

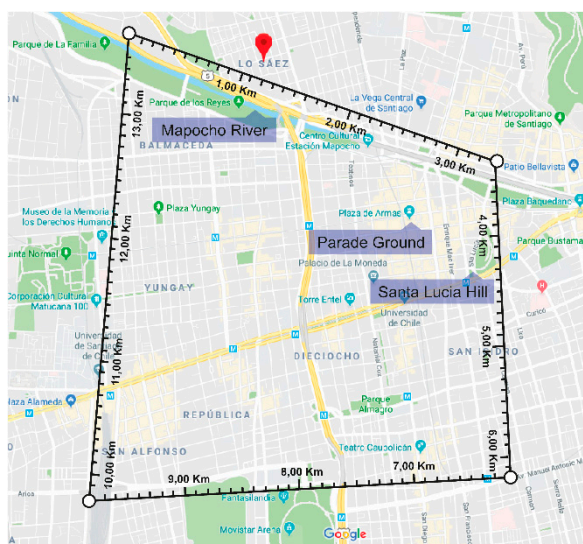


Figure S1. Historical limits.

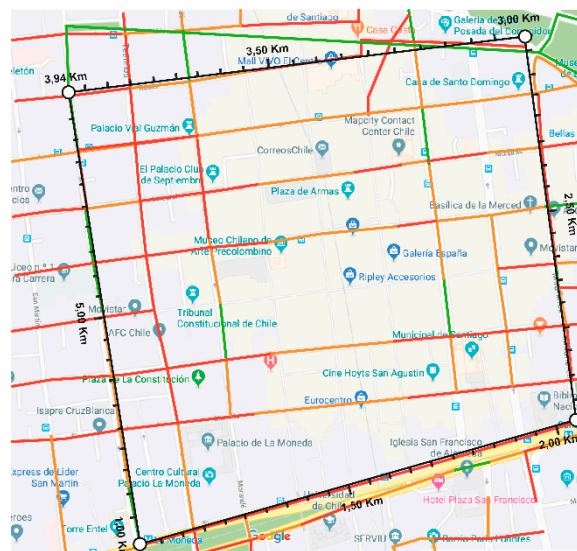


Figure S2. Representative km².

Table S1. Orientation of the main avenues of the km².

Street Name	Map Orientation
Hermanos Amunátegui	South
Teatinos	North
Morandé	South
Bandera	South
Ahumada	Pedestrian street
Estado	Pedestrian street
San Antonio	North
Enrique Mac-Iver	South
Miraflores	South
Rosas	East
Santo Domingo	East
Catedral	East
Compañía de Jesús	West
Huérfanos	Pedestrian street
Agustinas	West
Moneda	East
L. Bernardo O'Higgins Sur	East
L. Bernardo O'Higgins Norte	West

Table S2. Schedules with greater amount of movements.

Time Frame	Transit Schedule
Morning rush hour (AM)	7:00–9:30
Afternoon rush hour	12:00–14:30
Evening rush hour (PM)	18:00–20:30

Table S3. Scoring scale according to congestion level.

Traffic congestion	Score
Green	1
Orange	2

Red	3
Red wine	4

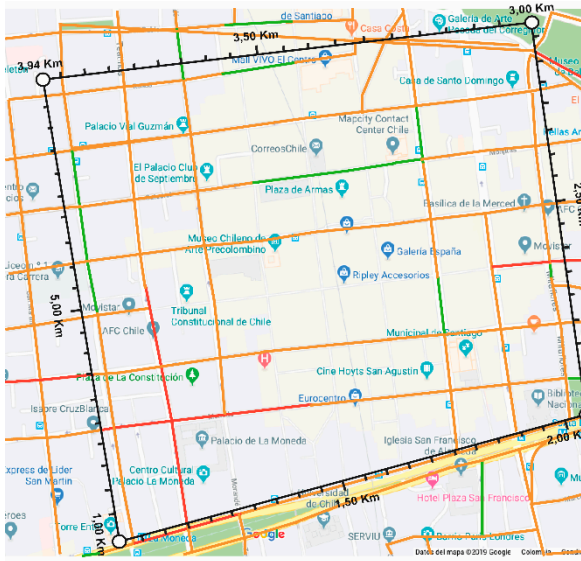


Figure S3. Monday, congestion in the morning.

