

Annex 1

Cartographies

This annex is a collection of raw analysis and it's presented just a reference to the back-end work of this project. Therefore we advise using cartographies, charts and graphs from the main report, not from this annex, for decision making purposes. For best reference, you can also e-mail us at spin@spinunit.eu for the GIS cartographies.

Metrics

Number of Lines

This metric corresponds to the number of lines that pass through a stop during the weekdays of the week of Oct 7, 2019.

This was calculated using GTFS data. The GTFS data was merged such that stop times and stop information was related (via trips and routes). From there, for each stop's subset of this merged data, the number of lines was calculated as the length of all unique route_ids.

Data Source/Provider:
GTFS
Date: Oct 7, 2019

Mean: 4.70
25 - 50 - 75: 2 - 3 - 6
Minimum - Maximum: 1 - 129

Number of Reachable Selected Mobility Hubs

This metric corresponds to the number of selected mobility hubs reached *directly* from a stop during the weekdays of the week of Oct 7, 2019. Selected mobility hubs consist of Hobujaama, Estonia, Balti Jaam, Lennujaam, Kristiine, Haabersti, Vabanduse Väjak, Bussijaam, Harbor, Tondi.

The GTFS data was merged like it was for Number of Lines. For each stop, we extracted a subset of the merged data. If any of the contingent stops of the mobility hubs above could be reached directly via a shared route, it was considered reachable.

Data Source/Provider:
GTFS
Date: Oct 7, 2019

Mean: 2.54
25 - 50 - 75: 0 - 3 - 4
Minimum - Maximum: 0 - 9

Multimodality

This metric corresponds to the number of unique modes of transport departing from a stop during the weekdays of the week of Oct 7, 2019.

Each of these modes is considered distinct: (Bus) City line operated by a public service contract, (Bus) Commercial city line, (Bus) County commercial line, (Bus) County line served by a public service contract, (Bus) Long distance and international line, Tram line, Trol line, Ferry line, Train line.

This was calculated by merging the GTFS data and calculating the length of unique route_colours (modes) for the stop's subset.

Data Source/Provider:
GTFS
Date: Oct 7, 2019

Mean: 1.38
25 - 50 - 75: 1 - 1 - 2
Minimum - Maximum: 1 - 4

Frequency of Trips

This metric corresponds to a stop's total number of departures, across all modes, during the weekdays of the week of Oct 7, 2019.

This was calculated as the number of times the stop's stop_id appeared in the merged dataset, the composition of which is described under Number of Lines.

Data Source/Provider:
GTFS
Date: Oct 7, 2019

Mean: 883.76
25 - 50 - 75: 50 - 235 - 1020
Minimum - Maximum: 5 - 9685

Average Departure Delay

This metric corresponds to a stop's average departure delay in minutes for the weekdays of the week of Oct 7, 2019.

The Thorebi and Ridango data were merged. The date strings were then converted into datetime objects so that delay could be calculated (actual departure minus planned departure). This metric was then calculated as the average of these delays from the stop in question for all departures between Oct 7 and Oct 11 (weekdays of the week of Oct 7, 2019).

Data Source/Provider:
Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 1.029
25 - 50 - 75: 0.74 - 1.3 - 2.07
Minimum - Maximum: -392.27 - 9.57

Delayed Departure Percentage

This metric corresponds to a stop's percentage of trips that were delayed (with a 1 minute tolerance) during the weekdays of the week of Oct 7, 2019.

The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the percentage of these delays that were greater than the tolerance (1 minute in both directions).

Data Source/Provider:
Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 68.92
25 - 50 - 75: 56.29 - 70 - 82.93
Minimum - Maximum: 0 - 100

Metrics

On Time Departure Percentage

This metric corresponds to a stop's percentage of trips that were on time (1 minute tolerance) during the weekdays of the week of Oct 7, 2019.

The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the percentage of these delays that were fell within the tolerance (1 minute in both directions).

Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 31.08
25 - 50 - 75: 17.07 - 30 - 43.71
Minimum - Maximum: 0 - 100

Total Delay

This metric corresponds to a stop's total delay, in minutes, during the weekdays of the week of Oct 7, 2019.

The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the sum of those delays.

Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 250.42
25 - 50 - 75: 30 - 119.36 - 336.36
Minimum - Maximum: -12917 - 4357

Regional bus operators (Tallinn municipal transit excluded):

(aka Main + Local Line Load)

This metric corresponds to a stop's total weekday person load of departures on both local lines (lines contained within municipal borders) and main lines (county lines that cross municipal borders) for all weekdays during the entirety of October, 2019. A subset of the dataset was extracted for each unique stop_code. This metric is the sum of the total monthly weekday average for both the main line load and local line load for each stop_code.

Data Source/Provider: Ridango
Date: Oct 2019, average of all work week days

Mean: 351
25 - 50 - 75: 9 - 40 - 169
Minimum - Maximum: 1 - 25403

Local Line Load Percentage

This metric corresponds to a stop's percentage of Local + Main Line Load, defined above, that was specifically from local lines for all of the weekdays during the entirety of October, 2019.

This was calculated trivially as the percentage of Local Line Load from Main + Local Line Load.

Data Source/Provider: Ridango
Date: Oct 2019, average of all work week days

Mean: 19.34
25 - 50 - 75: 0 - 0 - 10.37
Minimum - Maximum: 0 - 100

Main Line Load Percentage

This metric corresponds to a stop's percentage of Local + Main Line Load, defined above, that was specifically from local lines for all of the weekdays during the entirety of October 2019.

This was calculated trivially as the percentage of Main Line Load from Main + Local Line Load.

Data Source/Provider: Ridango
Date: Oct 2019, average of all work week days

Mean: 80.66
25 - 50 - 75: 89.63 - 100 - 100
Minimum - Maximum: 0 - 100

Tallinn municipal transit (bus+tram+trolley): (Card + Driver Check Ins)

This metric corresponds to a stop's total number of checkins made via card and directly to the driver during weekdays of the week of Oct 7, 2019.

The dataset was filtered for weekdays using the day_code column. With that subset, a subset for each unique stop_code was created, and for each of those, the total number of card check ins and driver tickets sold (driver check ins) were calculated as this metric.

Data Source/Provider: Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 1192.29
25 - 50 - 75: 95.50 - 360 - 1354
Minimum - Maximum: 0 - 24396

Metrics

Card Check Ins Percentage

This metric corresponds to a stop's percentage of Card + Driver Check Ins, defined above, that were specifically made via card during the weekdays of the week of Oct 7, 2019.

This was calculated trivially as the percentage of Card Check Ins from Card + Driver Check Ins.

Data Source/Provider: Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 99.40
25 - 50 - 75: 99.52 - 99.92 - 100
Minimum - Maximum: 78.95 - 100

Driver Check Ins Percentage

This metric corresponds to a stop's percentage of Card + Driver Check Ins, defined above, that were specifically made directly to the driver during the weekdays of the week of Oct 7, 2019.

This was calculated trivially as the percentage of Driver Check Ins from Card + Driver Check Ins.

Data Source/Provider: Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 0.60
25 - 50 - 75: 0 - 0.08 - 0.48
Minimum - Maximum: 0 - 21.05

Population

This metric corresponds to the total population within a given buffer from a stop. The populations of the following age subgroups were also calculated: 0-14, 15-64, 65 and over.

This metric was calculated by creating a buffer (100, 500 and 1000m) around a stop and storing the number of population units (1km by 1km) from the census that intersected with the buffer, summing all of the intersecting populations values -- the total, as well as the aforementioned subgroups.

Data Source/Provider: Census
Date: 2011

For 100m buffer:
Mean: 2475.90
25 - 50 - 75: 32 - 326 - 2542
Maximum: 37237

Building Count

This metric corresponds to the total number of buildings within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and counting the number of building polygons within it.

Data Source/Provider: EHR (Ehitiisregister)
Date: 14.01.2030

For 100m buffer:
Mean: 7.66
25 - 50 - 75: 1 - 4 - 10
Maximum: 126

Built SQM

This metric corresponds to the amount of built area, in sq. metres, within a given buffer from a stop. The built area in sq. metres was also calculated for the following building type subgroups: residential, non-residential, transport, industrial / warehouse, accommodation / catering, commercial / service, office, entertainment, education, health / other public.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and summing the total built SQM (in total as well as for each of the aforementioned subgroups) of the buildings located within it.

Data Source/Provider: EHR (Ehitiisregister)
Date: 14.01.2030

For 100m buffer:
Mean: 4764
25 - 50 - 75: 66.2 - 884.7 - 4320.6
Maximum: 196614.8

Visits Count

This metric refers to the total number of Foursquare visits within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 100m) around a stop and summing the the total number of Foursquare visits located within it.

Data Source/Provider: Qualitative observations from Foursquare
Date: 200

For 100m buffer:
Mean: 3761.70
25 - 50 - 75: 0 - 9 - 755
Maximum: 245843

Metrics

Places Count

This metric corresponds to the total number of Foursquare locations within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 100m) around a stop and summing the the total number of Foursquare places located within it..

Data Source/Provider: Qualitative analysis from Foursquare
Date: 2020

For 100m buffer:
Mean: 8.91
25 - 50 - 75: 0 - 1 - 5
Maximum: 270

Optional Activities Count

This metric corresponds to the total number of optional Foursquare activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 100m) around a stop and summing the the total number of optional Foursquare activities located within it..

Data Source/Provider: Qualitative analysis from Foursquare
Date: 2020

For 100m buffer:
Mean: 4.79
25 - 50 - 75: 0 - 0 - 2
Maximum: 215

Necessary Activities Count

This metric corresponds to the total number of necessary Foursquare activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 100m) around a stop and summing the the total number of necessary Foursquare activities located within it..

Data Source/Provider: Qualitative analysis from Foursquare
Date: 2020

For 100m buffer:
Mean: 2.92
25 - 50 - 75: 0 - 0 - 2
Maximum: 74

Optional Activities Visits Count

This metric corresponds to the total number of visits to optional Foursquare activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 100m) around a stop and summing the the total number of visits to optional Foursquare activities located within it.

Data Source/Provider: Qualitative analysis from Foursquare
Date: 2020

For 100m buffer:
Mean: 2345.53
25 - 50 - 75: 0 - 0 - 151
Maximum: 205063

Necessary Activities Visits Count

This metric corresponds to the total number of visits to necessary Foursquare activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and summing the the total number of visits to necessary Foursquare activities located within it.

Data Source/Provider: Qualitative analysis from Foursquare
Date: 2020

For 100m buffer:
Mean: 1209.99
25 - 50 - 75: 0 - 0 - 247
Maximum: 88711

Optional Activities Percentage

This metric corresponds to the percentage of activities that are optional activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and calculating the percentage of Foursquare activities within it that are optional.

Data Source/Provider: Qualitative analysis from Foursquare
Date: 2020

For 100m buffer:
Mean: 39.92
25 - 50 - 75: 0.24 - 27.26 - 79.53
Minimum - Maximum: 0 - 100

Metrics

Necessary Activities Percentage

This metric corresponds to the percentage of activities that are necessary activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and calculating the percentage of Foursquare activities within it that are optional.

Data Source/Provider: Qualitative analysis from Foursquare
Date: 2020

For 100m buffer:
Mean: 47.40
25 - 50 - 75: 4.79 - 44.93 - 89.09
Minimum - Maximum: 0 - 100

Built SQM

This metric corresponds to the amount of built area, in sq. metres, within a given buffer from a stop. The built area in sq. metres was also calculated for the following building type subgroups: residential, non-residential, transport, industrial / warehouse, accommodation / catering, commercial / service, office, entertainment, education, health / other public.

Data Source/Provider: EHR (Ehitisregister)
Date: 14.01.2030

For 100m buffer:
Mean: 4764
25 - 50 - 75: 66.2 - 884.7 - 4320.6
Maximum: 196614.8

Visits Count

This metric refers to the total number of Foursquare visits within a given buffer from a stop.

Data Source/Provider: Observations from Foursquare
Date: 200

For 100m buffer:
Mean: 3761.70
25 - 50 - 75: 0 - 9 - 755
Maximum: 245843

Number of Lines

This metric corresponds to the number of lines that pass through a stop during the weekdays of the week of Oct 7, 2019.

This was calculated using GTFS data. The GTFS data was merged such that stop times and stop information was related (via trips and routes). From there, for each stop's subset of this merged data, the number of lines was calculated as the length of all unique route_ids.

Data Source/Provider: GTFS

Date: Oct 7, 2019

Mean: 4.70

25 - 50 - 75: 2 - 3 - 6

Minimum - Maximum: 1 - 129

Number of Lines

1

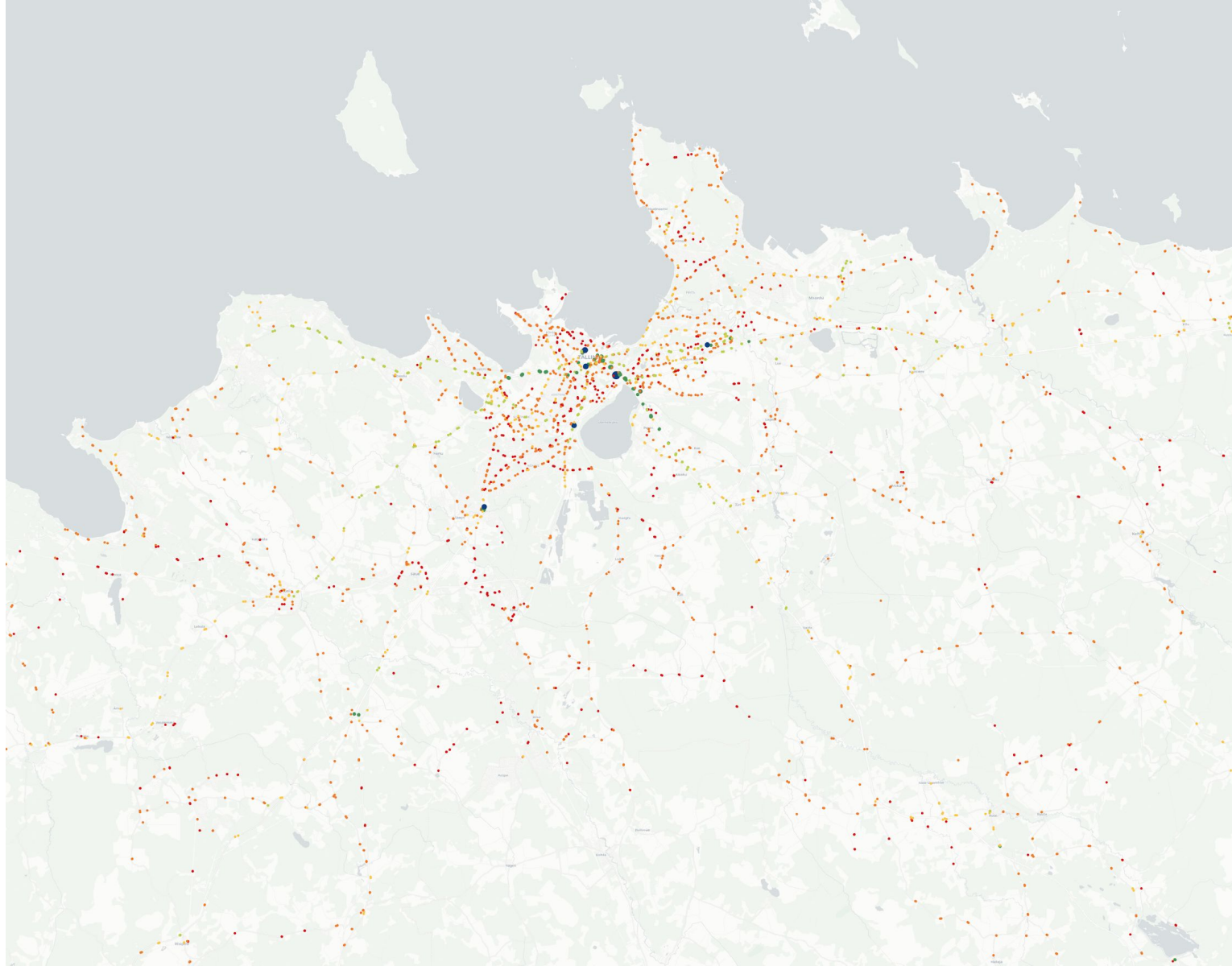
1-5

6-10

11 - 20

21 - 50

More than 50



Number of Reachable Selected Mobility Hubs

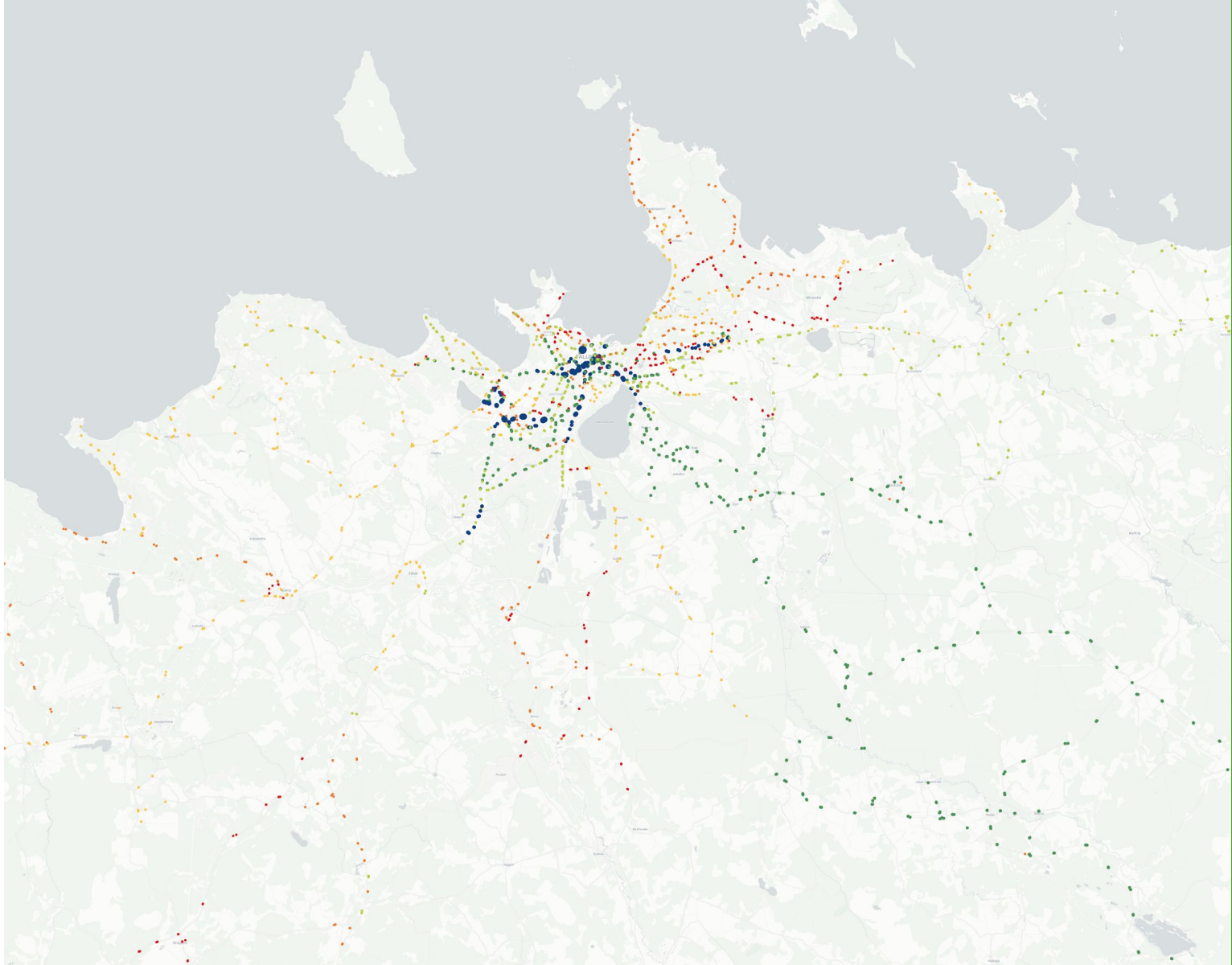
This metric corresponds to the number of selected mobility hubs reached *directly* from a stop during the weekdays of the week of Oct 7, 2019. Selected mobility hubs consist of Hobujaama, Estonia, Balti Jaam, Lennujaam, Kristiine, Haabersti, Vabaduse Vöjak, Bussijaam, Harbor, Tondi.

The GTFS data was merged like it was for Number of Lines. For each stop, we extracted a subset of the merged data. If any of the contingent stops of the mobility hubs above could be reached directly via a shared route, it was considered reachable.

Data Source/Provider: GTFS
Date: Oct 7, 2019

Mean: 2.54
25 - 50 - 75: 0 - 3 - 4
Minimum - Maximum: 0 - 9

Number of Reachable Selected Mobility Hubs



Multimodality

This metric corresponds to the number of unique modes of transport departing from a stop during the weekdays of the week of Oct 7, 2019.

Each of these modes is considered distinct: (Bus) City line operated by a public service contract, (Bus) Commercial city line, (Bus) County commercial line, (Bus) County line served by a public service contract, (Bus) Long distance and international line, Tram line, Trol line, Ferry line, Train line.

This was calculated by merging the GTFS data and calculating the length of unique route_colours (modes) for the stop's subset.

Data Source/Provider: GTFS

Date: Oct 7, 2019

Mean: 1.38

25 - 50 - 75: 1 - 1 - 2

Minimum - Maximum: 1 - 4

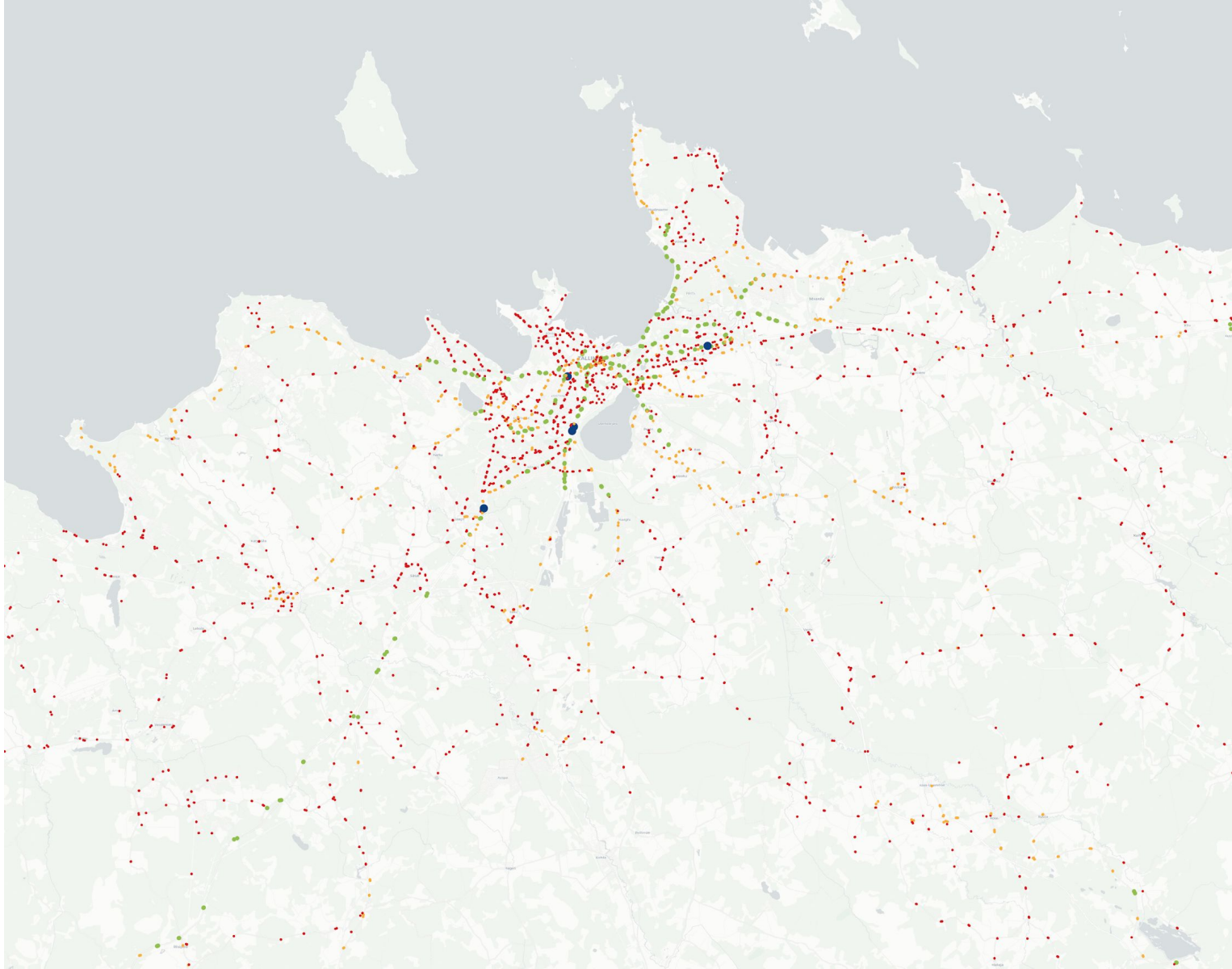
Multimodality

1

2

3

4



Frequency of Trips

This metric corresponds to a stop's total number of departures, across all modes, during the weekdays of the week of Oct 7, 2019.

