Development of Multimodal Transportation Optimization System

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1.Introduction

The purpose of this document is to provide a definitive set of requirements for the Multimodal Transport Optimization System. It provides an overview of the key functions and capabilities, user roles and interactions, as well as quality and performance requirements. The scope covers end-to-end shipment orchestration across transport modes like road, rail, sea and air.

2. Overall Description

At a high-level, the system acts as a central platform interconnecting customers, logistic providers (shippers) and transporters (carriers) to enable seamless multimodal freight transportation. Key functionality areas include:

- Customer shipment requests and tracking
- System administration and monitoring
- Multimodal route optimization engine
- Shipment planning, scheduling and execution tools
- Transportation asset management

3. Detailed Functional Requirements

3.1 Common/Generic

- Personalized login for all user roles
- Customized dashboard showing relevant shipment information

3.2 Customer

- Web portal for new shipment booking with details like weight, origin, destination etc.
- Real-time tracking of shipment status and current location
- Queries and support requests related to specific shipments

3.3 System Administrator

Note: Users include all Customers, Shippers and carriers

- User management (add, edit, deactivate users)

3.4 Shipper

- Portal for managing shipment requests
- Tools for multimodal shipment planning and route optimization
- Modules for connectivity with carriers

3.5 Carrier

- Managing truck, rail, air and sea transportation capacity
- Portal for managing and updating shipment/transport orders
- Tools for providing shipment status updates

4. Non-functional Requirements

- Scalable and resilient system architecture
- High availability (99.9% uptime)
- Usability - user-friendly UI/UX across modules

Use Case Diagram: