

## THE PROPOSED AMENDMENTS TO CERTAIN LAW ACTS TO INTRODUCE THE STRATEGY OF SUSTAINABLE TRANSPORT FOR THE SUPPLY OF GOODS IN THE CITY CENTRE

LEWANDOWSKI Krzysztof

*Wrocław University of Technology, Poland, EU, [krzysztof.lewandowski@pwr.edu.pl](mailto:krzysztof.lewandowski@pwr.edu.pl)*

### Abstract

The desire to create of sustainable transport in urban areas requires knowledge from the municipal government of the needs of local business entities in the supply of goods in the city centre. This article presents a proposal to amend certain legal acts in order to improve the strategy of sustainable transport in urban areas in the supply of goods in the city centres. The current decisions of municipal governments are based on the administrative point of view without reference to the real needs of local business entities in the supply of goods in city centres. Therefore, it is reasonable to amend the legal acts for the municipal government to create decisions based on compulsory cooperation with local business operators.

**Keywords:** City logistics, delivery, sustainable transport in urban areas

### 1. INTRODUCTION

The problem with supply for trade points in the city centre began with an increased number of private cars in streets. Increased motorization is accompanied by a number of negative externalities in this pressures for parking the personal car in each free space in city centre [13].

The second source of the problem with delivery for trade points in the city centre is an increase in the control of road traffic by the local government. This generates a safety problem for suppliers [15].

It creates pressure on suppliers to shorten the time of the delivery process and difficulty with time of the temporary stop of a delivery vehicle to do a delivery process for the trade point in the city centre. Field research showed that the time of delivery becomes shorter due to wide mechanization of unloading and transport [14]. The time of delivery increases when the distance between stop place of the delivery vehicle and doors of the trade point are extended [16]. This problem is caused by the lack of places for realisation of the delivery [12]. The cause for this is free interpretation of legal acts relating to the regulation of traffic, which do not take into account the need to stop the delivery vehicle to realisation of the delivery [15].

### 2. DEFINITION OF THE PROBLEM

The desire to improve the flow of traffic in the city centre and the image of the city centre, as free from traffic jams and friendly to residents and tourists, often results in decisions that reduced the attractiveness of trade points. Decisions related to the improvement of the traffic flow include:

- Restricting the right to park,
- Prohibition of temporary stop,
- Restricting the right of entry of vehicles of a certain weight or size and emissions,
- Reducing the time of entry to the city centre,
- Other.

Trade points and service outlets located in the city centre have their location based on the selection of the most attractive places where there is a large pedestrian traffic. Historical sources confirm that the town centres

are areas focusing movement of people, are the most desirable as the location of the point of trade and services. This is due to by higher probability that “the customers will find” the trade point.

A good location of trade points may help to offer a potential client your goods or services.

A product must be moved to change its location. The delivery for the trade point in the city centre requires the arrival of the delivery vehicle, unloading the goods and displacement of cargo on the shelves for display.

Since 2004 to 2012, under the DORED program, results were collected from over 900 points. The results were based on studies in six cities: Wroclaw, Gdansk, Kepno, Opole and Jelenia Gora and Torquay (UK) more than 900 points [13].

The number of polls over time:

Gdansk 2006-64,

Jelenia Gora, 2011 - 54,

Kepno 2010 - 50,

Opole 2006/2007 - 54,

Torquay (UK) 2007 - 70,

Wroclaw: 2004-135, 2004/2005 -127, 2006/2007 - 229, 2008 -16, 2008/2009 -72, 2010 - 34.

Analysis of this data helps to formulate main problems with safety in supply to the centre of the city which are dangerous for suppliers and for other users on roads.