This was calculated as the number of times the stop's stop_id appeared in the merged dataset, the composition of which is described under Number of Lines.

Data Source/Provider: GTFS
Date: Oct 7, 2019

Mean: 883.76
25 - 50 - 75: 50 - 235 - 1020
Minimum - Maximum: 5 - 9685

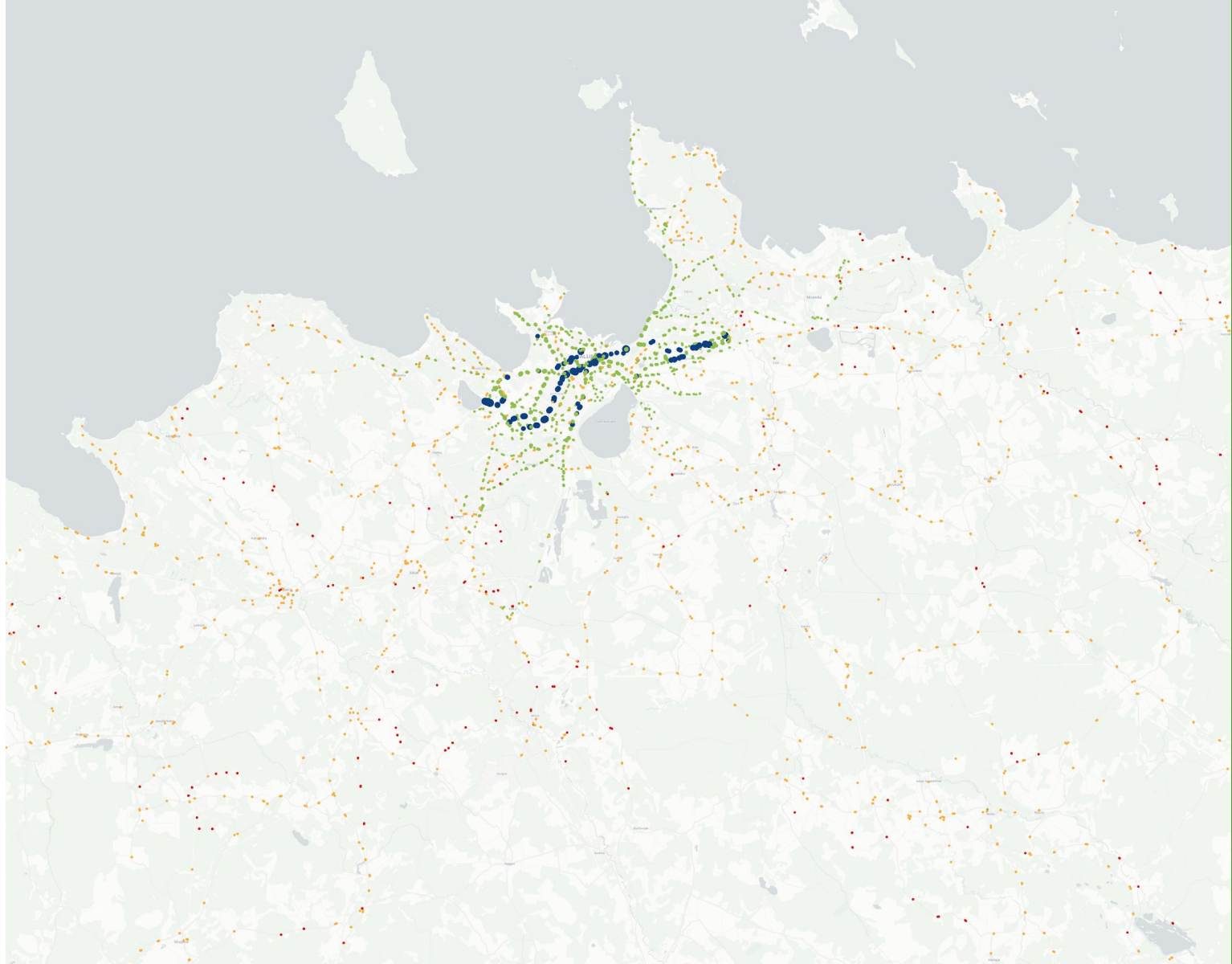
Frequency of Trips

1 - 15

15 - 500

500 - 5000

5000 - 10000



Average Departure Delay

This metric corresponds to a stop's average departure delay in minutes for the weekdays of the week of Oct 7, 2019.

The Thorebi and Ridango data were merged. The date strings were then converted into datetime objects so that delay could be calculated (actual departure minus planned departure). This metric was then calculated as the average of these delays from the stop in question for all departures between Oct 7 and Oct 11 (weekdays of the week of Oct 7, 2019).

Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 1,029
25 - 50 - 75: 0,74 - 1,3 - 2,07
Minimum - Maximum: -392,27 - 9,57

Average Departure Delay

Early

< -20

-20 < -15

-15 < -10

-10 < 5

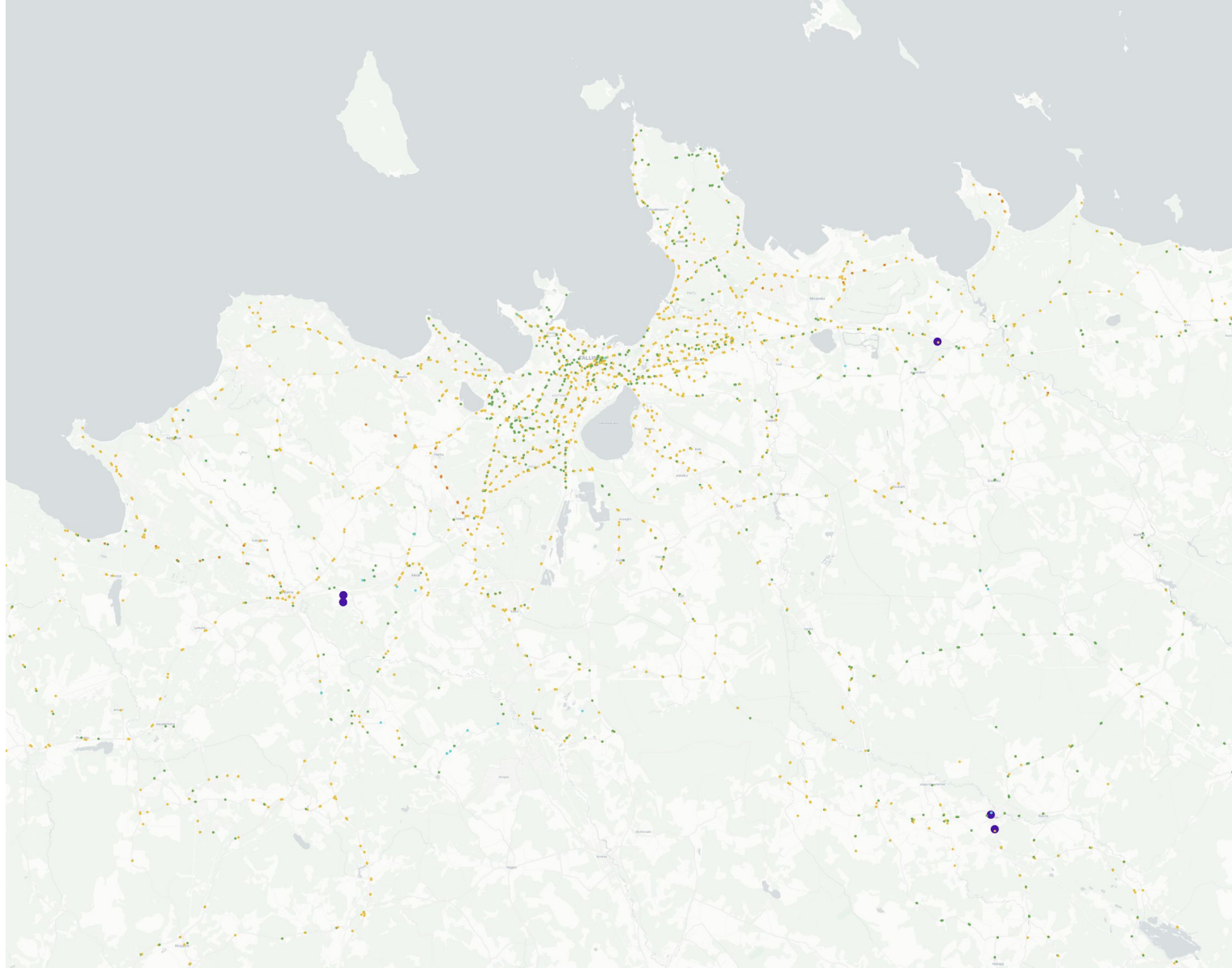
-5 < -1

-1 < 1 (on-time)

1 < 5

5 < 10

Late



On Time Departure Percentage

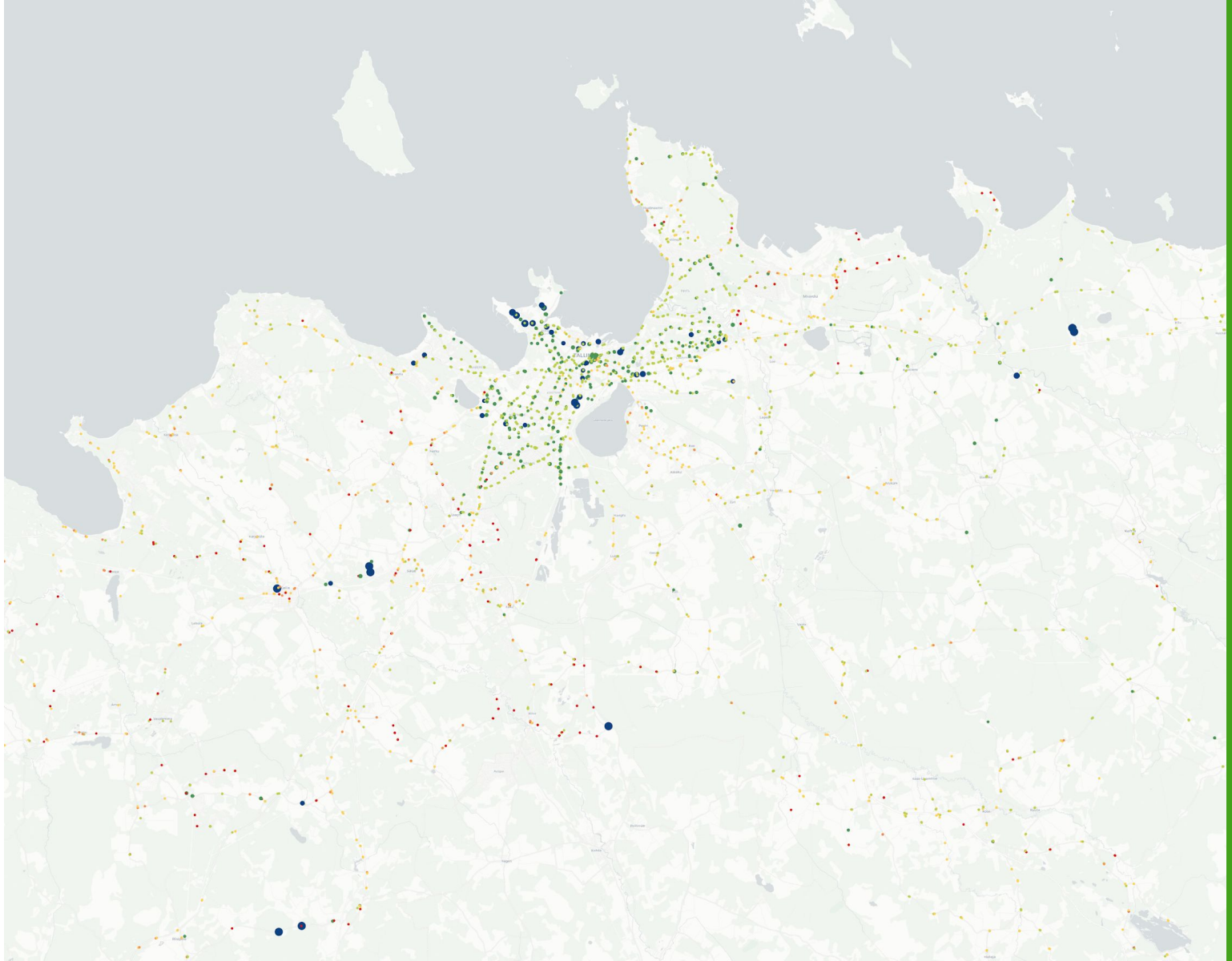
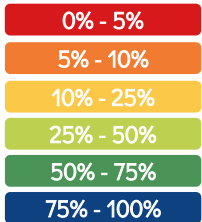
This metric corresponds to a stop's percentage of trips that were on time (1 minute tolerance) during the weekdays of the week of Oct 7, 2019.

The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the percentage of these delays that were within the tolerance (1 minute in both directions).

Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 31.08
25 - 50 - 75: 17.07 - 30 - 43.71
Minimum - Maximum: 0 - 100

On Time Departure Percentage



Regional bus operators (Tallinn municipal transit excluded):

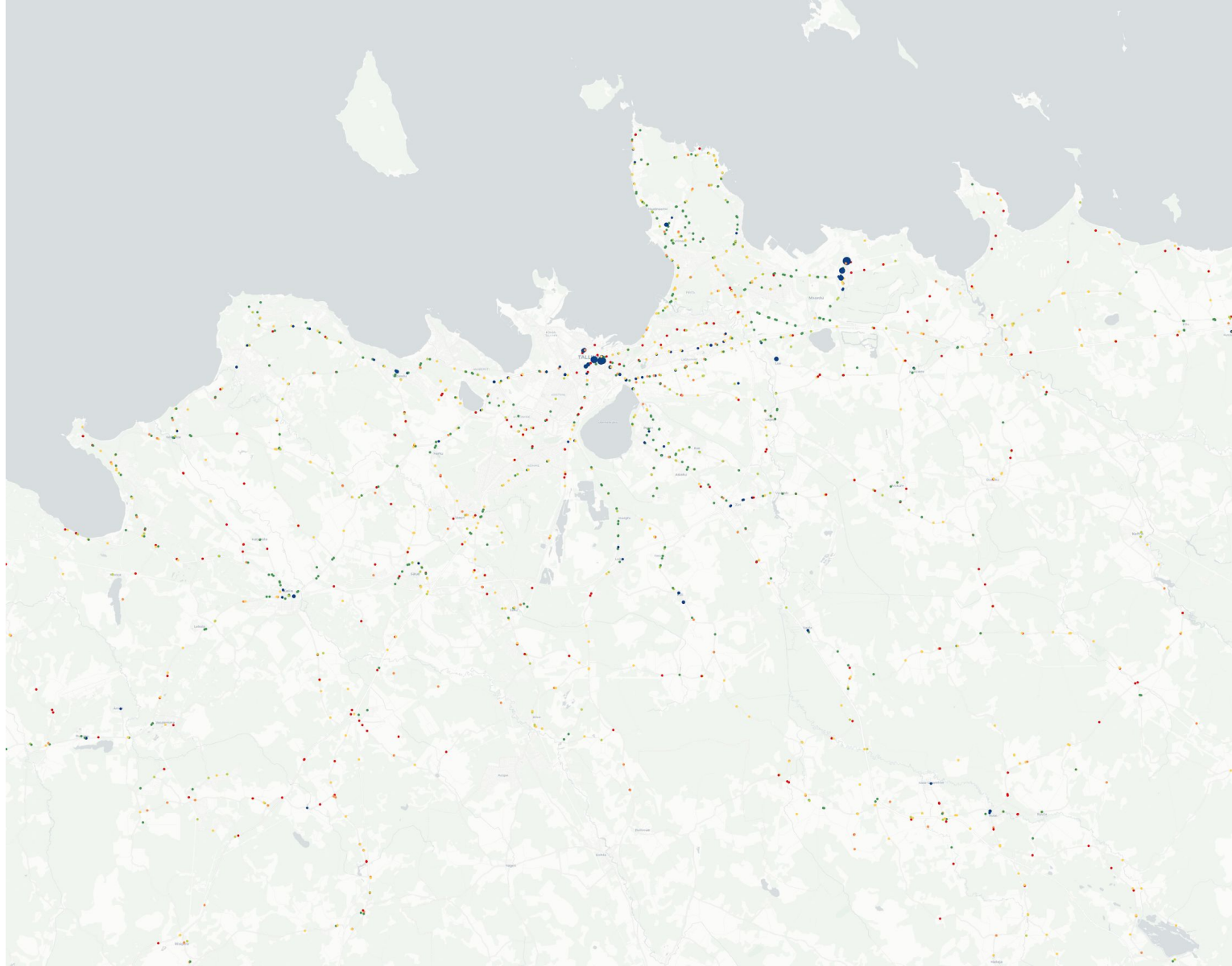
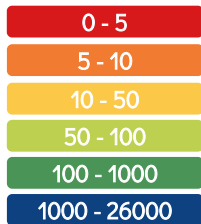
(aka Main + Local Line Load)

This metric corresponds to a stop's total weekday person load of departures on both local lines (lines contained within municipal borders) and main lines (county lines that cross municipal borders) for all weekdays during the entirety of October, 2019. A subset of the dataset was extracted for each unique stop_code. This metric is the sum of the total monthly weekday average for both the main line load and local line load for each stop_code.

Data Source/Provider: Ridango
Date: Oct 2019, average of all work week days

Mean: 351
25 - 50 - 75: 9 - 40 - 169
Minimum - Maximum: 1 - 25403

Main + Local Line Load



Tallinn municipal transit (bus+tram+trolley): (Card + Driver Check Ins)

This metric corresponds to a stop's total number of checkins made via card and directly to the driver during weekdays of the week of Oct 7, 2019.

The dataset was filtered for weekdays using the day_code column. With that subset, a subset for each unique stop_code was created, and for each of those, the total number of card check ins and driver tickets sold (driver check ins) were calculated as this metric.

Data Source/Provider: Ridango

Date: Oct 7, 2019 - Oct 13, 2019

Mean: 1192.29

25 - 50 - 75: 95.50 - 360 - 1354

Minimum - Maximum: 0 - 24396

Tot Passengers check-ins on weekdays

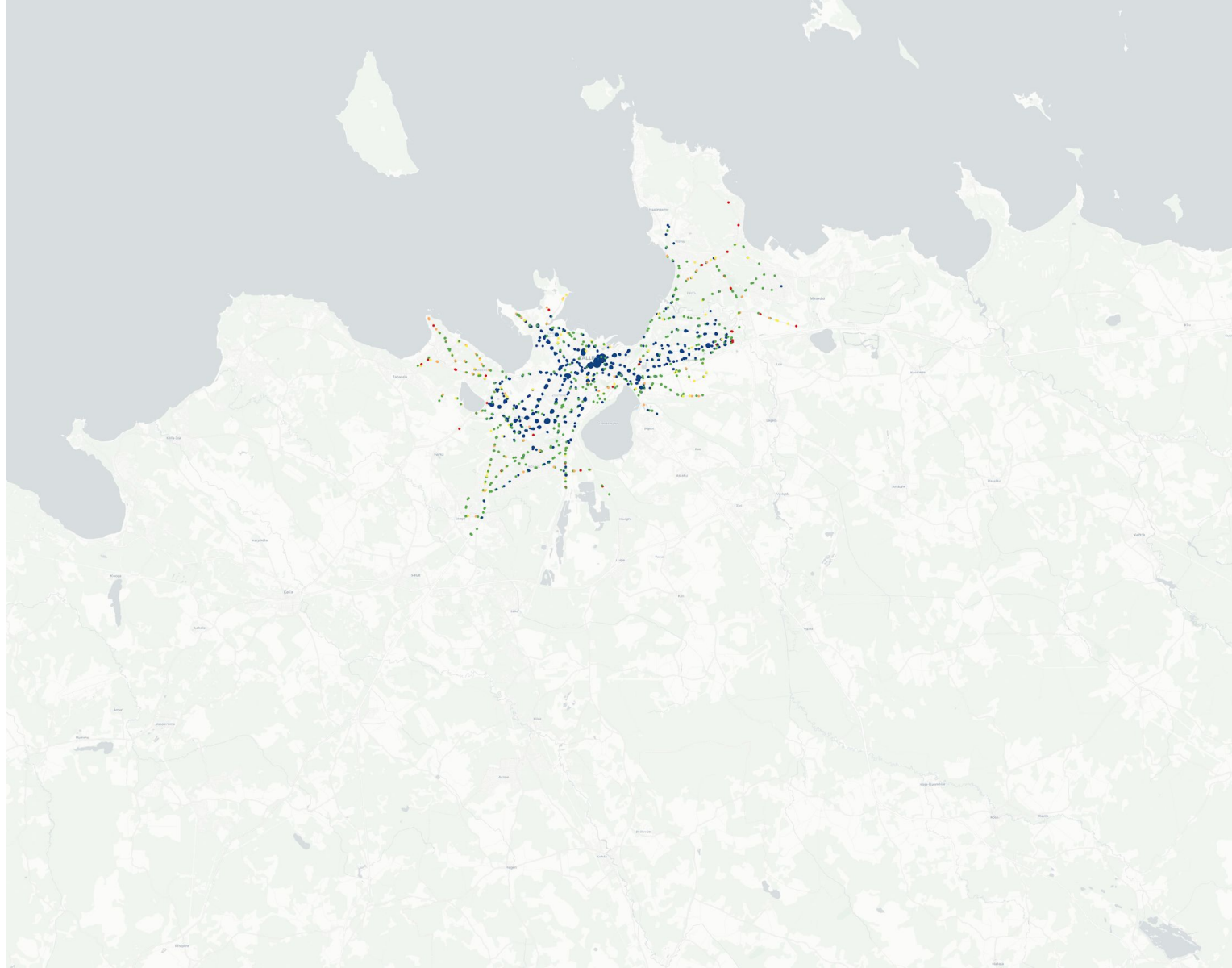
0 - 5

5 - 20

20 - 50

50 - 500

500 - 25000



Population

This metric corresponds to the total population within a given buffer from a stop. The populations of the following age subgroups were also calculated: 0-14, 15-64, 65 and over.

This metric was calculated by creating a buffer (100, 500 and 1000m) around a stop and storing the number of population units (1km by 1km) from the census that intersected with the buffer, summing all of the intersecting populations values -- the total, as well as the aforementioned subgroups.

Data Source/Provider: Census

Date: 2011

For 100m buffer:

Mean: 2475.90

25 - 50 - 75: 32 - 326 - 2542

Maximum: 37237

Population

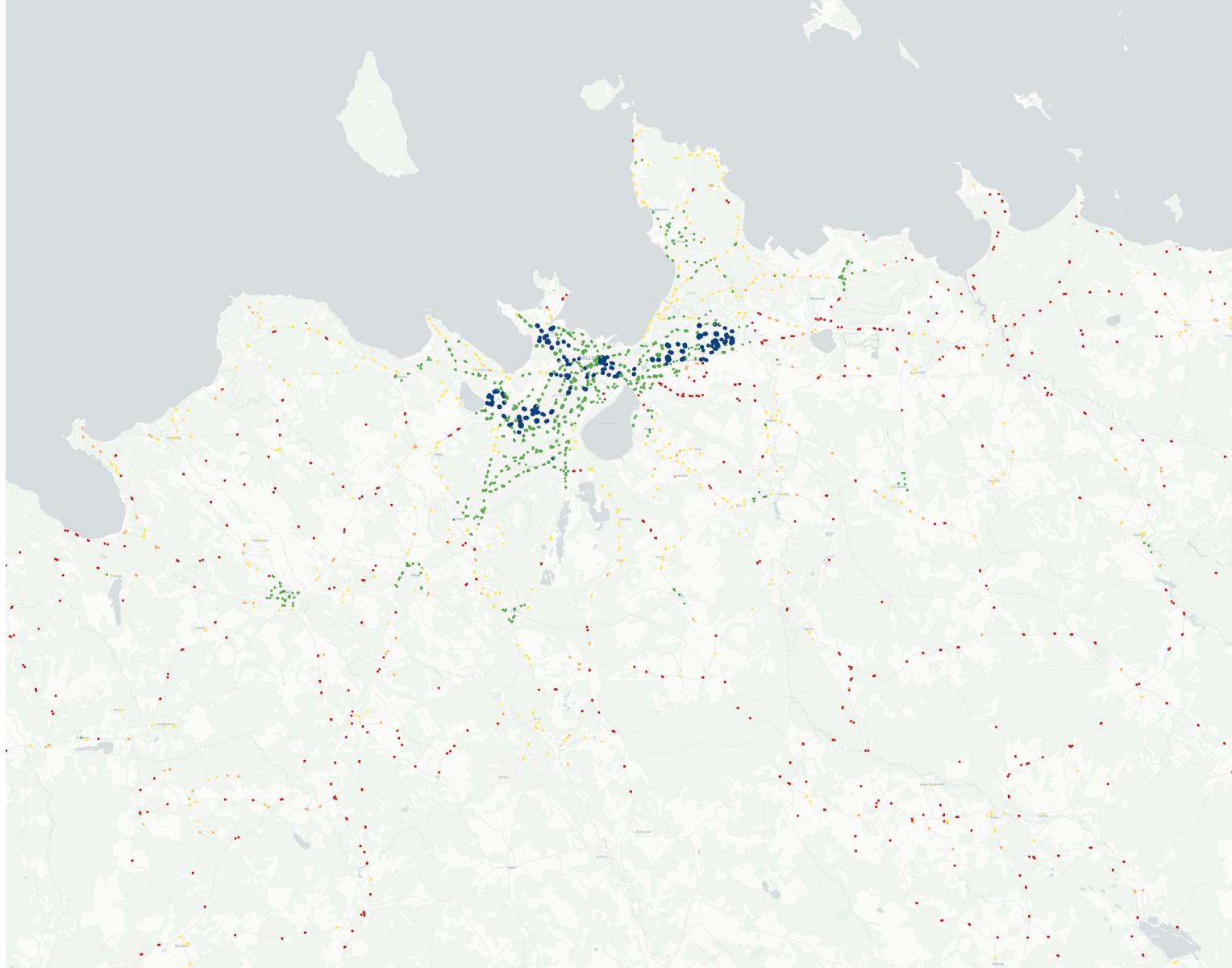
0 - 50

50 - 100

100 - 1000

1000 - 10000

10000 - 40000



Building Count

This metric corresponds to the total number of buildings within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and counting the number of building polygons within it.

