



## Local Government & Community Development Department

### Punjab Cities Program Improvement and Rehabilitation of Roads in MC Hafizabad

# PC-I

Estimated Cost PKR 161.06 Million

November 2022

Municipal Committee Hafizabad



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**Punjab Cities Program**  
**PC-I Form for Improvement of Roads Project in Hafizabad City**

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**PC-I FORM**  
**for**  
**Improvement & Rehabilitation of Roads Project in**  
**Hafizabad City**

*Project Serial Number*

*Sector :* **Local Government & Community Development Department**

*Sub Sector:* **Social**

<b>1. Name of the project</b>	<b>Punjab Cities Program Improvement &amp; Rehabilitation of Roads Project in Hafizabad city</b>	
<b>2.Location</b>	Hafizabad district is located between 73°-12' to 73°-46' East longitudes and 31°-45' to 32°-20' North latitudes. The city of Hafizabad is located at 73° 41' East longitude and 32° 4' North latitude. Location Map is attached as Annexure A.	
<b>3. Authorities responsible for</b>		
i- Sponsoring	Government of the Punjab (through World Bank funding)	
ii- Execution	Municipal Committee Hafizabad	
iii- Operation and Maintenance	Municipal Committee Hafizabad	
iv- Concerned Provincial Department	Local Government and Community Development Department Punjab	
<b>4a. Plan Provision</b>		
i. If the project is included in medium term/five year plan, specify actual allocation	Punjab Cities Program (PCP) is a World Bank funded Program with a total cost of USD 236.00 million and comprises of below mentioned components.	
	Total loan from World Bank	USD 200.00 million
	Component-1 Infrastructure development (PforR)	USD 180.00 million
	Component-2 Technical Assistance	USD 20.00 million
	MCs share (20% of PforR component) equivalent to:	USD 36.00 million
	Total Program cost	USD 236.00 million

	Component-2 i-e Technical Assistance component of Program costing USD 20.00 million is meant for management cost of the Program and capacity building of MCs & Government Departments and is included in the medium term/ five-year plan and has been funded now in ADP 2021-22 - under General Serial No-2521 with allocation of PKR 100.00 million as foreign component.
ii- If not included in the current plan, what warrants its inclusion and how it is now proposed to be accommodated	Not applicable
iii If the project is proposed to be financed out of block provision indicate.	The Project is being financed by World Bank as Donor along with 20% co-financing from the Program Units and is not proposed to be financed out of block allocation.
4b- Provision in the current year PSDP/ADP	PKR.100.00 million under ADP 2021-22 General Serial No 2521 for Component-2 of the Program i-e Technical Assistance as described above.
5. Project objectives and its relationship with sector objectives	<p><b><u>Sector Objectives</u></b></p> <p>The sector objectives include:</p> <ol style="list-style-type: none"> <li>1. Provision of efficient and effective municipality services to the masses.</li> <li>2. Community development through improving basic infrastructure.</li> <li>3. Clean and green environment for better living standards.</li> <li>4. Effective use of land through master planning of urban areas.</li> <li>5. Social uplifting and cohesion through provision of public open spaces and play grounds.</li> <li>6. Ease in mobility and communication.</li> <li>7. Cost efficient Solid Waste Management through waste to energy initiatives.</li> <li>8. Capacity building of Local Governments.</li> <li>9. Efficient Road network to make areas easily accessible</li> </ol>

	<p><b><u>Objectives of the Project</u></b></p> <p>The Project aims at improvement of infrastructure of municipal services such as roads, cross roads, street lights, parks and parking shed for SWM machinery for improved communication and recreational facilities.</p> <p>Scope of the work for this particular project includes the rehabilitation and improvement of existing roads, and drainage system along with the construction of new drainage system where needed. However, the cleaning and de-silting of existing drains and pipes will be arranged by MC Hafizabad from their own resources,</p> <p>The Project has the following objectives;</p> <ol style="list-style-type: none"> <li>1. Improvement of service delivery level of the municipal services in the sector of communication.</li> <li>2. Better travelling facilities for the commuters.</li> <li>3. Reduction in road accidents.</li> <li>4. Saving in travelling and repair cost of the vehicles.</li> <li>5. Reduction in annual maintenance charges of roads and parks</li> <li>6. Better lit roads and streets adding to security of people travelling at night.</li> <li>7. Improvement in environments of the city making them livable.</li> <li>8. Improvement in local and province economy.</li> <li>9. Improvement in the economic growth potential of the city.</li> </ol> <p>Hence, the objectives of the project are in line with the sector objectives mentioned at Sr. No-1, 2, 3, 5 and 6 above and the project forms integral part of the concerned sector.</p>
<p><b>6. Description, justification, technical parameters and technology transfer aspects</b></p>	
<p>i. Present Condition</p>	<p>As per PLGA-12019 Urban Local Governments (ULGs) are basically and wholly responsible for delivery of the municipal services with a service delivery level which should satisfy the consumers and citizen. Unfortunately, the prevalent conditions of the service delivery are not encouraging in the city.</p> <p>The major reason of unsatisfactory service delivery is the lack of proper maintenance of the municipal infrastructure in all sectors causing consumer dissatisfaction at one end and degradation of the infrastructure on the other end apart from very low revenue recovery as the consumers are reluctant to pay because of deteriorated service delivery.</p> <p>The roads infrastructure has been damaged and degraded because of lack of repairs and upgradation due to shortage of money and constrained municipal budgets. If these roads are not improved at this stage, then this infrastructure will be further damaged / degraded giving financial loss to</p>

	<p>the public as well as private sectors and the growth potential of the city will be adversely affected. Damaged roads will increase the operational expenditure of the vehicles apart from wasting time and giving rise to public frustration and mental agony.</p> <p>The only way to keep the infrastructure in operational and functional condition for better travelling and recreational facilities to the inhabitants of the city and the surrounding areas, is to improve the roads and important cross roads.</p>												
ii. Description of the subproject-	The project comprises of improvement of <b>03 Nos</b> damaged roads with total length of <b>5.15 Km</b> in the city. Detail of these roads has been given in the table below.												
iii Detail of civil works, equipment & machinery and other physical facilities	<p>The detail of roads to be improved, rehabilitated or constructed in the city, is given below:</p> <table border="1"> <thead> <tr> <th colspan="4"><b>A Improvement and construction of roads</b></th> </tr> <tr> <th><b>S. N.</b></th> <th><b>Name of road</b></th> <th><b>From-To</b></th> <th><b>Detail of works involved</b></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>P4-Kasoki Road</td> <td>Railway Phatak to PSO Pump Sheikhupura Road</td> <td> <ul style="list-style-type: none"> <li>• Geometric Improvement and Rehabilitation of Existing Pavement Structure</li> <li>• Pavement Marking</li> <li>• Street Lighting</li> <li>• Improvement of drainage system</li> </ul> </td> </tr> </tbody> </table>	<b>A Improvement and construction of roads</b>				<b>S. N.</b>	<b>Name of road</b>	<b>From-To</b>	<b>Detail of works involved</b>	1	P4-Kasoki Road	Railway Phatak to PSO Pump Sheikhupura Road	<ul style="list-style-type: none"> <li>• Geometric Improvement and Rehabilitation of Existing Pavement Structure</li> <li>• Pavement Marking</li> <li>• Street Lighting</li> <li>• Improvement of drainage system</li> </ul>
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iv Indicate governess issues of the sector relevant to the project and strategy to resolve them	<ul style="list-style-type: none"> <li>• Municipal Committee Hafizabad is facing acute shortage of staff. The smooth sailing of the Punjab Cities Program can only be assured when the required staff is available with Unit.</li> <li>• The Repair and maintenance of the municipal services in not up to the mark in the such Unit. Trainings will be imparted by PMDFC to the officers as well as the field staff under the Program but practicing the interventions and method/procedures learnt in these trainings is the actual requirement in which Units are lacking at present. Hence inculcating the mind set for good repair and maintenance is the major requirement for improving the service delivery level.</li> </ul>												
<b>7- Capital Cost of Project</b>	<p>The summary of the works included in the project is given below;</p> <table border="1"> <thead> <tr> <th><b>S. No</b></th> <th><b>Name of road</b></th> <th><b>Cost (PKR million)</b></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>P4-Kasoki Road</td> <td>124.77</td> </tr> <tr> <td>2</td> <td>Stormwater Drainage</td> <td>2.73</td> </tr> <tr> <td>3</td> <td>Electrical Works</td> <td>22.16</td> </tr> </tbody> </table>	<b>S. No</b>	<b>Name of road</b>	<b>Cost (PKR million)</b>	1	P4-Kasoki Road	124.77	2	Stormwater Drainage	2.73	3	Electrical Works	22.16
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	6	Punjab Sales Tax @5%	7.52																																
		<b>Grand Total</b>	<b>161.06</b>																																
	See <b>Annexure-B</b> for details																																		
i- Indicate date of estimation of the project cost	The project estimates have been framed during the month of June, 2022																																		
ii- Basis of determining the estimates be provided.	<p>The cost estimates have been framed on the basis of bill of quantities actually required at site and unit rates from the Market Rate System (MRS) issued by the Government of Punjab (District Hafizabad 1<sup>st</sup> biannual of year 2022).</p> <p>For items not available in the MRS, the same have been analyzed as per prevailing market rates.</p>																																		
iii- Provide year wise estimation of physical activities	<p>The physical and financial requirements, year wise are included in the following table:</p> <table border="1"> <thead> <tr> <th>S. #</th> <th>Name of road</th> <th>Year 2022-2023</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>P4-Kasoki Road</td> <td>100%</td> </tr> </tbody> </table>			S. #	Name of road	Year 2022-2023	1	P4-Kasoki Road	100%																										
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iv- Phasing of capital cost on the basis of each item of work.	<p>The phasing of capital cost of the project is included in the following table:</p> <p style="text-align: center;">(All figures are in million rupees)</p> <table border="1"> <thead> <tr> <th>S. #</th> <th>Items of Road</th> <th>Total (PKR million)</th> <th>Year 2022-2023 (100%)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>P4-Kasoki Road</td> <td>124.77</td> <td>124.77</td> </tr> <tr> <td>2</td> <td>Stormwater Drainage</td> <td>2.73</td> <td>2.73</td> </tr> <tr> <td>3</td> <td>Electrical Works</td> <td>22.16</td> <td>22.16</td> </tr> <tr> <td>4</td> <td>Environmental Mitigation Cost</td> <td>0.85</td> <td>0.85</td> </tr> <tr> <td></td> <td style="text-align: center;"><b>Total work outlay</b></td> <td><b>150.52</b></td> <td><b>150.52</b></td> </tr> <tr> <td>5</td> <td>PST, contingencies</td> <td>10.53</td> <td>10.53</td> </tr> <tr> <td></td> <td style="text-align: center;"><b>Total project cost</b></td> <td><b>161.06</b></td> <td><b>161.06</b></td> </tr> </tbody> </table>			S. #	Items of Road	Total (PKR million)	Year 2022-2023 (100%)	1	P4-Kasoki Road	124.77	124.77	2	Stormwater Drainage	2.73	2.73	3	Electrical Works	22.16	22.16	4	Environmental Mitigation Cost	0.85	0.85		<b>Total work outlay</b>	<b>150.52</b>	<b>150.52</b>	5	PST, contingencies	10.53	10.53		<b>Total project cost</b>	<b>161.06</b>	<b>161.06</b>
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<p><b>8-Annual recurrent cost after completion of the project and source of financing</b></p>	<p>The roads are already being repaired and maintained by the Municipal Committee Hafizabad out of its own financial resources. No additional cost will be required after completion of the improvement and upgradation of the roads and rather the repairs cost will be reduced for the initial years. However, the efficiency of the infrastructure and service delivery level will be improved after completion of the project.</p>
<p><b>9- Demand &amp; Supply Analysis</b></p> <p>i- Existing Capacity of services</p>	<p><b>Existing supply level</b></p> <ul style="list-style-type: none"> <li>• Existing geometry of the roads is not well enough to sustain the smooth traffic flow. Existing pavement structure of the roads is deteriorated which needs the rehabilitation to bear the traffic loading and better riding quality.</li> <li>• Municipal Committee Hafizabad is unable to render satisfactory service to the entire area of the city because of degraded infrastructure wherein some rehabilitation and improvement are direly needed but MC could not be able to accomplish them because of low revenue recovery and funding constraints. Very few areas are reasonably served but others are deprived of the required level of the service. This is resulting in low credibility of the municipal services and citizen dissatisfaction. Further the infrastructure has not been developed and extended keeping in pace with the growth of population mainly due to migration from rural areas to urban areas. The market prices of the materials and labor have also increased drastically during the last decade which increased the O&amp;M cost of services. This has further degraded the situation and the service delivery level is further deteriorating.</li> </ul>
<p>ii- Projected Demand for 10 years</p>	<ul style="list-style-type: none"> <li>• Traffic is increasing day by day in Hafizabad city. Projected traffic of 1 project road for 10 year is 75 million. Project roads of MC Hafizabad needs to be improved to save the travel time and better riding quality.</li> <li>• The municipal services require radical improvement to enhance the efficiency of the service to increase service delivery to a satisfactory level. For this purpose, the existing infrastructure will have to be improved.</li> <li>• Many shortcomings, problems and bottlenecks have been observed in the existing infrastructure which could not be addressed by MC due to funding constraints and now have been proposed to be addressed by rehabilitation of defective and outlived components of all the municipal services infrastructure.</li> </ul>
<p>iii- Capacity of other similar projects being implemented in public/private sector</p>	<p>No other project of this nature is being implemented in public as well as private sector because of funding constrains in the Unit.</p>
	<p>The nature of supply and demand gap has been explained in the preceding paras which concludes;</p>



