

Urban areas are under constant development



Background



Construction transport

- 90% of the construction transport go by road
- 20% of the transported weight in Sweden is construction related
- 50% of urban goods transport (weight) is construction related
- 10 % of CO2 emissions in a construction housebuilding project are transport related



(Trafa2020; SBUF, 2010; Sezer och Fredriksson, 2020)

Construction transport numbers in detail

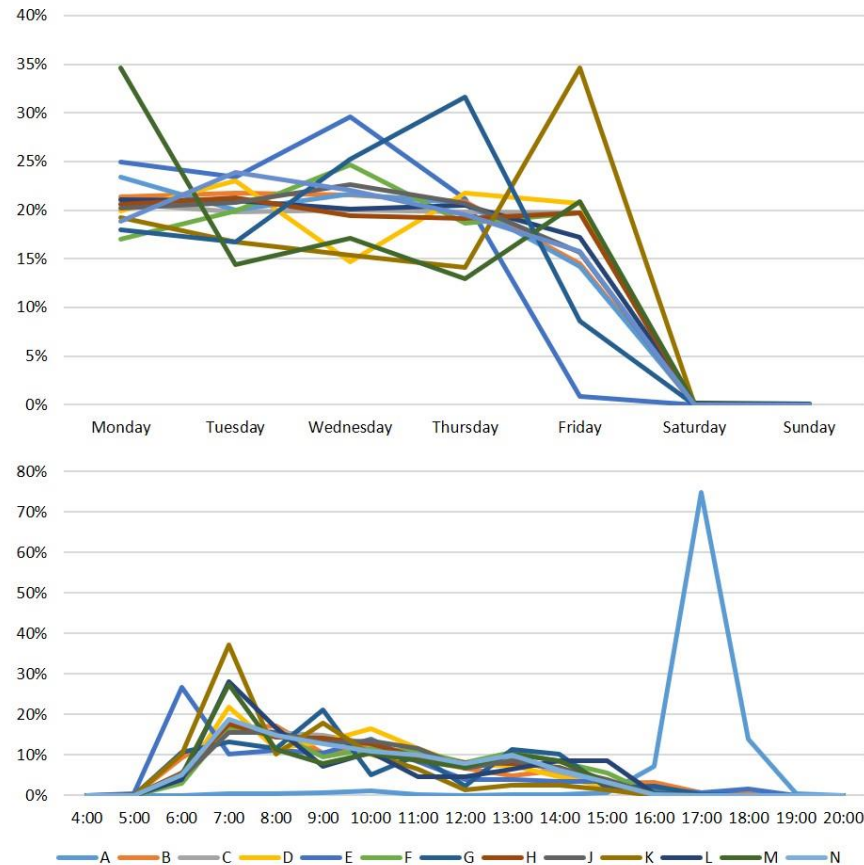


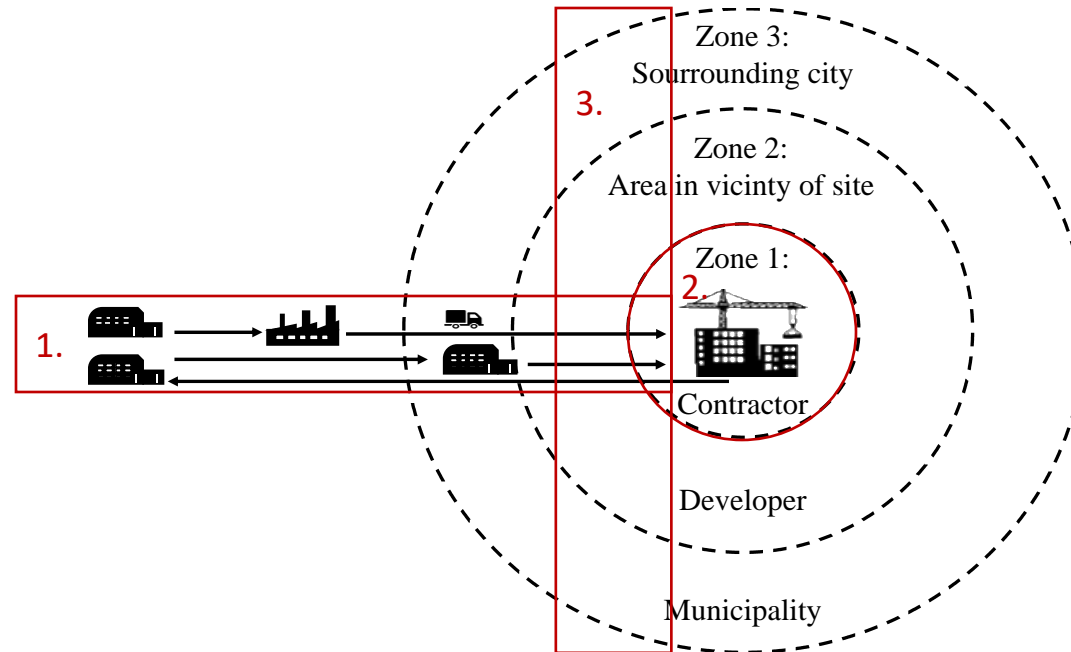
Figure 1. Weekdays and hourly distribution of transports