Data Source/Provider: EHR (Ehitisregister)
Date: 14.01.2030

For 100m buffer:

Mean: 7.66

25 - 50 - 75: 1 - 4 - 10

Maximum: 126

Building Count

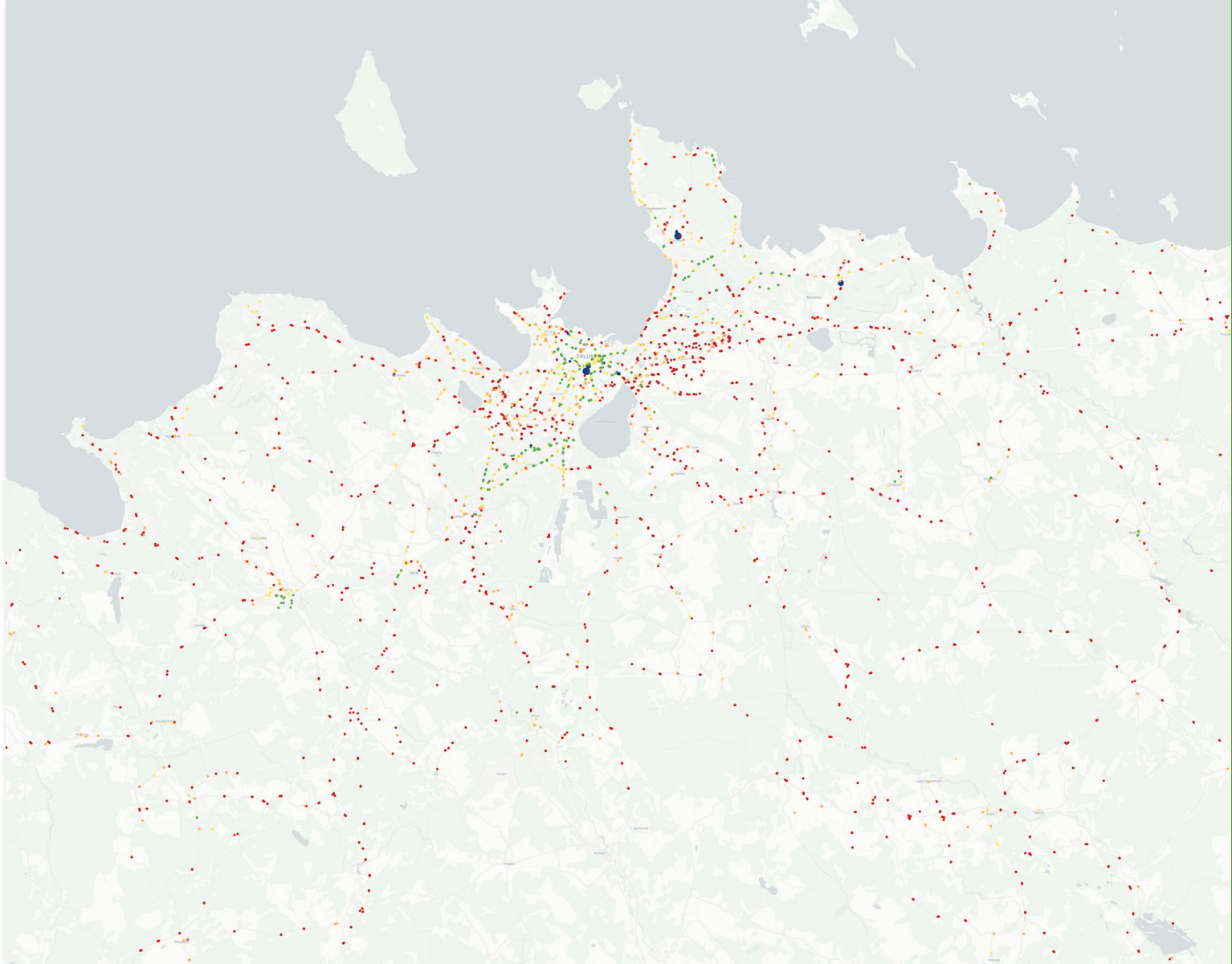
0 - 5

5 - 10

10 - 20

20 - 50

50 - 130



Built SQM

This metric corresponds to the amount of built area, in sq. metres, within a given buffer from a stop. The built area in sq. metres was also calculated for the following building type subgroups: residential, non-residential, transport, industrial / warehouse, accommodation / catering, commercial /service, office, entertainment, education, health / other public.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and summing the total built SQM (in total as well as for each of the aforementioned subgroups) of the buildings located within it.

Data Source/Provider: EHR (Ehfitsregister)
Date: 14.01.2030

For 100m buffer:

Mean: 4764

25 - 50 - 75: 66.2 - 884.7 - 4320.6

Maximum: 196614.8

Built SQM

0 -100

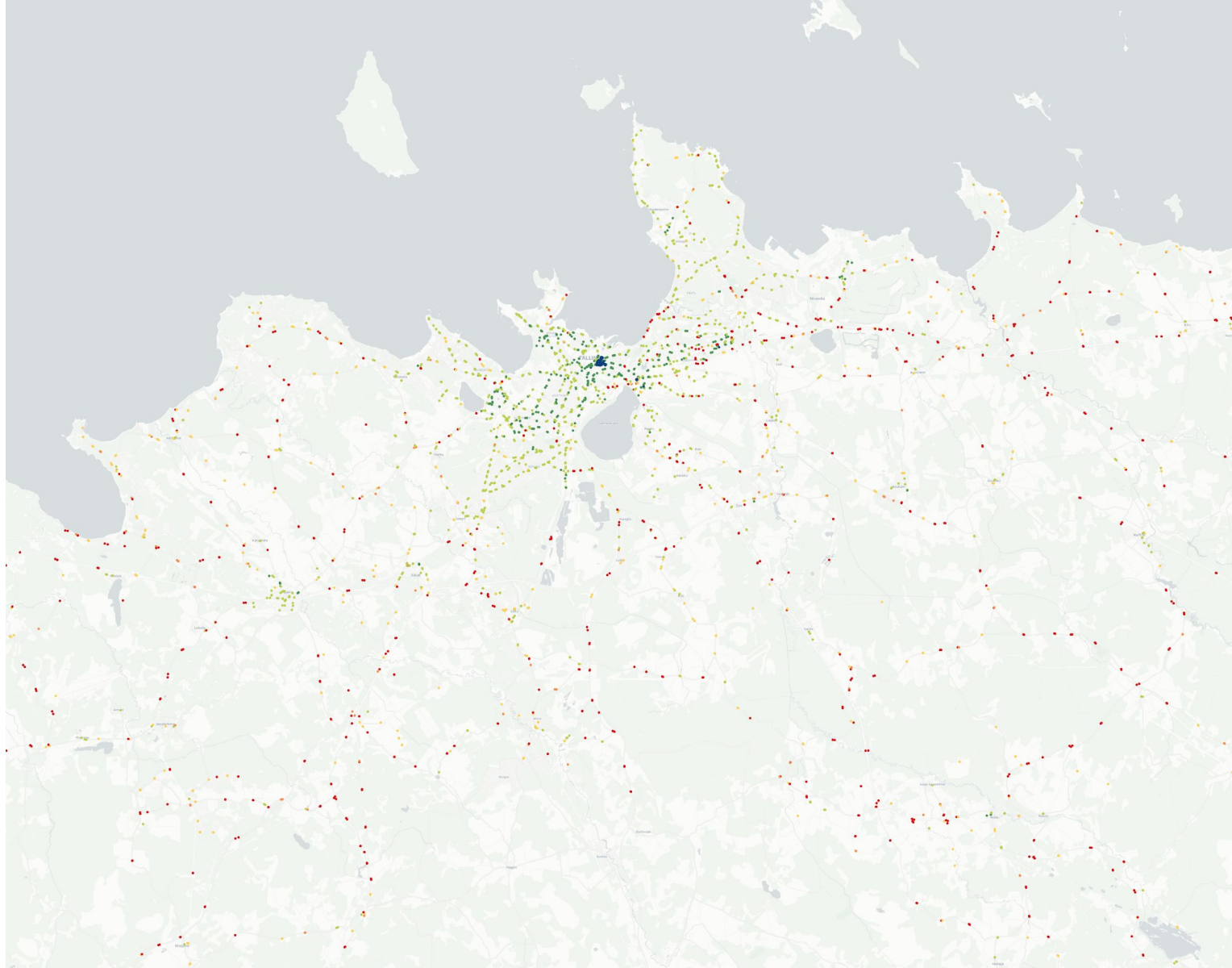
100 - 200

200 - 1000

1000 - 10000

10000 - 50000

>50000



Optional Activities Percentage

This metric corresponds to the percentage of activities that are optional activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and calculating the percentage of Foursquare activities within it that are optional.

Data Source/Provider: Foursquare
Date: 200

For 100m buffer:

Mean: 39.92

25 - 50 - 75: 0.24 - 27.26 - 79.53

Minimum - Maximum: 0 - 100

Optional Activities Percentage

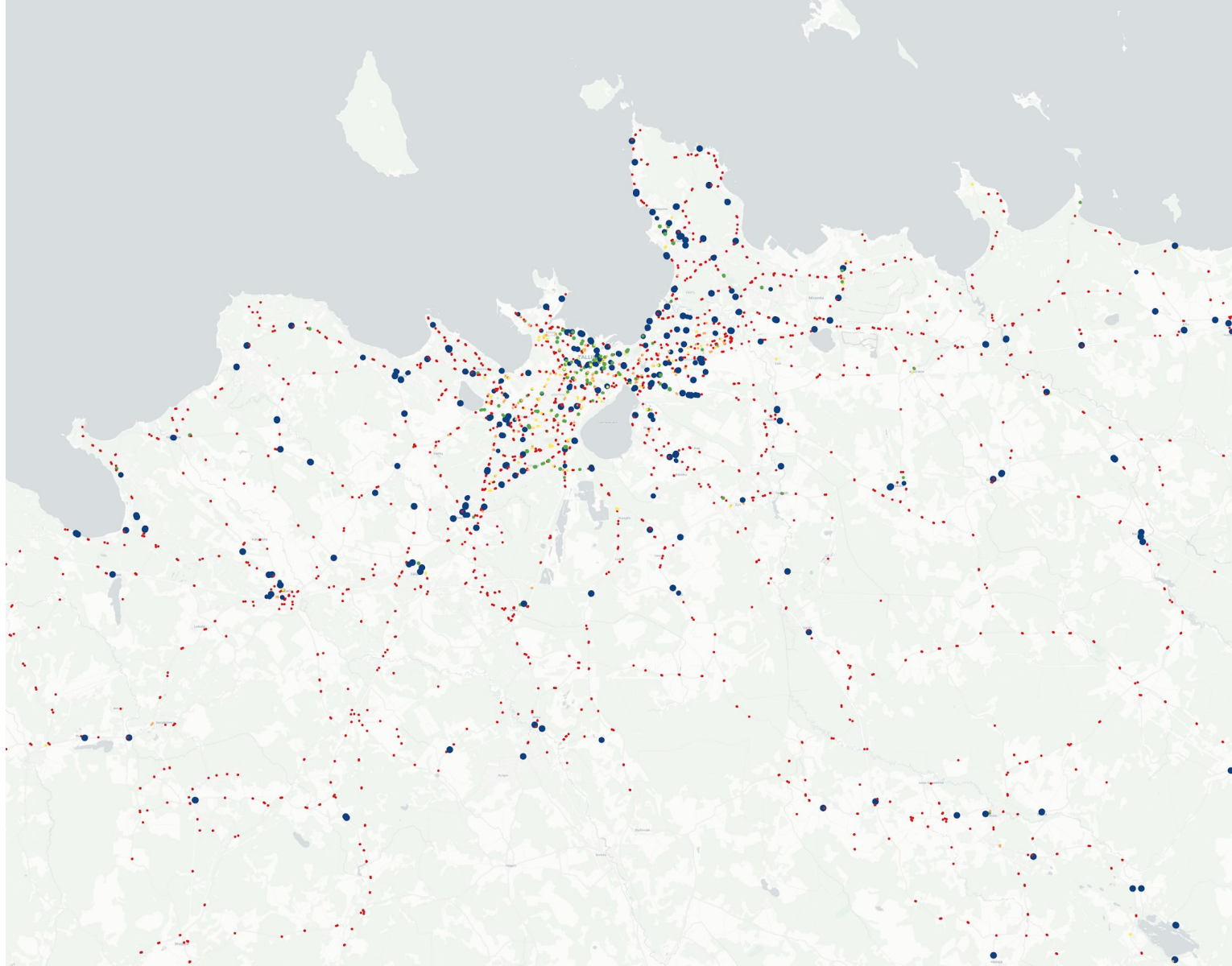
0 - 20

20 - 40

40 - 60

60 - 80

80 - 100



Necessary Activities Percentage

This metric corresponds to the percentage of activities that are necessary activities within a given buffer from a stop.

This metric was calculated by creating a buffer (100, 500, and 1000m) around a stop and calculating the percentage of Foursquare activities within it that are optional.

Data Source/Provider: Foursquare
Date: 200

For 100m buffer:

Mean: 47.40

25 - 50 - 75: 4.79 - 44.93 - 89.09

Minimum - Maximum: 0 - 100

Necessary Activities Percentage

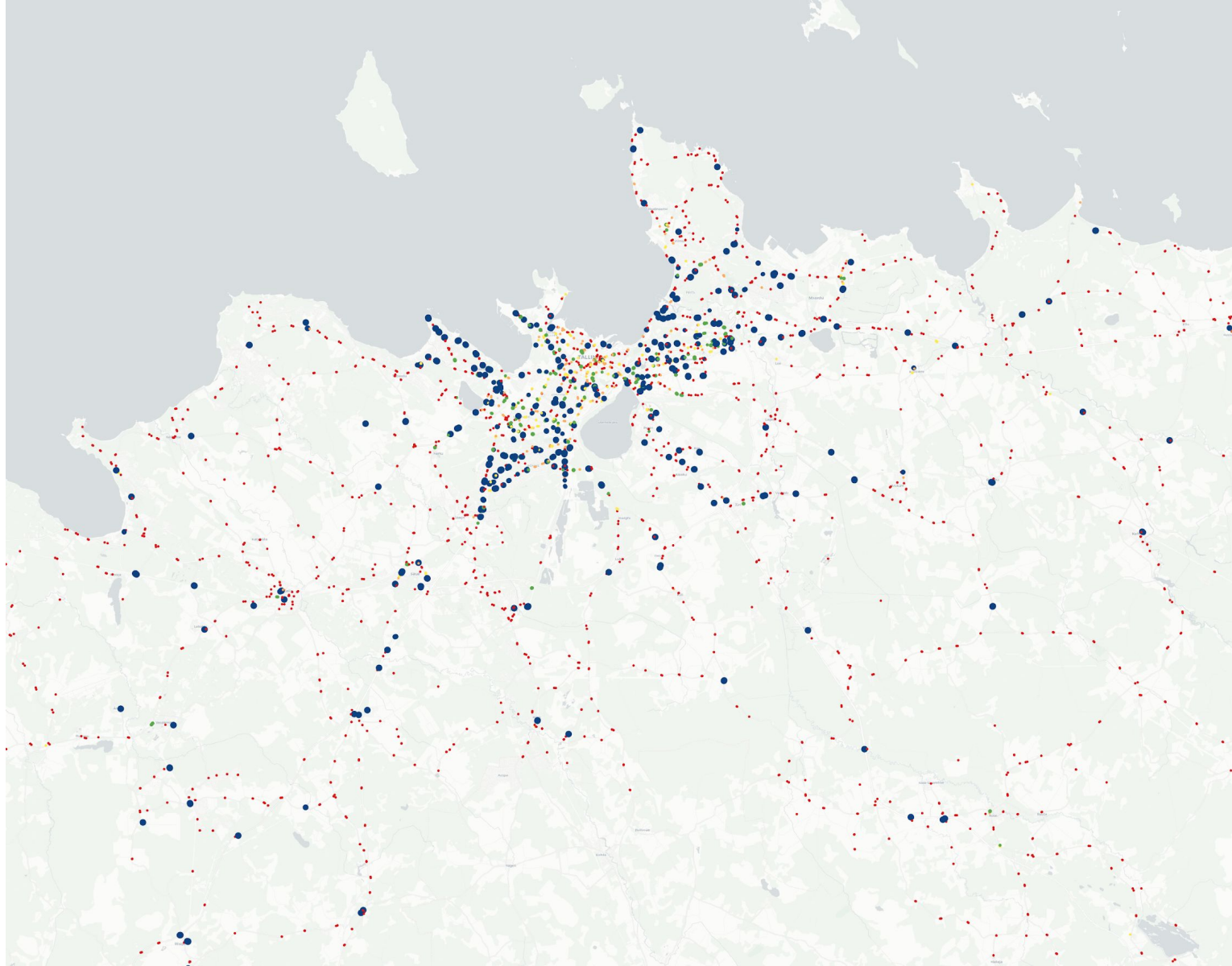
0 - 20

20 - 40

40 - 60

60 - 80

80 - 100



Ranking

POTENTIAL DEMAND SCORE

A score between 1 and 5 for each stop signalling its relative performance (for all buffers) against the other stops with respect to their Demand, which is composed of Number of Lines, Number of Reachable Selected Mobility Hubs, and Multimodality.

For each of these constituent metrics of Demand, a quantile-based discretisation function was applied, generating 5 buckets. This score is the average of those buckets across all of the constituent metrics.

PERFORMANCE SCORE

A score between 1 and 5 for each stop signalling its relative performance (for all buffers) against the other stops with respect to their Performance, which is composed of Frequency of Trips, all of the metrics pertaining to delay, and all of the metrics pertaining to popularity.

For each of these constituent metrics of Performance, a quantile-based discretisation function was applied, generating 5 buckets. This score is the average of those buckets across all of the constituent metrics.

POTENTIAL DEMAND SCORE

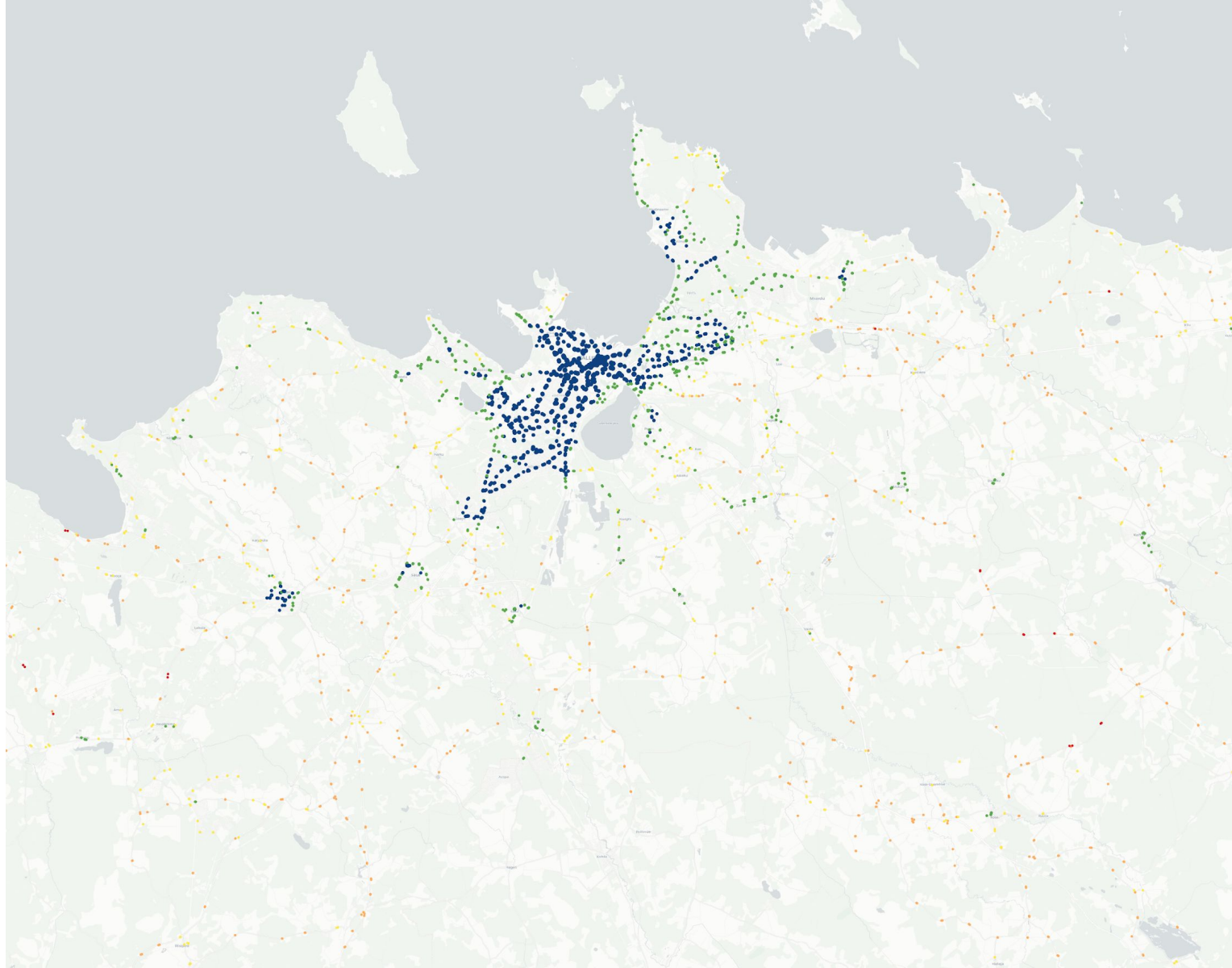
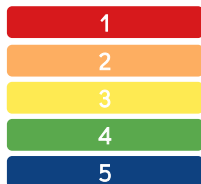
A score between 1 and 5 for each stop signalling its relative performance (for all buffers) against the other stops with respect to their Demand, which is composed of Number of Lines, Number of Reachable Selected Mobility Hubs, and Multimodality.

For each of these constituent metrics of Demand, a quantile-based discretisation function was applied, generating 5 buckets. This score is the average of those buckets across all of the constituent metrics.