<p>iv- Supply and Demand gaps</p>	<ul style="list-style-type: none"> <li>• Existing condition of the road network is not good enough to bear the traffic load. It's causing excessive delays, increasing travel time, occurring accidents at intersections and vehicles wear and tear due to the poor condition of pavement surface. Increasing traffic load requires the improvement of existing road network.</li> <li>• The existing infrastructure has poor efficiency resulting in unsatisfactory service delivery level.</li> <li>• The O&amp;M cost of the infrastructure services is very high because of low efficiency and high market rates while there is a large gap between the O&amp;M expenditure and the revenue recovery.</li> <li>• Large subsidies are being injected by MC to keep the services in operation</li> <li>• Numerous public complaints are the talk of the day.</li> <li>• Unsatisfactory municipal delivery is not encouraging the city to become engines of economic growth and hence the GDP of our city is much lower than the peers in the developing world.</li> </ul> <p>Hence there is a large gap between the supply and demand which is to be bridged by improvement in the infrastructure and its management.</p>																
<p>v-Designed capacity and output of the project</p>	<p>1. Table showing Name of road, From and to reaches, length, ROW, metaled width and type of pavement of the road and total length is given below:</p> <table border="1" data-bbox="545 1209 1473 1496"> <thead> <tr> <th>Sr. No</th> <th>Road Name</th> <th>From and To</th> <th>Pavement Type</th> <th>ROW</th> <th>Carriage way Type</th> <th>Metaled Width</th> <th>Length (km)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>P4-Kasoki Road</td> <td>Railway Phatak to PSO Pump Sheikhpura Road</td> <td>Asphalt Concrete</td> <td>62 ft (Varies)</td> <td>Single</td> <td>36 ft</td> <td>1.98 km</td> </tr> </tbody> </table> <p>2. Road is designed for 10-year life.  3. This road will carry out the 75 million traffic cumulatively for 10 years.  4. Improvement of these roads will decrease the travel time of commuters which will ultimately improve the economy of city.</p>	Sr. No	Road Name	From and To	Pavement Type	ROW	Carriage way Type	Metaled Width	Length (km)	1	P4-Kasoki Road	Railway Phatak to PSO Pump Sheikhpura Road	Asphalt Concrete	62 ft (Varies)	Single	36 ft	1.98 km
Sr. No	Road Name	From and To	Pavement Type	ROW	Carriage way Type	Metaled Width	Length (km)										
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<p><b>10. Financial Plan</b></p> <p><b>Sources of financing</b></p> <p><u>Debt</u></p> <p>a) Indicate the local and foreign debt Loan</p>	<p>Below given loan for the Punjab Cities Program has been funded by World Bank for 16 PCP cities in Punjab.</p> <table border="1" data-bbox="544 277 1490 667"> <tr> <td>Total loan to Government of Pakistan/Punjab</td> <td>USD 200 million</td> </tr> <tr> <td>Component-1 for Infrastructure Development</td> <td>USD 180 million</td> </tr> <tr> <td>Component-2 for Investment Project Financing For capacity building of MCs &amp; three Govt. organization and program management.</td> <td>USD 20 million</td> </tr> <tr> <td>20% share of Municipalities is equivalent to</td> <td>USD 36 million</td> </tr> <tr> <td>Total funds available for Infrastructure Development</td> <td>USD 216 million</td> </tr> <tr> <td colspan="2">This project will be funded under this financing.</td> </tr> </table>	Total loan to Government of Pakistan/Punjab	USD 200 million	Component-1 for Infrastructure Development	USD 180 million	Component-2 for Investment Project Financing For capacity building of MCs & three Govt. organization and program management.	USD 20 million	20% share of Municipalities is equivalent to	USD 36 million	Total funds available for Infrastructure Development	USD 216 million	This project will be funded under this financing.	
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This project will be funded under this financing.													
<p>b) Equity</p>	<p><b>A. Loan/grant to MC</b></p> <p>The amount of loan converted to grant to Hafizabad Unit will be <b>PKR 128.84 million</b>. The financing of the project will be as given below:</p> <table border="1" data-bbox="571 851 1477 1066"> <tr> <td>Grant to Unit for the year 2022-2023 (80% of cost of PC-I)</td> <td>PKR 128.84million</td> </tr> <tr> <td>20% Co-finance by MC (20% of the cost of PC-I)</td> <td>PKR 32.21 million</td> </tr> <tr> <td>Total available funds</td> <td>PKR <b>161.06</b> million</td> </tr> </table> <p><b>B. Project Cost PKR 161.06 million</b></p> <p>*The loan is from World Bank to Government of Pakistan/Punjab which will trickle down to Hafizabad Unit as grant.</p>	Grant to Unit for the year 2022-2023 (80% of cost of PC-I)	PKR 128.84million	20% Co-finance by MC (20% of the cost of PC-I)	PKR 32.21 million	Total available funds	PKR <b>161.06</b> million						
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Total available funds	PKR <b>161.06</b> million												
<p>c) Grants</p>	<p>No grant is being given by Government of Punjab out of ADP funds. The World Bank loan to Government of Pakistan/Punjab will trickle down as grant to MC from Government of Punjab.</p>												
<p>d) Weighted cost of capital</p>	<p>Nil</p>												
<p><b>11-Project benefits and analysis</b></p>													
<p>i. Financial: Income to the project with assumption</p>	<ul style="list-style-type: none"> <li>• The project comprises of improvement of roads and cross roads in the city.</li> <li>• Hafizabad Unit has no plan to levy user charges /toll tax on the roads as these are internal roads of city and levying of toll tax is not feasible.</li> <li>• However, it is an infrastructure sector project but the capital cost of the project is not intended to be recovered. The unit will meet the cost of repair and maintenance out of its own resources. The project economic analysis is given as <b>Annexure-C</b>.</li> </ul>												

ii. Social benefits to the target group	<p>The completion of the project will result in:</p> <ul style="list-style-type: none"> <li>• Up gradation of the infrastructure.</li> <li>• Enhanced life of the roads.</li> <li>• Reduction in travelling time of the commuters.</li> <li>• Reduction of road accidents.</li> <li>• Reduction in consumption of POL resulting in saving of the foreign exchange.</li> <li>• Reduction in the operation and maintenance cost of the vehicles.</li> <li>• Improvement in the environment of the city;</li> <li>• Minimized public mental tension and frustration</li> <li>• Improved local economy</li> <li>• Improvement of city growth potential</li> </ul>
iii. Environmental Impact negative/positive	<p>Construction/Rehabilitation of roads and their subsequent long-term use lead to many changes in the environment. There will be some negative impacts during rehabilitation of the Roads in the form of noise of the machinery, dismantling of the existing roads, dust pollution, nuisance caused by higher traffic, risked caused by animal intersecting routes or consequences of any crossing water courses etc. Therefore, it is recommended to develop variant solutions in order to choose the one that would be least harmful to the environment, and then to incorporate them in an Environmental and Social Management Framework. However, the impacts will be temporary and there will be no negative impacts after completion of the project, rather, positive impacts, because of improvement in environments of the city, will be observed and present traffic hazards and jams will be eliminated. Hence overall positive impacts will be experienced due to execution and operation of the project. To facilitate the selection of an optimal solution and for the inclusion of Safe Operating Procedures for Construction workers/labors; assessment indicators or an Environmental Screening Checklist has been developed which is attached as Annexure E (A) of this PC-1. The checklist focuses on Environmental Issues and social concerns and ensure that all environmental and social dimensions are adequately considered. Based on the remarks of the screening checklist, Environment and Social Management Plans (ESMPs) are prepared and the necessary costs for implementation of ESMPs have been provided in this PC-1. The Environment, Health and Safety SOPs for labor/workers are provided as Annexure E (B).</p> <p>Moreover, the ESMP for the E-2 category project will be prepared and made part of the bidding documents.</p>
iv. Quantifiable project outputs	<p>The quantifiable project out puts have been given above in Sr. No-9 (V). The social benefits to the citizen have been described at Sr. No-11(ii).</p>

v. Unit cost analysis	<p>The unit cost analysis is produced below;</p> <table border="1" data-bbox="555 237 1471 367"> <tr> <td>Project capital cost</td> <td>PKR 161.06 million</td> </tr> <tr> <td>Population of the city in year 2023</td> <td>281,026 persons</td> </tr> <tr> <td>Unit capital cost per capita</td> <td>PKR 573</td> </tr> </table> <ul style="list-style-type: none"> <li>Unit R&amp;M cost: – The Repair &amp; maintenance cost is already being borne by Hafizabad Unit and there will be no increase in this cost. Due to improvement of the infrastructure R&amp;M cost will reduce for at least 5 years after completion of the project.</li> </ul>	Project capital cost	PKR 161.06 million	Population of the city in year 2023	281,026 persons	Unit capital cost per capita	PKR 573
Project capital cost	PKR 161.06 million						
Population of the city in year 2023	281,026 persons						
Unit capital cost per capita	PKR 573						
vi. Employment generation (direct and indirect)	<p><b><u>Employment Analysis</u></b></p> <p><b>Direct Employment</b></p> <p><b>a) <i>Planning and Design of projects</i></b></p> <p>The planning and design of the project has been entrusted to local consultants who have appointed staff and experts in road and related disciplines along with their support staff. The consultants will also appoint their staff for resident supervision of the project to verify and certify the items of works to be executed under this PC-I.</p> <p><b>b) <i>Execution of the Project</i></b></p> <p><b>a) <i>PMDFC</i></b></p> <p>PMDFC has the project monitoring and supervisory role and the company has enough experts and staff to complete this assignment. PMDFC has already deployed under mentioned staff for these projects:</p> <ul style="list-style-type: none"> <li>Civil Engineers</li> <li>Accounts, administration and audit personnel</li> <li>Urban planners</li> <li>GIS experts</li> <li>Support staff like computer operators, vehicle drivers, office boys and guards.</li> <li>Procurement experts</li> <li>Communication experts</li> <li>Environmental and social experts</li> <li>Contract management experts</li> </ul> <p><b>b) <i>Consultants</i></b></p> <p>PMDFC has employed consultants for detailed design and resident supervision of the projects who will deploy their staff for execution of the project.</p> <p><b>c) <i>Municipality</i></b></p> <p>Hafizabad Unit has regular staff like engineers, sub engineers and other administrative &amp; accounts keeping staff which will be</p>						

	<p>responsible for execution of the project and contract management. No additional staff will be needed for execution of this project</p> <p><b>d) Contractor</b> The contractor responsible for execution of the sub project will employ skilled and un-skilled labor on this work.</p> <p><b>Indirect Employment</b> Indirect employment for production of material such as cement, steel, stone metal, bitumen, bricks etc. will be generated.</p>
vii. Impacts of delays on project cost and viability	<p>The impact of delay in project implementation will;</p> <ul style="list-style-type: none"> <li>• Result in increased project cost due to escalation in cost of material and labor.</li> <li>• Delay the benefits to the target group</li> <li>• Result in further deterioration of the infrastructure and the service delivery level.</li> </ul>
<b>12-Implementation Schedule</b>	
a) Indicate starting and completion date of the project	The project is anticipated to commence by Dec 2022 and to be completed by March 2023 with project implementation period of 3.5 months.
b) Item wise/year wise schedule in line chart	The Gant chart has been attached at <b>Annexure-D</b>
<b>13- Management Structure and manpower requirements</b>	
i. Administrative arrangements for the implementation of the project	<p><b>ii. Planning &amp; design of the project</b> The project has been designed by the consultants employed by PMDFC and will also carry out the resident supervision of the project.</p> <p><b>iii. Preparation of cost estimation</b> The cost estimates have been prepared by the design consultants by actual measurements and requirements at site. The execution of the items of works included in these estimates /PC-I will be certified by these consultants.</p> <p><b>iv. Execution of the project</b></p> <ul style="list-style-type: none"> <li>• The project will be executed by Municipal Committee Hafizabad and supervised by the Consultants appointed by PMDFC in resident supervision mode. The technical staff &amp; experts in PMDFC will oversee, co-ordinate and collaborate in the project planning, design and implementation through their experts in head office located in Lahore and regional offices. The reporting of progress to LG &amp; CDD &amp; World bank and troubleshooting will also be responsibility of PMDFC.</li> </ul>

	<ul style="list-style-type: none"> <li>• MO (I&amp;S) of the Unit has been designated as Project Manager /Engineer in Charge of the project. The supervision of the works will also be carried out by these municipal officers along with their support engineering staff. All supervisory staff is available with MC.</li> <li>• The procurement of works and goods will be done by Procurement Committee of Hafizabad Unit as per PPRA Rules.</li> </ul> <p><b>v. Verification of quantities included in PC-Is and Resident Supervision of the works by consultants</b></p> <p>The works will be supervised by Supervision Consultants in resident supervision mode by assuring the quantity and quality of works. The consultants will verify the items of work and their quantities contained in the PC-Is and cost estimates initially and then the quantities and quality of works included in the contractor claims at the stage of payments. Payments will be made by the Unit after these contractor claims have been entered in the measurement books by the Project Manager/Engineer in Charge and pre audited as per LG Works Rules.</p>																
<p>ii- The manpower requirements by skills during execution and operation of the project and; The job description, qualification, experience, age and salary of each post</p>	<p><b>a) PMDFC experts and staff</b></p> <p>For rendering assistance in implementation of infrastructure projects in 16 MCs, PMDFC has the experts and staff in the required fields. In order to facilitate the Program Units, three regional offices have been established by PMDFC at Gujranwala, Faisalabad and Multan/Khanewal.</p> <p><b>b) Resident Supervision Consultants</b></p> <p>The project will be supervised by consultants. The tentative staff to be employed/deployed by the consultants for the certification of quantities of works and resident supervision of the project is given below.</p> <table border="1" data-bbox="544 1424 1489 2033"> <thead> <tr> <th>S #</th> <th>Personnel</th> <th>Nos</th> <th>Qualification</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Chief Resident Engineer/Team Leader</td> <td>01</td> <td>BSc;/BE in Civil engineering from HEC approved University with minimum 20 years' professional experience and 5 years' experience on similar assignment or MSC; Civil Engineering/Public Health Engineering/Environmental Engineering with Bachelor in Civil Engineering and minimum 15 years, experience, with 5 years on similar assignments on urban planning, designing and construction supervision assignment.</td> </tr> <tr> <td>2</td> <td>Assistant Resident Engineer</td> <td>01</td> <td>Bachelor Degree in Civil engineering with minimum 8 years' experience in site supervision and execution for projects of similar nature</td> </tr> <tr> <td>3</td> <td>Site Inspectors</td> <td>01</td> <td>DAE in Civil with minimum 10 years' experience in site supervision for projects of similar nature</td> </tr> </tbody> </table>	S #	Personnel	Nos	Qualification	1	Chief Resident Engineer/Team Leader	01	BSc;/BE in Civil engineering from HEC approved University with minimum 20 years' professional experience and 5 years' experience on similar assignment or MSC; Civil Engineering/Public Health Engineering/Environmental Engineering with Bachelor in Civil Engineering and minimum 15 years, experience, with 5 years on similar assignments on urban planning, designing and construction supervision assignment.	2	Assistant Resident Engineer	01	Bachelor Degree in Civil engineering with minimum 8 years' experience in site supervision and execution for projects of similar nature	3	Site Inspectors	01	DAE in Civil with minimum 10 years' experience in site supervision for projects of similar nature
S #	Personnel	Nos	Qualification														
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2	Assistant Resident Engineer	01	Bachelor Degree in Civil engineering with minimum 8 years' experience in site supervision and execution for projects of similar nature														
3	Site Inspectors	01	DAE in Civil with minimum 10 years' experience in site supervision for projects of similar nature														