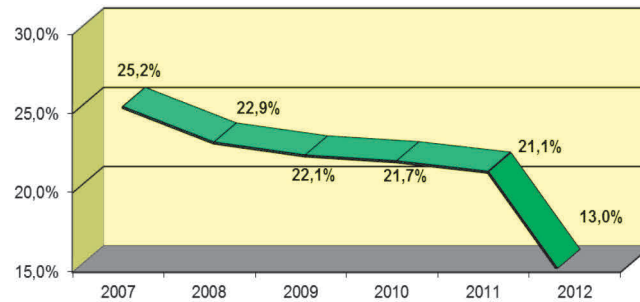
### **3. DANGEROUS FOR DELIVERY IN THE CITY CENTRE**

#### **3.1. No rules for truck vehicles by their drivers and owners are expected.**

Legal owners of delivery vehicles are obliged to respect all legal acts in Poland. That includes cases of maximum mass of vehicles, maximum axle load in vehicles, equipment of delivery vehicles, time of work of drivers, time of rest for drivers, maximum work time in two weeks, months and others. Using special software, which is not cheap, they must legalize that. Moreover, owners of delivery vehicles are obliged to keep statistics for General Statistical Office, reported every months [20]. The owner of companies must bear the cost of establishment of the employment place of drivers. Many times owners of delivery vehicles are officially individual persons who declared to the Tax Office that they use the delivery vehicle for non-profit things or their own needs. In many cases drivers have work under a contract work or a written order or they declare own business activity for own needs. Another case are health risks for supplier. Upon delivery, they very often do not have any technical support: hand truck, tail lift. The supplier must use only hands to carry the whole consignment. That could cause health problems later [13].

#### **3.2. Overloading vehicles**

Problem of overloading vehicles in Poland generates a loss for reconstruction of roads and other engineering construction at 6-8 million PLN per year. Transport companies more rarely break the road transport law in cases of axle load. The General Inspection of Road Transport reports the decreasing numbers of the vehicles with overload. (Fig.1) [10].



**Fig. 1** Changing numbers of vehicles with overload [10]

From the reports of the General Inspection of Road Transport shows that the total mass of delivery vehicles with the maximum mass of less than 3.5 tons, under the time of controls oscillated between 5-6 tons, and sometimes it was even more than 7 tons [10].

In the region of Lower Silesia in 2012 under control in one day of 38 delivery vehicles, 32 had the overloading mass. Negative record-holder had a total mass of 8.2 tons. The Road Transport Inspection admits that in many cases, overloaded trucks are unfair competition for trucks. A driver whose car weighs up to 3.5 tons does not have a license to transport and does not need to have a tachograph fitted. This means lower costs for owners of companies for which they work [20].

Protection of roads and competition of legal transport companies is recognized in Poland since June 2012 in the Act of 21 March 1985 on public roads [2], there are three types of penalties for overloaded vehicles:

- PLN 500 - the weight of the vehicle exceeds no more than about 10 percent of the permissible mass,
- PLN 2 thousand - when the excess ranges from 10 to 50 percent.,
- PLN 5 thousand - for severe violations.

Increasing the scale of growth of violations by cars up to 3.5 tons implies that it is necessary to regulate this subject. There is a gap in legal regulations here.

### 3.3. Excessive working hours of drivers

Since 2004 to 2012, under the DORED program, results were collected from over 900 points of owners of trade shops and drivers of delivery vehicles. In this collection, there are only 7 opinions of drivers about their time off work. This collection shows a very dangerous trend. Only two drivers said that managers of logistics in their companies tried to respect the obligatory time of work for drivers based on the Road Traffic Law Act. In the remaining cases, 3 drivers said that their work time planned personally is longer than 9 hours per day. 2 said that in their companies the time of work is not very often respected by managers of logistics. They have their own business, and under the Road Traffic Law, they are obligated to personally respect the time of work. Managers of logistics, who planned their time of work, for realization full planned delivery, even if the total time of this plan is much longer than specified in Act of Road Traffic Law. One driver said that in his company there were 5 other drivers. Every day, they worked from 3 a.m. to 6 p.m. On the next day they must work too to avoid losing their jobs.

Reports of the Police and the General Inspection of Road Transport show, under the Act of Road Traffic Law that this subject is not an area of control, because driver has their own business for their own activity, [1], (in sub-article 2 Article 3) they do not have to respect the total time of work for drivers. There is a gap in legal regulations here.

A solution to these three problems is the construction a cheap recorder of vehicle parameters to measure the speed, time of work of engine, acceleration, opening door to vehicle, etc. The prototype is now being tested at the Institute of Vehicle Transport [7].