Data Source/Provider: Foursquare
Date: 200

Mean: 3
25 - 50 - 75: 1.86 - 3 - 4.1
Minimum - Maximum: 1 - 5

Demand Score



PERFORMANCE SCORE

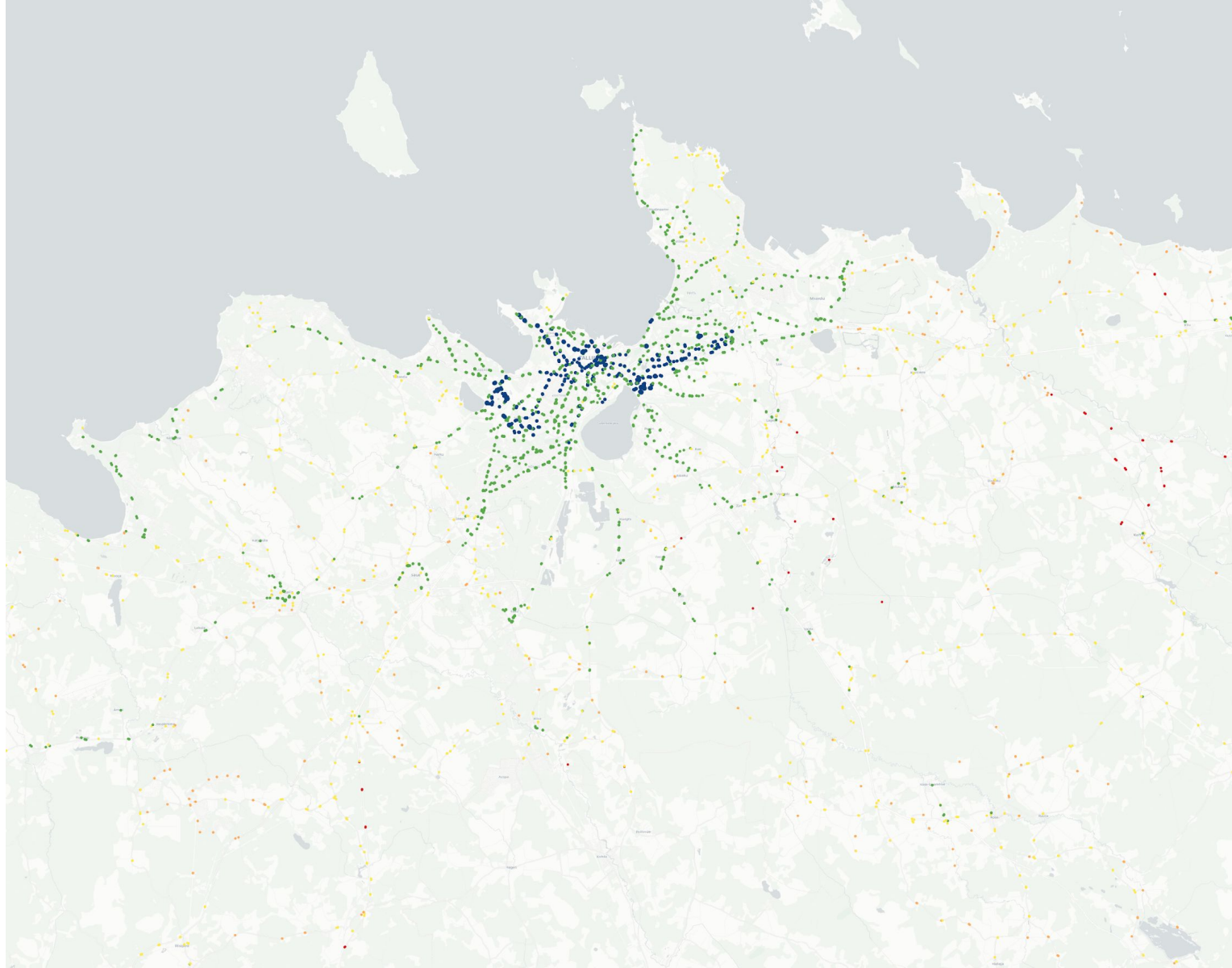
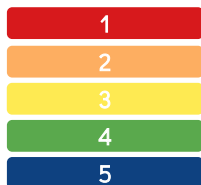
A score between 1 and 5 for each stop signalling its relative performance (for all buffers) against the other stops with respect to their Performance, which is composed of Frequency of Trips, all of the metrics pertaining to delay, and all of the metrics pertaining to popularity.

For each of these constituent metrics of Performance, a quantile-based discretisation function was applied, generating 5 buckets. This score is the average of those buckets across all of the constituent metrics.

Data Source/Provider: Foursquare
Date: 200

Mean: 3.01
25 - 50 - 75: 2.33 - 3.10 - 3.71
Minimum - Maximum: 1 - 5

Performance Score



GRAPHS

2

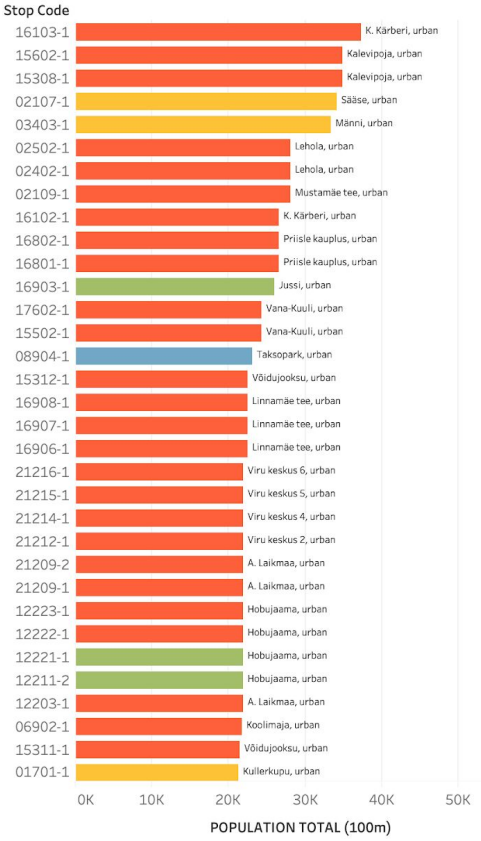
INDICATORS

Population in surroundings

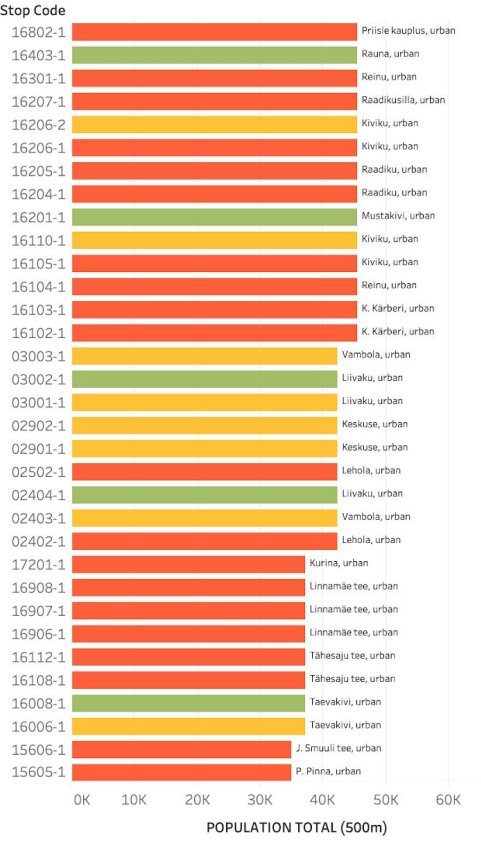
Multimodality

- 1
- 2
- 3
- 4

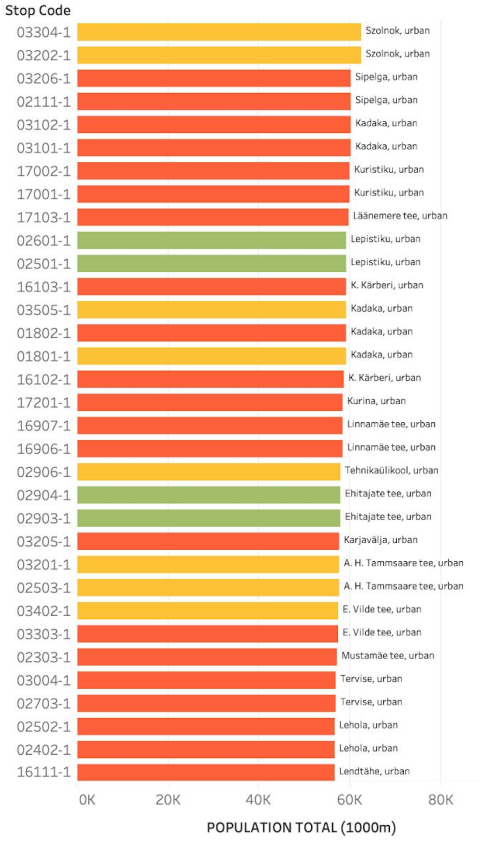
Population-100



Population-500



Population-1000



2

INDICATORS

Population in surroundings

Multimodality

- 1
- 2
- 3
- 4

Population-100



Population-500



Population-1000



2

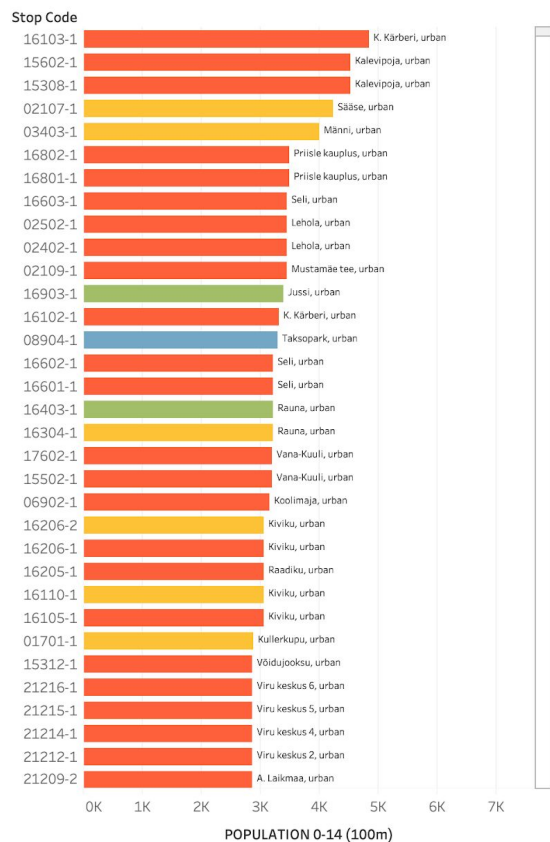
INDICATORS

Population 0-14 years old in surroundings

Multimodality



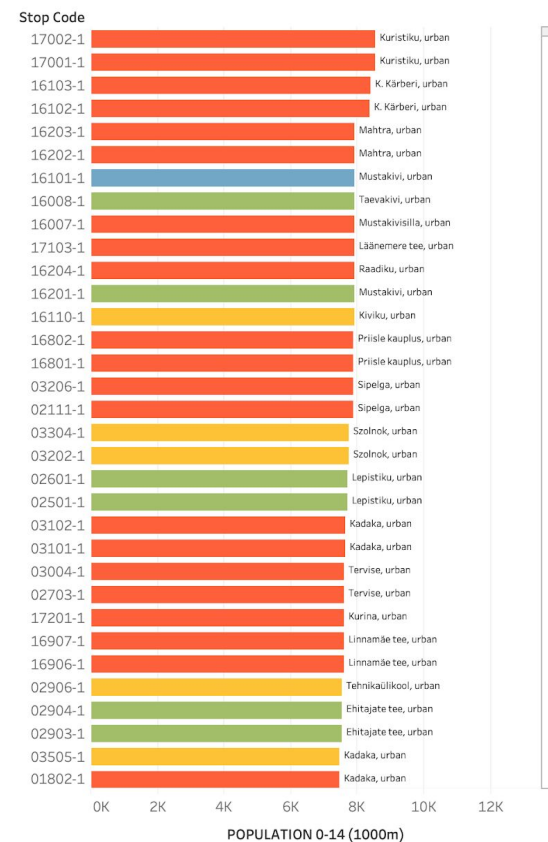
Kids-100



Kids-500



Kids-1000



HIGHEST

2

INDICATORS

Population 0-14 years old in surroundings

Multimodality



Kids-100



Kids-500



Kids-1000



LOWEST

2

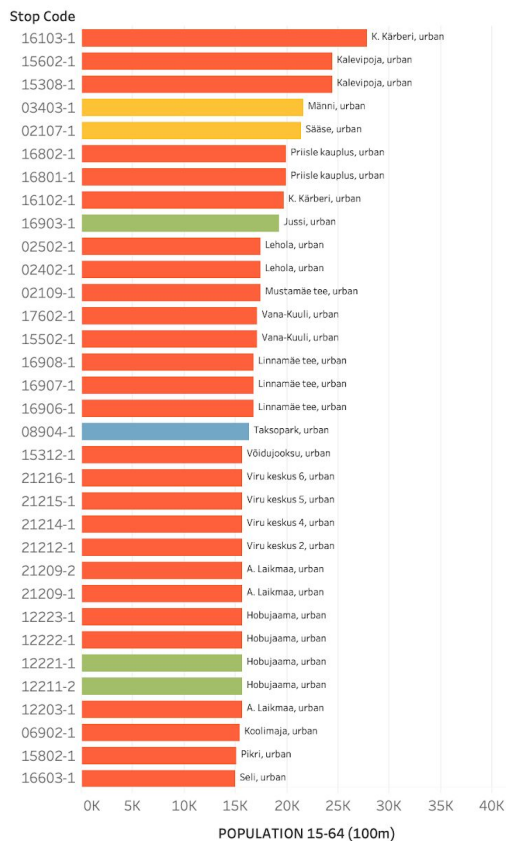
INDICATORS

Population 15-64 years old in surroundings

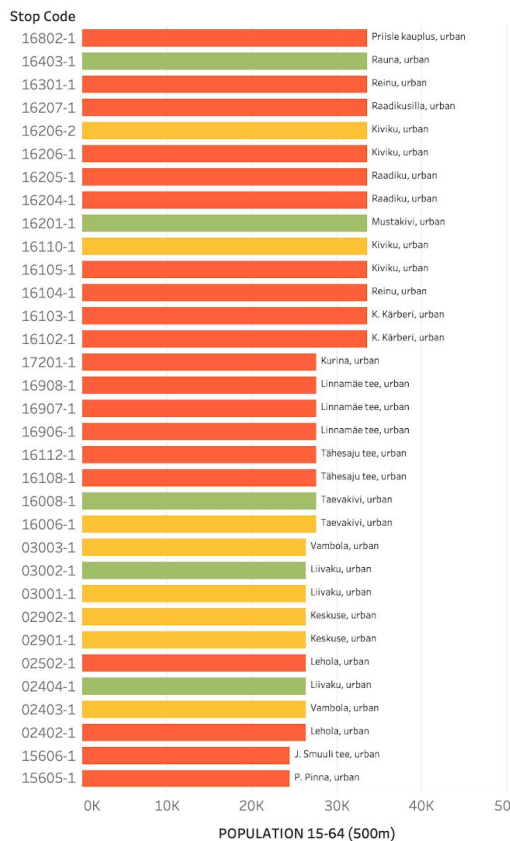
Multimodality

- 1
- 2
- 3
- 4

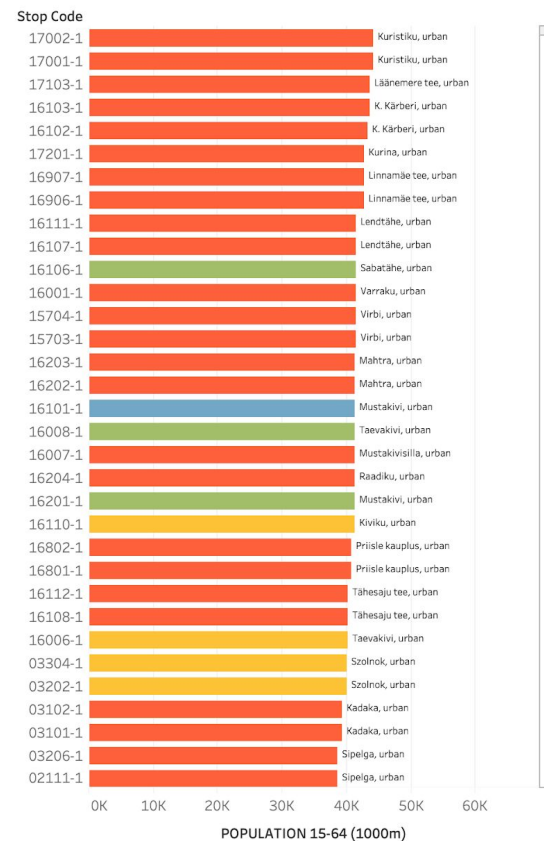
Adults-100



Adults-500



Adults-1000



HIGHEST

2

INDICATORS

Population 15-64 years old in surroundings

Multimodality

- 1
- 2
- 3
- 4

Adults-100



Adults-500



Adults-1000



2

INDICATORS

Population over 65 years old in surroundings

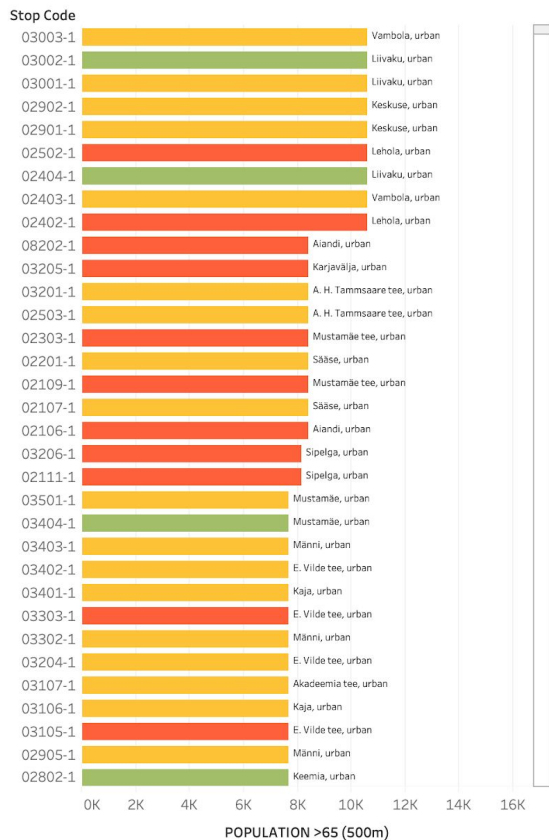
Multimodality

- 1
- 2
- 3
- 4

Senior-100



Senior-500



Senior-1000



2

INDICATORS

Population over 65 years old in surroundings

Multimodality



Senior-100



Senior-500



Senior-1000



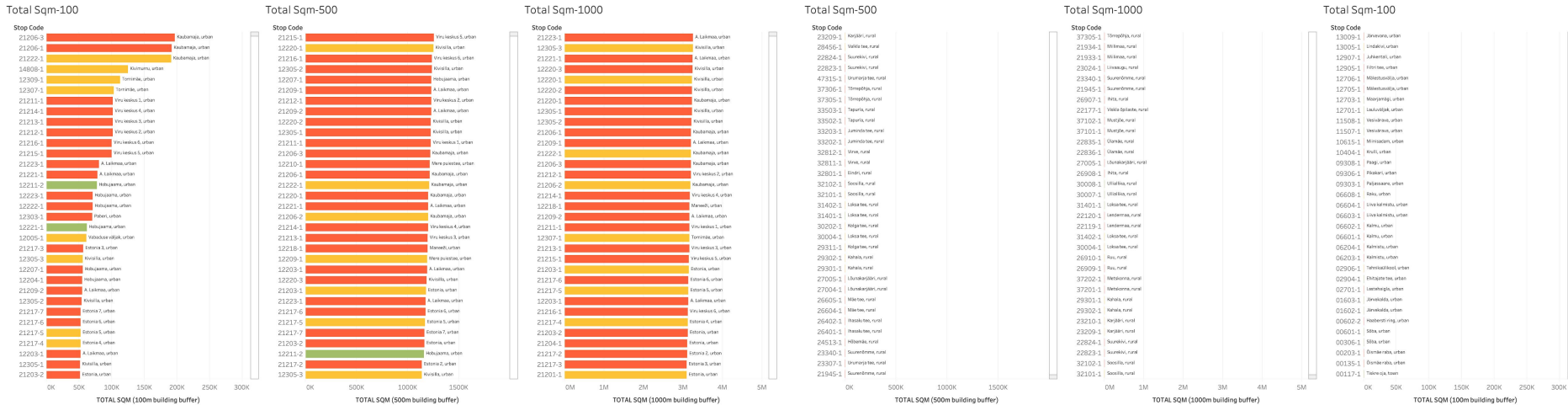
LOWEST



2 INDICATORS
SERVICE
PERFORMANCE

2 INDICATORS

Total Sqm: the amount of built area within a 100, 500, and 1000m buffer from a stop.



HIGHEST

LOWEST

Multimodality

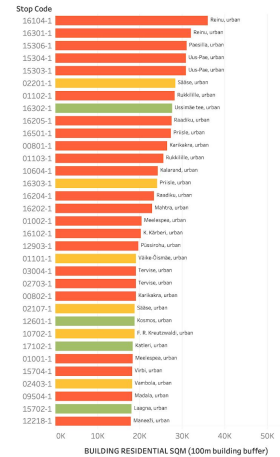
- 1
- 2
- 3
- 4

2

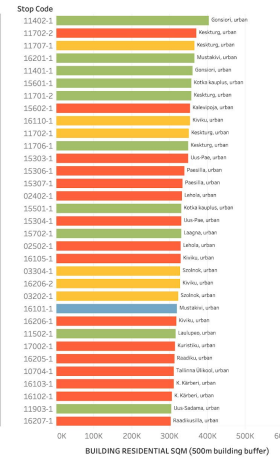
INDICATORS

Total Sqm (Residential): the amount of built residential area within a 100, 500, and 1000m buffer from a stop.

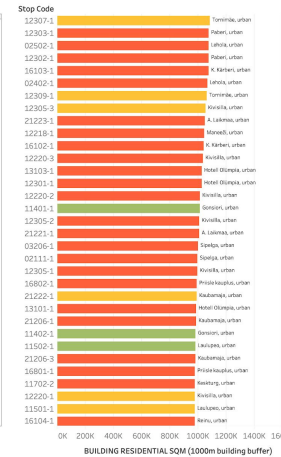
Residential Sqm-100



Residential Sqm-500



Residential Sqm-1000



Residential Sqm-100



Residential Sqm-500



Residential Sqm-1000



HIGHEST

LOWEST

Multimodality

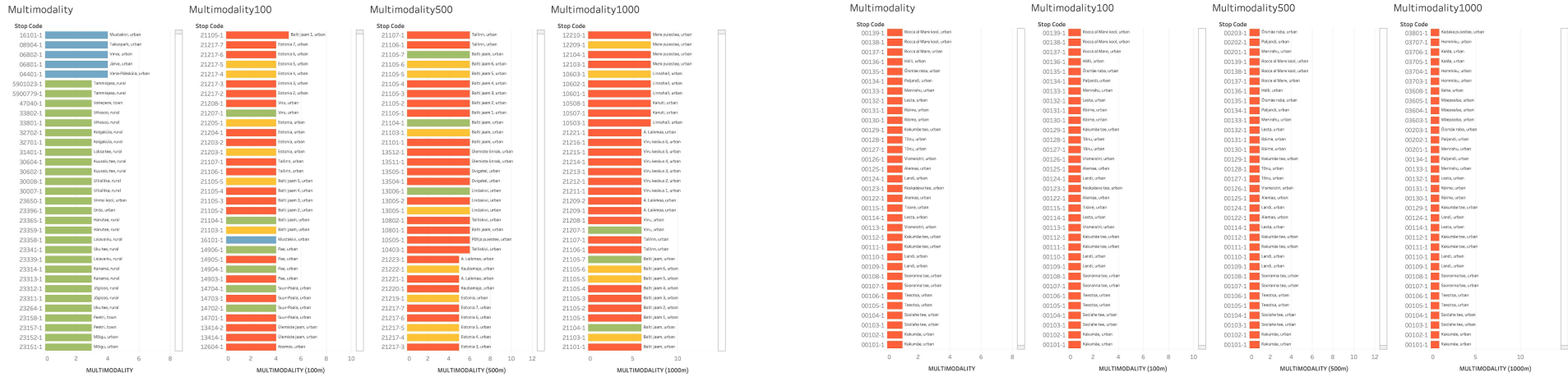
- 1
- 2
- 3
- 4



INDICATORS

MULTIMODALITY

The number of unique modes of transport departing from a stop during the weekdays of the week of Oct 7, 2019. At the moment, the following are considered distinct modes: (Bus) City line operated by a public service contract, (Bus) Commercial city line, (Bus) County commercial line, (Bus) County line served by a public service contract, Long-distance and international lines (Bus), Tram line, Trolley line, Ferry line, Train line



TOP 25%

BOTTOM 25%

Multimodality

- 1
- 2
- 3
- 4

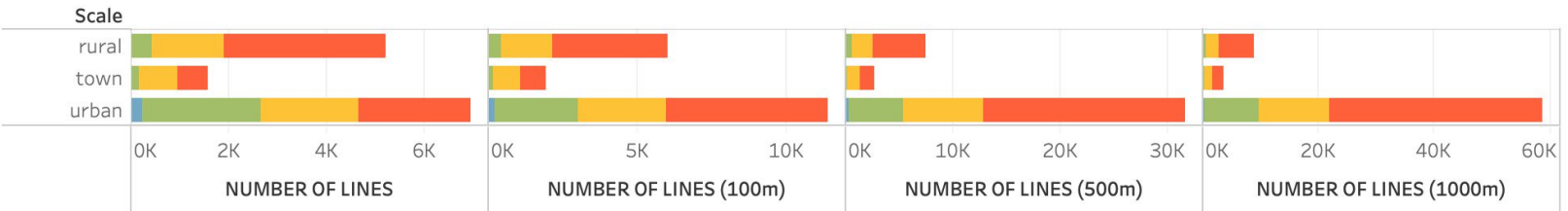
2

INDICATORS

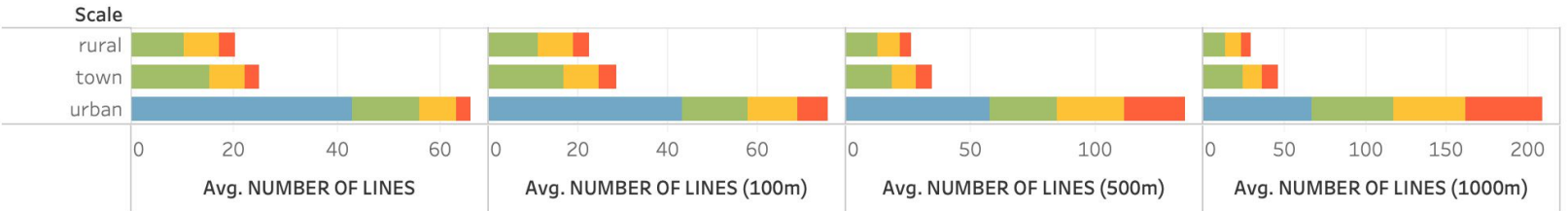
NUMBER OF LINES

The number of lines that pass through a stop during the weekdays of the week of Oct 7, 2019.

