor well managed public transport systems worldwide. These KPIs would be compared with the potential KPIs planned for Hubli-Dharwad BRTS (HDBRTS) and critically appraise the KPIs that need to be adopted for HDBRTS. The project would further involve in developing option for infographic display of the KPIs for easy understanding and drawing inferences. Each infographic would have drill down of KPIs and the project would document the data flow for drill down for various user profiles. This project would guide DULT/ HDBRTS Co and other public transport operators to evolve appropriate BI system.

Tentative Work Plan:		Weekly Output
Week 1 & 2	Research on BI case studies amongst well managed public transport systems worldwide.	Laundry List of the data collected, formula and the final KPIs for cities and different levels of organization.
Week 3	Through a survey or discussion with various stakeholders or reading of reports, develop a bird-eye view understanding of <ol style="list-style-type: none"> Objectives and target goals at various levels and verticals of the organization (management, route, depot, etc.) in a public transport system Data collected by NWKRTS, HDBRTS and / or BMTC 	Map the decision-making process at various levels of organization, list of data currently collected and current target KPIs for various verticals.
Week 4	Comparative analysis / Gap Assessment of the various case studies, existing KPI's and the target KPI	Revised list of KPIs & the method of measurement
Weeks 5, 6 and 7	Design and develop the graphical representation of various listed KPI's with data flow exercise for different levels and verticals of organization	Data Flow Document and Detailed Design Document with graphical representation for KPIs
Week 8	Final Report	

Mentors: Genesia Rodrigues, Nikita Baliga, Manohar Meena Supervisor: Shamanth Kuchangi	Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare: <ol style="list-style-type: none"> Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools. Review Report will be prepared every 15 days, to be assessed by the supervisors. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8.
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Project 6. Toolkit for Pedestrianization

Number of Positions: 2	Specialization: Transport Planner, Urban Planner	Internship Duration: 8 weeks
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Introduction: Cities today need public spaces that are not just parks and playgrounds but also spaces surrounded by activities where there is an intersection of social interactions, commerce and clean air. Many studies have shown the importance of cities being built to foster these social interactions for better mental and emotional health of its citizens. Benefits on commerce and clean air can be leveraged through such spaces provided for social interactions. For these reasons, cities across the world today are identifying streets to be made into such lively public spaces to give them back to its citizens and increase their happiness quotient.

Project Brief: The Directorate of Urban Land Transport, has recently piloted the weekend pedestrianization of Church Street in Bengaluru. Through the process of this pilot, DULT has had many learnings and would like to document these along with the best practices across the world to create templates that any city can adopt if they want to pedestrianize certain streets. This internship intends to document all such best practices to make a toolkit for pedestrianization of streets in India through the learnings gained.

Tentative Work Plan:

Week 1	Global case studies documenting the various streets that have been made pedestrian only - including concepts and ideas, larger aim, how it was implemented, who did it, time required, finance & management. In depth understanding of Church Street pedestrianization from DULT officials about its process and methodology to identify the gaps in the methodology that can be studied from case studies from other cities.
Week 2	Research and documentation on the processes adopted and various policies implemented by the cities for pedestrianizing streets including but not limited to methods of identifying streets for pedestrianization, public consultation, enlisting the permissions/ sign-offs required, officials and authorities to be involved etc.
Week 3	List of surveys and detailing of each survey, consultation and stakeholder meeting to be done before and after the pedestrianization project along with questionnaires/ checklists for the same. Also detailing the method for feedback and data collection post pedestrianization.
Week 4	Global case studies and documentation of the processes and regulations made by cities to allow artists/performers/vendors on the pedestrian only street along with other innovations to increase activity and involvement of citizens.
Week 5	Global case studies and best practices on business improvement districts and processes of formation and functioning of BIDs. Structure, operations and financial models of BIDs. See if any of the BIDs are formed for pedestrian only streets across cities. Also studying and arriving at sustainable management systems for these streets.