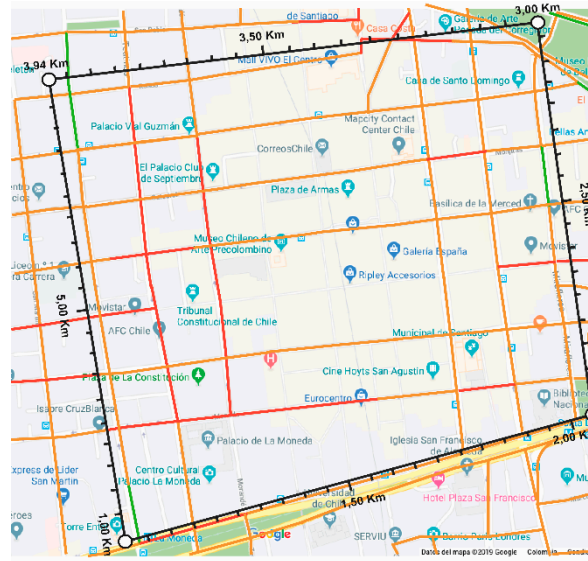


Figure S4. Monday, congestion in the afternoon.

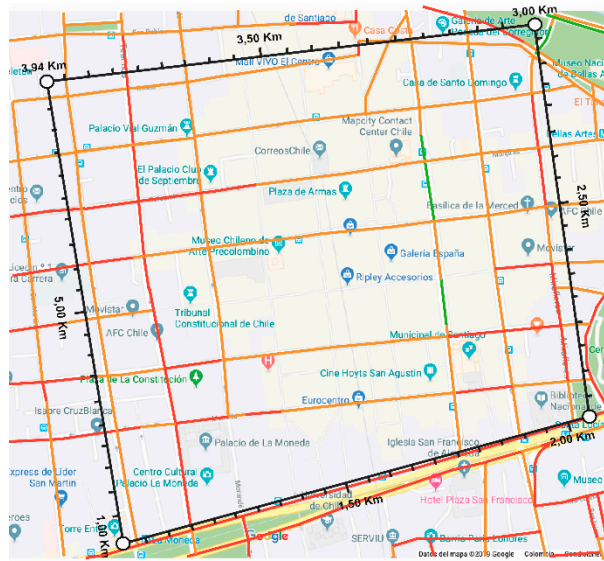


Figure S5. Monday, congestion in the night.

Table S4. Congestion level of the avenues during the week.

Street name	Map orientation	Average	Standard deviation
Ahumada	Pedestrian street	3,00	0,00
Estado	Pedestrian street	3,00	0,00
San Antonio	North	2,60	0,00
Mac-Iver	South	2,60	0,00

Huérfanos	Pedestrian street	3,00	0,00
Moneda	East	2,87	0,34

Table S5. Inventory of stores.

Street Name	Number of Stores
Agustinas	62
Ahumada	104
Alameda Norte	47
Alameda Sur	22
Amunátegui	42
Bandera	59
Catedral	73
Compañía	100
Estado	197
Huérfanos	111
Mac-Iver	112
Miraflores	54
Moneda	52
Morandé	25
Rosas	68
San Antonio	172
Santo Domingo	76
Teatinos	43
Total	1419

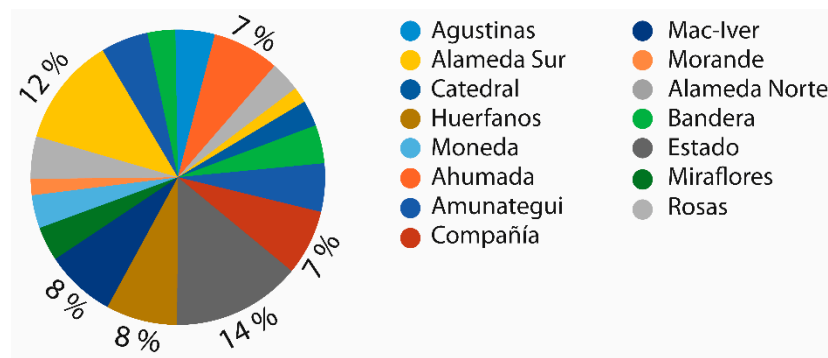


Figure S6. Distribution of stores per avenue.