Number of Lines



AVG Number of Lines



Multimodality

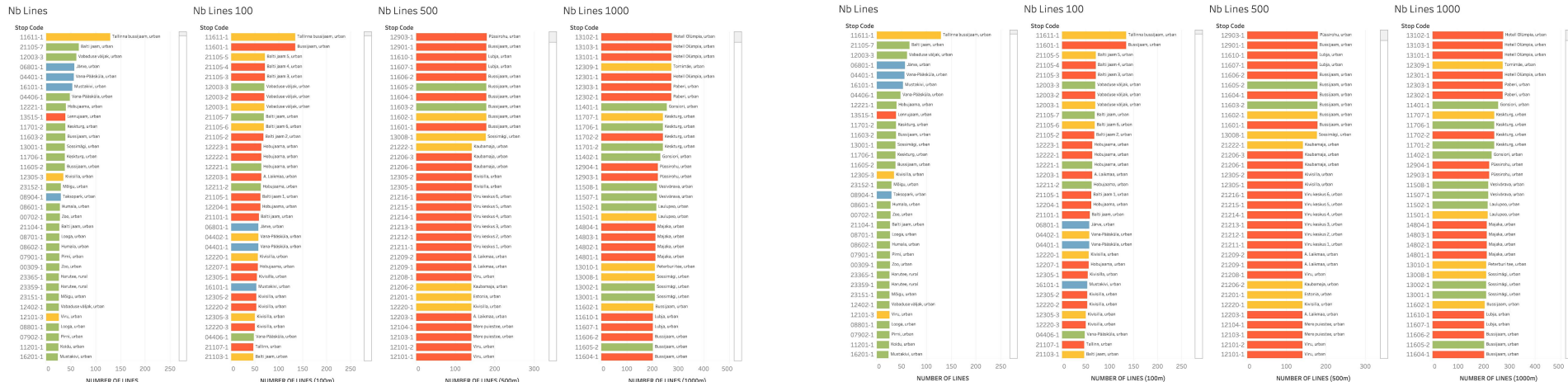
- 1
- 2
- 3
- 4



INDICATORS

NUMBER OF LINES

The number of lines that pass through a stop during the weekdays of the week of Oct 7, 2019.



TOP 25%

BOTTOM 25%

Number of Lines



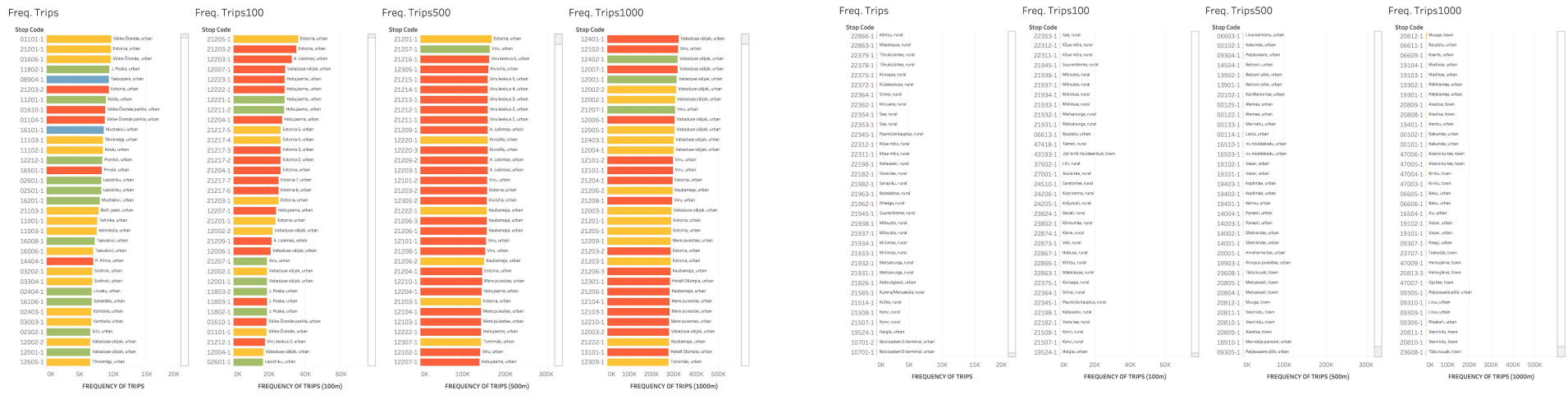
Multimodality



2 INDICATORS

FREQUENCY OF TRIPS

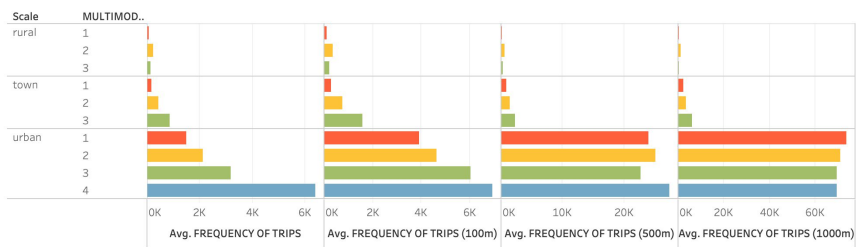
Total number of departures, across all modes, between Monday and Friday of the week of Oct 7, 2019.



TOP 25%

BOTTOM 25%

Frequency of Trips



Multimodality

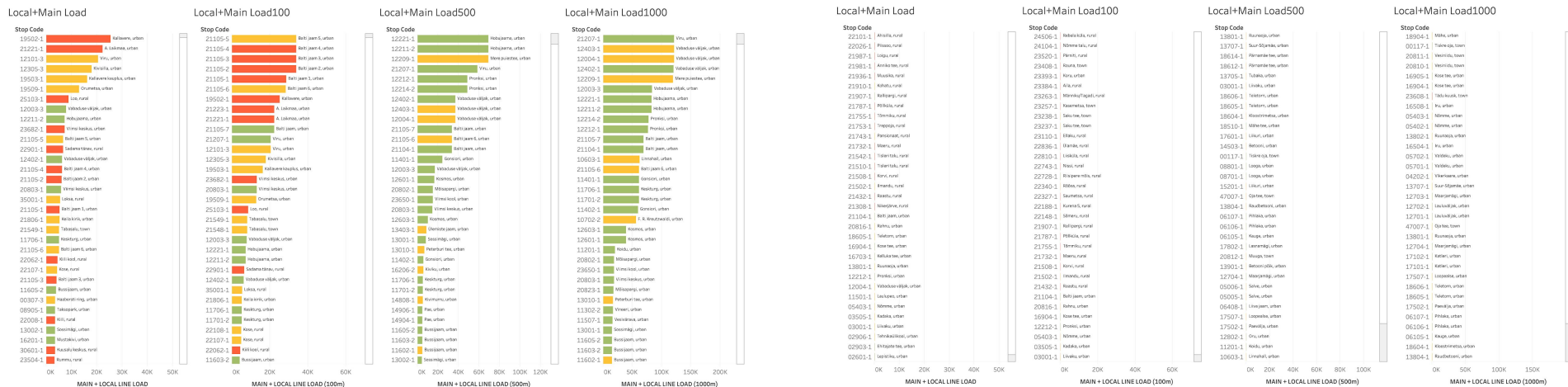
- 1
- 2
- 3
- 4

2

INDICATORS

MAIN + LOCAL LINE LOAD

The average daily departure load (main + local lines) for a stop. (Oct 2019)



TOP 25%

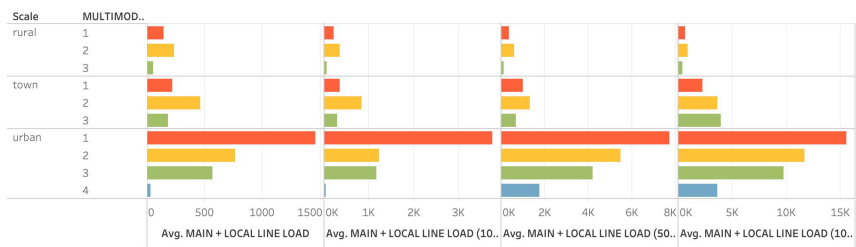
BOTTOM 25%

Regional bus operators (Tallinn excluded):
 Loading of people from PT Bus Stops
 Provider: Ridango
 Time: 2019, October, all weekdays (M-F)
 Stop code: the stop's stop code

Local line: local line (line contained within municipal borders) load

Main line: main line (locality line that crosses municipal borders) load

Local+Main Load

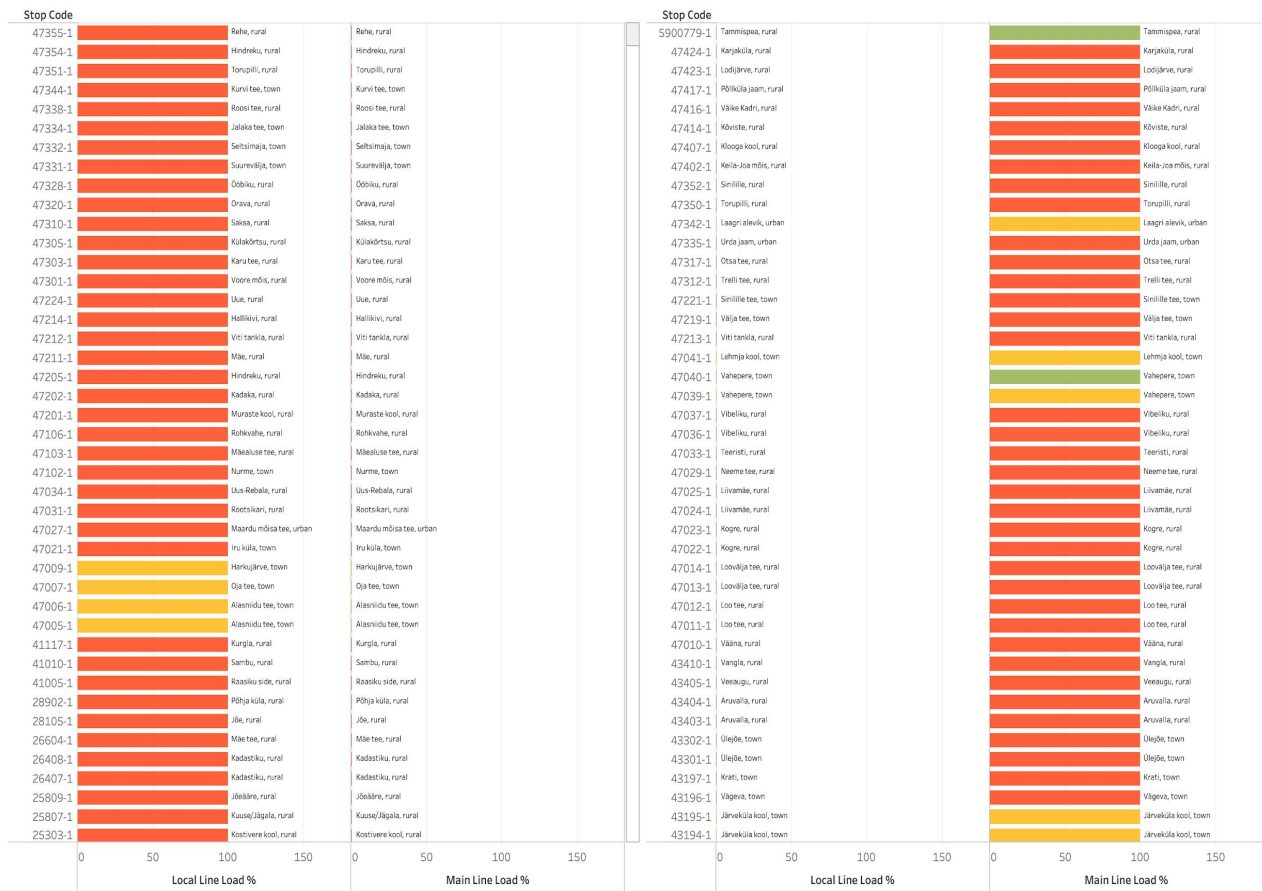


Multimodality



MAIN + LOCAL LINE LOAD

The average daily departure load (main + local lines) for a stop. (Oct 2019)



Multimodality

- 1
- 2
- 3
- 4



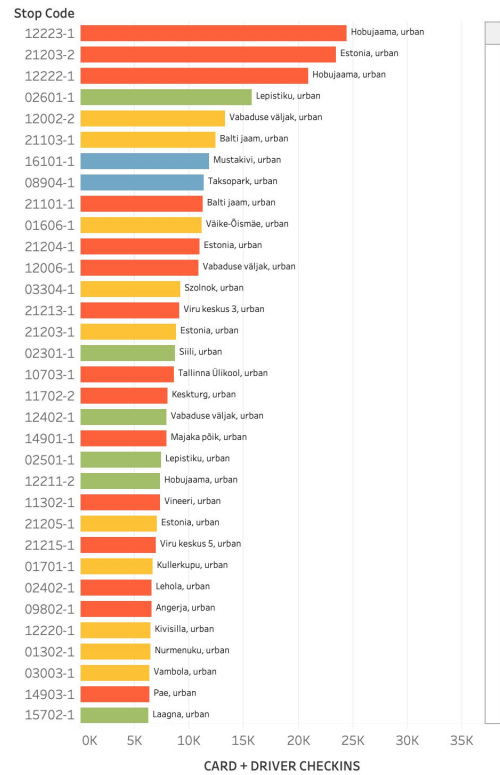
INDICATORS

Check-ins

Multimodality

- 1
- 2
- 3
- 4

Checkins



TOP 25%

Checkins



BOTTOM 25%



INDICATORS

Check-ins

Multimodality

- 1
- 2
- 3
- 4

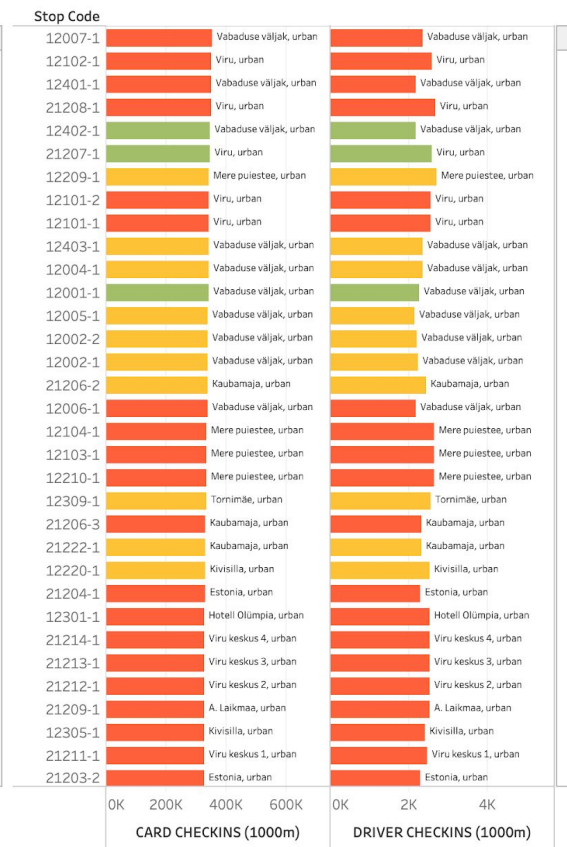
Checkins-100



Checkins-500



Checkins-1000



TOP 25%



INDICATORS

Check-ins

Multimodality

- 1
- 2
- 3
- 4

Checkins-100

Stop Code								
00310-1	Meistri, urban			Meistri, urban				
47040-1	Vahepere, town			Vahepere, town				
06105-1	Kauge, urban			Kauge, urban				
09801-1	Angerja, urban			Angerja, urban				
00102-1	Kakumäe, urban			Kakumäe, urban				
00101-1	Kakumäe, urban			Kakumäe, urban				
47005-1	Alasniidu tee, town			Alasniidu tee, town				
05105-1	Pargi, urban			Pargi, urban				
20816-1	Rahnu, urban			Rahnu, urban				
13807-1	Nuia, urban			Nuia, urban				
00125-1	Alemaa, urban			Alemaa, urban				
18903-1	Hämar tee, urban			Hämar tee, urban				
12909-1	Varre, urban			Varre, urban				
12901-1	Bussijaam, urban			Bussijaam, urban				
09305-1	Paljassaare põik, urban			Paljassaare põik, urban				
00202-1	Paljandi, urban			Paljandi, urban				
13804-1	Raudbetooni, urban			Raudbetooni, urban				
04706-1	Vääna, urban			Vääna, urban				
02112-1	Rebasemägi, urban			Rebasemägi, urban				
00303-1	Hälli, urban			Hälli, urban				
00117-1	Tiskre oja, town			Tiskre oja, town				
00116-1	Tiskre oja, town			Tiskre oja, town				
18611-1	Pärnamäe tee, urban			Pärnamäe tee, urban				
13606-1	Pühamägi, urban			Pühamägi, urban				
01104-1	Väike Õismäe parkla, urban			Väike Õismäe parkla, urban				
23707-1	Teekalda, town			Teekalda, town				
16605-1	Prisile, urban			Prisile, urban				
00305-1	Tanuma, urban			Tanuma, urban				
19101-1	Vasar, urban			Vasar, urban				
09307-1	Paagi, urban			Paagi, urban				
23608-1	Tädu kuusk, town			Tädu kuusk, town				
19401-1	Kärmu, urban			Kärmu, urban				
12907-1	Juhkentali, urban			Juhkentali, urban				
	0K 50K 100K 150K			0 500 1000				
	CARD CHECKINS (100m)			DRIVER CHECKINS (100m)				

Checkins-500

Stop Code								
06602-1	Kalmu, urban			Kalmu, urban				
00108-1	Sooranna tee, urban			Sooranna tee, urban				
20809-1	Aiaotsa, town			Aiaotsa, town				
00136-1	Hälli, urban			Hälli, urban				
09310-1	Liisu, urban			Liisu, urban				
09309-1	Liisu, urban			Liisu, urban				
09306-1	Pikakari, urban			Pikakari, urban				
18602-1	Metsakalmistu, urban			Metsakalmistu, urban				
18601-1	Metsakalmistu, urban			Metsakalmistu, urban				
20811-1	Vesiniidu, town			Vesiniidu, town				
20810-1	Vesiniidu, town			Vesiniidu, town				
06609-1	Kaarla, urban			Kaarla, urban				
19102-1	Vasar, urban			Vasar, urban				
19101-1	Vasar, urban			Vasar, urban				
00303-1	Hälli, urban			Hälli, urban				
00104-1	Soolahe tee, urban			Soolahe tee, urban				
00103-1	Soolahe tee, urban			Soolahe tee, urban				
19403-1	Koplimäe, urban			Koplimäe, urban				
19402-1	Koplimäe, urban			Koplimäe, urban				
20805-1	Metsakasti, town			Metsakasti, town				
20804-1	Metsakasti, town			Metsakasti, town				
00119-1	Jõeküla, town			Jõeküla, town				
00118-1	Jõeküla, town			Jõeküla, town				
20812-1	Muuuga, town			Muuuga, town				
06611-1	Raudalu, urban			Raudalu, urban				
00101-1	Kakumäe, urban			Kakumäe, urban				
00133-1	Merirahu, urban			Merirahu, urban				
00102-1	Kakumäe, urban			Kakumäe, urban				
09305-1	Paljassaare põik, urban			Paljassaare põik, urban				
00116-1	Tiskre oja, town			Tiskre oja, town				
23707-1	Teekalda, town			Teekalda, town				
23608-1	Tädu kuusk, town			Tädu kuusk, town				
19401-1	Kärmu, urban			Kärmu, urban				
	0K 200K 400K			0K 1K 2K 3K				
	CARD CHECKINS (500m)			DRIVER CHECKINS (500m)				

Checkins-1000

Stop Code								
20813-3	Harkujärve, town			Harkujärve, town				
13805-1	Sõjamäe, urban			Sõjamäe, urban				
00201-1	Merirahu, urban			Merirahu, urban				
20809-1	Aiaotsa, town			Aiaotsa, town				
20808-1	Aiaotsa, town			Aiaotsa, town				
06605-1	Raku, urban			Raku, urban				
20807-1	Hansunõmme, town			Hansunõmme, town				
20806-1	Hansunõmme, town			Hansunõmme, town				
06606-1	Raku, urban			Raku, urban				
47007-1	Oja tee, town			Oja tee, town				
20811-1	Vesiniidu, town			Vesiniidu, town				
20810-1	Vesiniidu, town			Vesiniidu, town				
19104-1	Madikse, urban			Madikse, urban				
19103-1	Madikse, urban			Madikse, urban				
19302-1	Pähklamäe, urban			Pähklamäe, urban				
19301-1	Pähklamäe, urban			Pähklamäe, urban				
19102-1	Vasar, urban			Vasar, urban				
19101-1	Vasar, urban			Vasar, urban				
00119-1	Jõeküla, town			Jõeküla, town				
00104-1	Soolahe tee, urban			Soolahe tee, urban				
00103-1	Soolahe tee, urban			Soolahe tee, urban				
06611-1	Raudalu, urban			Raudalu, urban				
06609-1	Kaarla, urban			Kaarla, urban				
19403-1	Koplimäe, urban			Koplimäe, urban				
19402-1	Koplimäe, urban			Koplimäe, urban				
09310-1	Liisu, urban			Liisu, urban				
09309-1	Liisu, urban			Liisu, urban				
09306-1	Pikakari, urban			Pikakari, urban				
00102-1	Kakumäe, urban			Kakumäe, urban				
00101-1	Kakumäe, urban			Kakumäe, urban				
19401-1	Kärmu, urban			Kärmu, urban				
23707-1	Teekalda, town			Teekalda, town				
23608-1	Tädu kuusk, town			Tädu kuusk, town				
	0K 200K 400K 600K			0K 2K 4K				
	CARD CHECKINS (1000m)			DRIVER CHECKINS (1000m)				

BOTTOM 25%



INDICATORS

DEPARTURE LOAD



TOP 25%

BOTTOM 25%

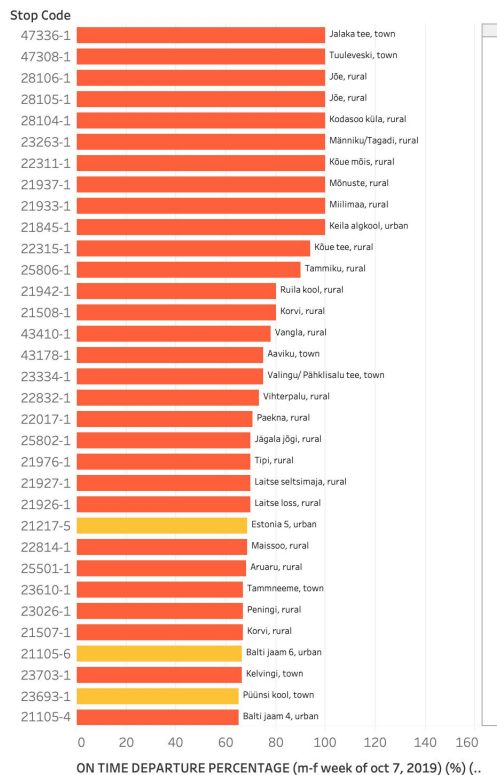
Multimodality

- 1
- 2
- 3
- 4

ON-TIME DEPARTURE PERCENTAGE

Percentage of trips that were on time between Monday and Friday of the week of Oct 7, 2019. (1 min tolerance)

OnTime%



TOP 25%

OnTime%



BOTTOM 25%

2

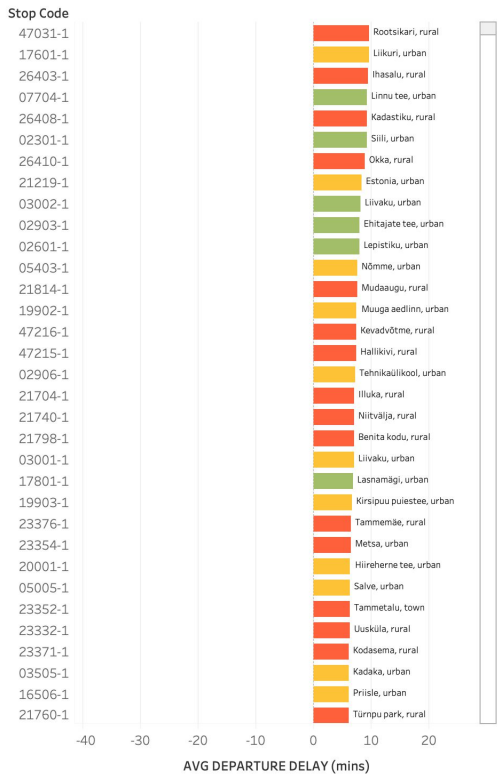
INDICATORS

Average Departure Delay

Multimodality

- 1
- 2
- 3
- 4

Avg Delay



TOP 25%

Avg Delay



BOTTOM 25%

2 INDICATORS

TOTAL DELAY
The total delay, in minutes, between Monday and Friday of the week of Oct 7, 2019.



TOP 25%

BOTTOM 25%

Multimodality

- 1
- 2
- 3
- 4

2

INDICATORS

Reachable selected

REACH OF MOBILITY HUBS

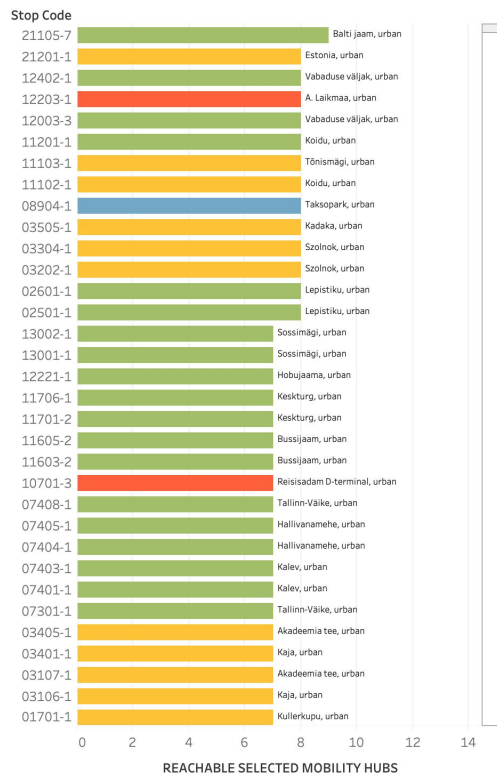
The number of selected mobility hubs reached *directly* from a stop during the weekdays of the week of Oct 7, 2019.

1. Hobujaama+ Viru keskus+ A. Laikmaa
2. Estonia
3. Balti jaam
4. Lennujaam
5. Kristiine (Taksopark+ Lilleküla)
6. Haabersti
7. Vabaduse väljak
8. Bussijaam
9. Harbor (A-terminal, D-terminal)
10. Tondi+ Kalev

Multimodality

- 1
- 2
- 3
- 4

Reachable Hubs



TOP 25%

Reachable Hubs



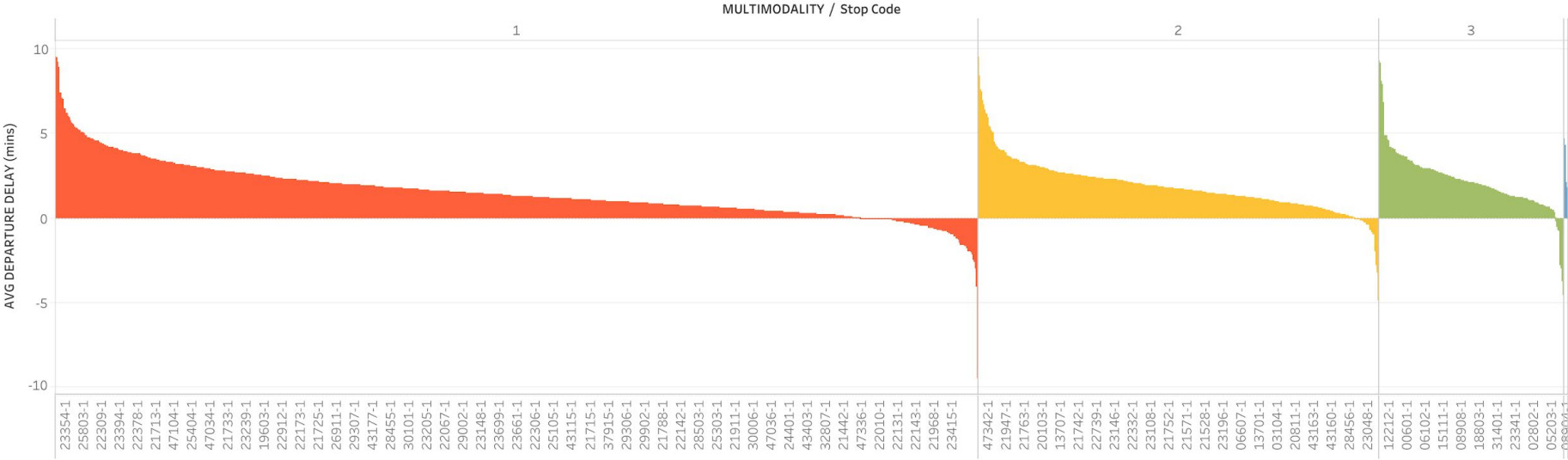
BOTTOM 25%

2

INDICATORS

MULTIMODALITY VS AVERAGE DELAY

DepartureDelay

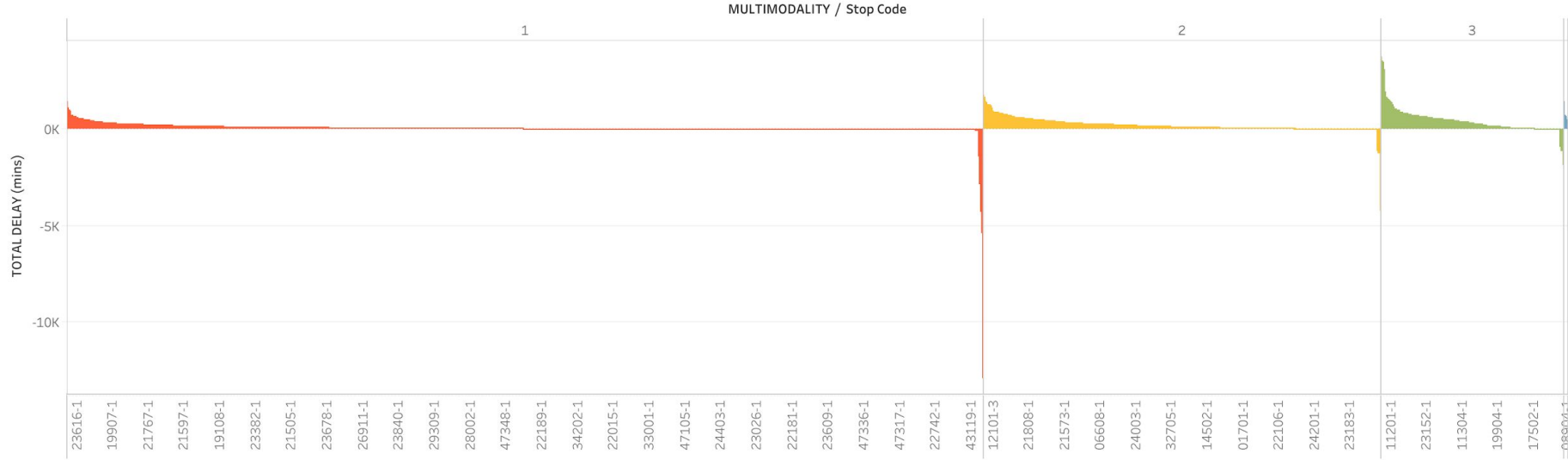




INDICATORS

MULTIMODALITY VS TOTAL DELAY

TotalDelay

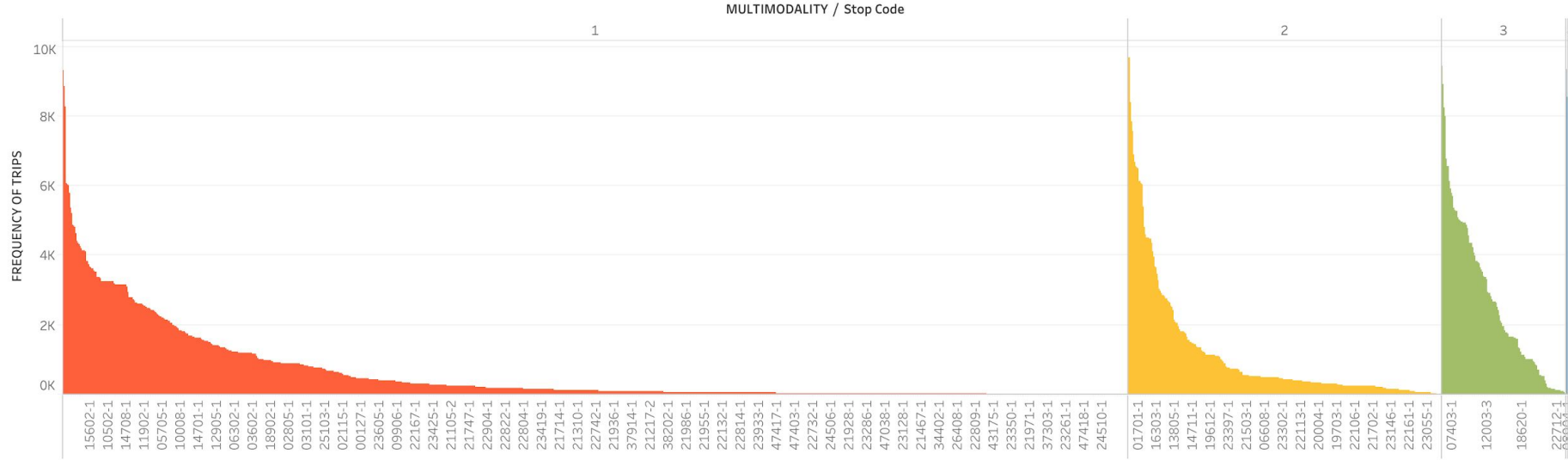




INDICATORS

MULTIMODALITY VS FREQUENCY

Driver Checkins

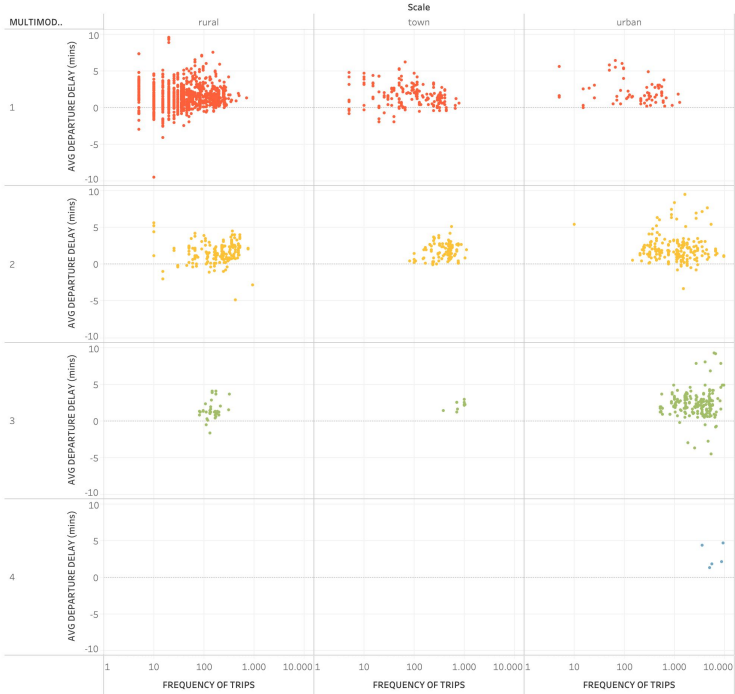


2

INDICATORS

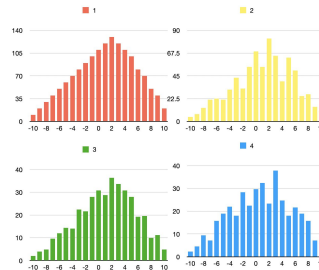
AVERAGE DELAY VS FREQUENCY

Delay VS Frequency (-10 to +10 min)



Number of public transit vehicles that have stopped at and/or departed from each stop (in week monday to friday).

Every dot is one stop.



Multimodality does not appear to be the cause of delay.

Single-mode stations are the ones carrying more delay (influenced by long trips - highway stops)

Multimodality

- 1
- 2
- 3
- 4

2

INDICATORS

CHECK-INS VS POPULATION (500m)

Checkins VS Population



Multimodality

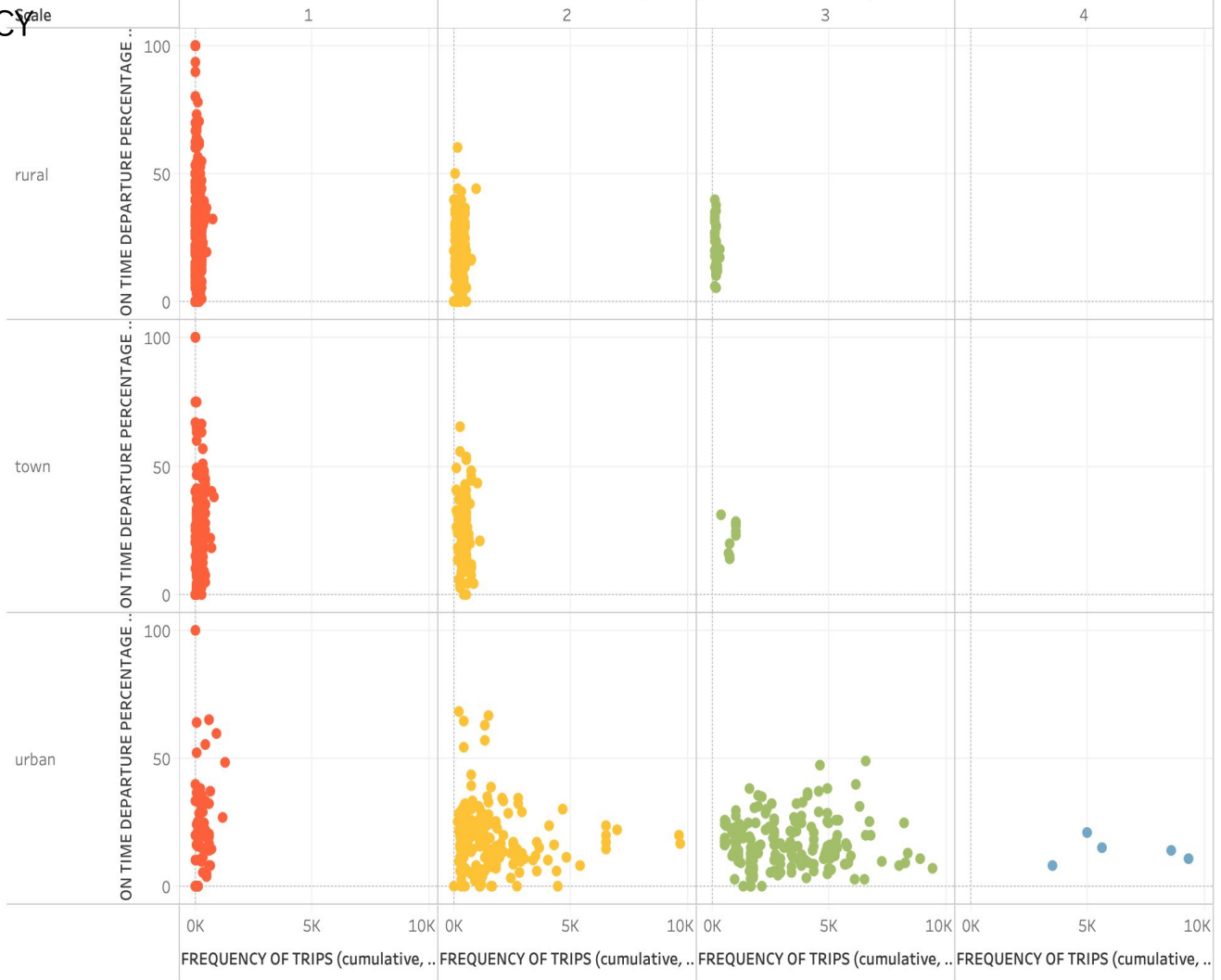
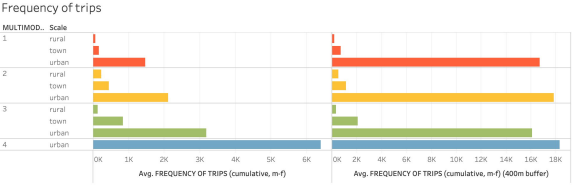
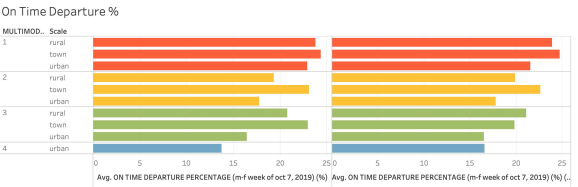
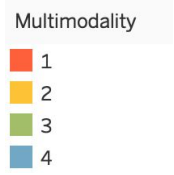
- 1
- 2
- 3
- 4

2

INDICATORS

ON TIME VS FREQUENCY

MULTIMODALITY (weekdays of week of oct 7, 2019)

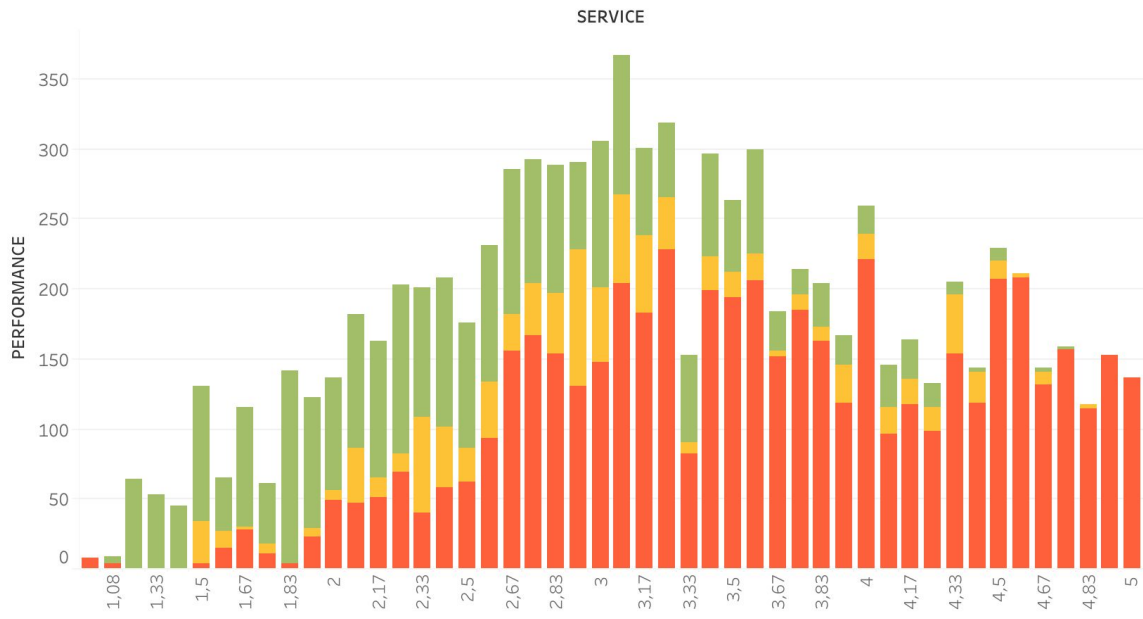


2

INDICATORS

Service - Performance

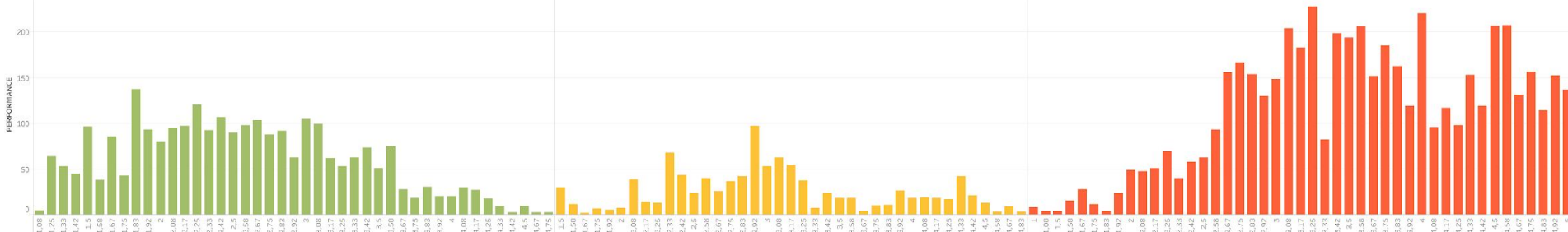
Scale
■ rural
■ town
■ urban



rural

town

urban



2

INDICATORS

On Time Departure percentage

On Time Departure Percentage

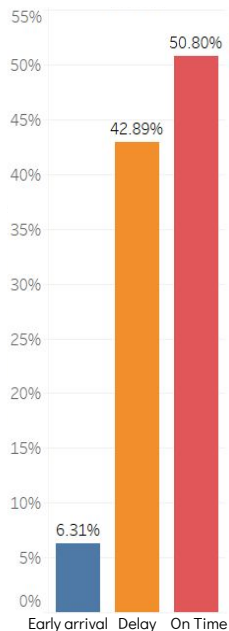
This metric corresponds to a stop's percentage of trips that were on time (1 minute tolerance) during the weekdays of the week of Oct 7, 2019.

The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the percentage of these delays that were fell within the tolerance (1 minute in both directions).

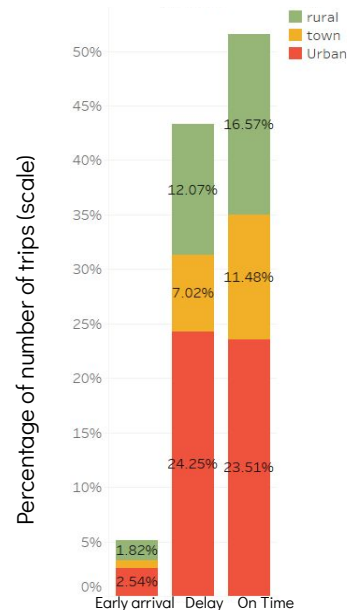
Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 31.08
25 - 50 - 75: 17.07 - 30 - 43.71
Minimum - Maximum: 0 - 100

Comments to the graphs



Percentage of trips (On time, delayed and early arrival)



Percentage of trips (On time, delayed and early arrival)

2

INDICATORS

On Time Departure percentage by municipality

On Time Departure Percentage

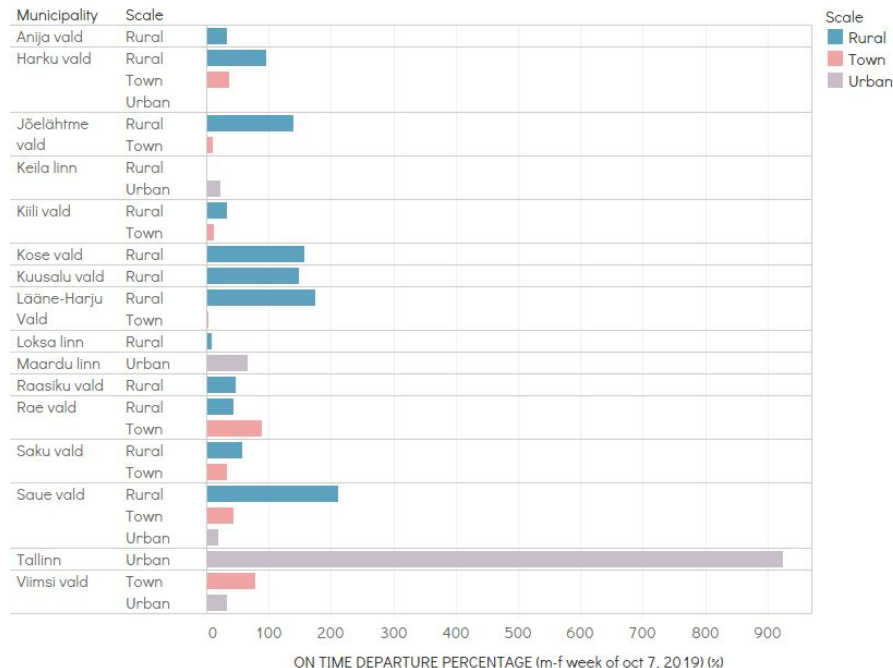
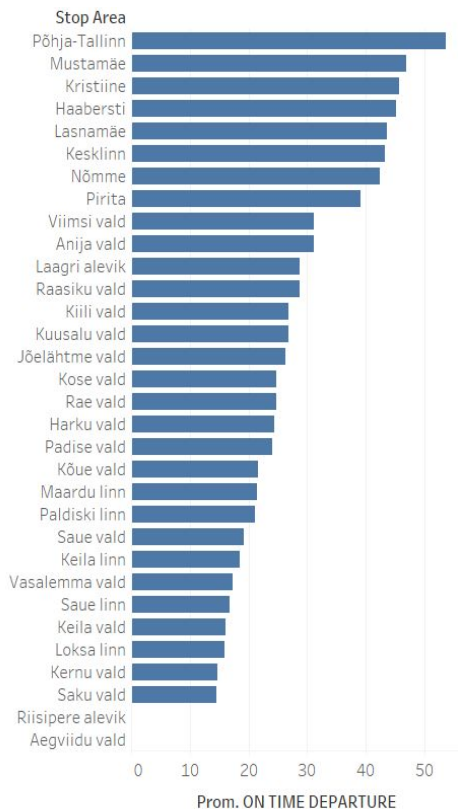
This metric corresponds to a stop's percentage of trips that were on time (1 minute tolerance) during the weekdays of the week of Oct 7, 2019.