	<p><b>c) Contractor’s Technical staff, skilled &amp; non skilled labor</b>  The contractors will employ the supervisory technical staff and skilled &amp; non skilled labor for execution of works. The works will be supervised by experienced Engineers and sub engineers and the number of slots for engineers and skilled and non-skilled will depend upon the type and quantity of work and its period of completion.</p> <p><b>d) Repair &amp; maintenance of the project</b>  MC has its own regular staff which has been deployed for repair and maintenance of the municipal services infrastructure. However, it has been observed that the existing staff is not adequate to repair and maintain the services in a manner which can give good service delivery. Hence it is proposed to;</p> <ul style="list-style-type: none"> <li>• Fill up the presently vacant slots</li> <li>• Recruit additional staff as per need of the infrastructure after obtaining the sanctions from the competent authorities.</li> </ul>
<p>14-Additional projects /decisions required to optimize the investment being undertaken</p>	<p><b>1) Shortage &amp; frequent transfers of Provincially appointed staff</b>  MC is facing shortage in provincially appointed and locally appointed cadres. This will seriously affect the pace of progress of the program and the implementation of the infrastructure projects may be delayed. Provincial Government should fill up the vacant staff immediately for optimizing the investments in MC.</p> <p><b>2) Repair &amp; Maintenance (R&amp;M) staff</b>  The R&amp;M staff is also deficient and this is adversely affecting the service delivery level. Number of slots are vacant but MC is not allowed to recruit the persons to fill these slots due to ban on recruitments.  Further the sanctioned strength of the field staff is much lesser than the actual requirement because with the increase in population and extension of services, additionally required staff has not been sanctioned by the competent authorities.  Both of the above issues need to be addressed for optimal utilization of the investments and giving targeted benefits to the resident population of these cities.</p>

15-Certificate	Certified that the project proposal has been prepared on the basis of guidelines provided by the Planning Commission for the preparation of PC-I for social sectors projects.
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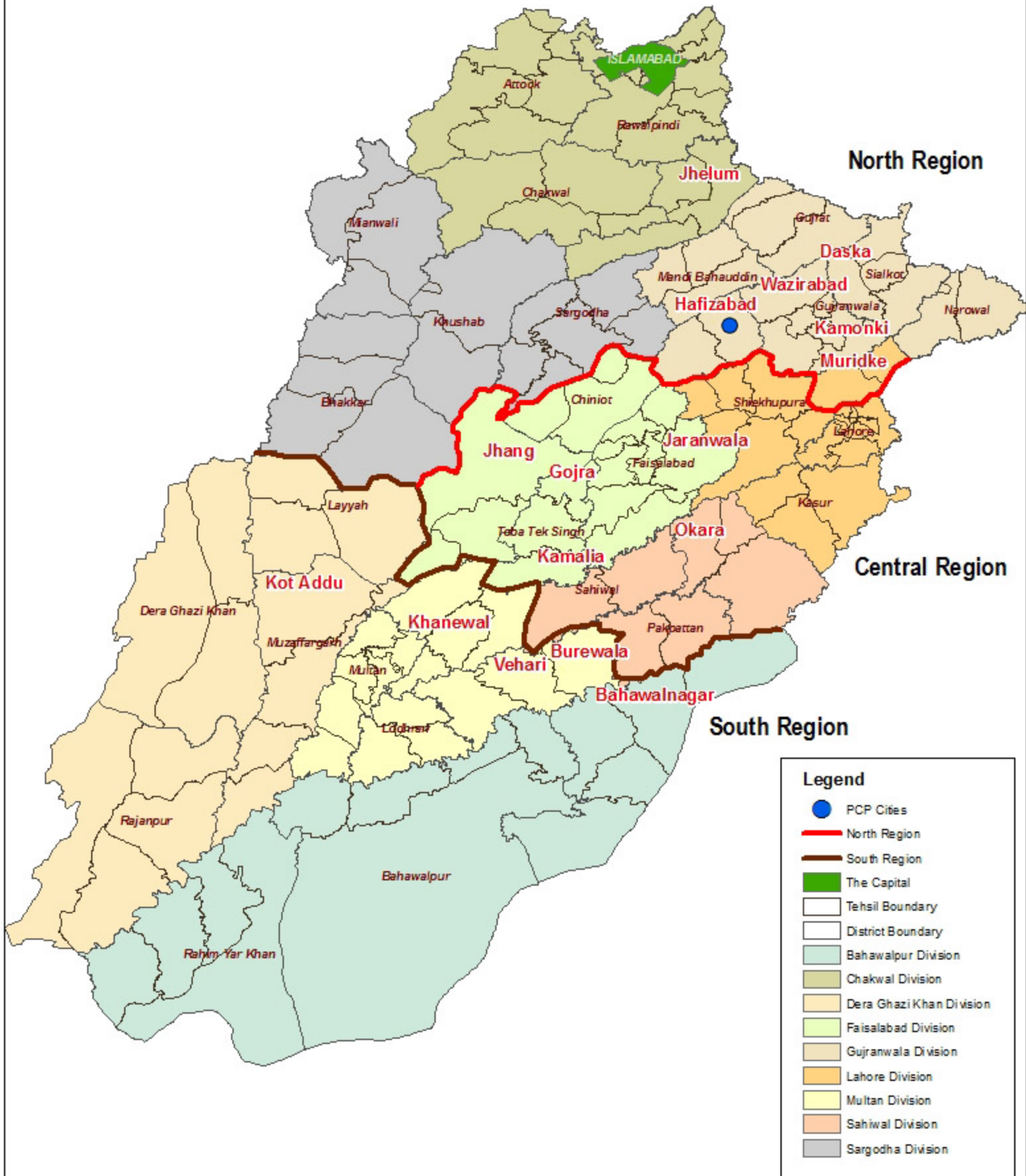
<b>Prepared by</b>	JERS Consultancy (Pvt) Ltd	Signatures	
<b>Checked by</b>	Municipal Officer (Infrastructure) Municipal Committee Hafizabad	Signatures	
	Chief Officer Municipal Committee Hafizabad	Signatures	
	Administrator Municipal Committee Hafizabad	Signatures	
<b>Vetted by</b>	Senior Program Officer PMDFC	Signatures	

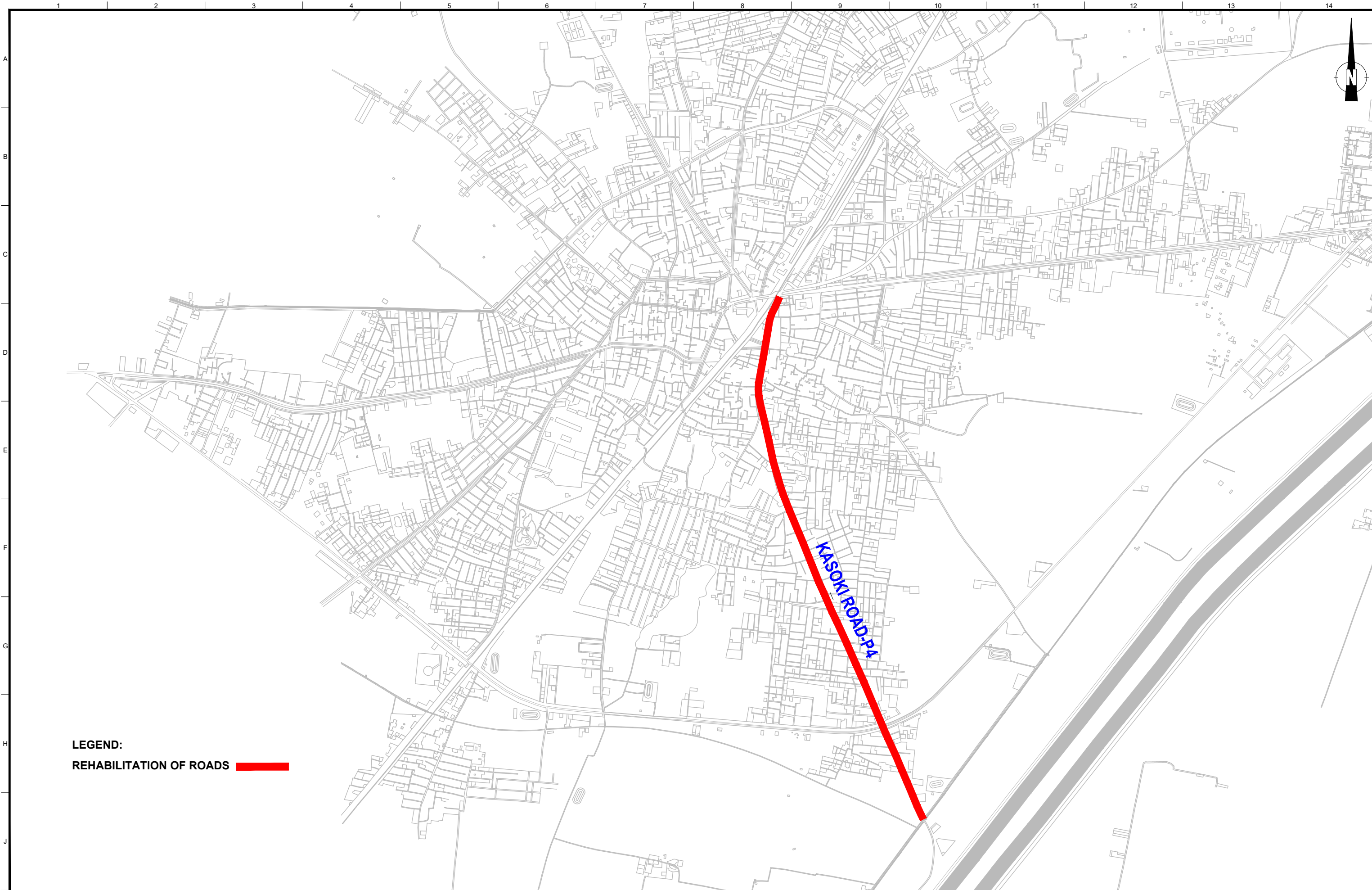


**Annexure-A**  
**Location Map**

# Location Map (Punjab Cities Program)

## ANNEXURE - A






**LEGEND:**  
**REHABILITATION OF ROADS**

KASOKI ROAD-PA

CLIENT:



**PUNJAB MUNICIPAL DEVELOPMENT FUND COMPANY (PMDFC)**

CONSULTANTS:



**JERS CONSULTANCY (PVT) LTD**  
 24-Civic Center, Quaid-e-Azam Town, Township, Lahore (Pakistan)  
 Tel: +92 42 35113123, +92 42 35113124  
 Fax: +92 42 35113125  
 E-mail: info@jers.com.pk, mail@jers.com.pk  
 Web: http://www.jers.com.pk

PROJECT:

**PUNJAB CITIES PROGRAM (PCP)  
 DETAILED DESIGN OF INFRASTRUCTURE  
 SUB-PROJECTS AND RESIDENTS SUPERVISION IN  
 16 CITIES OF PUNJAB.**

DRAWING TITLE:

**PROJECT KEY PLAN  
 (HAFIZABAD)**

SHEET INDEX		DESCRIPTION
REV.	DATE	

DRAWN BY: Adeel		DRAWING NO: <b>TS-01</b>	
CHECKED BY: Umer		SCALE: 1"=1230'	SHEET: -
APPROVED BY: Sadat Waleed		UNIT=FEET	JOB NO: 488-01
DATE: November, 2022			

**Annexure-B**  
**Cost Estimate**

**PUNJAB CITIES PROGRAM (PCP)  
DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS  
SUPERVISION IN 16 CITIES OF PUNJAB**

**ROAD WORKS**

**MC HAFIZABAD**

**DETAILED COST ESTIMATE**

**SUMMARY**

Sr. No.	Description	Amount (Rs.)
1	ROAD WORKS	124,771,682
2	DRAINAGE SYSTEM	2,735,586
3	ELECTRICAL WORKS	22,161,470
4	ENVIRONMENTAL HEALTH SAFETY BUDGET	859,100
	<b>Total Amount (Rs.)</b>	<b>150,527,838</b>
	Contingencies @ 2%	3,010,557
	PRA Charges @ 5%	7,526,392
	<b>Total Amount. Rs.</b>	<b>161,064,787</b>

**PUNJAB CITIES PROGRAM (PCP)  
 DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS  
 SUPERVISION IN 16 CITIES OF PUNJAB**

**MC HAFIZABAD**

**DETAILED COST ESTIMATE**

**SUMMARY**

<b>Sr. No.</b>	<b>Description</b>	<b>Amount (Rs.)</b>
<b>1</b>	<b>ROAD WORKS</b>	
1.1	P-04 KASOKI ROAD	124,771,682
	<b>1) Total Amount. Rs.</b>	<b>124,771,682</b>
<b>2</b>	<b>DRAINAGE SYSTEM</b>	
2.1	P-04 KASOKI ROAD	2,735,586
	<b>2) Total Amount. Rs.</b>	<b>2,735,586</b>
<b>3</b>	<b>ELECTRICAL WORKS</b>	
3.1	P-04 KASOKI ROAD	22,161,470
	<b>3) Total Amount. Rs.</b>	<b>22,161,470</b>
<b>4</b>	<b>ENVIRONMENTAL HEALTH SAFETY BUDGET</b>	<b>859,100</b>
	<b>Total Amount (Rs.) "1+2+3+4"</b>	<b>150,527,838</b>
	<b>Say Millions</b>	<b>150.528</b>