- Number of transports varies between 0.04/m² and 1.99/m² in projects, with an average of 0.57/m².
- In 12 out of 13 projects more than 50% of the transports arrive 07:00–09:00 Monday to Thursday.
- 43% of the deliveries come with truck
- Pallets are the most common load carriers (29%), followed by packages (20%).

Sezer and Fredriksson, 2021

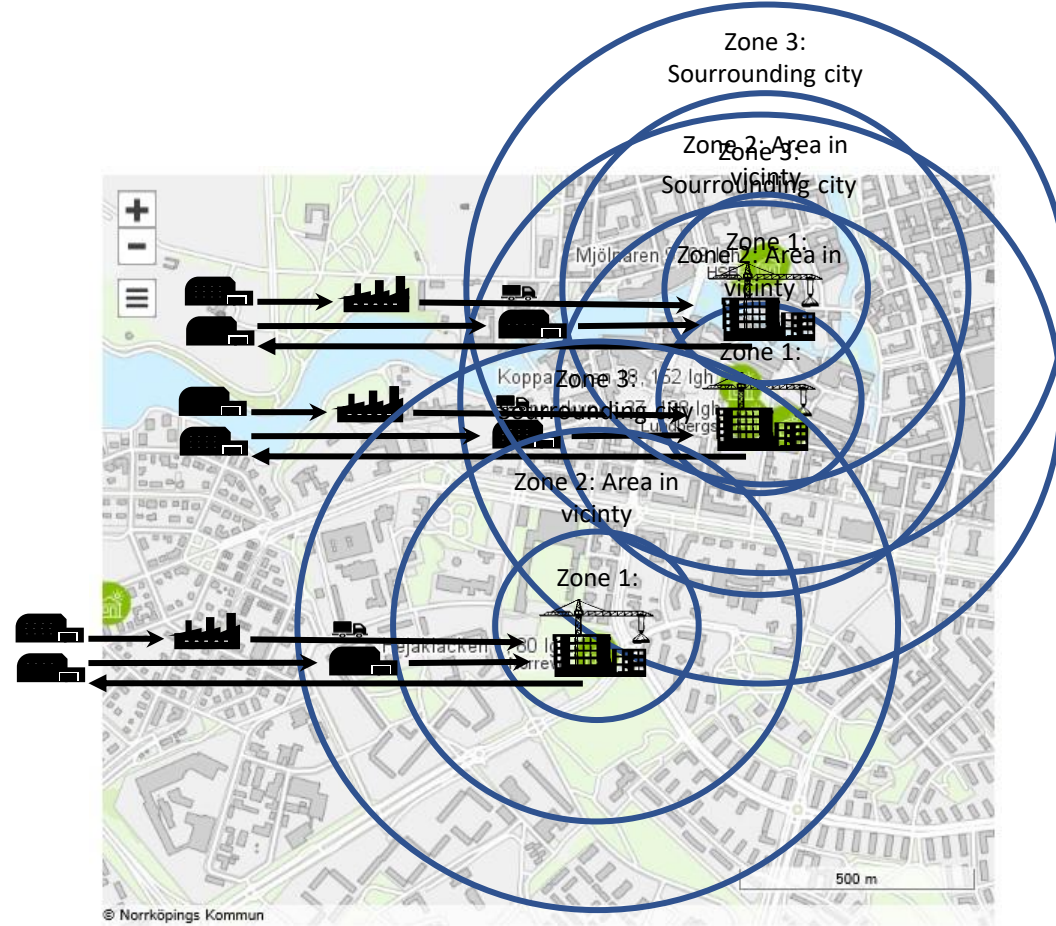
Three challenges

1. Managing transports to and from site
2. Managing logistics at site
3. Managing the interorganizational relationships amongst construction project stakeholders



How do we meet these challenges?

Construction transport from an urban perspective



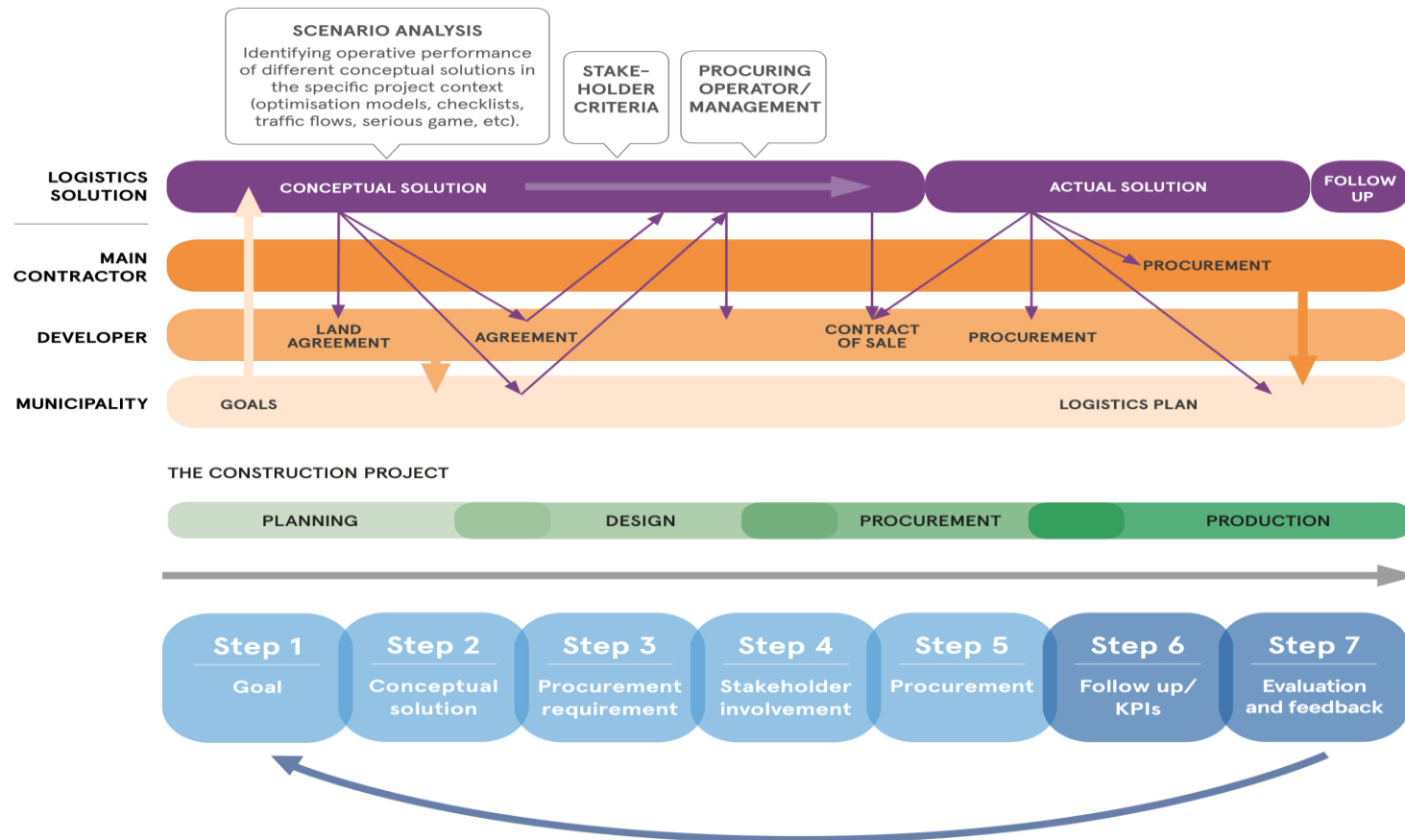
Improvement and optimization planning of resources (both facilities and personnel), to decrease unnecessary costs and construction delays as well as decrease the impact on surrounding business activities.