The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the percentage of these delays that were fell within the tolerance (1 minute in both directions).

Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 31.08
25 - 50 - 75: 17.07 - 30 - 43.71
Minimum - Maximum: 0 - 100

Comments to the graphs



2

INDICATORS

Percentage of on time trips grouped by hour

On Time Departure Percentage

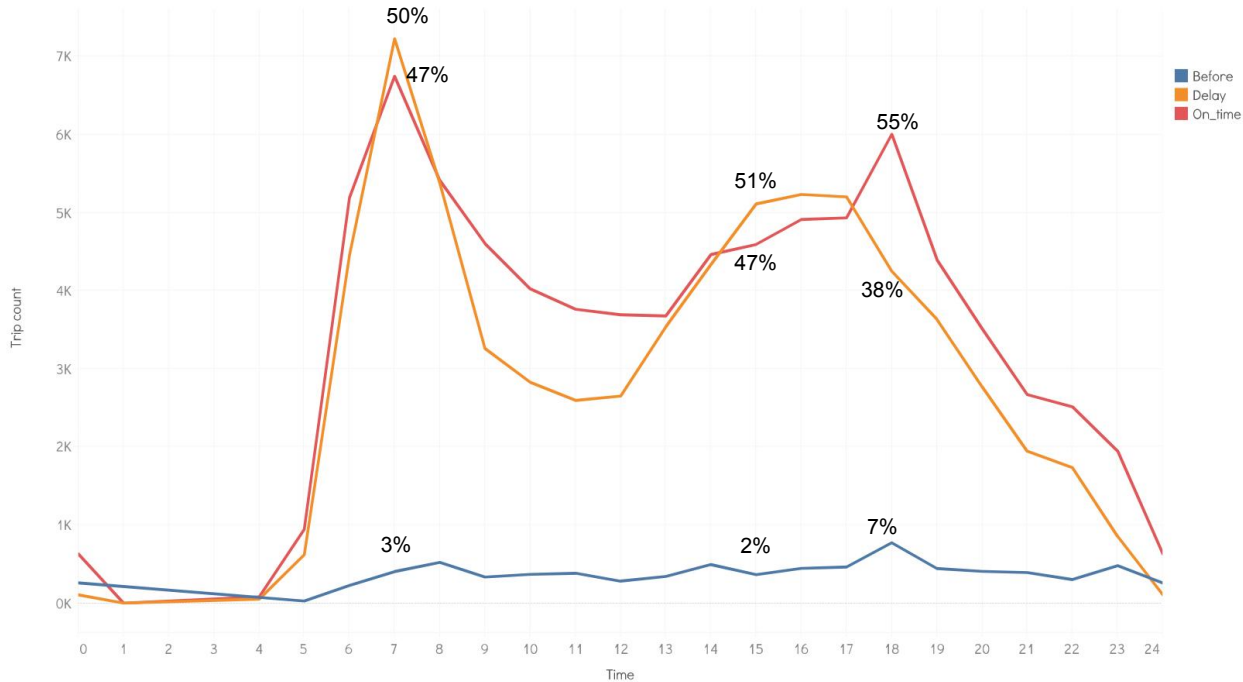
This metric corresponds to a stop's percentage of trips that were on time (1 minute tolerance) during the weekdays of the week of Oct 7, 2019.

The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the percentage of these delays that were fell within the tolerance (1 minute in both directions).

Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 31.08
25 - 50 - 75: 17.07 - 30 - 43.71
Minimum - Maximum: 0 - 100

Comments to the graphs



Considering that on time trips are the trips that has **1 minute or less** of delay

2

INDICATORS

On Time Departure Percentage

This metric corresponds to a stop's percentage of trips that were on time (1 minute tolerance) during the weekdays of the week of Oct 7, 2019.

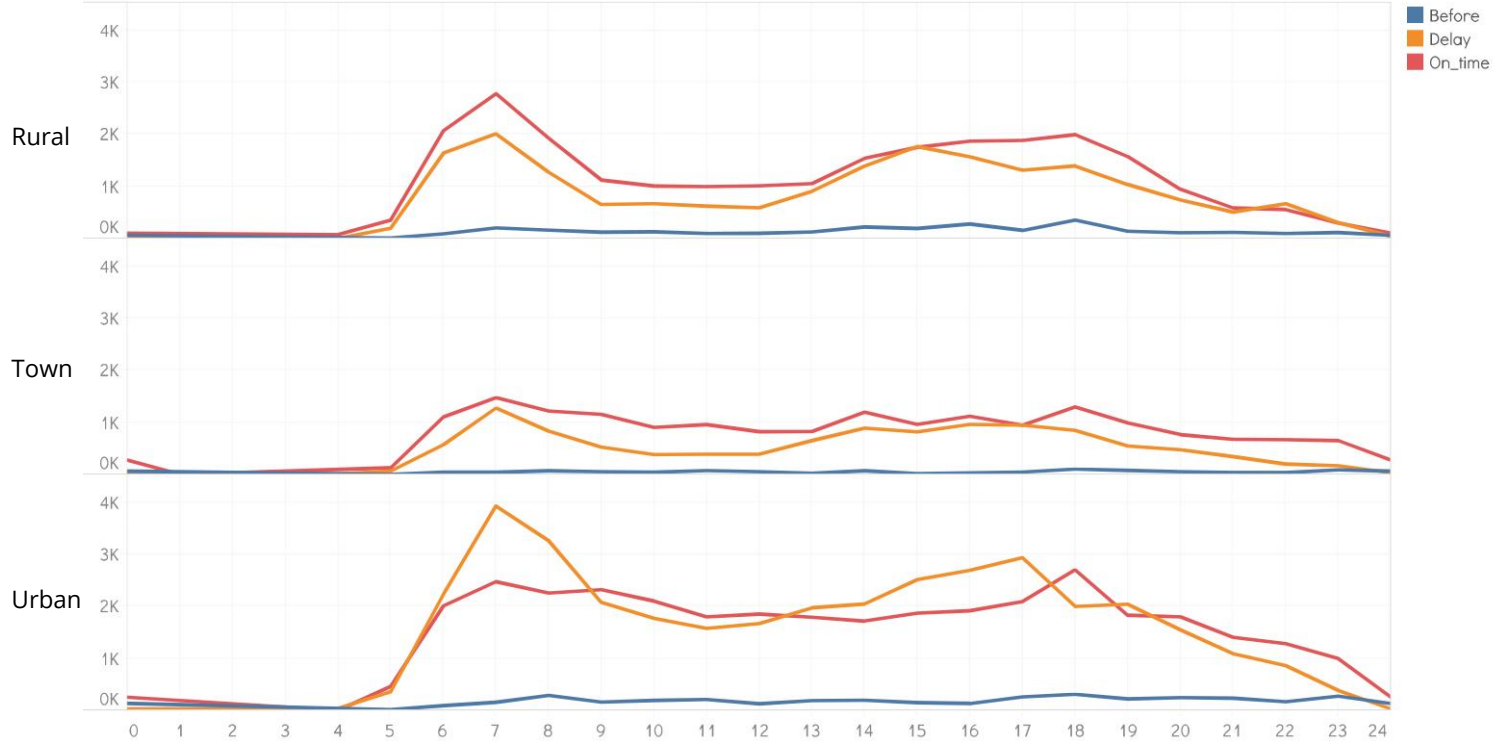
The same list of delays used to calculate Average Departure Delay for a particular stop was used to calculate this metric. This metric is the percentage of these delays that were fell within the tolerance (1 minute in both directions).

Data Source/Provider: Thorebi + Ridango
Date: Oct 7, 2019 - Oct 13, 2019

Mean: 31.08
25 - 50 - 75: 17.07 - 30 - 43.71
Minimum - Maximum: 0 - 100

Comments to the graphs

Number of trips in a week by hour depending on scale

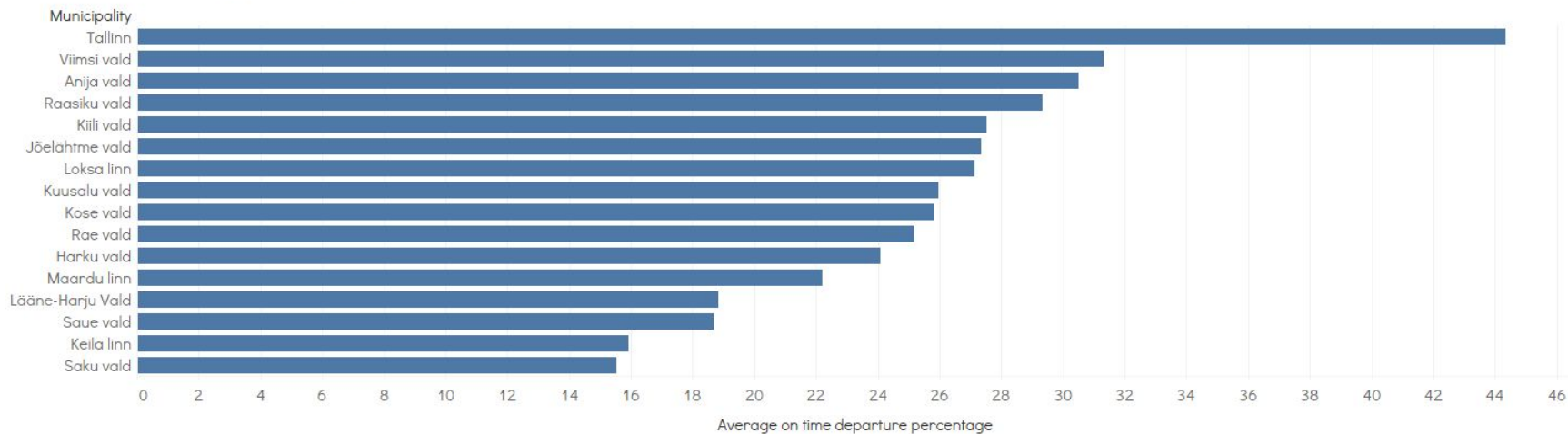


2

INDICATORS

On time departure percentage by municipality

On time departure percentage

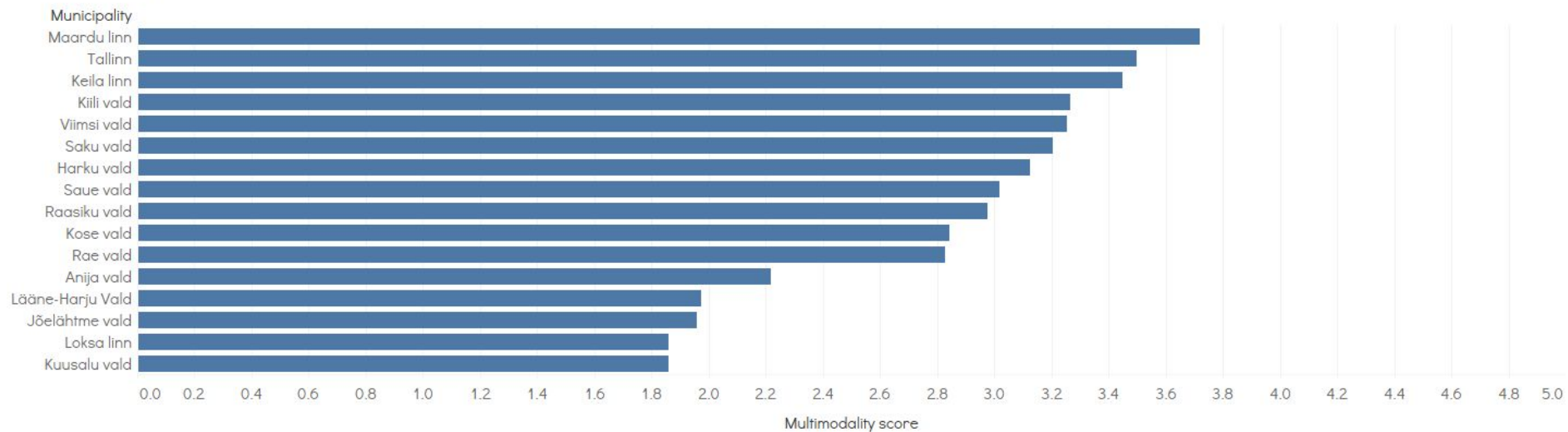


2

INDICATORS

Multimodality / Number of line

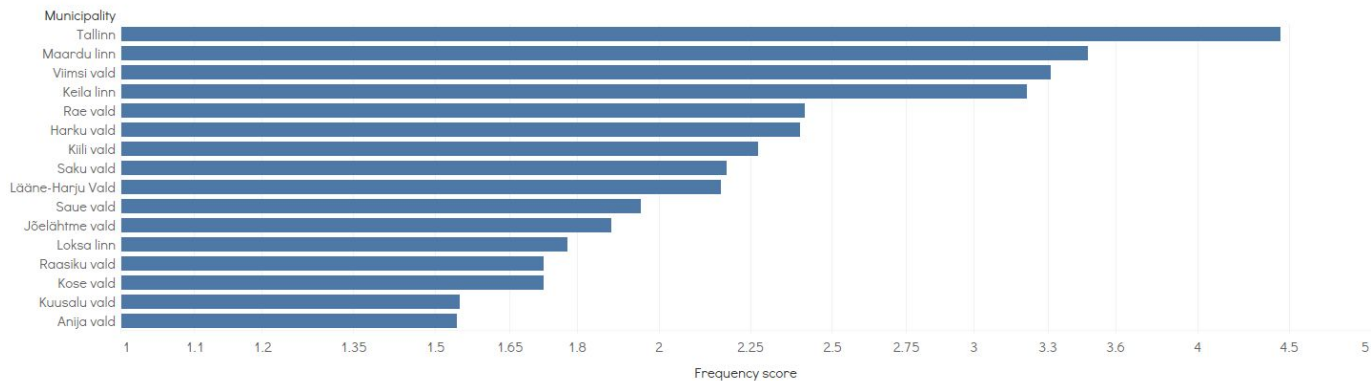
Multimodality score



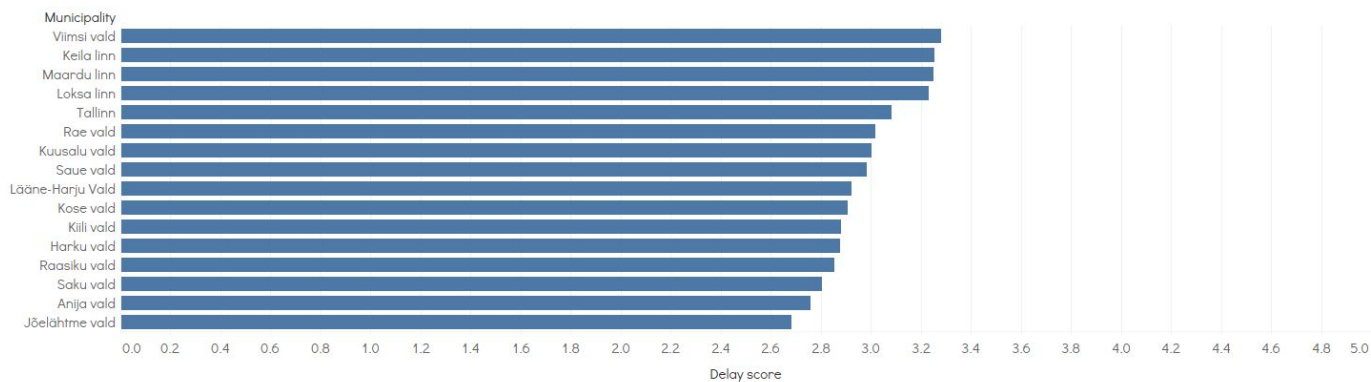
2

INDICATORS

Frequency score



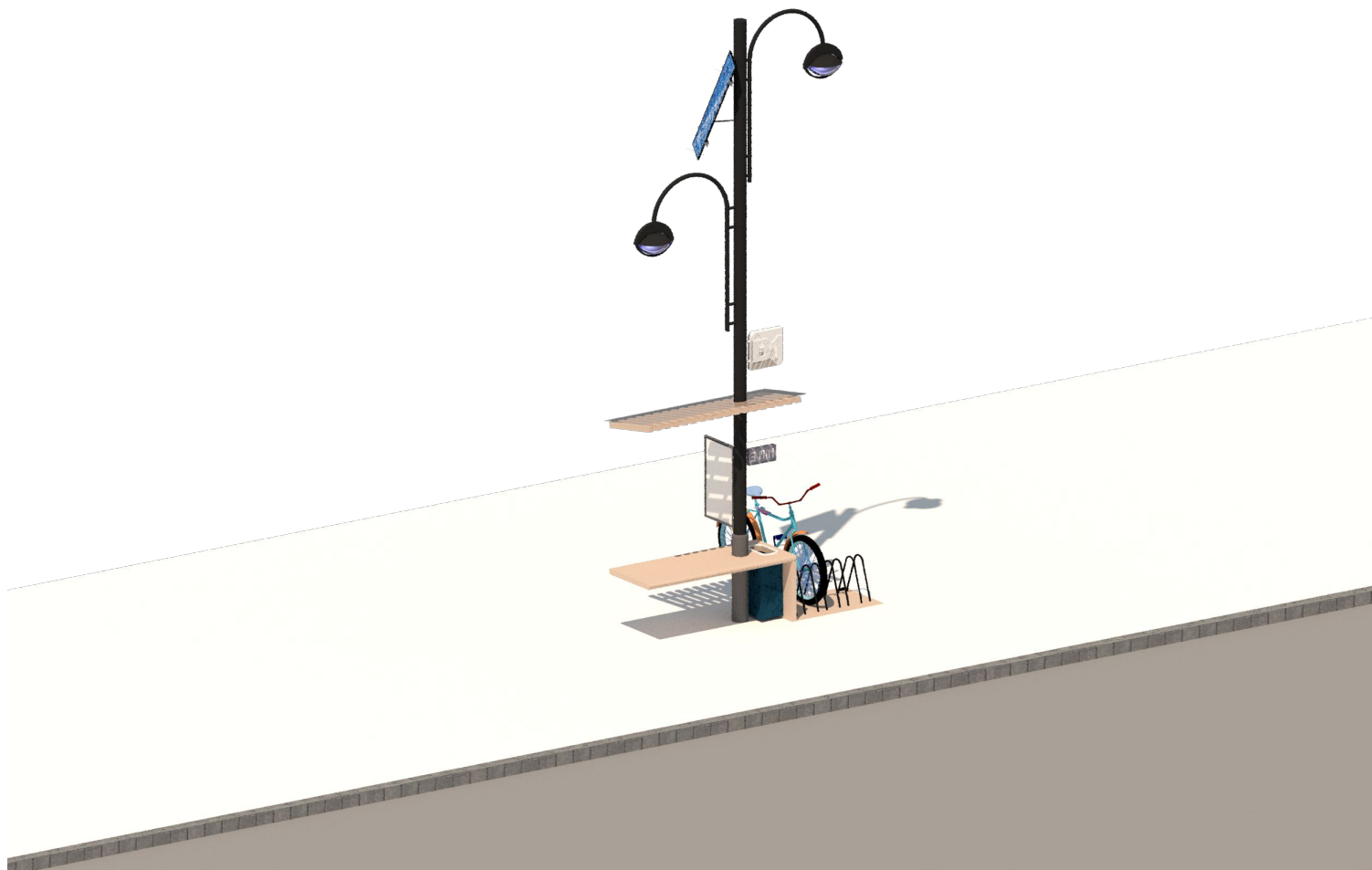
Delay score



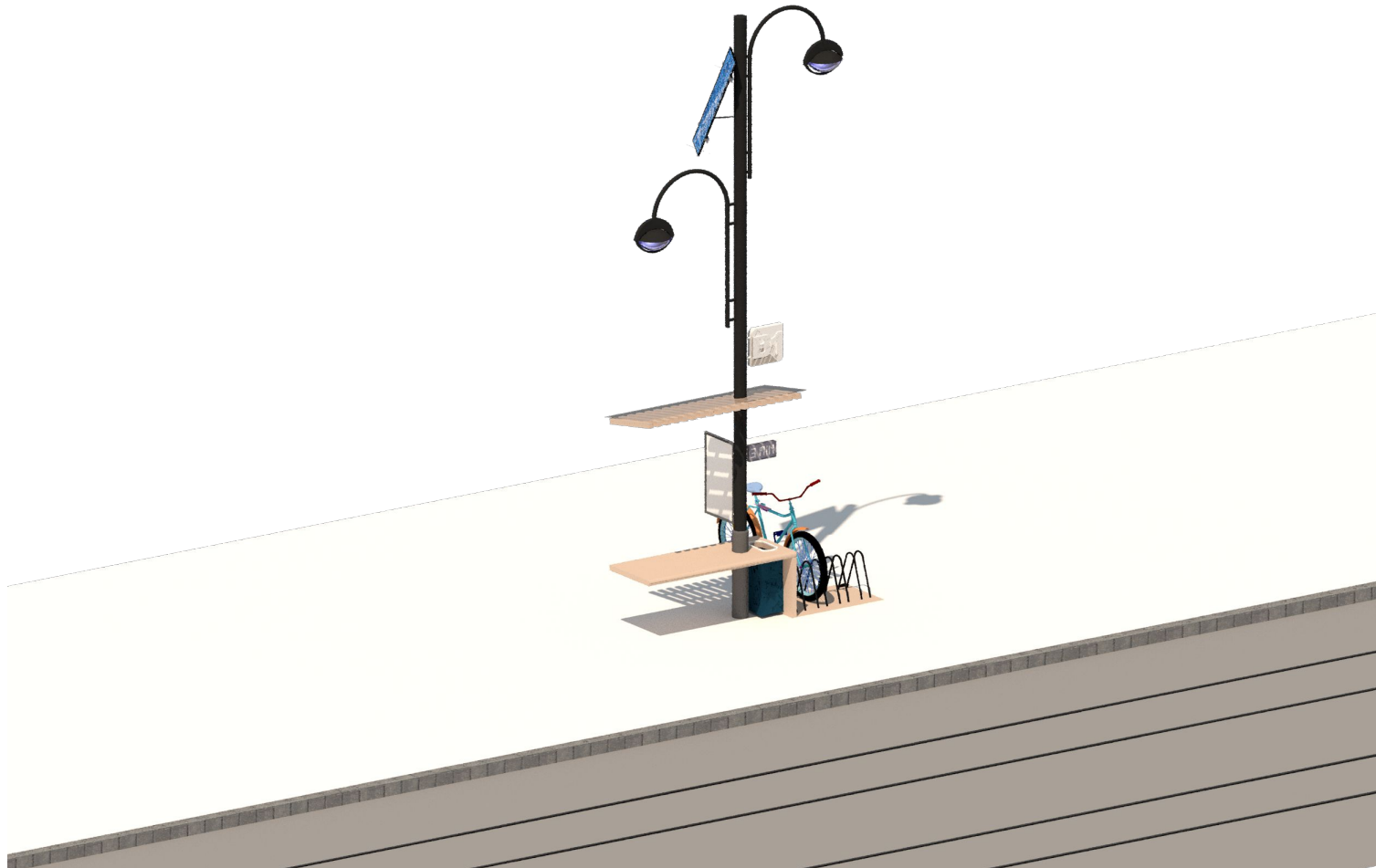
3 STOPS DESIGN POSSIBILITIES

Small

Type 1 - Small + Standard (Bus)



Type 1 - Small + Standard (Tram)



Type 2 - Small + Improved (Bus)