# ROAD WORKS

**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
		<b>ROAD WORK</b>				
		<b>Scarifying</b>				
1	18/11	Scarifying old road surface including removal of debris within 1 chain (30 m).	100Sft	1,568.88	423.30	664,107
		<b>Excavation</b>				
2	3/7	Earthwork excavation in open cutting upto 5'-0" (1.5 m) depth for storm water channels, drains, sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft. (15 m) lead:- i) ordinary	1000Cft	131.81	9,016.70	1,188,491
		<b>Compaction of Earthwork</b>				
3	3/25	Compaction of earthwork with power road roller, including ploughing, mixing, moistening earth to optimum moisture content in layers, etc. complete: i) 95% to 100% maximum modified AASHO dry density.	1000Cft	92.72	1,783.25	165,343
		<b>Sub Base Course</b>				
4	18/3/a/ (i) + 1/1	Providing and laying sub-base course of stone product of approved quality and grade including, placing, mixing, spreading and compaction of sub base material to required depth, camber and grade to achieve 98% maximum dry density determined according to AASHTO T-180 method-D, including carriage of all material to site of work complete in all respect as per specifications and as directed by the engineer incharge. (Crushed stone aggregate from Sargodha quarry to site, actual compacted depth shall be considered for payment)	100Cft	772.61	15,102.00	11,667,956



**PUNJAB CITIES PROGRAM (PCP)**  
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**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI-Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
		<b>Water Bound Macadam</b>				
5	18/4/a + 1/1	Providing and laying base course of crushed stone ( <b>Water Bound Macadam</b> ) of approved quality and grade including, placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site of work complete in all respect as per specifications and as directed by the engineer incharge. (Crushed stone aggregate from Sargodha quarry to site, actual compacted depth shall be considered for payment)	100Cft	1,828.37	22,403.70	40,962,253
		<b>Prime Coat</b>				
6	18/6	Providing and laying bituminous priming coat, using 10 lbs. kerosene oil and 10 lbs. binder per 100 Sft. or 0.5 Kg kerosene and 0.5 Kg binder per square metre.	100Sft	2,041.32	2,303.90	4,702,997
		<b>Carpeting</b>				
		<b>AWC</b>				
7	18/10/a + 1/1	Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density. (2 inch thick) (iv) 4.5% Bitumen	Per inch thickness per 100Sft.	2,041.32	15,918.78	32,495,324
		<b>Paint For Traffic Lanes</b>				
8	13/36	Painting Traffic Lane Marking of specified width (1.5mm thick), with Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge.				
		ii) 6" wide	Rft	18,311.00	56.20	1,029,078
		<b>Kerb Stone</b>				
9	6/52/b	Providing and fixing precast Edge Kerb Stone (4" to 6" thick), of 3500 PSI Compressive Strength, embedded in PCC 1:2:4 over lean concrete 1:4:8 etc. complete in all respect.				
		b) With Painting				
		(i) 14" high	P.Rft	200.00	516.90	103,380

**PUNJAB CITIES PROGRAM (PCP)**  
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**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
		<b>Tuff Paver</b>				
10	10/41	Providing and laying Tuff pavers, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion i/c grouting with sand in joints i/c finishing to require slope. complete in all respect. (50% Grey / 50% Coloured)				
		c) 80-mm thick	Sft	138,204.50	194.90	26,936,057
		<b>Road Edging</b>				
11	18/5	Providing and laying road edging of 3" (75 mm) wide and 9" (225 mm) deep brick on end, complete in all respects.	Rft	13,074.00	51.25	670,043
		<b>P.C.C (Between Asphalt and Tuff Paver)</b>				
12	6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):				
		(f) Ratio 1: 2: 4	100Cft	21.57	38,178.90	823,519
13	1/1 Rate Analysis	Carriage of 100 Cft. (2.83 cu.m) of all materials like stone aggregate, spawl, kankar lime (unslaked), surkhi, etc. or 150 Cft. (4.25 cu.m) of timber, by truck or by any other means owned by the contractor.	Cft	1,898.16	71.58	135,861
		<b>Cat Eyes</b>				
14	18/28	Providing & fixing Cat Eyes of size 4"x4"x3/4" duly casted with specified material having plastic strip containing mini retro-reflective glass beads of color white /red/ yellow having specifid reflections, quality & shape i/c the cost of self built in12mm dia x120mm long steel zinc plate dnail, fixing to road with epoxy/ hammering with separate nail complete.				
		b) Aluminium Alloy				
		(1) Dual-Directional				
		(ii) 43x2=86 Glass beads a side	Each	1,634.00	693.80	1,133,669

**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
15	18/25/a	Providing, fabrication and fixing pole mounted Direction Board/ road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel, (excluding the cost of vertical post and painting) etc complete in all respect.				
		(a) G.I Sheet 14 SWG				
		<b>CIRCULAR/TRIANGULAR</b>				
		3 ft size	P. Sft	60.00	948.15	56,889
16	18/27/b	Providing, fabrication and fixing Vertical Post comprising of medium quality G.I Pipe of specified diameter, including the cost of clamping arrangements, top cover, hold fasts embeded in PCC 1:2:4 etc, complete in all respect				
		(b) 3 inch diameter	Rft	110.00	1,259.90	138,589
17	13/42/a	Lettering and printing of signage /direction boards/ road delineators of any colour by machine i/c cost of Digital Lettering, Lamination & pasting etc complete in all respect.				
		a) High Intensity Prismatic (HIP) Tape	P. Sft	60.00	1,111.65	66,699
		<b>For Plantation</b>				
		<b>Excavation</b>				
18	3/21/a/ii	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m)				
		a) By Manual				
		ii) in ordinary soil.	1000Cft	1.03	10,677.75	11,011
		<b>Plain Cement Concrete</b>				
19	6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):				
		(i) Ratio 1: 4: 8	100 Cft	2.72	28,986.90	78,917
		<b>Brick work in Foundation</b>				
20	7/4/i	Pacca brick work in foundation and plinth in:- Cement, sand mortar:- Ratio 1:5	100 Cft	5.67	30,946.30	175,524

**PUNJAB CITIES PROGRAM (PCP)**  
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**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
		<b>Brick work in Super Structure</b>				
21	7/5	Pacca brick work in ground floor:- i) Cement, sand mortar:- Ratio 1:5	100 Cft	8.25	33,130.10	273,323
		<b>Plain Cement Concrete</b>				
22	6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): Ratio 1: 2: 4	100 Cft	0.70	38,178.90	26,773
		<b>Pointing</b>				
23	11/18/a	Cement pointing struck joints, on walls, upto 20' (6.00 m) hieght:- a) ratio 1:2	100 Sft	11.00	3,518.35	38,702
24	11/31	Extra cost of labour and material for red oxide pigment in cement pointing to match with the colour of bricks.	100 Sft	11.00	652.50	7,178
25	N.S	Providing and planting, Foxtail palm, Sukhchain, Hyophorbe lagenicaulis, Bakain, Chinaberry, Dharaik, Shesham, Toot, Beri and palm (Having Age 1.5 Years) at 15 ft center to center, including look after for one years, Manuring the plantation twice an year sparaying the pestisides, watering etc. complete in all respect. (Quality of plants as approved by Engineer incharge)	Each	50.00	10,000.00	500,000
26	N.S	Providing and fixing concrete bench as per drawing and design complete in all respect.	Each	50.00	14,400.00	720,000
		<b>Total Amount Rs.</b>				<b>124,771,682</b>

**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI-Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
		<b>DRAINAGE SYSTEM</b>				
		<b>Dismantling</b>				
1	4/19/c	c) Dismantling cement concrete 1:2:4 plain.	100Cft	0.94	11,174.60	10,500
		<b>Excavation</b>				
2	3/7/i	Earthwork excavation in open cutting upto 5'-0" (1.5 m) depth for storm water channels, drains, sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water frontrenches, back filling and surplus excavated material disposed of and dressed within 50 ft. (15 m) lead:- i) in ordinary soil.	1000Cft	7.25	9,016.70	65,371
		<b>P.C.C</b>				
3	6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): (f) Ratio 1: 2: 4	100Cft	17.74	38,178.90	677,294
		<b>Brick Work</b>				
4	7/7/i	Pacca brick work other than building upto 10ft. (3 m) Cement, sand mortar:- Ratio 1:3	100Cft	1.88	34,416.10	64,678
5	7/10	Extra for pacca brick work in steining of wells or any other circular masonry.	100Cft	1.88	2,781.60	5,227
		<b>Plaster</b>				
6	11/8/b	Cement plaster 1:3 upto 20' (6.00 m) height:- b) ½" (13 mm) thick	100Sft	5.01	3,424.50	17,162
		<b>Gully Grating Chamber</b>				
7	21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	58.00	16,901.35	980,278
8	7/30	Supplying and filling sand under floor; or plugging in wells.	100Cft	29.00	2,943.30	85,356

**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
		<b>uPVC Pipe</b>				
9	19/47	Providing, fixing, testing and commissioning of $\mu$ -PVC (Unplasticized polyvinyl Chloride) Nikasi /waste pipe make of dadex / Popular / Beta/ BBJ plain / socket ended conforming to code EN-1401 of specified SDR (Standard Dimension Ratio) including the cost of specials and Solvents complete in all respect as approved and directed by the Engineer Incharge.				
		<b>Type (SDR 41/SN-4)</b>				
		(vii) 8"(200 mm)	Rft	1,160.00	451.15	523,334
		<b>RPC Manhole Cover</b>				
10	N.S	Providing and fixing RPC Manhole Cover Manufactured with 100% Reinforced Plastic Composite Material, 650 mm dia with clear opening size 600 mm (24" dia) and RPC manhole frame having dia meter 790 mm (Complete) (Certified under ISO 9001-2015)	Each	29.00	10,065.00	291,885
		<b>Manhole Cover</b>				
11	MR	Old/existing Manhole cover and Frame complete set shift to MC store.	Set	29.00	500.00	14,500
		<b>Total Amount (Rs)</b>				<b>2,735,586</b>
		<b>ELECTRICAL WORKS</b>				
		<b>Scheduled Items (A)</b>				
		<b>Excavation</b>				
1	3/21	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m)				
		<b>a) By Manual</b>				
		ii) in ordinary soil.	%oCft	22.21	10,677.75	237,153

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**SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
		<b>RCC Foundation for Poles</b>				
2	6/6	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-				
		(a)(iii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and footing beams, other structural members other than those mentioned in 6(a) (i)&(ii) above not requiring form work (i.e. horizontal shuttering) complete in all respects:-				
		3) Type C (nominal mix 1: 2: 4)	Cft	1,584.00	454.60	720,086
3	1/1 Rate Analysis	Carriage of 100 Cft. (2.83 cu.m) of all materials like stone aggregate, spawl, kankar lime (unslaked), surkhi, etc. or 150 Cft. (4.25 cu.m) of timber, by truck or by any other means owned by the contractor.	Cft	1,393.92	71.58	99,770
		<b>Steel Work</b>				
4	6/12/b	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):-				
		(b) Deformed bars (Grade-40)	100Kg	39.60	31,381.20	1,242,696
5	24/6	Supply and erection PVC pipe for recessed wiring (main and sub-main) purpose, including bends, specials, etc. in floor, wall or trenches:-				
		i) 50 mm i/d	Rft	8,250.00	185.85	1,533,263

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**P-04 KASOKI ROAD**

**ROADS NETWORK**

<b>Sr. No</b>	<b>2nd BI- Annual-2022 (July to Dec) Hafizabad</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit Rate (Rs.)</b>	<b>Amount (Rs.)</b>
6	24/12	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 660/1100 volts grade cable, in prelaid G.I. pipe/M.S. conduits /PVC pipe/G.I. wire/ trenches, etc (rate for cable only):-				
		ii) 6 mm sq (7/0.044")	Rft	1,320.00	117.70	155,364
7	24/13	Supply and erection of copper conductor cables for service connection, in prelaid pipe/G.I. wire / trenches, etc. (rate for cable only):-				
		b) PVC insulated, PVC sheathed 3 core, 660/1100 volt cable:-				
		iii) 7/0.74 mm (7/0.029")	Rft	2,640.00	105.15	277,596
		c) PVC insulated, PVC sheathed 4 core, 660/1100 volt non armoured cable:-				
		vi) 10 mm (7/0.052")	Rft	8,250.00	523.85	4,321,763
		vii) 16 mm (7/0.064")	Rft	100.00	642.90	64,290
8	24/68	Supplying, installation testing and commissioning of Octagonal shape electric street light pole, made of hot dipped 4.5 mm thick (7 SWG) galvanized steel ,tapped from 225 mm at bottom to 100 mm at top,with 1500 mmx60 mm dia. arm for luminaire installation, duly G.I.welded with 470x470x20 mm base plate with the help of 4 no triangular stiffeners 100x350x20 mm of GI sheet,with built in junction box with shutter,i/c the cost of nuts & J-rag bolts, duly fixed in prelaid concrete foundation, foundation will be paid additionally as approved and directed by the Engineer Incharge.				
		a) Single Arm				
		(i) 10 mtr height	Each	66.00	106,223.10	7,010,725



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**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

<b>Sr. No</b>	<b>2nd BI- Annual-2022 (July to Dec) Hafizabad</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit Rate (Rs.)</b>	<b>Amount (Rs.)</b>
9	24/69/c	Supplying, installation and commissioning of LED Cobra-head Luminaries of specified wattage and lumens conforming to IP 66 & IK 08 or above Philips/ Osram/ Thorn or equivalent with corrosion resistant die casted Aluminum housing, silicon gasket in special groove, UV stable & scratch resistant synthetic materials, thermally hardened glass complete with LED Chip (Philips Lumiled /Cree/ Nichia /Osram make or equivalent), programmable LED driver (Harvard /TCI/ Lumotech /Philips /VOSSLOH Schwabe /Ligtech make or equivalent), minimum 10kV surge protection rating i/c the cost of all accessories/ components required for proper operation, fully flexible for future upgradation and easy replacements for maintenance purposes, bucket elevator charges as approved and directed by the Engineer Incharge.				
		c) 120 Lm/Watt				
		(vi) 120 Watt with 14400 Lumens	Each	66.00	53,295.00	3,517,470
10	24/77	Supply and erection of electric energy meter, including meter testing fee, etc.				
		b) three phase, 4 wires:				
		ii) 3x50 Amp, 400 volts	Each	1.00	14,659.25	14,659
11	24/105/ii	Supply, insatllation, commissioning and testing of oil cooled type, Step down Power Transformer of specified rating,11/0.415 kV, i/c the cost of lifting hooks, thermometers, LT & HT bushing 5-steps, tap changer, imported double float buchholz relay, 2 earthing terminals, roller wheels, connecting terminals for cables M.S box on transformer in order to cover complete L.T side, all necessary materials required for connections on H.T & L.T side, rated voltage 11000/415/240 V impedance 6.25% or as specified by WAPDA/IEC system earth: Delta / Star, neutral solidly earthed, i/c Wapda testing charges,complete in all respects made of PEL, Siemens, as approved and directed by the Engineer Incharge				
		(ii) 15 KVA	Each	1.00	203,427.70	203,428

