



Final Year Project Showcase Batch 2018 Year 2022

Department: Urban & Infrastructure Engineering Programme: Urban & Infrastructure Engineering		
1	Project Idea	Determination of adequacy of Expressway for heavy traffic
2	Process	Performed Engineering analysis of existing Infrastructure of Lyari Expressway Karachi (LEW) and suggested room for improvement in terms of Geometric and Pavement
3	Outcome	<ul style="list-style-type: none"> a) Adequate turning path available at all curves of LEW, as permitted by AASHTO. b) Adequate pavement thickness, with additional overlay for better performance. Adequate posted speed for heavy vehicles.
4	Evidence (Theoretical Basis)	<p>LEW competed in August 2017 and inaugurated on January 28, 2018 for light traffic movement. It was constructed between northbound and southbound of the city along the length of Lyari River, with four interchanges.</p> <p>The study presented here, applied American Association of State Highway and Transportation Officials (AASHTO) guides, Vehicle Tracking Tool of Civil3d software, encompassing information regarding LEW and researches of National Transport Research Center (NTRC) along with the review of literature has been used to acquire the three main objectives of this project. It was concluded that the freight traffic operations in present circumstances, feasible to accommodate the turning paths, however causes the pavement failure (overlay is imperative) and adopted posted speed throughout the expressway is ample whereas at interchanges and U-Turn the posted speed should be diminished.</p>
5	Impact on Sustainability of Urban Regions or SDG-11 "Sustainable Cities and Communities"	According to National Transport Research (NTRC), the transport and commute services will upgrade for industrial area and national seaport and to improve the congestion condition on arterials along with the pedestrian and vehicles accident will be minimized. Hence it can be concluded that the presented project will impact SDG-11
6	Competitive Advantage or Unique Selling Proposition (Cost Reduction, Process improvement, Attainment of any SDG (Sustainable Development Goal), increase of market share or capturing new market or having superior performance over a competitor. In summary, any striking aspect of the project that compels the industry to invest in FYP or purchase it. Some detailed description is required in terms of how, why when what. You can select one or more from the following dropdown and delete the rest of them). Please keep relevant options, delete the rest of them, and correct the sequence	
a	Attainment of any SDG (e.g. How it is achieved and why it is necessary for the region)	<p>Presently heavy freight operations are carried by Karachi Northern Bypass (KNB) which is longer than the LEW. The route distance and travel time will be reduced from 65.9 Km to 23.1 Km and 79 minutes to 33 minutes respectively, if mobilization of heavy vehicles occurs via LEW.</p> <p>Hence allowing vehicle on LEW is highly significant in nature.</p>
b	Environmental Aspect (e.g. carbon reduction, energy-efficient, etc.)	As highlighted in 6(a) it is expected that the fuel consumption and environmental pollution decreased due to lessen path

		between Mauripur and Karachi-Hyderabad motorway (Super Highway, M-9).
c	Cost Reduction of Existing Product	Consequent upon the reduction of route length it is likely that there will be less fuel consumed and consequently decrease in import bill of petroleum products.
d	Process Improvement which Leads to Superior Product or Cost Reduction, Efficiency Improvement of the Whole Process (e.g. What is the issue is current process and what improvement you suggests)	Several meetings have been arranged by the Government and concerned authorities regarding freight traffic operations at LEW. But the assessment was needed to carryout on LEW prior to permitting heavy vehicles for mobilization on LEW since heavy vehicles plays an immense role in the vandalization of pavement, hence the pavement audit of an expressway is obligatory. As LEW is situated along the densely populated regions of the Karachi city without the service roads along the right and left bank embankments of LEW consequently, it is an obligatory to examine the geometric aspects of LEW and the speed at which heavy vehicles allowed to move on LEW.
7	Target Market (Industries, Groups, Individuals, Families, Students, etc) Please provide some detail about the end-user of the product, process, or service	In case of heavy vehicles mobilization on LEW, the key beneficiaries of the project will be heavy goods vehicle drivers, environment, traffic regulation and management authority in a city/country and the authority responsible for the maintenance and operations at LEW. Environment pollution will also be reduced due to the lessen travel path and lessen consumption of fuel.
8	Team Members (Names along with email address)	<ol style="list-style-type: none"> 1. Muhammad Areeb, areebaamir255@gmail.com 2. Sehar Noor, seharnoor2000@gmail.com 3. Ammad Arif, ammadarif18aug@gmail.com Sobia Naz, sobianaz180@gmail.com
9	Supervisor Name (along with email address)	Prof Adnan Qadir, adnan@neduet.edu.pk
10	Pictures	<p>The map shows the Lyari Expressway (LEW) route through Karachi, starting from the Lyari River and extending through the city towards the Hyderabad Motorway. Key features include the Lyari River, Expressway (North & South Bound), City Roads crossing Lyari River, Karachi Circular Railway, Expressway Interchange, and Bridge on River. The map also shows the Lyari Expressway Bridge, Lyari Expressway Interchange, and Lyari Expressway Interchange (East Side). The map is titled 'LYARI EXPRESSWAY (ROUTE MAP) Length: 33.155 km'.</p> <p>Figure 1.1 Map of Lyari Expressway (LEW) (SOURCE: Lyari Expressway - Wikipedia) (Last visited on 13-MARCH-2022)</p>