

## Constraints Considered in Experiments:

CI(X,ExpressLine) → PI(X,Y,StartStop)  
CI(L, ExpressLine) → P I(S, L, EndStop)  
PI(X,Y,ExpressLineStop) → CI(Y,ExpressLine)  
PI(S, L, ExpressV ehicle) → CI(L, ExpressLine)  
PI(S, L, ExpressLineStop) → CI(S, ExpressStop)

## Insertions:

1:

```
upd = [CI("TestLine", "ExpressLine")]
```

5:

```
upd = [CI("TestLine", "ExpressLine"), PI("Rua ABC", "303", "ExpressLineStop"),  
PI("V001", "602", "ExpressVehicle"), CI("TestLine2", "ExpressLine"), CI("V002", "Red")]
```

10:

```
upd = [CI("TestLine", "ExpressLine"), PI("Rua ABC", "303", "ExpressLineStop"),  
PI("V001", "602", "ExpressVehicle"), CI("TestLine2", "ExpressLine"), CI("V002", "Red"),  
CI("TestLine3", "ExpressLine"), PI("Rua XYZ", "X11", "ExpressLineStop"),  
PI("V003", "502", "ExpressVehicle"), CI("TestLine4", "ExpressLine"), CI("V004", "Red")]
```

## Deletions:

1:

```
upd = [NPI("Terminal Centenario - 303 - Centenario / Campo Comprido", "303",  
"StartStop")]
```

5:

```
upd = [NPI("Terminal Centenario - 303 - Centenario / Campo Comprido", "303",  
"StartStop"), NCI("X20", "ExpressLine"), NPI("Terminal CIC - 644 - Pinheirinho /  
CIC", "644", "EndStop"), NPI("Rua Eduardo Sprada, 5197 - Campo Comprido", "823",  
"ExpressLineStop"), NCI("BD135", "Red")]
```

10:

```
upd = [NPI("Terminal Centenario - 303 - Centenario / Campo Comprido", "303",  
"StartStop"), NCI("X20", "ExpressLine"), NPI("Terminal CIC - 644 - Pinheirinho /  
CIC", "644", "EndStop"), NPI("Rua Eduardo Sprada, 5197 - Campo Comprido", "823",  
"ExpressLineStop"), NCI("BD135", "Red"), NPI("Terminal Bairro Alto - 374 - Hugo  
Lange", "374", "StartStop"), NCI("010", "ExpressLine"), NPI("Terminal Pinheirinho - 684  
- Rio Bonito", "684", "EndStop"), NPI("Rua Laudelino Afonso da Rocha, 204 -  
Xaxim", "624", "ExpressLineStop"), NCI("HE689", "Red")]
```

## Mixed Insertion/Deletions:

### 50/50 (5 insertions/ 5 deletions):

```
upd = [CI("TestLine", "ExpressLine"), PI("Rua ABC", "303", "ExpressLineStop"),  
PI("V001", "602", "ExpressVehicle"), CI("TestLine2", "ExpressLine"), CI("V002",  
"Red"), NPI("Terminal Centenario - 303 - Centenario / Campo Comprido", "303",  
"StartStop"), NCI("X20", "ExpressLine"), NPI("Terminal CIC - 644 - Pinheirinho /  
CIC", "644", "EndStop"), NPI("Rua Eduardo Sprada, 5197 - Campo Comprido", "823",  
"ExpressLineStop"), NCI("BD135", "Red")]
```

### 70/30 (7 insertions/3 deletions):

```
upd = [CI("TestLine", "ExpressLine"), PI("Rua ABC", "303", "ExpressLineStop"),  
PI("V001", "602", "ExpressVehicle"), CI("TestLine2", "ExpressLine"), CI("V002",  
"Red"), PI("Rua XYZ", "202", "StartStop"), CI("X20", "ExpressLine"), NPI("Terminal CIC -  
644 - Pinheirinho / CIC", "644", "EndStop"), NPI("Rua Eduardo Sprada, 5197 - Campo  
Comprido", "823", "ExpressLineStop"), NCI("BD135", "Red")]
```

### 30/70 (3 insertions/7 deletions):

```
upd = [CI("TestLine", "ExpressLine"), PI("Rua ABC", "303", "ExpressLineStop"),  
NPI("Rua José Loureiro - 165-Universidades", "165", "StartStop"), CI("TestLine2",  
"ExpressLine"), NCI("V002", "Red"), NPI("Terminal Centenario - 303 - Centenario /  
Campo Comprido", "303", "StartStop"), NCI("X20", "ExpressLine"), NPI("Terminal CIC -
```

644 - Pinheirinho / CIC,"644","EndStop"), NPI("Rua Eduardo Sprada, 5197 - Campo Comprido","823","ExpressLineStop"), NCI("BD135","Red")]