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**DETAILED COST ESTIMATE**

**P-04 KASOKI ROAD**

**ROADS NETWORK**

Sr. No	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
12	24/70	Earthing of iron clad/aluminum switches, etc. with G.I. wire No. 8 SWG in G.I. pipe 15 mm (½") dia, recessed or on surface of wall and floor, complete with 1.5 metre long G.I. pipe, 50 mm (2") dia with reducing socket 4 to 5 metre below ground level, and 2 metre away from building plinth.	Job	69.00	9,592.65	661,893
<b>Sub Total Scheduled Items: (A)</b>						<b>20,060,154</b>
<b>Non Schedule Part-B</b>						
13	N.S	Fabrication, Supply, testing and commissioning of following Light control panels (LCP), floor standing weather proof, IP 65 Rated of appropriate size, made of MS Sheet 16 SWG with hinged door, handle, catcher, 2 coats of antirust and powder coated paint of approved colour, AC3 megnatic contactor, photocell for automatic operation of lights, CBs, Hand/Off/Auto switch, push button and all necessary accessories complete in all respects. LCP shall be manufactured as per specifications, single line diagram complete in all respect up to the satisfaction of Engineer incharge.				
	(a)	LCP-3 Phase	No.	1.00	251,316	251,316
14	N.S	Shifiting of 10 Nos. Electric WAPDA Poles	Job			1,500,000
15	N.S	Electric Connection Charges	Each	1.00	350,000	350,000
<b>Total Cost (Part B)</b>					<b>Rs.</b>	<b>2,101,316</b>
<b>Grand Total (Part A + Part B)</b>					<b>Rs.</b>	<b>22,161,470</b>
<b>Grand Total Amount Rs.</b>						<b>149,668,738</b>

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
<b>Scarifying</b>							
1	Scarifying old road surface including removal of debris within 1 chain (30 m).						
	RD 0+000 to 2+600	1	2,600	24.00		62,400	Sft
	RD 2+600 to 6+537	1	3,937	24.00		94,488	Sft
					Total	156,888	Sft
					<b>Total.</b>	<b>1,568.88</b>	<b>%Sft</b>
<b>Excavation</b>							
2	Earthwork excavation in open cutting upto 5'-0" (1.5 m) depth for storm water channels, drains, sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft. (15 m) lead:- i) ordinary						
<b>For widening Road</b>							
	RD 2+600 to 6+537	2	3,937	6.00	0.83	39,213	Cft
<b>For Tuff Paver Shoulders</b>							
	RD 0+000 to 2+600	2	2,600	5.00	0.67	17,420	Cft
	RD 2+600 to 6+537	1	3,937	28.50	0.67	75,177	Cft
					Total	131,810	Cft
					<b>Total.</b>	<b>131.81</b>	<b>%oCft</b>
<b>Compaction of Earthwork</b>							
3	Compaction of earthwork with power road roller, including ploughing, mixing, moistening earth to optimum moisture content in layers, etc. complete: i) 95% to 100% maximum modified AASHO dry density.						
<b>For widening Road</b>							
	RD 2+600 to 6+537	2	3,937	6.00	0.50	23,622	Cft
<b>For Tuff Paver Shoulders</b>							
	RD 0+000 to 2+600	2	2,600	5.00	0.50	13,000	Cft
	RD 2+600 to 6+537	1	3,937	28.50	0.50	56,102	Cft
					Total	92,724	Cft
					<b>Total.</b>	<b>92.72</b>	<b>%oCft</b>

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
	<b>Sub Base Course</b>						
4	Providing and laying sub-base course of stone product of approved quality and grade including, placing, mixing, spreading and compaction of sub base material to required depth, camber and grade to achieve 98% maximum dry density determined according to AASHTO T-180 method-D, including carriage of all material to site of work complete in all respect as per specifications and as directed by the engineer incharge. (Crushed stone aggregate from Sargodha quarry to site, actual compacted depth shall be considered for payment)						
	<b>For widening Road</b>						
	RD 2+600 to 6+537	2	3,937	6.00	0.67	31,653	Cft
	<b>For Tuff Paver Shoulders</b>						
	RD 0+000 to 2+600	2	2,600	5.00	0.33	8,580	Cft
	RD 2+600 to 6+537	1	3,937	28.50	0.33	37,027	Cft
					Total	77,261	Cft
					<b>Total.</b>	<b>772.61</b>	<b>%Cft</b>
	<b>Water Bound Macadam</b>						
5	Providing and laying base course of crushed stone (Water Bound Macadam) of approved quality and grade including, placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site of work complete in all respect as per specifications and as directed by the engineer incharge. (Crushed stone aggregate from Sargodha quarry to site, actual compacted depth shall be considered for payment)						
	Crushed stone aggregate from approved quarry						
	<b>For Widening Road</b>						
	RD 2+600 to 6+537	2	3,937	6.00	0.67	31,653	Cft
	<b>For Existing Road</b>						
	RD 0+000 to 2+600	1	2,600	24.00	0.67	41,808	Cft
	RD 2+600 to 6+537	1	3,937	24.00	0.67	63,307	Cft
	<b>For Tuff Paver</b>						
	RD 0+000 to 2+600	2	2,600	5.00	0.33	8,667	Cft
	RD 2+600 to 6+537	1	3,937	28.50	0.33	37,402	Cft
					Total	182,837	Cft
					<b>Total.</b>	<b>1,828.37</b>	<b>%Cft</b>

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
<b>Prime Coat</b>							
6	Providing and laying bituminous priming coat, using 10 lbs. kerosene oil and 10 lbs. binder per 100 Sft. or 0.5 Kg kerosene and 0.5 Kg binder per square metre.						
	RD 0+000 to 2+600	1	2,600	24.00		62,400	Sft
	RD 2+600 to 6+537	1	3,937	36.00		141,732	Sft
					Total	204,132	Sft
					<b>Total.</b>	<b>2,041.32</b>	<b>%Sft</b>
<b>Carpeting</b>							
<b>AWC</b>							
7	Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density. (2 inch thick) (iv) 4.5% Bitumen						
	RD 0+000 to 2+600	1	2,600	24.00		62,400	Sft
	RD 2+600 to 6+537	1	3,937	36.00		141,732	Sft
					Total	204,132	Sft
					<b>Total.</b>	<b>2,041.32</b>	<b>%Sft</b>
<b>Paint For Traffic Lanes</b>							
8	Painting Traffic Lane Marking of specified width (1.5mm thick), with Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge.						
	RD 0+000 to 2+600	2.5	2,600			6,500	Rft
	RD 2+600 to 6+537	3	3,937			11,811	Rft
					Total	18,311	Rft
					<b>Total.</b>	<b>18,311</b>	<b>Rft</b>
9	Providing and fixing precast Edge Kerb Stone (4" to 6" thick), of 3500 PSI Compressive Strength, embeded in PCC 1:2:4 over lean concrete 1:4:8 etc. complete in all respect.						
	b) With Painting						
	(i) 14" high						
	L.S	1	200			200	Rft
					Total	200	Rft
					<b>Total.</b>	<b>200</b>	<b>Rft</b>
<b>Tuff Paver</b>							
10	Providing and laying Tuff pavers, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion i/c grouting with sand in joints i/c finishing to require slope. complete in all respect. (50% Grey / 50% Coloured)						

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
	c) 80-mm thick						
	RD 0+000 to 2+600	2	2,600	5.00		26,000	Sft
	RD 2+600 to 6+537	1	3,937	28.50		112,205	Sft
						<b>Total.</b>	<b>138,205</b>
							<b>Sft</b>
	<b>Road Edging</b>						
11	Providing and laying road edging of 3" (75 mm) wide and 9" (225 mm) deep brick on end, complete in all respects.						
	RD 0+000 to 2+600	2	2,600			5,200	Rft
	RD 2+600 to 6+537	2	3,937			7,874	Rft
						<b>Total.</b>	<b>13,074</b>
							<b>Rft</b>
	<b>P.C.C (Between Asphalt and Tuff Paver)</b>						
12	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):						
	(f) Ratio 1: 2: 4						
	RD 0+000 to 2+600	2	2,600	0.33	0.50	858	Cft
	RD 2+600 to 6+537	2	3,937	0.33	0.50	1,299	Cft
						<b>Total</b>	<b>2,157</b>
						<b>Total.</b>	<b>21.57</b>
							<b>%Cft</b>
	<b>Cat Eyes</b>						
13	Providing & fixing Cat Eyes of size 4"x4"x3/4" duly casted with specified material having plastic strip containing mini retro-reflective glass beads of color white /red/ yellow having specifid reflections, quality & shape i/c the cost of self built in 12mm dia x 120mm long steel zinc plate dnail, fixing to road with epoxy/hammering with separate nail complete.						
	b) Aluminium Alloy						
	(1) Dual-Directional						
	(ii) 43x2=86 Glass beads a side	1634				<b>1,634</b>	<b>Each</b>
14	Providing, fabrication and fixing pole mounted Direction Board/ road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel, (excluding the cost of vertical post and painting) etc complete in all respect.						
	(a) G.I Sheet 14 SWG						
	CIRCULAR/TRIANGULAR						
	3 ft size	10	3.00	2.00		<b>60</b>	<b>Sft</b>

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
15	Providing, fabrication and fixing Vertical Post comprising of medium quality G.I Pipe of specified diameter, including the cost of clamping arrangements, top cover, hold fasts embeded in PCC 1:2:4 etc, complete in all respect						
	(b) 3 inch diameter	10	11			110	Rft
16	Lettering and printing of signage /direction boards/ road delineators of any colour by machine i/c cost of Digital Lettering, Lamination & pasting etc complete in all respect.						
	a) High Intensity Prismatic (HIP) Tape					60	Sft
	<b>For Plantation</b>						
	<b>Excavation</b>						
17	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m)						
	a) By Manual						
	ii) in ordinary soil.	50	11.00	1.50	1.25	1,031.25	Cft
						<b>Total</b>	<b>1.03</b> %oCft
	<b>Plain Cement Concrete</b>						
18	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):						
	(i) Ratio 1: 4: 8	50	11.00	1.50	0.33	272.25	Cft
						<b>Total</b>	<b>2.72</b> %Cft
	<b>Brick work in Foundation</b>						
19	Pacca brick work in foundation and plinth in:-						
	Cement, sand mortar:- Ratio 1:5	50	11.00	1.13	0.25	154.69	Cft
		50	11.00	0.75	1.00	412.50	Cft
						<b>Total</b>	<b>5.67</b> %Cft
	<b>Brick work in Super Structure</b>						
20	Pacca brick work in ground floor:-						
	i) Cement, sand mortar:- Ratio 1:5	50	11.00	0.75	2.00	825.00	Cft
						<b>Total</b>	<b>8.25</b> %Cft

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
<b>Plain Cement Concrete</b>							
21	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):						
	Ratio 1: 2: 4	50	11.00	0.75	0.17	70.13	Cft
					<b>Total</b>	<b>0.70</b>	<b>%Cft</b>
<b>Pointing</b>							
22	Cement pointing struck joints, on walls, upto 20' (6.00 m) height:-						
	a) ratio 1:2	50	11.00		2.00	1,100.00	Sft
					<b>Total</b>	<b>11.00</b>	<b>%Sft</b>
23	Extra cost of labour and material for red oxide pigment in cement pointing to match with the colour of bricks.						
					<b>Total</b>	<b>11.00</b>	<b>%Sft</b>
24	Providing and planting, Foxtail palm, Sukhchain, Hyophorbe lagenicaulis, Bakain, Chinaberry, Dharaik, Shesham, Toot, Beri and palm (Having Age 1.5 Years) at 15 ft center to center, including look after for one year, Manuring the plantation twice an year spraying the pesticides, watering etc. complete in all respect. (Quality of plants as approved by Engineer incharge)	50				<b>50</b>	<b>Nos.</b>
<b>DRAINAGE SYSTEM</b>							
<b>Dismantling</b>							
1	c) Dismantling cement concrete 1:2:4 plain.						
	Manhole Neck	29	8.64	0.75	0.50	94	Cft
					<b>Total</b>	<b>0.94</b>	<b>%Cft</b>
<b>Excavation</b>							
2	Earthwork excavation in open cutting upto 5'-0" (1.5 m) depth for storm water channels, drains, sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft. (15 m) lead:- i) in ordinary soil.						