Increase liveability and attractiveness of life in a city through decreasing congestion, accidents, noise and vibrations caused by material flows to, from and on site.

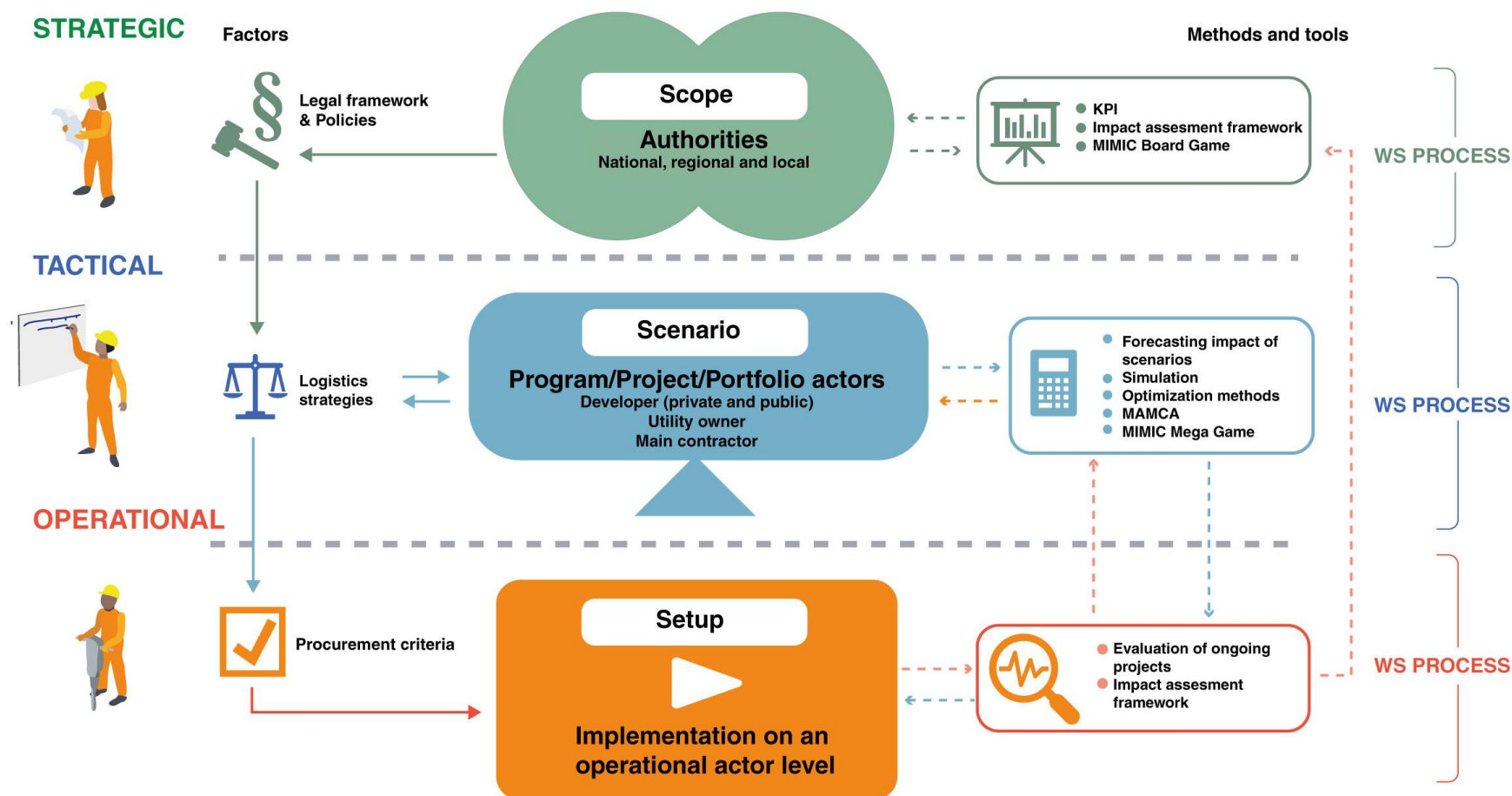
Decrease of emissions of greenhouse gases and pollutants through improved planning of transports to, from and on construction sites, use of more environmentally friendly machineries and vehicles, and alternative modes of transportation



