Denote

$$
\begin{aligned}
c_i &:\text{volumn of client } i \\
v_j &:\text{vehicle capacity of vehicle } j \\
f_j &:\text{operation fee of vehicle } j \\
y_j &: y_j = \begin{cases} 1 & \text{if vehicle } j \text{ is put into use} \\ 0 & \text{otherwise} \end{cases} \\
Y_{jk} &: Y_{jk} = \begin{cases} 1 & \text{if vehicle } j \text{ covers location } k \\ 0 & \text{otherwise} \end{cases} \\
\chi^V_{ij} &: \chi^V_{ij} = \begin{cases} 1 & \text{if client } i \text{ is assigned to vehicle } j \\ 0 & \text{otherwise} \end{cases} \\
\alpha^L_{ik} &: \alpha^L_{ij} = \begin{cases} 1 & \text{if client } i \text{ has location } k \text{ as destination} \\ 0 & \text{otherwise} \end{cases} \\
\chi_{C(TSP)} &: \chi_{C(TSP)} = \begin{cases} 1 & \text{if combination C of location is picked} \\ 0 & \text{otherwise} \end{cases}
\end{aligned}
$$

Given c client volumn, v vehicle capacity, f operation fee of each vechicle , α requirement of clients, $C(TSP)$ the outcome of TSP. the goal is to minimize the total cost

$$
\text{COST} = \sum_j f_j \cdot y_j
$$

while satisfies

$$
\begin{aligned}
\chi^V_{ij} + \chi^V_{i'j} &= 1 \qquad \text{if } i \text{ and } i' \text{ are incompatible} \\
\sum_i \chi^V_{ij} &= 1 \\
\sum_j c_i \cdot \chi^V_{ij} &\leq v_j \qquad v_j \in V \\
\sum_{k \in \chi_{C(TSP)}} \chi_{C(TSP)} &\leq \chi^L_{ik}
\end{aligned}
$$

The constraints are based on the following consideration:
0. incompatible clients are 互斥

1. Each client is required to be picked up by a vehicle
2. Each client's destination (location) request should be met by any route
3. Each vehicle's capacity should not be exceeded.

Concerns:
The number of the third constraints could be exponential due to the exponetial combination of different locations into different route for a vehicle. (There are ways to handle this).