Week 6	Interview officials from various cities in India and elsewhere to gain insights into the challenges faced by them, the process followed by them, the outcomes etc. Also note & document all learnings from these projects.
Week 7	Prepare a toolkit with graphics for pedestrianization of streets in the Indian context which can be used in Tier I, II or III cities and present the draft report.
Week 8	Preparation and submission of the final toolkit.
Related Documents: The pedestrianization of Istanbul (Embarq); Pedestrian Only Streets: Stroget, Copenhagen (GDCI); Complete Streets Planning Workbook (NIUA & ITDP)	
Mentors: Sonal Kulkarni, Manju George, Pratiksha Surpuriya Supervisor: Satyajit Arikutharam	Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare: <ol style="list-style-type: none"> a. Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools. b. Review Report will be prepared every 15 days, to be assessed by the supervisors. c. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8.

Project 7. Signage Development for Heritage Trail – Vijaypura		
Number of Positions: 2	Specialization: Urban Planner, Urban Designer	Internship Duration: 8 weeks
<p>Introduction: An interpretative signage of archaeological and other heritage / cultural sites can add significantly to the understanding and enjoyment of the site by visitors, it can highlight the presence and significance of a site thus raising awareness and consequently improving its level of protection, and it can be an important communication and education tool.</p>		
<p>Project Brief: Vijaypura city is dotted with heritage and historical monuments of Islamic architecture. There are ancient monuments, including mosques, tombs and temples that have magnificent works of carvings and architecture dating back to the Adil Shahi dynasty that ruled the Deccan region of southern India during 1490 to 1686, making it a significant tourist destination in the state. The city houses many heritage monuments, but only a few of them are being maintained by the Archeological Society of India (ASI). The maintained monuments are visited by many tourists. However, there are various monuments in city which not maintained efficiently and are unnoticed by tourists. Hence for a visual linkage of all the sites a heritage trail is been planned to propagate the history and tourism.</p>		
Tentative Work Plan:		
Week 1	Case Studies for pedestrian trails around heritage monuments and signages designed in tourist places, around the World	
Week 2	Components and elements for NMT heritage trails (materials/ lighting/ street furniture /signages	
Week 3	Vijaypura – city profile and understanding of monuments and heritage sites of the city. Analysis of physical heritage assets in terms of current condition and accessibility to form a trail.	
Week 4	Key messages and stories to be communicated in signages - Compiling the inventory of the accessible historical, archaeological, ecological, and identification of documentary sources, artefacts, and other material, history, research folklore and legend.	
Week 5	Features and themes for various sites connected by materials, signages, lighting and furniture.	
Week 6	Graphic design of street furniture with layout, theme and colour palate as per the themes, signages with details like directional, Information, Promotional signage and the kind of signages (way markers with a digital element or audio or digital trails).	
Week 7	Preparation of signage document/ manual for Vijaypura.	
Week 8	Report Compilation	
Mentors: Anjeeta Sinha, Narendra Pattar, Saima Mujeeb Supervisor: Monica Kashkari	Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare: <ul style="list-style-type: none"> a. Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools. b. Review Report will be prepared every 15 days, to be assessed by the supervisors. c. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8. 	

Project 8. Documentation and comparative analysis of regulations with respect to micro-mobility		
Number of Positions: 2	Specialization: Urban Planner, Policy Planner	Internship Duration: 8 weeks
<p>Background: Covid-19 has proven that micro-mobility is an essential component of a safe and sustainable urban transport system. Low powered electric micro mobility modes are gaining popularity across the globe and come in a range of form factors enabling people to go farther distances than on foot or traditional cycle. Cities are developing supportive policies and allocating more public space to bikes and scooters.</p>		
<p>Project Brief: The objective of this research project is to understand the operational status and regulations for different types of electric micro mobility in various cities across the world.</p>		
Tentative Work Plan:		
Week 1	Document various forms and form factors of electric micro-mobility modes around the World. Understanding the specifications and the pros and cons of each type. A study of the ownership (privately owned, shared micro-mobility etc), buyer/user profile and purpose of trips made using micro-mobility modes in different cities around the world.	
Week 2	Assess scope of micro-mobility as mode for first and last mile connectivity for public transport, ascertain the associated infrastructure required supported with case studies including various technologies and systems involved (dock-less system etc.).	
Week 3	Case study of various cities around the world to understand the regulations for micro-mobility modes.	
Week 4	Extensive review of policies and regulations governing micro-mobility from various cities around the world and developing a comparative analysis.	
Week 5		
Week 6	Detailed Case Studies: Timeline and change in regulations for micro-mobility devices over the years. Critical appraisal of the draft SMMS, with suggestions for improvement.	
Week 7	Prepare Draft Report documenting findings.	
Week 8	Preparation of Final Report.	
<p>Mentors: Saurav Dhar, Shreya Satish Mokhashi, Saima Mujeeb</p> <p>Supervisor: Satyajit Arikutharam</p>	<p>Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare:</p> <ol style="list-style-type: none"> a. Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools. b. Review Report will be prepared every 15 days, to be assessed by the supervisors. c. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8. 	

Project 9: Enhancing non-farebox revenue of mass transit – Analysis of use cases from various cities

Number of Positions: 2

Specialization: Urban Planner, Transport Planner

Internship Duration: 8 weeks

Introduction: With rapid urbanization of Indian cities and spurt in population growth in those cities, most cities are relying on development of mass transit systems like metro, BRT, suburban rail, etc. to sustainably cater to the commuting needs of its people. Mass transit systems are capital intensive and the degree of investment depends on the type of mass transit, for example, BRTS is relatively far more economical than metro or LRT. However, these systems need time to mature to gain sufficient ridership and if managed well, the fare-box revenue can meet the operational expenses of system. However, for most mass transit systems it is essential for operators to not just rely on fare-box revenue, but also explore non-fare box revenue to ensure financial sustainability for operations. Many cities worldwide have explored such non-fare box revenue schemes and are successful in sustaining good quality mass transit operations by such revenue streams. Although many mass transit projects have explored non-fare revenue, typically they contribute only about 10-20% of the total revenue with rest coming from fare-box. There is huge potential to further reap non-fare box revenue to support operations, maintenance and may be even loan re-payment incurred towards provision of mass transit.

Project Brief: The project would research on the sources of non-fare box revenue that has been successfully commissioned in cities worldwide. Critically appraise the factors that have led successful commissioning of such revenue sources. Study the policies, regulations and framework that have been relied on for stabilizing such revenue sources. The project would document such non-fare box revenue schemes in detail and appraise them for its suitability to adopt in Indian cities.

Tentative Work Plan:

Week 1 & 2	Review of sources of non-fare box revenue schemes adopted by cities in Europe and Asia. Review should provide deep insights into the sources of revenue generation, institutional mechanisms, mobilization of market forces, policy/regulations that govern revenue generation, duration for which revenue sources are secured, revenue utilization, etc.
Week 3 & 4	Review of sources of non-fare box revenue schemes adopted by cities in South and North America. Review should provide deep insights into the sources of revenue generation, institutional mechanisms, mobilization of market forces, policy/regulations that govern revenue generation, duration for which revenue sources are secured, revenue utilization, etc.
Week 5 & 6	Review of non-fare box revenue generation by mass transit operators in Indian cities. Identification of potential untapped resources for non-fare box revenue in India. Critical appraisal of the potential untapped resources for adoption in India.
Week 7	Draft report documenting best practices for non-fare box revenue.
Week 8	Final report and presentation.

Mentors:

Abhishek Ranjan Prasad,
Ravindra Dhaded,

Amshala Vijay Teja

Supervisor:

Satyajit Arikutharam

Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare:

- a. **Progress report** of the tasks completed at the end of **every week**, for review conducted by the **mentors**. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools.
- b. **Review Report** will be prepared **every 15 days**, to be assessed by the **supervisors**.
- c. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8.

Project 10: Application of remote sensing and GIS technology in urban mobility

Number of Positions: 2	Specialization: Transport Planner with knowledge of GIS	Internship Duration: 8 weeks
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Introduction: Application of remote sensing and GIS Technology has been an integral part of the planning, management and monitoring of various projects having geographical-context. These are also effectively used in cities to address diverse challenges related to urban mobility. Advancements in remote sensing and GIS technologies offer great opportunities to harness their benefits with respect to speed, cost effectiveness, convenience and quality of output.

Project Brief: This study aims to gather an overall understanding of the applications of remote sensing and GIS in urban mobility and land use planning in various cities across the world by analyzing use cases from across the world. The study must focus on innovative use cases adopted by cities/agencies to expedite data acquisition and validation, analysis and interpretation. The final document must be a compilation of use cases with detailing on methodology and approaches used.

Tentative Work Plan:

Week 1 and Week 2	Literature review and research to gather information on use cases involving applications of remote sensing and GIS technology in urban mobility across the world including best practices. Understanding their use at data collection/ surveying stage, during planning and monitoring as well as data dissemination including dashboards. The analysis must identify three key trends in the existing literature: (a) the integration of heterogeneous remote sensing data, primarily for investigating or modelling urban environments as a complex system, (b) the development of new algorithms for effective extraction of urban features, and (c) the improvement in the accuracy of traditional spectral-based classification algorithms for addressing the spectral heterogeneity within urban areas.
Week 3 and Week 4	From the review of various applications, proceed to identify and short-list use cases that highlight innovative use of above-mentioned technologies and evaluate use cases based on efficiency and cost. 10 use cases will be identified by each intern. Please note that as the end product is a compilation of use cases, the treatment of each use case must be fairly comprehensive.
Week 5 and Week 6	From the insights gathered from the use cases and using the sample data provided by DULT, the interns will develop a dashboard/app/algorithm/framework for the selected use case.
Week 7	Preparation of draft report with compilation of use cases, and detailed process flow and methodology followed for the task above. Agreed output in the form of dashboard/app/algorithm/framework for the selected use case.
Week 8	Finalisation of the report and presentation.

Mentors: Deeshma M, Prashob Raj Supervisor: Sanmay Bohidar	Deliverables: Project progress to be discussed with the mentor on a daily basis. Interns will prepare: <ol style="list-style-type: none"> Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools. Review Report will be prepared every 15 days, to be assessed by the supervisors. A Draft final report will be presented to Commissioner at the end of Week 7 and the Final Report to the Review panel at the end of week 8.
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Directorate of Urban Land Transport

Internship Programme - 2021



Expectations from the interns during the period of internship:

The intern-from-home option just got a big push from the current global coronavirus pandemic. Interning from home can be exciting, empowering and even profitable, provided you are realistic about the pros and cons. There are added responsibilities that come with freedom, not to mention planning, foresight, self-discipline, and focus. Oh, yes, and hours of uninterrupted hard work.

Following instructions to be followed for effectively intern from home

- A designated workspace with the right technology
- Set up a functional workspace
- Get the internet speed you need
- Use phone apps to communicate effectively
- Stick to your work schedule

Students joining DULT for internship program have to fulfil the below stated administrative requirements:

- The timings shall be from 10:00 AM to 5:30 PM, with 30 minutes lunch break from 1:30 pm – 2:00 pm
- It is mandatory for interns to check in with their respective mentors every day so that the necessary tasks can be assigned to them. Interns are required to report their daily progress to their mentors at the end of each day.
- Reporting to Mentors at the beginning and the end of each day is compulsory
- Interns must ensure that they are available throughout the working hours to enable coordination and communication
- A weekly review will be conducted by the Mentors. Supervisors will review the work assigned once every 15 days to assure that the interns are on track and have guidance at every step of their internship program.
- Interns will ensure that they have good internet connectivity and the necessary software requirements (Microsoft Teams, Slack and Google Meet) prior to the launch of the internship program. Interns are requested to get familiarized with the mentioned software.
- Reporting to Mentors twice on all working days is mandatory. Leave, if any, may be granted with prior approval from the Mentor/Supervisor.
- Certification of completion shall be issued only to those, who have consistently performed well throughout the internship period and have complied with the scheduled deliverables.

Review Schedule

Interns will prepare:

- a. Progress report of the tasks completed at the end of every week, for review conducted by the mentors. Slack will be used for communication between the mentors and the team of interns, in addition to video conferencing tools.
- b. Review Report will be prepared every 15 days, to be assessed by the supervisors.
- c. An interim presentation will be made to Commissioner at the end of Week 7. The final report will be drafted based on the changes recommended and the final presentation will be made to the Review panel at the end of week 8.
- d. The final documents to be submitted will be as per the format/ guidelines shared by DULT.

Review	Period	Review Panel	Review Date
Bi-weekly progress	Twice a week	Mentors	Tuesday and Thursday
Interim Review	Every 15 days	Supervisor and Mentors	04-06-21, 18-06-21, 02-07-21
Draft Report Review	7 th week of Internship	Commissioner, Supervisor and Mentors	16-07-21
Final Presentation and Report Submission	Last day of Internship	Panel Review	21-07-21