Table S6. Information of roads and regulations.

Street name	One Way Street [1]/Two way Street [2]	Number of Lanes Available	Number of Lanes to Cycle Paths	Number of Lanes to On-Street Parking	Number Exclusive Lanes to Public Transport
Agustinas	1	2	0	1	0
Alameda Norte	1	5	1	0	3
Alameda Sur	1	5	1	0	3
Amunátegui	1	2	0	1	1
Catedral	1	2	0	1	0
Compañía	1	2	0	0	2
Mac-Iver	1	2	0	0	2
Miraflores	1	2	0	1	0

Moneda	1	2	0	1	0
Morandé	1	2	0	1	0
Rosas	1	2	1	0	0
San Antonio	1	2	0	0	2
Santo Domingo	1	2	0	1	2
Teatinos	1	2	1	1	0
Total	14	34	4	8	15

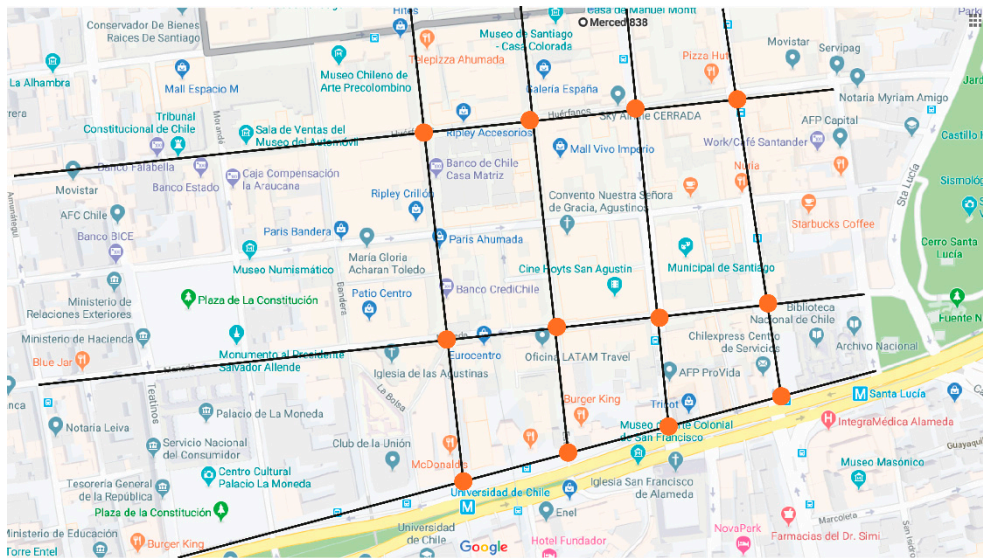


Figure S7. Possible critical points.

Table S7. Critical points.

Check Point	North-South Street	East-West Street
1	Ahumada	Moneda
2	Ahumada	Huérfanos
3	San Antonio	Moneda
4	San Antonio	Huérfanos
5	Mac-Iver	Moneda
6	Mac-Iver	Huérfanos

Table S8. Average of vehicles per day.

Vehicles	Average Flow Per Day
Cars	2444
Taxis	2387
Pickup	390
Trucks	190
Van	484
Bus	675
Bicycles	430
Motorcycle	648
Total	7648

Table S9. Seconds of interruption a day per interruption source.

Interruption Source	Interruptions (Total Seconds)
Bus	2200
Cars	5871
Pedestrians	973
Taxis	1637
Deliveries	13326
Waste	268
Total	24275

Table S10. Amount of sources affected by interruptions.

Interruption Source	Number of Vehicles Affected
Bus	94
Cars	166
Pedestrians	140
Taxis	69
Deliveries	117
Waste	15
Total	601

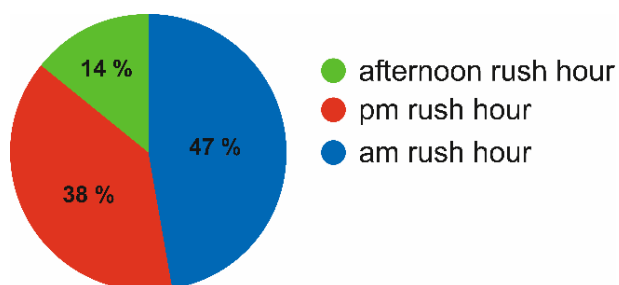


Figure S8. Distribution of deliveries per schedule.