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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
	Pipe Laying	58	20.00	2.50	2.50	7,250	Cft
					Total	7,250	Cft
					<b>Total</b>	<b>7.25</b>	<b>%oCft</b>
	<b>P.C.C</b>						
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):						
	<b>(f) Ratio 1: 2: 4</b>						
	Pipe Laying	58	10	1.50	1.50	1,305	Cft
	For manhole neck	29	8.64	0.75	0.50	94	Cft
	Drain Rehabilitation	2	500	0.75	0.50	375	Cft
					Total	1,774	Cft
					<b>Total</b>	<b>17.74</b>	<b>%Cft</b>
	<b>Brick Work</b>						
4	Pacca brick work other than building upto 10ft. (3 m) Cement, sand mortar:- Ratio 1:3						
	For manhole neck	29	8.64	0.75	1.00	188	Cft
					Total	188	Cft
					<b>Total</b>	<b>1.88</b>	<b>%Cft</b>
5	Extra for pacca brick work in steining of wells or any other circular masonry.						
					<b>Total</b>	<b>1.88</b>	<b>%Cft</b>
6	Cement plaster 1:3 upto 20' (6.00 m) height:-						
	b) ½" (13 mm) thick						
	For manhole neck (29 x 2 = 58)	58	8.64		1.00	501	Sft
					Total	501	Sft
					<b>Total</b>	<b>5.01</b>	<b>%Sft</b>
	<b>Gully Grating Chamber</b>						
7	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	58				<b>58.00</b>	<b>Each</b>
8	Supplying and filling sand under floor; or plugging in wells.	58	20.00	2.50	1.00	<b>29.00</b>	<b>%Cft</b>
	<b>uPVC Pipe</b>						

**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
9	Providing, fixing, testing and commissioning of $\mu$ -PVC (Unplasticized polyvinyl Chloride) Nikasi /waste pipe make of dadex / Popular / Beta/ BBJ plain / socket ended conforming to code EN-1401 of specified SDR (Standard Dimension Ratio) including the cost of specials and Solvents complete in all respect as approved and directed by the Engineer Incharge.						
	<b>Type (SDR 41/SN-4)</b>						
	(vii) 8"(200 mm)	58	20.00			<b>1,160</b>	<b>Rft</b>
	<b>RPC Manhole Cover</b>						
10	Providing and fixing RPC Manhole Cover Manufactured with 100% Reinforced Plastic Composite Material, 650 mm dia with clear opening size 600 mm (24" dia) and RPC manhole frame having dia meter 790 mm (Complete) (Certified under ISO 9001-2015)	29				<b>29</b>	<b>Each</b>
	<b>ELECTRICAL WORKS</b>						
	<b>Scheduled Items (A)</b>						
	<b>Excavation</b>						
1	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m)						
	a) By Manual						
	ii) in ordinary soil.						
	For pipe 50mm dia from TR to LCP and LCP to poles	1	8,250	1.00	2.50	20,625	Cft
	Light Poles	66	2.00	2.00	6.00	1,584	Cft
					Total	22,209	Cft
					<b>Total</b>	<b>22.21</b>	<b>%oCft</b>
	<b>RCC Foundation for Poles</b>						
2	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-						

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
	(a)(iii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and footing beams, other structural members other than those mentioned in 6(a) (i)&(ii) above not requiring form work (i.e. horizontal shuttering) complete in all respects:-						
	3) Type C (nominal mix 1: 2: 4)						
	Light Poles	66	2.00	2.00	6.00	1,584	Cft
						<b>Total</b>	<b>1,584.00</b> <b>Cft</b>
	<b>Steel Work</b>						
3	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):-						
	(b) Deformed bars (Grade-40)		2.50Kg/Cft			<b>3,960</b>	<b>Kg</b>
						<b>Total</b>	<b>39.60</b> <b>Kg</b>
4	Supply and erection PVC pipe for recessed wiring (main and sub-main) purpose, including bends, specials, etc. in floor, wall or trenches:-						
	i) 50 mm i/d						
	From LCP to Pole and pole to pole (Up + Down)	66	125.00			<b>8,250</b>	<b>Rft</b>
5	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 660/1100 volts grade cable, in prelaid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches, etc (rate for cable only):-						
	ii) 6 mm sq (7/0.044")						
	For two nos. Earthing lead	66	20.00			<b>1,320</b>	<b>Rft</b>
6	Supply and erection of copper conductor cables for service connection, in prelaid pipe/G.I. wire / trenches, etc. (rate for cable only):-						
	b) PVC insulated, PVC sheathed 3 core, 660/1100 volt cable:-						
	iii) 7/0.74 mm (7/0.029")						
	From Terminal Box to light fixture on pole (P+N+E)	66	40.00			<b>2,640</b>	<b>Rft</b>
	c) PVC insulated, PVC sheathed 4 core, 660/1100 volt non armoured cable:-						
	vi) 10 mm (7/0.052")	66	125.00			<b>8,250</b>	<b>Rft</b>
	vii) 16 mm (7/0.064")	1	100.00			<b>100</b>	<b>Rft</b>

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 SUPERVISION IN 16 CITIES OF PUNJAB**

**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
7	Supplying, installation testing and commissioning of Octagonal shape electric street light pole, made of hot dipped 4.5 mm thick (7 SWG) galvanized steel ,tapered from 225 mm at bottom to 100 mm at top,with 1500 mmx60 mm dia. arm for luminaire installation, duly G.I.welded with 470x470x20 mm base plate with the help of 4 no triangular stiffeners 100x350x20 mm of GI sheet,with built in junction box with shutter,i/c the cost of nuts & J-rag bolts, duly fixed in prelaid concrete foundation, foundation will be paid additionally as approved and directed by the Engineer Incharge.						
	a) Single Arm						
	(i) 10 mtr height	66				<b>66</b>	<b>Nos</b>
8	Supplying, installation and commissioning of LED Cobra-head Luminaries of specified wattage and lumens conforming to IP 65, Philips/ Osram /Thorn with corrosion resistant die casted aluminum housing, silicon gas kit, thermally hardened glass complete with LED drivers, surge protection i/c the cost of all accessories/components required for proper operation , fully flexible for future upgradation and easy replacements for maintenance purposes,bucket elevator charges as approved and directed by the Engineer Incharge.						
	c) 120 Lm/Watt						
	(v) 90 Watt with 10800 Lumens	66				<b>66</b>	<b>Nos</b>
9	Supply and erection of electric energy meter, including meter testing fee, etc.						
	b) three phase, 4 wires:						
	ii) 3x50 Amp, 400 volts	1				<b>1.00</b>	<b>Nos</b>

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**P-04 KASOKI ROAD**

**CALCULATION OF QUANTITIES**

**ROADS NET WORK**

Sr. No	Description	No.	Length	Width	Height	Qty.	Unit.
10	Supply, insatllation, commissioning and testing of oil cooled type, Step down Power Transformer of specified rating,11/0.415 kV, i/c the cost of lifting hooks, thermometers, LT & HT bushing 5-steps, tap changer, imported double float buchholz relay, 2 earthing terminals, roller wheels, connecting terminals for cables M.S box on transformer in order to cover complete L.T side, all necessary materials required for connections on H.T & L.T side, rated voltage 11000/415/240 V impedance 6.25% or as specified by WAPDA/IEC system earth: Delta / Star, neutral solidly earthed, i/c Wapda testing charges,complete in all respects made of PEL, Siemens, as approved and directed by the Engineer Incharge						
	(ii) 15 KVA	1				<b>1.00</b>	<b>Nos.</b>
11	Earthing of iron clad/aluminum switches, etc. with G.I. wire No. 8 SWG in G.I. pipe 15 mm (½") dia, recessed or on surface of wall and floor, complete with 1.5 metre long G.I. pipe, 50 mm (2") dia with reducing socket 4 to 5 metre below ground level, and 2 metre away from building plinth.						
		69				<b>69.00</b>	<b>No.</b>
12	Fabrication, Supply, testing and commissioning of following Light control panels (LCP), floor standing weather proof, IP 65 Rated of appropriate size, made of MS Sheet 16 SWG with hinged door, handle, catcher, 2 coats of antirust and powder coated paint of approved colour, AC3 megnatic contactor, photocell for automatic operation of lights, CBs, Hand/Off/Auto switch, push button and all necessary accessories complete in all respects. LCP shall be manufactured as per specifications, single line diagram complete in all respect up to the satisfaction of Engineer incharge.						
	LCP-3 Phase	1				<b>1.00</b>	<b>Nos.</b>
13	Electric Connection Charges	1				<b>1.00</b>	<b>Each</b>

ENVIRONMENTAL HEALTH SAFETY BUDGET

**PUNJAB CITIES PROGRAM (PCP)  
DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS  
SUPERVISION IN 16 CITIES OF PUNJAB**

**DETAILED COST ESTIMATE**

**ENVIRONMENTAL HEALTH SAFETY BUDGET**

<b>Sr No</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit Rate (Rs.)</b>	<b>Amount Rs.</b>
	<b>Labor Safety</b>				
1	Face Masks (3 PLY)	Nos	5.00	500.00	2,500
2	Safety Gum Shoes	Nos	5.00	1,000.00	5,000
3	Hand Gloves	Nos	5.00	1,000.00	5,000
4	First Aid Box (Including essential Medicine)	Nos	1.00	5,000.00	5,000
5	Safety Hard Helmets MSA	Nos	5.00	2,000.00	10,000
6	Safety Goggles	Nos	5.00	500.00	2,500
7	Reflective Safety Vests	Nos	5.00	500.00	2,500
8	Infrared Thermometer (Benetech GM-2200 OR equivalent)	Nos	1.00	45,000.00	45,000
				<b>Sub Total</b>	<b>77,500</b>
	<b>Working Site Safety</b>				
1	Reflective Safety Signs Boards	Nos	1.00	10,000.00	10,000
2	Reflective Safety PVC Cones (18 inch)	Nos	3.00	1,200.00	3,600
3	Road Guiding Portable Delineators with Chain	Nos	2.00	2,500.00	5,000
4	Reflective Safety Barricading Tape	Nos	2.00	1,500.00	3,000
5	Emergency Portable Light	Nos	1.00	5,000.00	5,000
6	Solid Waste Collection Drums	Nos	2.00	5,000.00	10,000
7	Fire Extinguishers DCP	Nos	1.00	5,000.00	5,000
				<b>Sub Total</b>	<b>41,600</b>
	<b>Others</b>				
1	Pole Hanging Waste Bins	Nos.	2.00	10,000	20,000
2	Water Sprinkling (Dust Abatement)	L.S	1.00	100,000	100,000
3	Roadside Plantation	L.S	1.00	50,000	50,000
4	Environmental Analytical Assessments (Ambient Air Quality Testing, Noise Testing, Vehicular Emissions Testing/Generators, Surface Water & Ground Water Testing)	L.S	1.00	250,000	250,000
5	Hiring of Environmentalist (03 Months Budget)	L.S	1.00	240,000	240,000
6	Labor Campsite Management	L.S	1.00	100,000	100,000
				<b>Sub Total</b>	<b>740,000</b>
	<b>Total Amount (Rs)</b>				<b>859,100</b>

# RATE ANALYSIS



**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**Rate Analysis Road- 1**

<b>Description</b>							
Providing and laying sub-base course of stone product of approved quality and grade including, placing, mixing, spreading and compaction of sub base material to required depth, camber and grade to achieve 98% maximum dry density determined according to AASHTO T-180 method-D, including carriage of all material to site of work complete in all respect as per specifications and as directed by the engineer incharge. (Crushed stone aggregate from Sargodha quarry to site, actual compacted depth shall be considered for payment)							
<b>Crush Stone</b>							<b>116 KM</b>
<b>Sr. No.</b>	<b>2nd BI- Annual-2022 (July to Dec) Hafizabad</b>	<b>Description</b>	<b>Unit</b>	<b>Lead (Km)</b>	<b>Qty</b>	<b>Rate (Rs)</b>	<b>Amount (Rs)</b>
<b>1</b>		<b>Material</b>					
	18-3 a(i)	i) Pit run or bed run gravel.	100 Cft	1	1	6,513.00	6,513.00
<b>2</b>		<b>Carriage</b>					
	1/1	1st KM	100 Cft	1	1.20	299.40	359.28
		2nd KM	100 Cft	1	1.20	145.25	174.30
		3rd KM	100 Cft	1	1.20	116.85	140.22
		4th KM	100 Cft	1	1.20	85.30	102.36
		5th KM	100 Cft	1	1.20	80.20	96.24
		6th KM	100 Cft	1	1.20	79.00	94.80
		7th KM	100 Cft	1	1.20	74.25	89.10
		8th KM	100 Cft	1	1.20	73.50	88.20
		9th KM	100 Cft	1	1.20	69.55	83.46
		10th KM	100 Cft	1	1.20	65.70	78.84
			From 11 km to 200 km	100 Cft	106.00	1.20	57.25
		From 201 km to 250 km	100 Cft			3.25	-
		251 Kms & susequent Kms	100 Cft			2.00	-
		<b>Total.</b>					<b>15,102.00</b>
		<b>Total Amount per 100 Cft</b>					<b>15,102.00</b>
		<b>Total Cost for Per Cft</b>					<b>151.02</b>

**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**Rate Analysis Road - 2**

Providing and laying base course of crushed stone (Water Bound Macadam) of approved quality and grade including, placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site of work complete in all respect as per specifications and as directed by the engineer incharge. (Crushed stone aggregate from Sargodha quarry to site, actual compacted depth shall be considered for payment)

**116 KM**

Sr. No.	2nd BI- Annual-2022 (July to Dec) Hafizabad	Description	Unit	Lead (Km)	Qty	Rate (Rs)	Amount (Rs.)
1	18/4(a)	Providing and laying base course of crushed stone (Water Bound Macadam) of approved quality and grade including, placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site of work complete in all respect as per specifications and as directed by the engineer incharge. (Crushed stone aggregate from sargodha quarry to site, actual compacted depth shall be considered for payment)	100 Cft		1	13,671.55	13,671.55
2	1/1	Carriage of 100 cft of all materials like stone aggregate spawl kanker lime surkhi etc or 150 cft of timber by truck or by any other means owned by the contractor.					
		1st KM	100 Cft	1	1.22	299.40	365.27
		2nd KM	100 Cft	1	1.22	145.25	177.21
		3rd KM	100 Cft	1	1.22	116.85	142.56
		4th KM	100 Cft	1	1.22	85.30	104.07
		5th KM	100 Cft	1	1.22	80.20	97.84
		6th KM	100 Cft	1	1.22	79.00	96.38
		7th KM	100 Cft	1	1.22	74.25	90.59
		8th KM	100 Cft	1	1.22	73.50	89.67
		9th KM	100 Cft	1	1.22	69.55	84.85
		10th KM	100 Cft	1	1.22	65.70	80.15
		From 11 km to 200 km	100 Cft	106.00	1.22	57.25	7,403.57
		From 201 km to 250 km	100 Cft		1.22	3.25	-
		251 Kms & susequent Kms	100 Cft		1.22	2.00	-
		<b>Total.</b>					<b>22,403.70</b>
		<b>Total Amount per 100 Cft</b>					<b>22,403.70</b>
		<b>Total Cost for Per Cft</b>					<b>224.04</b>

**PUNJAB CITIES PROGRAM (PCP)**  
**DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS**  
**SUPERVISION IN 16 CITIES OF PUNJAB**