We need to increase understanding of how to deal with the constant change and at the same time keep an attractive urban environments

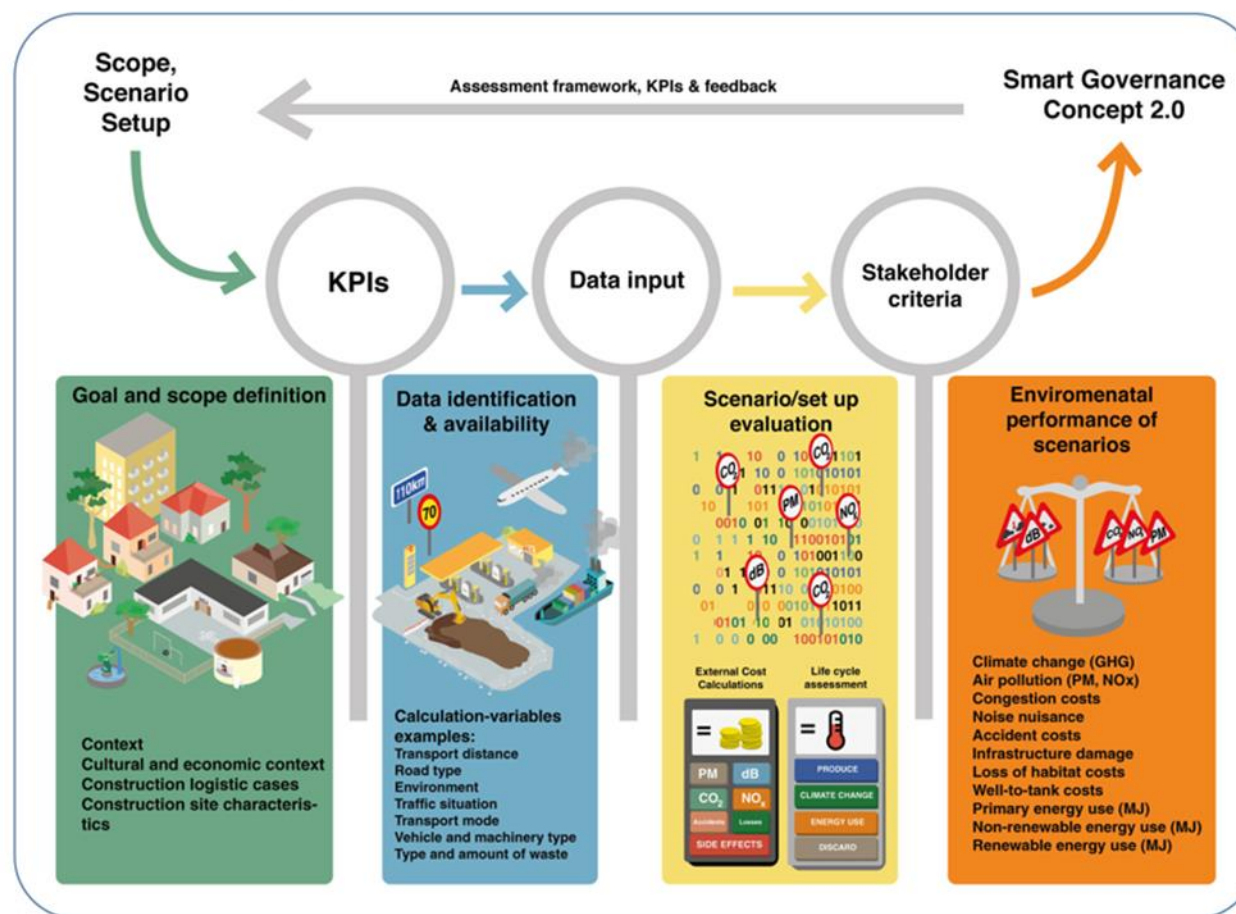


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Impact assessment framework



Data a

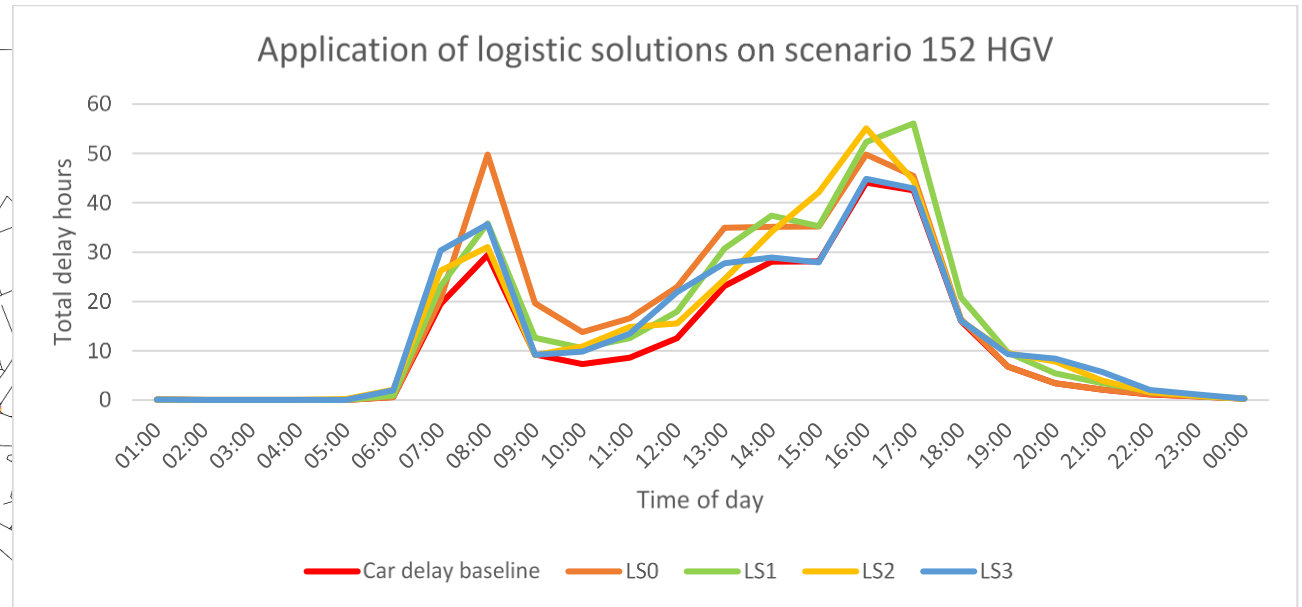
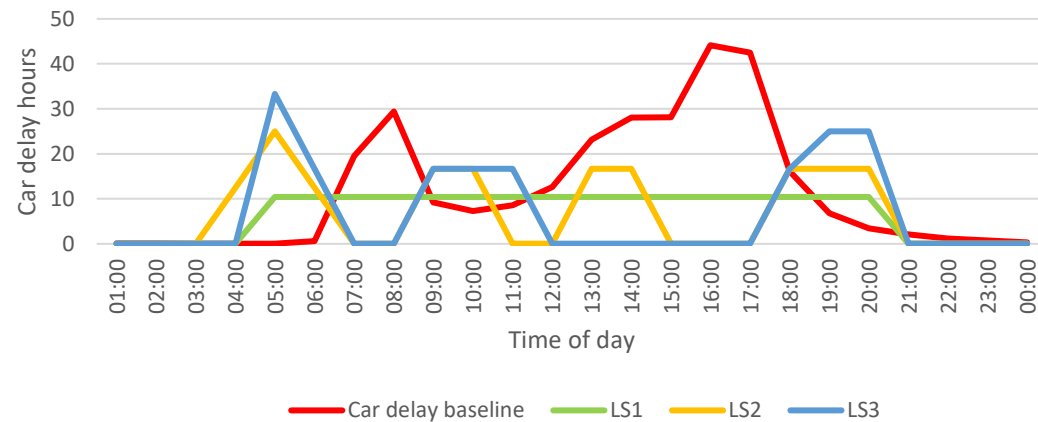


Figure 1 - Average link delay for cars when all six sites are served in the scenario of total demand 1404 HGV

Figure 1 – Total delay with the application of logistic solution for scenario 152 HGV

Truck arrival rate at construction sites



Truck arrival rate

Table 1 - Result of total delay with application of logistic solutions for scenario 152 HGV

Scenario	Cars	LS0	LS1	LS2	LS3
Total delay hours	284.03	375.38	367.77	350.76	337.88
Decrease/LS0	-	-	-2.03%	-6.56%	-9.99%

Zernis, 2021

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