Table S11. Amount of deliveries per schedule.

Schedule	Amount of Deliveries
AM rush hour	37
Afternoon rush hour	11
PM rush hour	30
Total	78

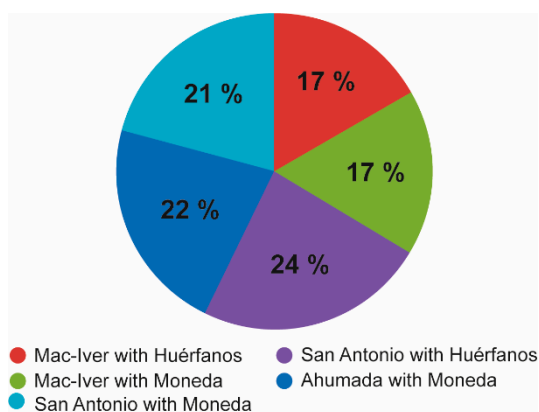


Table S12. Amount of deliveries per critical points.

Delivery Point	Amount of Deliveries
Ahumada-Moneda	17
Mac-Iver-Huérfanos	13
Mac-Iver-Moneda	13
San Antonio-Huérfanos	19
San Antonio-Moneda	16
Total	78

Figure S9. Distribution of the deliveries per point.

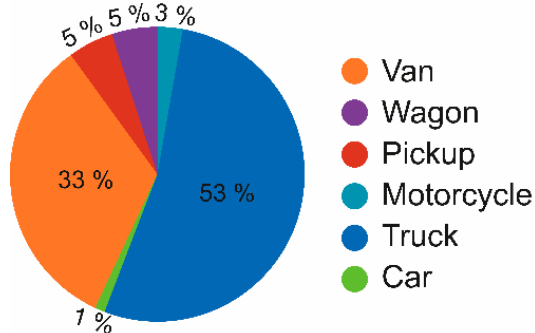


Figure S10. Distribution of deliveries per type of vehicle.

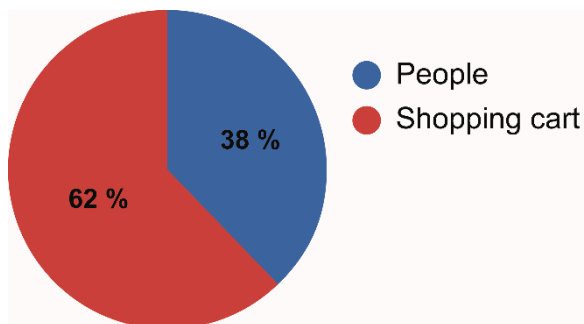


Figure S11. Distribution according the type of equipment for the delivery.

Table S13. Amount of deliveries per type of vehicle.

Type of Vehicle	Amount of Deliveries
Trucks	41
Pickup	4
Cars	1
Wagon	4
Motorcycle	2
Van	26
Total	78

Table S14. Equipment used in the delivery.

Equipment Used	Amount of Deliveries
Shopping cart	30
People	48
Total	78

Table S15. Distance between the vehicle and the store.

Lower Limit	Upper Limit	Frequency
2	51,75	35
51,75	101,5	7
101,5	151,25	5
151,25	201	15
250,75	300,5	14
350,25	400	2
Total		78

Table S16. Passenger segment more sold february 2018.

N	Car Brand	Model	# Cars
1	Hyundai	Accent	914
2	Chevrolet	Sail	771
3	Kia	Morning	748
4	Suzuki	Swift	746
5	Toyota	Yaris	713
6	Kia	Rio	702
7	Hyundai	Grand I-10	546
8	Renault	Symbol	508
9	Mazda	All new Mazda 3	459
10	Suzuki	Baleno	392
Total			6.499

Table S17. SUVs segment more sold february 2018.