**Rate Analysis Road- 3**

<b>Description</b>						
Carriage of 100 Cft. (2.83 cu.m) of all materials like stone aggregate, spawl, kankar lime (unslaked), surkhi, etc. or 150 Cft. (4.25 cu.m) of timber, by truck or by any other means owned by the contractor.						
						<b>116 Km</b>
<b>Sr. No.</b>	<b>2nd BI- Annual-2022 (July to Dec) Hafizabad</b>	<b>Description</b>	<b>Unit</b>	<b>Lead (Km)</b>	<b>Rate (Rs)</b>	<b>Amount (Rs)</b>
1	1/1	Carriage of 100 Cft. (2.83 cu.m) of all materials like stone aggregate, spawl, kankar lime (unslaked), surkhi, etc. or 150 Cft. (4.25 cu.m) of timber, by truck or by any other means owned by the contractor.				
		1st KM	100 Cft	1	299.40	299.40
		2nd KM	100 Cft	1	145.25	145.25
		3rd KM	100 Cft	1	116.85	116.85
		4th KM	100 Cft	1	85.30	85.30
		5th KM	100 Cft	1	80.20	80.20
		6th KM	100 Cft	1	79.00	79.00
		7th KM	100 Cft	1	74.25	74.25
		8th KM	100 Cft	1	73.50	73.50
		9th KM	100 Cft	1	69.55	69.55
		10th KM	100 Cft	1	65.70	65.70
		From 11 km to 200 km	100 Cft	106	57.25	6,068.50
		From 201 km to 250 km	100 Cft		3.25	-
		251 Kms & susequent Kms	100 Cft		2.00	-
		<b>Total.</b>				<b>7,157.50</b>
		<b>Total Amount per 100 Cft</b>				<b>7,157.50</b>
		<b>Total Cost for Per Cft</b>				<b>71.58</b>

**PUNJAB CITIES PROGRAM (PCP)  
DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS  
SUPERVISION IN 16 CITIES OF PUNJAB**

**Rate Analysis Road - 4**

AWC

Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density. (2 inch thick)

(iv) 4.5% Bitumen

							<b>116 Km</b>
Sr. No.	2nd BI-Annual-2022 (July to Dec) Hafizabad	Description	Unit	Lead (Km)	Qty	Rate (Rs)	Amount (Rs.)
1	18/10/a	Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density. (2 inch thick) (iv) 4.5% Bitumen	Per inch thickness per 100Sft.		1.00	15,029.10	15,029.10
2	1/1	Carriage of 100 cft of all materials like stone aggregate spawl kanker lime surkhi etc or 150 cft of timber by truck or by any other means owned by the contracor.					
		1st KM	100 Cft	1	0.1243	299.40	37.22
		2nd KM	100 Cft	1	0.1243	145.25	18.05
		3rd KM	100 Cft	1	0.1243	116.85	14.52
		4th KM	100 Cft	1	0.1243	85.30	10.60
		5th KM	100 Cft	1	0.1243	80.20	9.97
		6th KM	100 Cft	1	0.1243	79.00	9.82
		7th KM	100 Cft	1	0.1243	74.25	9.23
		8th KM	100 Cft	1	0.1243	73.50	9.14
		9th KM	100 Cft	1	0.1243	69.55	8.65
		10th KM	100 Cft	1	0.1243	65.70	8.17
		From 11 km to 200 km	100 Cft	106	0.1243	57.25	754.31
		From 201 km to 250 km	100 Cft		0.1243	3.25	-
		251 Kms & susequent Kms	100 Cft		0.1243	2.00	-
		<b>Total.</b>					<b>15,918.78</b>
		<b>Total Amount per 100 Sft</b>					<b>15,918.78</b>
		<b>Total Cost for Per Sft</b>					<b>159.19</b>

**PUNJAB CITIES PROGRAM (PCP)  
DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS  
SUPERVISION IN 16 CITIES OF PUNJAB**

**Rate Analysis Road - 5**

**Description**

Providing and fixing RPC Manhole Cover Manufactured with 100% Reinforced Plastic Composite Material, 650 mm dia with clear opening size 600 mm (24" dia) and RPC manhole frame having dia meter 790 mm (Complete) (Certified under ISO 9001-2015)

**Manhole Cover**

Sr. No.	Ref Input Rate	Detail	Unit Rate (British System) per Each					
			Qty	Rate Per Unit	Unit.	Each	Amount (Rs.)	
	Page No112							
1	A	RPC Manhole Cover	1.00	No	7000	No	7,000.00	
		Carriage					700	
						Total	7,700.00	
		<b><u>LABOUR</u></b>						
2	LB-024	Skilled Cooly	0.50	Nos.	1,250.00	per day	625.00	
						<b>Total.</b>	<b>625.00</b>	
		Sundries	10	%			62.50	
						<b>Total Rs.</b>	<b>687.50</b>	
						<b>Total (1+2)</b>	<b>8,387.50</b>	
		Contractor's Profit	20	%			1,677.50	
		Total					<b>10,065</b>	
		<b><u>ITEM RATES</u></b>						
		Composite rate Set				Rs.	<b>10,065</b>	

**PUNJAB CITIES PROGRAM (PCP)  
 DETAILED DESIGN OF INFRASTRUCTURE SUB-PROJECTS AND RESIDENTS  
 SUPERVISION IN 16 CITIES OF PUNJAB**

**Rate Analysis Road - 6**

<b>Description</b>						
Fabrication, Supply, testing and commissioning of following Light control panels (LCP), floor standing weather proof, IP 65 Rated of appropriate size, made of MS Sheet 16 SWG with hinged door, handle, catcher, 2 coats of antirust and powder coated paint of approved colour, AC3 magnetic contactor, photocell for automatic operation of lights, CBs, Hand/Off/Auto switch, push button and all necessary accessories complete in all respects. LCP shall be manufactured as per specifications, single line diagram complete in all respect up to the satisfaction of Engineer incharge.						

<b>LCP</b>						<b>Unit.</b>	<b>Each</b>
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Sr. No.	Ref Input Rate	Detail	Unit Rate (British System) per Each				
			Qty	Rate Per Unit	Amount (Rs.)		
1	MR	LCP	1.00	No	209,430	No.	209,430
						<b>Total</b>	<b>209,430</b>
		Contractor's Profit	20	%			41,886
		<b>Total</b>					<b>251,316</b>
		<b><u>ITEM RATES</u></b>					
		Composite rate Set				Rs.	<b>251,316</b>

**Annexure-C**  
**Project Economic Analysis**

**FINANCIAL ANALYSIS ROAD NETWORK**

**TABLE - 9.1**

**AVERAGE OPERATING SPEEDS**

**Km/Hr**

**WITHOUT PROJECT CONDITION**

Years	Cars/Jeeps	Hiace Wagon/ Pickup	Coaster/ Mini Buses	Buses	Trucks	Trucks	Trucks 5-AXLE & 6-AXLE
					2-AXLE	3-AXLE & 4- AXLE	
Base Year(2022)	25	20	20	15	15	15	15
2029	20	15	15	10	10	10	10
2037	15	10	10	10	10	10	10

**WITH PROJECT CONDITION**

Years	Cars/Jeeps	Hiace Wagon/ Pickup	Coaster/ Mini Buses	Buses	Trucks	Trucks	Trucks 5-AXLE & 6-AXLE
					2-AXLE	3-AXLE & 4- AXLE	
Base Year(2022)	40	40	40	40	40	40	40
2029	35	35	35	35	35	35	35
2037	30	30	30	30	30	30	30



**TABLE - 9.3  
VEHICLE OPERATING COSTS  
FOR POOR ROAD CONDITIONS  
WITHOUT PROJECT**

SPEEDS	MOTOR CYCLE	RICKSHAW	CAR	WAGON	MINI-BUS	BUS	TRUCK 2-AXLE	Rs/Km	
								TRUCK 3-AXLE & 4-AXLE	TRUCK 5-AXLE & 6-AXLE
10	4.94	6.86	56.39	57.04	68.24	97.79	103.44	109.08	114.72
15	4.21	5.89	47.21	47.89	57.70	82.34	86.88	92.52	98.16
20	3.80	5.35	42.43	43.08	52.15	74.07	75.86	81.50	87.14
25	3.53	5.00	39.47	40.32	48.67	68.87	67.55	73.19	78.83
30	3.35	4.76	37.48	38.27	46.28	65.37	61.01	66.65	72.29
35	3.23	4.60	36.09	36.79	44.55	63.00	55.82	61.46	67.10
40	3.16	4.51	35.10	35.70	43.28	61.46	51.79	57.43	63.07
45	3.12	4.47	34.42	34.89	42.35	60.58	48.80	54.44	60.08
50	3.12	4.47	33.99	34.31	41.69	60.28	46.78	52.42	58.07
55	3.16	4.53	33.76	33.91	41.26	60.48	45.70	51.34	56.98
60	3.22	4.64	33.71	33.68	41.03	61.14	45.52	51.16	56.80
65	3.30	4.77	33.82	33.58	40.98	62.24	46.22	51.86	57.50
70	3.42	4.95	34.09	33.62	41.09	63.76	47.80	53.44	59.08
75	3.56	5.18	34.49	33.77	41.36	65.68	50.23	55.87	61.51
80	3.73	5.42	35.02	34.04	41.76	67.99	53.51	59.15	64.79
85	3.93	5.73	35.68	34.41	42.31	70.68	57.63	63.28	68.92

**TABLE- 9.4**  
**FOR GOOD ROAD CONDITIONS**  
**WITH PROJECT**

SPEEDS	MOTOR CYCLE	RICKSHAW	CAR	WAGON	MINI-BUS	BUS	Rs/Km		
							TRUCK 2-AXLE	TRUCK 3-AXLE & 4- AXLE	TRUCK 5-AXLE & 6- AXLE
10	3.71	5.12	35.59	34.99	41.42	61.63	65.14	69.34	73.54
15	3.08	4.29	28.49	28.17	33.56	50.94	54.02	58.23	62.43
20	2.73	3.83	24.80	24.60	29.44	45.22	46.71	50.92	55.12
25	2.50	3.53	22.53	22.35	26.84	41.60	41.22	45.42	49.62
30	2.35	3.33	21.00	20.80	25.05	39.13	36.87	41.08	45.28
35	2.25	3.19	19.92	19.67	23.75	37.40	33.40	37.60	41.80
40	2.19	3.11	19.16	18.83	22.77	36.21	30.65	34.85	39.06
45	2.15	3.07	18.62	18.20	22.05	35.43	28.55	32.76	36.96
50	2.15	3.08	18.26	17.73	21.51	35.01	27.06	31.26	35.46
55	2.17	3.12	18.06	17.39	21.13	34.89	26.13	30.33	34.54
60	2.21	3.19	17.99	17.17	20.88	35.05	25.76	29.96	34.16
65	2.28	3.30	18.04	17.06	20.76	35.48	25.92	30.12	34.32
70	2.37	3.44	18.19	17.03	20.74	36.14	26.61	30.81	35.01
75	2.49	3.61	18.45	17.09	20.83	37.04	27.82	32.02	36.22
80	2.62	3.81	18.80	17.23	21.01	38.17	29.54	33.74	37.94
85	2.77	4.04	19.24	17.44	21.29	39.52	31.77	35.98	40.18
90	2.95	4.31	19.77	17.73	21.65	41.08	31.77	35.98	40.18

**TABLE - 9.5  
VALUE OF TRAVEL TIME**

DESCRIPTION	MOTORCYCLE	CAR	WAGON	COASTER/ FLYING COACH	TRUCK	BUS
<b><u>TRAVEL TIME VALUE OF PASSENGERS/OCCUPANTS</u></b>						
Average Income of Passenger (Rs./Month)	40,000	60,000	30,000	22,000	35,000	30,000
Average Income of Passenger (Rs./Annum)	480,000	720,000	360,000	264,000	420,000	360,000
Working Hours /Annum	2424	2424	2424	2424	2424	2424
Rate of passenger Rs./Hour	198	297	149	109	173	149
No. of Occupants	2.00	5.00	16.00	29.00	2.00	45.00
Travel Time Value of occupants---in financial terms (Rs./Hour)	396.04	1485.15	2376.24	3158.42	346.53	6683.17
<b>Travel Time Value of occupants---in economic terms (Rs./Hour) 25%</b>	<b>99.01</b>	<b>371.29</b>	<b>594.06</b>	<b>789.60</b>	<b>86.63</b>	<b>1670.79</b>

NOTE:- 'The value of travel time in a number of studies have been estimated at 25% to 33% of the wage rate due to lack of information on the split of work and non-work travel among passengers and the 'proportion of non-wage earners among passengers.

**TABLE - 9.6**  
**Hafizabad (P-04)**  
**ANNUAL VEHICLE OPERATING COST**  
**WITHOUT PROJECT**

(Million Rs.)

Years	Voc/Km (Rs.)	Traffic Volume ADT	Distance Annual Km	Total Cost Million Rs.
<b>Motor Cycles\Rickshaw</b>				
Base Year(2022)	4.26	2500	723	7.70
2029	4.57	4250	723	14.05
2037	5.05	7650	723	27.92
<b>Cars</b>				
Base Year(2022)	39.47	800	723	22.82
2029	42.43	1360	723	41.70
2037	47.21	2448	723	83.52
<b>Wagons</b>				
Base Year(2022)	43.08	350	723	10.90
2029	47.89	595	723	20.59
2037	57.04	1071	723	44.15
<b>Bus</b>				
Base Year(2022)	82.34	18	723	1.07
2029	97.79	31	723	2.16
2037	97.79	55	723	3.89
<b>T.Trolley + Trucks 2-AXLE</b>				
Base Year(2022)	86.88	30	723	1.88
2029	103.44	51	723	3.81
2037	103.44	92	723	6.86
<b>Trucks 3-AXLE &amp; 4-AXLE</b>				
Base Year(2022)	92.52	5	723	0.33
2029	109.08	9	723	0.67
2037	109.08	15	723	1.21
<b>Trucks 5-AXLE &amp; 6-AXLE</b>				
Base Year(2022)	98.16	0	723	-
2029	114.72	0	723	-
2037	114.72	0	723	-
<b>TOTAL</b>				
Base Year(2022)				<b>44.71</b>
2029				<b>82.99</b>
2037				<b>167.55</b>

Note : "VOC" means Vehicle Operating Cost

**TABLE - 9.7**  
**Hafizabad (P-04)**  
**ANNUAL VEHICLE OPERATING COST**  
**WITH PROJECT**

(Million Rs.)

