 **ANNA UNIVERSITY** 

**NAAN MUDHALVAN – GUIDED PROJECT**

**SOLUTION ARCHITECTURE**

**TRACKING PUBLIC INFRASTRUCTURE AND TOLL PAYMENTS USING BLOCKCHAIN**

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| PROJECT NAME | TRACKING PUBLIC INFRASTRUCTURE AND TOLL PAYMENTS USING BLOCKCHAIN |
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**SOULUTION ARCHITECTURE:**

The architecture starts with a permissioned blockchain network. In a public infrastructure context, it's essential to ensure that only authorized entities participate in the network to maintain control and security. To improve scalability and reduce transaction costs, payment channels can be established between vehicle owners and toll booth operators. These channels allow multiple toll transactions to be batched together and settled on the blockchain periodically, reducing the number of on-chain transactions. All relevant data, such as toll transactions and vehicle ownership records, is stored on the blockchain in a secure and immutable manner. This ensures transparency and trust in the system. The blockchain network can use a consensus mechanism suitable for a public infrastructure application, such as a Proof of Authority (PoA) or a consortium-based consensus, which combines the benefits of decentralization and performance. By implementing this solution architecture, public infrastructure agencies can achieve increased transparency, reduced fraud, improved efficiency in toll collection, and a more convenient experience for both vehicle owners and toll booth operators. Blockchain technology's immutability and transparency can contribute to trust and accountability in the system.