N	Car Brand	Model	# Cars
1	Toyota	Rav4	759
2	Renault	Duster	498
3	Mazda	All New CX-5	466
4	Hyundai	Tucson TL	386
5	Nissan	Qashqai	376
6	Kia	Sportage	374
7	Nissan	Kicks	350
8	Chery	Tiggo 2	337
9	Nissan	X Trail	304
10	Jac	S2	302
Total			4.152

Table S18. Commercial segment more sold february 2018.

N	Car brand	Model	# Cars
1	Citroen	Berlingo	477
2	Peugeot	Partner	449
3	Kia	Frontier	283
4	Hyundai	H-1	191
5	Chevrolet	N300 Max	181
6	Fiat	Fiorino	161
7	Foton	Midi	149
8	Mercedes Benz	Sprinter	134
9	Peugeot	Boxer	100
10	Renault	Dokker	86
Total			2.211

Table S19. Pickup segment more sold february 2018.

N	Car Brand	Model	# Cars
1	Mitsubishi	L-200	756
2	Nissan	NP300	730
3	Toyota	Hilux	688
4	Ssangyong	Actyon	472
5	Mazda	All New BT-50	326
6	Ford	Ranger	284
7	Volkswagen	Amarok	238
8	Chevrolet	D-Max	236
9	Ford	F150	203
10	Grupo Great Wall	Wingle	151
Total			4.084

Table S20. Truck more sold february 2018.

N	Bus Brand	# Buses
1	Mercedes Benz	366
2	Chevrolet	233
3	Scania	228
4	Ford	176
5	Volkswagen	148
6	Volvo	146
7	Hino	144
8	Freightliner	142
9	Hyundai	102
10	Jac	82
Total		1.767

Table S21. Buses more sold february 2018.

N	Bus Brand	# Buses
1	Mercedes Benz	289
2	Volvo	34
3	Yutong	29
4	Fuso	27
5	Scania	24
6	Volkswagen	21
7	King Long	19
8	Hyundai	10
9	Agrale	7
10	Daewoo	5
Total		465

Table S22. Amount of CO₂ emitted per automotive during the day.

Automotive	Type of Transport	(g CO ₂ /km)
Taxi	Passengers	167,99
Cars	Private car	153,89
Bus	Passengers	336,86
Motorcycle	Freight/Private motorcycle	167,00
Van/Wagon	Freight	165,71
Pickup	Freight	187,65
Truck	Freight	280,47
Total		1459,56

Table S23. Alternatives as non-polluting vehicle.

Vehicle	(g Co ₂ /km)	Cubage (m ³)	Weight (kg)
Bicycle	0	0,177408	40
Electric vehicle	40	2,40108	130

Tricycle	0	2,17536	150
Small diesel vehicle	60	4,535625	260
Electric bicycle	20	0,177408	65

Table S24. Design of cycle paths in the main avenues of the historical center.

Street Name	Number of Lanes to Drive	Number of Lanes for Cycle Paths	Number of Lanes to On-street Parking	Number of Lanes Exclusive to Bus	Current Status of the Cycle Paths
Compañía	2	0	0	1	Create
Agustinas	2	0	1	0	Create
Catedral	2	0	1	0	Create
Amunátegui	2	0	1	1	Create
Teatinos	2	1	1	0	Has already
Morandé	2	0	1	0	Create
Miraflores	2	0	1	0	Create
Santo Domingo	2	0	1	0	Create
Rosas	2	1	0	0	Has already
San Antonio	2	0	0	2	Not to do
Mac-Iver	2	0	0	2	Create
Alameda Sur	5	1	0	3	has already
Alameda Norte	5	1	0	3	has already
Moneda	2	0	1	0	Create

Table S25. Amount of CO₂ generated by cargo vehicles a month.

Agent	CO ₂ (g/km) a month
Van	1.604.101
Pickup	1.463.663
Truck	1.351.842
Total	4.419.606

Table S26. Decreasing of the interruption time in the km².

Agent	Hours of Interruptions a Day.	Hours of Interruptions a Month
Van	1,73	34,63
Pickup	0,74	14,70
Truck	2,13	42,59
Total	4,60	91,93



Figure S12. Process of communication of actors of the delivery process.