Years	Voc/Km (Rs.)	Traffic Volume ADT	Distance Annual Km	Total Cost Million Rs.
<b>Motor Cycles\Rickshaw</b>				
Base Year(2022)	2.65	2500	723	4.79
2029	2.72	4250	723	8.36
2037	2.84	7650	723	15.71
<b>Cars</b>				
Base Year(2022)	19.16	800	723	11.08
2029	19.92	1360	723	19.58
2037	21.00	2448	723	37.15
<b>Wagons</b>				
Base Year(2022)	18.83	350	723	4.76
2029	19.67	595	723	8.46
2037	20.80	1071	723	16.10
<b>Bus</b>				
Base Year(2022)	36.21	18	723	0.47
2029	37.40	31	723	0.83
2037	39.13	55	723	1.56
<b>T.Trolley + Trucks 2-Axle</b>				
Base Year(2022)	22.77	30	723	0.49
2029	23.75	51	723	0.88
2037	25.05	92	723	1.66
<b>Trucks 3-AXLE &amp; 4-AXLE</b>				
Base Year(2022)	34.85	5	723	0.13
2029	37.60	9	723	0.23
2037	41.08	15	723	0.45
<b>Trucks 5-AXLE &amp; 6-AXLE</b>				
Base Year(2022)	39.06	5	723	0.14
2029	41.80	9	723	0.26
2037	45.28	15	723	0.50
<b>TOTAL</b>				
Base Year(2022)				<b>21.86</b>
2029				<b>38.59</b>
2037				<b>73.14</b>

Note : "VOC" means Vehicle Operating Cost

**TABLE - 9.8**  
**Hafizabad (P-04)**

(Million Rs.)

YEARS	VEHICLE OPERATING COSTS		SAVINGS
	WITHOUT PROJECT	WITH PROJECT	
Base Year(2022)	44.71	21.86	22.86
2029	82.99	38.59	44.40
2037	167.55	73.14	94.41
		<b>TOTAL</b>	<b>161.66</b>

**TABLE - 9.9**  
**Hafizabad (P-04)**  
**ANNUAL VALUE OF TRAVEL TIME COST**  
**WITHOUT PROJECT**

Years	VOT	Traffic Volume ADT	Distance Annual ( Km)	Total Cost Million Rs.
	Rs/km			
<b>(Million Rs.)</b>				
<b>Motor Cycles\Rickshaw</b>				
Base Year(2022)	3.96	2500	723	7.16
2029	4.95	4250	723	15.21
2037	6.60	7650	723	36.49
<b>Cars</b>				
Base Year(2022)	14.85	800	723	8.59
2029	18.56	1360	723	18.25
2037	24.75	2448	723	43.79
<b>Wagons</b>				
Base Year(2022)	29.70	350	723	7.51
2029	39.60	595	723	17.03
2037	59.41	1071	723	45.98
<b>Bus</b>				
Base Year(2022)	39.48	18	723	0.51
2029	52.64	31	723	1.16
2037	78.96	55	723	3.14
<b>T.Trolley + Trucks 2-Axle</b>				
Base Year(2022)	5.78	30	723	0.13
2029	8.66	51	723	0.32
2037	8.66	92	723	0.57
<b>Trucks 3-AXLE &amp; 4-AXLE</b>				
Base Year(2022)	5.78	5	723	0.02
2029	8.66	9	723	0.05
2037	8.66	15	723	0.10
<b>Trucks 5-AXLE &amp; 6-AXLE</b>				
Base Year(2022)	5.78	5	723	0.02
2029	8.66	9	723	0.05
2037	8.66	15	723	0.10
<b>TOTAL</b>				
Base Year(2022)				<b>24</b>
2029				<b>52</b>
2037				<b>130</b>

Note : "VOT" means value of Travel Cost

**TABLE - 9.10**  
**Hafizabad (P-04)**  
**ANNUAL VALUE OF TRAVEL TIME COST**  
**WITH PROJECT**

Years	VOT	Traffic Volume ADT	Distance Annual ( Km)	Total Cost Million Rs.
	Rs/km			
<b>(Million Rs.)</b>				
<b>Motor Cycles\Rickshaw</b>				
Base Year(2022)	2.65	2500	723	4.79
2029	2.72	4250	723	8.36
2037	2.84	7650	723	15.71
<b>Cars</b>				
Base Year(2022)	19.16	800	723	11.08
2029	19.92	1360	723	19.58
2037	21.00	2448	723	37.15
<b>Wagons</b>				
Base Year(2022)	18.83	350	723	4.76
2029	19.67	595	723	8.46
2037	20.80	1071	723	16.10
<b>Bus</b>				
Base Year(2022)	36.21	18	723	0.47
2029	37.40	31	723	0.83
2037	39.13	55	723	1.56
<b>T.Trolley + Trucks 2-Axle</b>				
Base Year(2022)	22.77	30	723	0.49
2029	23.75	51	723	0.88
2037	25.05	92	723	1.66
<b>Trucks 3-AXLE &amp; 4-AXLE</b>				
Base Year(2022)	34.85	5	723	0.13
2029	37.60	9	723	0.23
2037	41.08	15	723	0.45
<b>Trucks 5-AXLE &amp; 6-AXLE</b>				
Base Year(2022)	39.06	5	723	0.14
2029	41.80	9	723	0.26
2037	45.28	15	723	0.50
<b>TOTAL</b>				
Base Year(2022)				<b>21.86</b>
2029				<b>38.59</b>
2037				<b>73.14</b>



**TABLE - 9.11**  
**Hafizabad (P-04)**

**(Million Rs.)**

YEARS	ANNUAL VALUE OF TRAVEL TIME COST (VOTT)		SAVINGS
	WITHOUT PROJECT	WITH PROJECT	
Base Year(2022)	23.94	21.86	2.08
2029	52.07	38.59	13.48
2037	130.17	73.14	57.03
		<b>TOTAL</b>	<b>72.60</b>

**TABLE - 9.12**  
**Hafizabad (P-04)**  
**TOTAL PROJECT BENEFITS**

(Million Rs.)

YEARS	SAVINGS		TOTAL SAVINGS
	VOC	VOTT	
Base Year(2022)	22.86	2.08	24.94
2029	44.40	13.48	57.89
2037	94.41	57.03	151.44
		TOTAL	<b>234</b>

**TABLE - 9.13**  
**Hafizabad (P-04)**  
**Calculation of Economic Internal Rate of Return**

Million Rs.

Years	PROJECT ECONOMIC COSTS			Project Economic Benefits	Net Benefits Pattern at Economic Prices						
	Investment	O & M	Total Costs		(a)	(b)	(c)	(d)			
1	161.06	0.00	161.06	0.00	-161.06	-161.06	-177.17	-177.17			
2		0.81	0.81	24.94	24.13	21.64	24.05	21.56			
3		0.81	0.81	28.68	27.87	25.00	27.79	24.92			
4		0.81	0.81	32.98	32.17	28.87	32.09	28.79			
5		0.81	0.81	37.92	37.12	33.33	37.04	33.25			
6		0.81	0.81	43.61	42.81	38.45	42.73	38.37			
7		0.81	0.81	50.16	49.35	44.33	49.27	44.25			
8		0.81	0.81	57.68	56.87	51.11	56.79	51.02			
9		0.81	0.81	66.33	65.52	58.89	65.44	58.81			
10		0.81	0.81	76.28	75.47	67.85	75.39	67.77			
<b>Total :</b>	161.06	7.25	168.31	418.57	250.26	208.41	233.43	191.57			
<b>DISCOUNT RATES</b>					<b>PRESENT WORTH OF COST</b>						
					<b>Present Worth of Benefit</b>						
					<b>NET PRESENT WORTH</b>						
10 %					146.42	150.63	178.42	72.39	50.09	57.33	35.03
12 %					143.80	147.63	159.46	51.69	31.76	36.93	16.99
18 %					136.49	139.43	116.58	6.29	-8.28	-7.65	-22.22
20 %					134.22	136.92	105.80	-4.67	-17.90	-18.37	-31.59
ECONOMIC INTERNAL RATE OF RETURN 12% DR					19.11	16.50	16.74	14.25			
BENEFIT COST / RATIO AT 12 % D.R					1.08						

\* A factor of 0.9 has been used for Capital Cost and O&M Cost in the Economics Terms.

(a) Base Case assuming 10 Years period of analysis.

(b) Benefits decreased by 10 %

(c) Cost over-run by 10 %

(d) Benefit reduction and cost over-run both occurring simultaneously.

**Annexure-D**  
**Project Implementation Period (Gantt Chart)**

**TENTATIVE PROJECT IMPLEMENTATION SCHEDULE FOR IMPROVEMENT & CONSTRUCTION OF ROADS IN  
Hafizabad CITY YEAR (2022-2023)**

Roads Name	DEC-22				JAN-23				FEB-23				MAR-23				APR-23				MAY-23							
<b>P4-Kasoki Road</b>																												

**Annexure-E**  
**E&S Screening Checklist**

9.4

## Environmental & Social Screening Checklist

**Instructions:**

Environmental and Social Focal Persons (ESFPs)<sup>1</sup> nominated by the MCs for PCP environmental and social management, will use this checklist in field for environmental and social screening and categorization of each and every sub-project proposed to be executed under the Program.

Deputy Program Officers-Environmental and Social Management deputed by PMDFC in regional offices will technically assist and support the ESFPs/MCs in filling in of this Checklist

It is to be attached with the main document<sup>2</sup> of sub-projects at planning stage and will be duly signed by the relevant ESFP and endorsed by the respective DPO-ESM

This checklist focuses on environmental issues and social concerns. To ensure that social dimensions are adequately considered, Involuntary Resettlement Screening Checklist will also be used

(iii) The purpose of this E&S Screening Checklists is to identify potential "Negative" impacts of environmental and social attributes or to enhance the existing environmental & social benefits. Use the "remarks" section to discuss any anticipated mitigation measures.

Name of ESFP: Mo1

Name of MC: Heliabad.

Sub-Project Sector: Roads

Sub-Project Title: Kassoiki Road & Railway Phetalo to PSO pump.

Sub- Project Categorization:

E-1

S-1

E-2

S-2

E-3

S-3

Date of Screening: 6-10-21

**Anticipated Project Activities**

- Preparation of sub-grade
- Preparation of grade
- Preparation of sub-base
- Preparation of base
- Luff power
- Finishing work

Estimated Cost of Subprojects

Completion Time/Duration

02-03 months

Estimated Labor for Subproject

20-25 persons

<sup>1</sup> In all MCs, ESFPs are notified by Local government; MO (I&S) are focal persons for environmental sector and MO(P) are focal persons for social sectors.

<sup>2</sup> It is meant as PC-I and/or engineering estimates of sub-project

Screening Questions	Yes	No	Remarks
<b>A. Project Siting</b>			
Is the Sub-Project area adjacent to or within any of the following:			
<b>Environmentally sensitive areas?</b>			
Legally protected Area		/	Not Observed
Any surface water body (river, canal, stream, lake, wetland) within 250 meter of the proposed sub project <sup>3</sup>		/	"
Estuarine		/	"
Special area for protecting biodiversity		/	"
Buffer zone of protected area		/	"
Mangroves Forest		/	"
Man-made forest /game reserve, orchid /crops or any other area of environmental importance		/	"
<b>Socially sensitive /important areas/communities/ people?</b>			
PCRs and or any site of cultural/religious importance (Graveyard, Shrine, Mosque, Church, <i>Gordwarah</i> , Temple, Fort, archeological/historical site) within 100 m of the proposed subproject <sup>4</sup>		/	"
Sensitive receptors (Schools, colleges, hospitals and clinics) within 100 meter of the proposed sub project <sup>5</sup>		/	"
Any graveyard of local community (Muslims or Christians)		/	"
Any demographic or socio-economic aspects of the sub-project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, squatters, ethnic minorities, people with disabilities, people in old age, socially isolated segments <sup>6</sup> of the society and women or children)?		-	"
Already existing infrastructure <sup>7</sup> (including public amenities) which may be required to dismantle or may be affected temporarily by any means?		/	"
<b>B. Potential Environmental Impacts</b>			
Will the Sub-Project cause...			
1. Disturbance to habitats/biodiversity of environmentally sensitive or protected areas?		/	Not anticipated
2. Cutting of trees?		/	"
3. Disruption to habitats/biodiversity of surrounding ecosystem/environment?		/	"
4. Generation of wastewater during construction or operation?		/	"
5. Pollution of surface water/ground water due to wastewater discharge from construction site or due to direct/indirect disposal of waste water?		/	"

<sup>3</sup> Ibid.

<sup>4</sup> According to Environmental Assessment Guidelines adopted by Punjab EPA

<sup>5</sup> Ibid.

<sup>6</sup> due to caste, creed, religion or gender e.g. transgender

<sup>7</sup> Sewerage /Drainage system, Water supply lines, tube-wells, WAPDA/Telephone transmission lines/electric poles, Railway tracks, Gas pipelines, Roads, Shops/Plazas, Banks, Industry, Disposal stations etc.



6. Alteration of surface water hydrology of waterways resulting in increased sediment in streams/rivers or due to increased soil erosion at construction site?		✓	"
7. Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?		✓	"
8. Over pumping of ground water, leading to salinization and ground subsidence?		✓	"
9. Serious contamination of soil due to construction works?		✓	"
10. Aggravation of solid waste problems in the area?	✓	✓	if not managed properly
11. Generation of hazardous waste?		✓	"
12. Increased air pollution due to sub-project construction and operation?	✓	X	air pollution may cause by due to construction activity
13. Noise and vibration due to sub-project construction or operation?		✓	"
14. Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents due to solid/liquid?		✓	"
15. Use of chemicals during construction?		✓	"
<b>C: Potential Social Impacts</b>			
Will the Sub-Project cause...			
1. Impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to Physical Cultural Resources (PCRs)?			"
2. Displacement or involuntary resettlement of people? (physical displacement and/or economic displacement) (If "Yes", please also fill Involuntary Resettlement Screening Checklist)		✓	"
3. Disproportionate impacts on the poor, women and children and or other vulnerable groups <sup>8</sup> (mentioned above)?		✓	"
4. Temporary impediments in movements of people/transport and animals?	✓	X	Alternate routes will be provided
5. Large population influx during sub-project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	local labor will be hired
6. Social conflicts if workers from other areas are hired?		✓	not anticipated
7. Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?		✓	"

<sup>8</sup> Women, Children, Women headed households, People in old age, people having disabilities, socially isolated community groups and or people living below the poverty line

8. Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	/	u
9. Community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?	/	"
10. Any impact on sensitive receptors (mentioned above)	/	4
11. Any impact of negative nature on already existing infrastructure including public amenities	/	4

Prepared By:

Name:

Signature:

Date:

*[Handwritten Signature]*  
 Deputy Manager  
 Infrastructure Development  
 Municipal Corporation  
 7/10/2021

Endorsed By: DPO - ESSs.

Name:

Signature:

Date:

*[Handwritten Signature]*  
 6-10-2021.