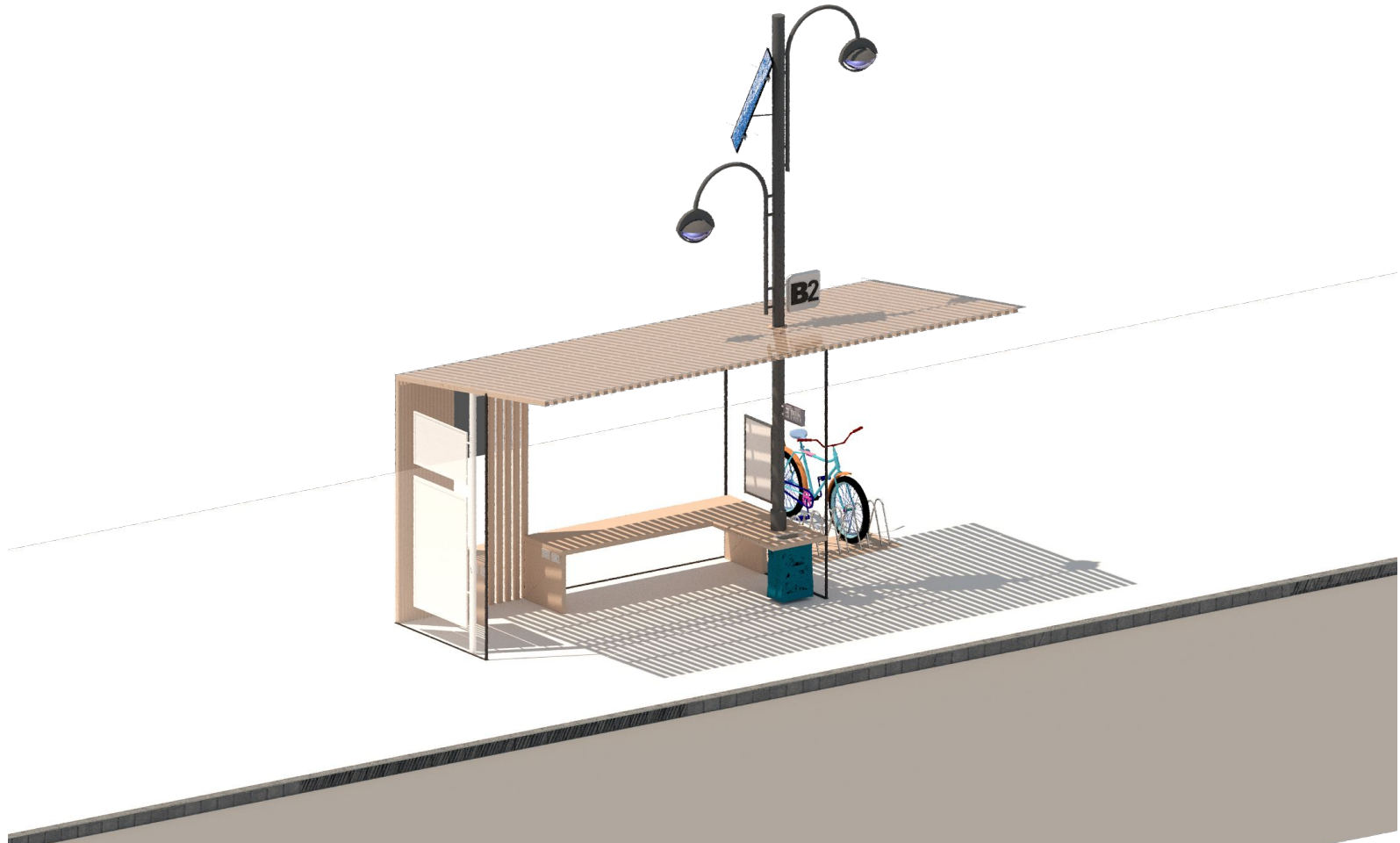


Type 2 - Small + Improved (Tram)

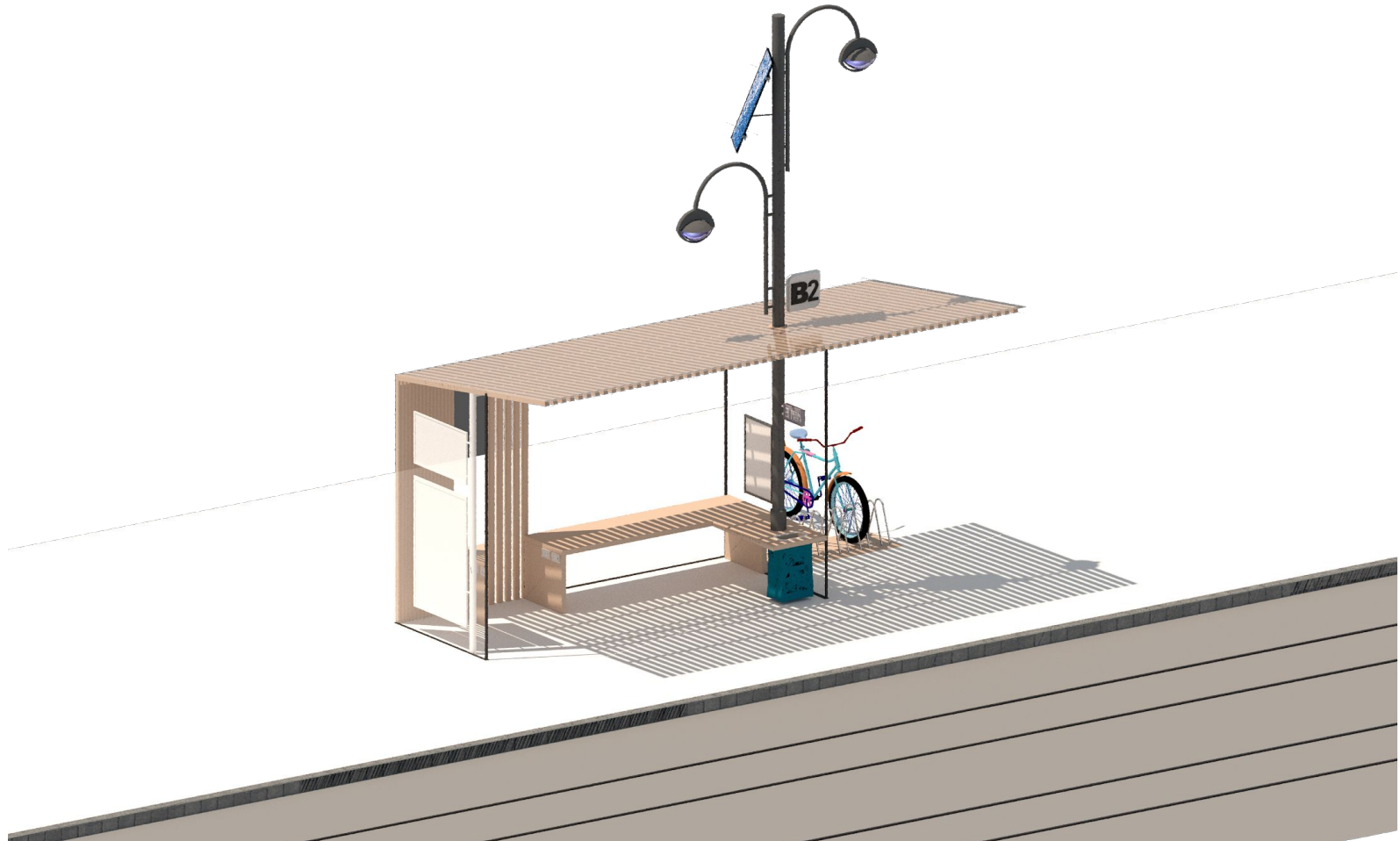


Medium

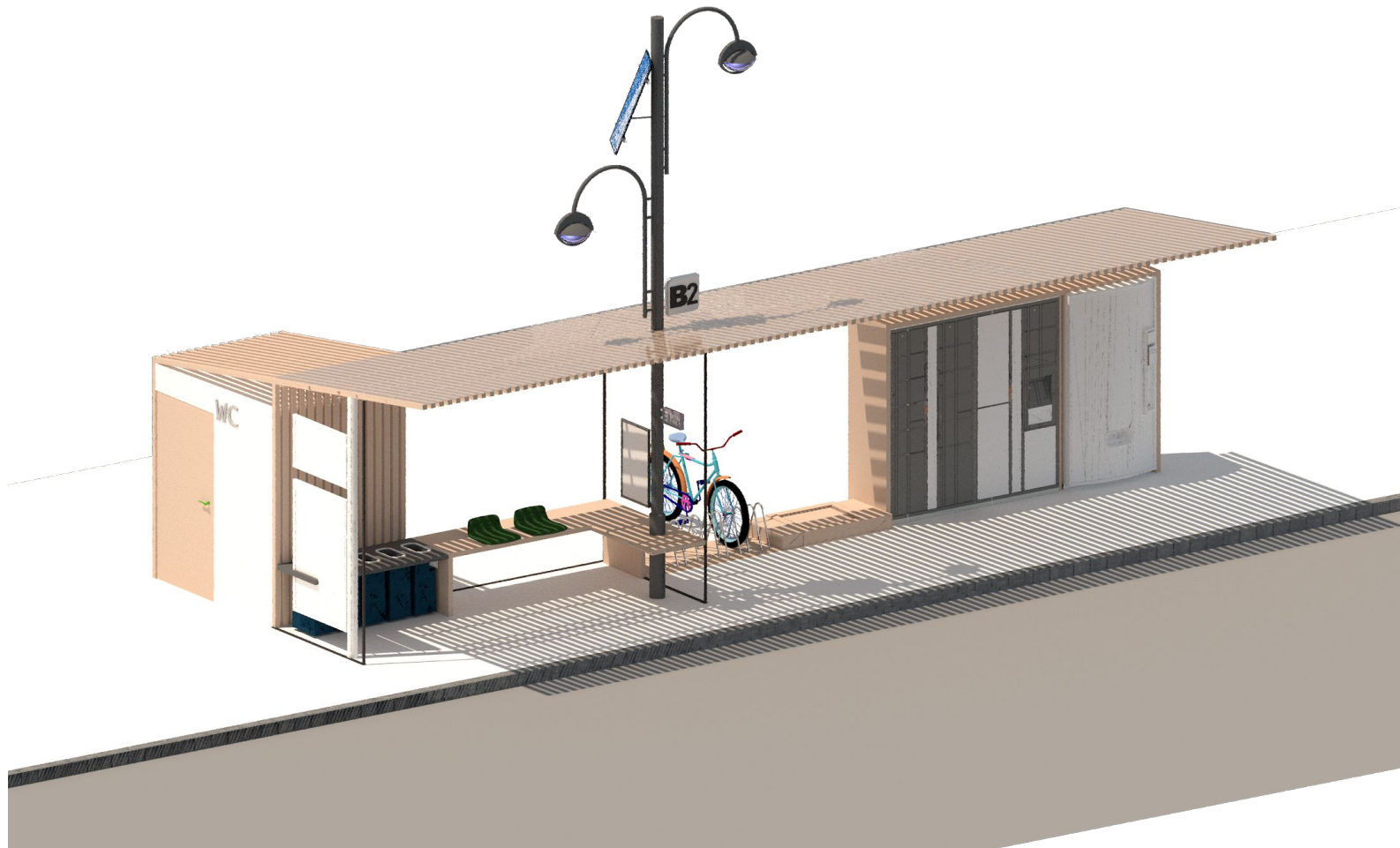
Type 3 - Medium + Standard (Bus)



Type 3 - Medium + Standard (Tram)



Type 4 - Medium + Improved (Bus)

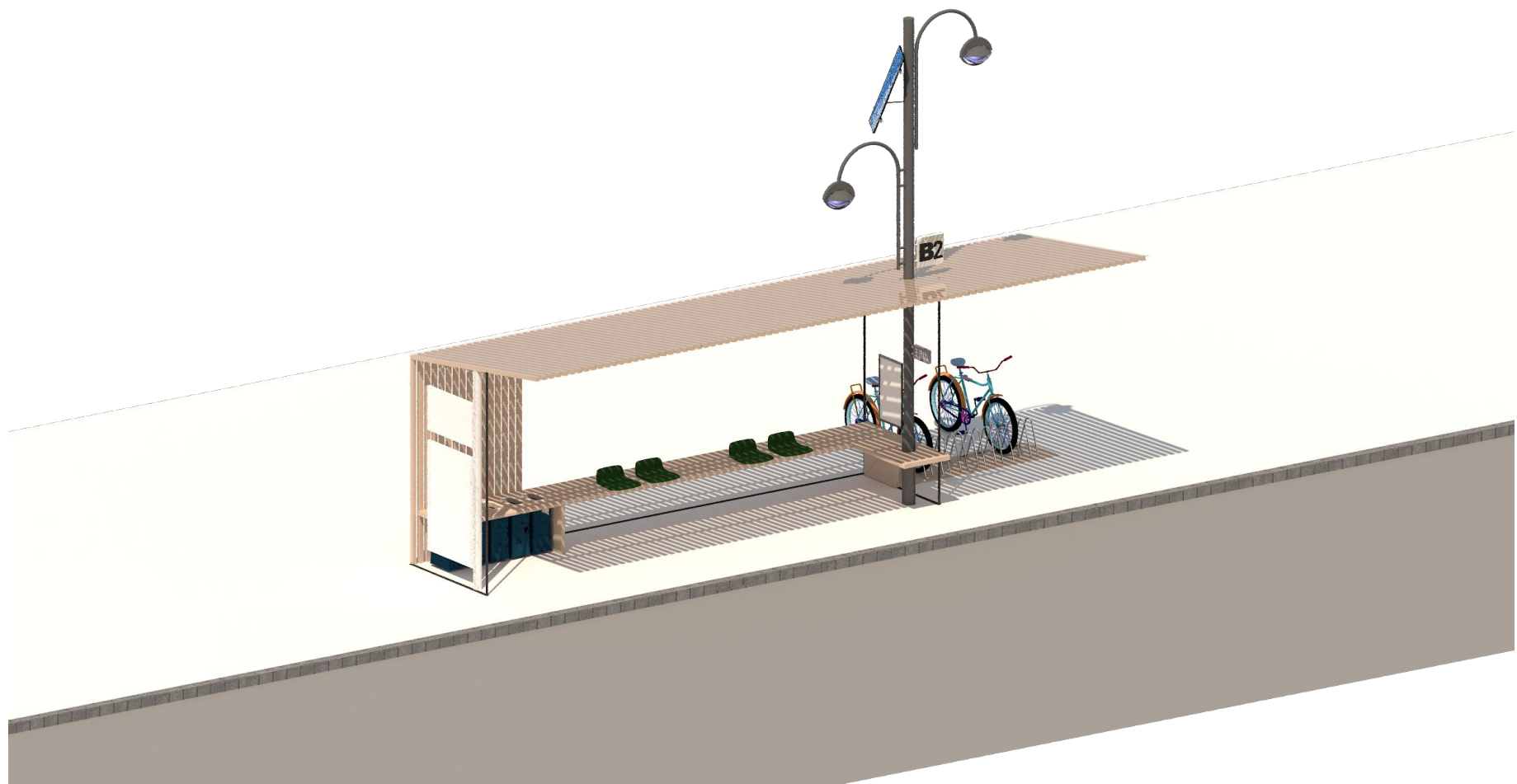


Type 4 - Medium + Improved (Tram)

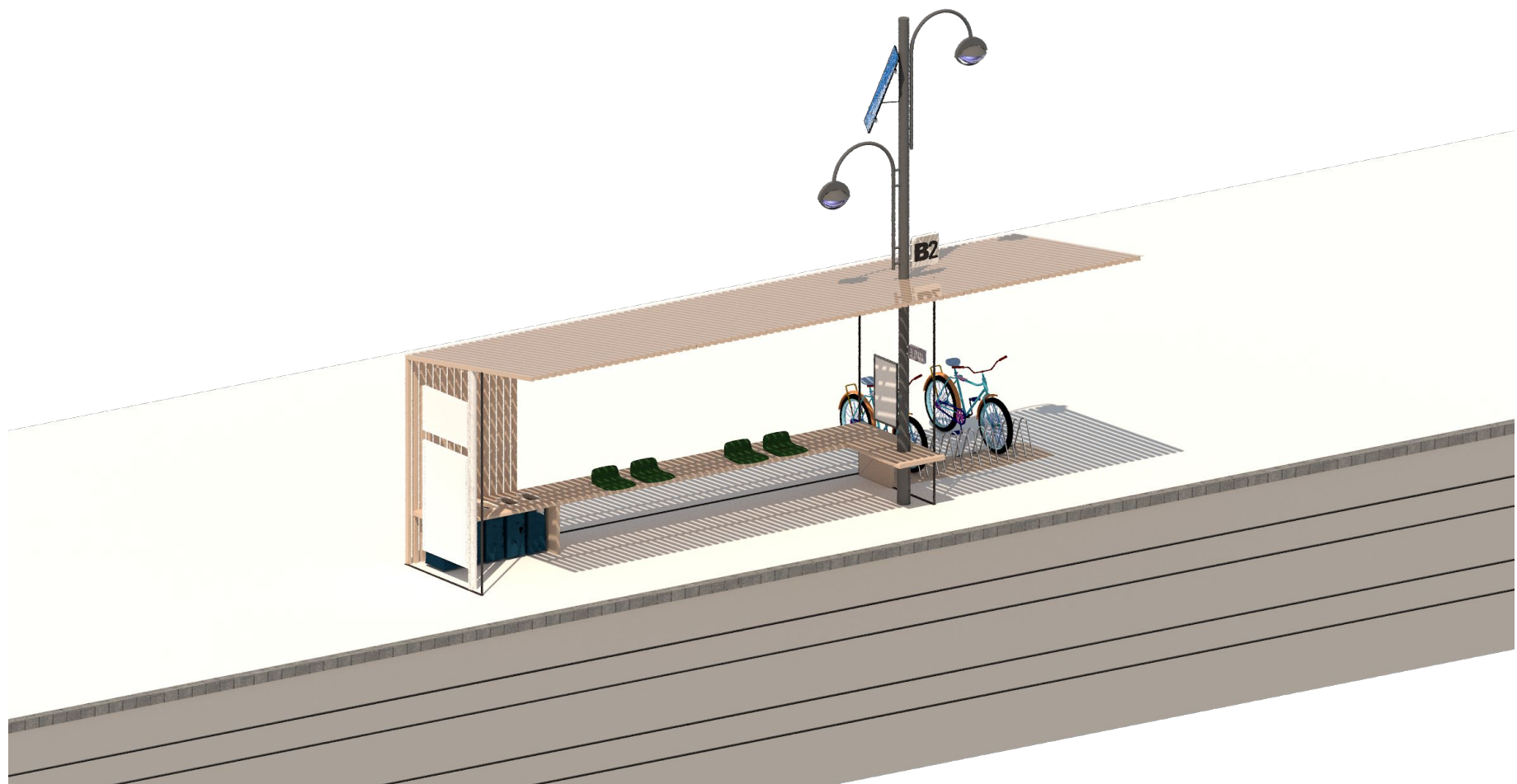


Large

Type 5 - Large + Standard (Bus)



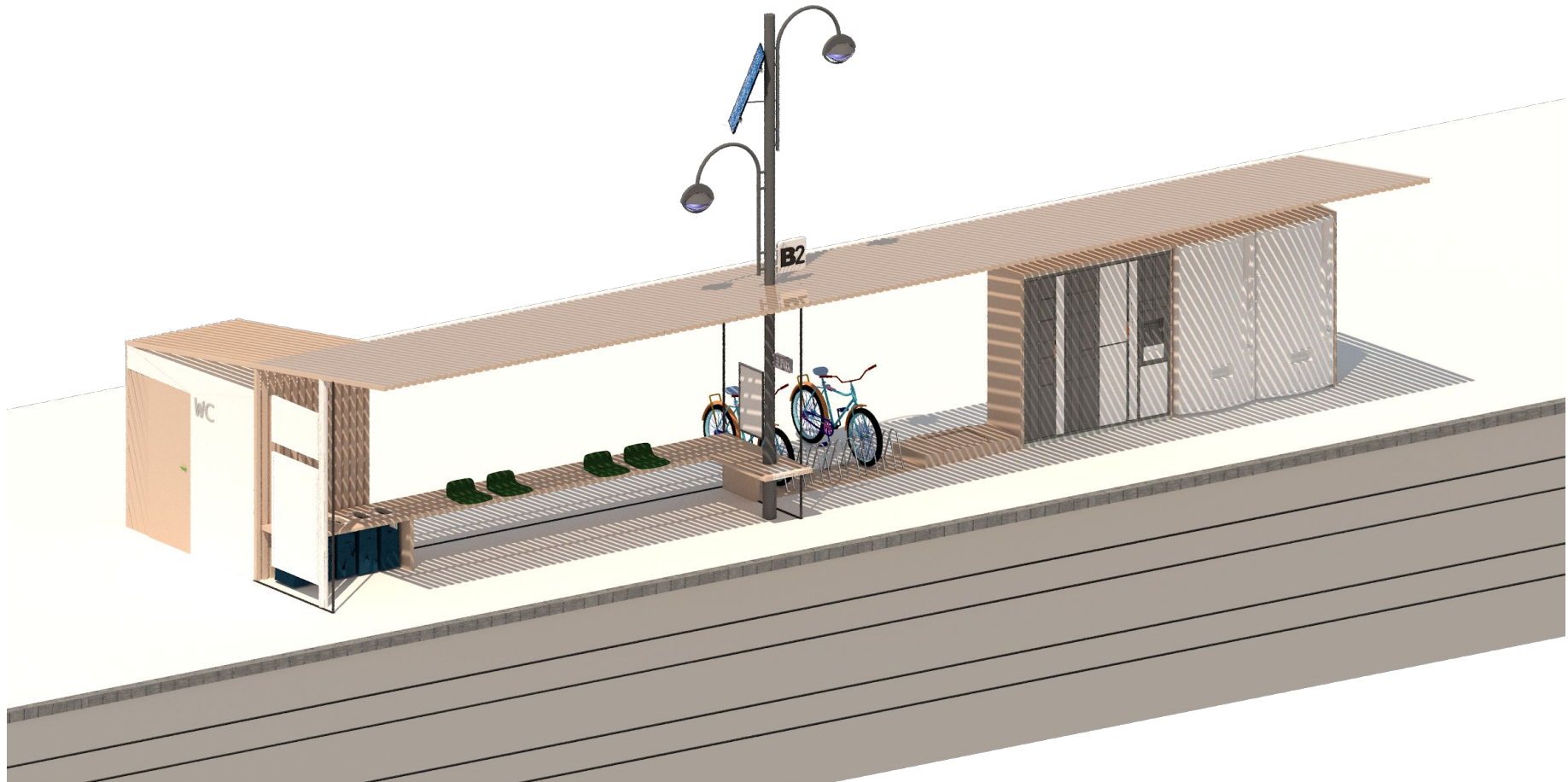
Type 5 - Large + Standard (Bus)



Type 6 - Large + Improved (Bus)

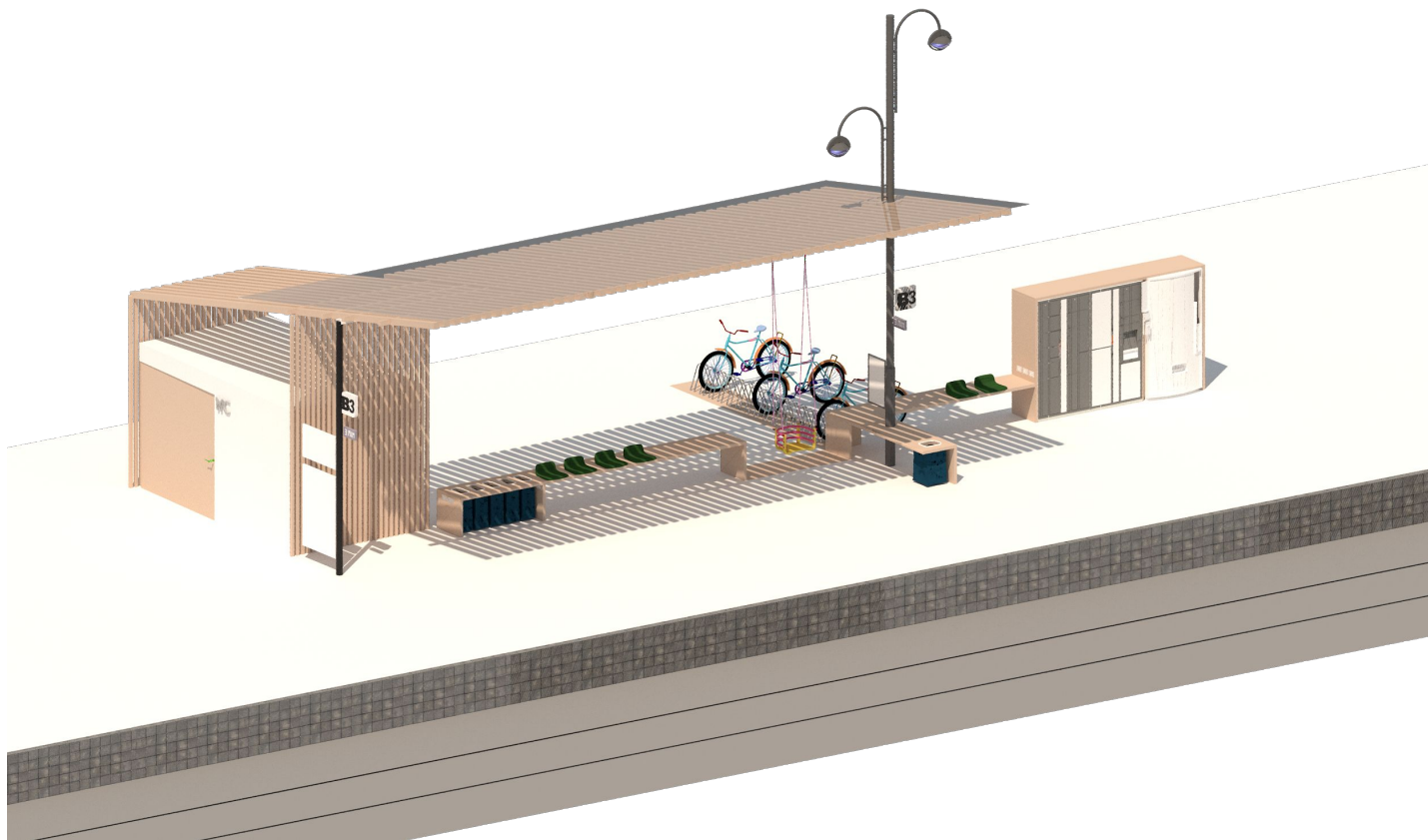


Type 6 - Large + Improved (Tram)



TRAIN

TRAIN - Type 1 - Small + Standard



TRAIN - Type 2 - Medium + Standard