### 3.4. Stopping delivery vehicles at random places

Legal regulations of the Act of 20 June 1997 - Road Traffic Law implement tasks in the field of traffic engineering. Their interpretation is in the hands of municipal officials who plan the control of traffic lights, the payment parking zone, and look for solutions to random situation on roads. There is no regulation to obligate road owners to plan places for unloading deliveries to trade shops in cities. Polish law has no definition of the place for delivery, there is only the lane of road and parking place. Results from the DORED program show that 87% owners of a trade point have no place for unloading deliveries [12]. The place where delivery vehicles stop is different [12]:

- From the front of the trade point 36%,
- From the rear side of the trade point 19%,
- On the street near the trade point 20%,
- On the sidewalk in front of the trade point 13%,
- In the bay near the trade point 1%,
- Other, where it is possible 11%.

The most common reported remarks concerning access to places for loading operations (67% from 900 points) included: the conditions (the technical condition of vehicles, time of delivery, etc. s), the difficult entry to the rear side of the trade point, occupation of the unloading place by others unauthorized vehicles. Widespread are remarks by holders of unloading sites (13% from 900 points) that the Municipal Police do not fine unauthorized cars which parked on these sites and the owners of those sites must to carry out the unloading in prohibited places. Is postulated to appointment free places for delivery [12].

## 4. REVIEW OF THE LEGAL BASIS

The delivery process can be described as:

- a) loading cargo into the delivery vehicle at the wholesale place,
- b) transport by roads,
- c) delivery time when the delivery vehicle is stopped and the supplier goes to the recipient with the ordered cargo.

Chances of occurrence of an accident under each of these components is connected with legal regulations concerning safety conditions. The loading process is described by [7]. The report of the Labour Inspection shows that the number of accidents has decreased [19]. Transport conditions are described by [2][1][3]. Reports of the General Inspection of Road Transport show that this process is still high [10].

Conditions for the delivery process do not have any legal regulations.

The city as a legal entity of the local government can work on the legal rights of (pol. gmina) the commune or (pol. powiat) the county. The Constitution of the Republic of Poland specifies in art.164 that the commune is the basic unit of the local government [8]. It is regulated in detail in the Act on communes, 1990 [4]. Other local government units is a (Polish powiat) country [5] and (Polish wojództwo) province [6]. Accordingly, it is governed by legal acts - (Act of county, 1998) Dz.U.1998 No. 91, item. 578. The Act of 5 June 1998 on the

county government and (the Act on provinces, 1998) Dz.U. 1998 No. 91, item. 576. The Act of 5 June 1998. Provincial self-government. Each of them has the following rights (Table 1).

**Table 1** Responsibility of the local government (own work based on [4][5][6])

| Local government  | Art.7. Commune [4]  | Art. 4. 1. County [5]  | Province [6]  |
|-------------------|---|--|---|
| responsibility of | 1) spatial management, real estate, environmental and nature and water management;<br>2) municipal roads, streets, bridges, squares and traffic organization;<br>4) The local public transport;<br>11), markets and exhibition halls;<br>14) public order and safety, and fire protection incandescent and flood control, including equipment and maintenance of municipal flood storage; | 6) public transport and public roads;<br>13) environmental protection and nature conservation;<br>15) public order and security of citizens; | Art. 11. 1. The provincial government determines the developmental strategy of the region, taking into account in particular the following objectives:<br>2) the stimulation of economic activity;<br>3) improving economic competitiveness and innovation the province;<br>2. The regional government has a policy of development of the region, which comprises:<br>1) creating conditions for economic development, including the creation of the labor market;<br>2) the maintenance and development of social and technical infrastructure of the importance of provincial facilities;<br>Art. 14. 1. The provincial government shall perform the duties resulting from certain provincial laws, in particular:<br>7) spatial development;<br>8) environmental protection;<br>10) public transport and public roads; |

Each of them has a right to regulate road traffic.

The fundamental legal regulation about public roads is the Act of 21 March 1985 on public roads. (Ustawa z dnia 21 marca 1985 r. o drogach publicznych. Dz.U. 1985 nr 14 poz. 60) [2]

Another regulation is the act on road traffic the Act of 20 June 1997 - Road Traffic Law [1]. There in the Act of 21 March 1985 on public roads which is an order for art.20. 5) about implementation of tasks in the field of traffic engineering.

The third legal regulation on road transport in Poland is the Act of 6 September 2001 on road transport [3]. There is in sub-article 2 Article 3 Exclusion of application of the provisions of the Act., 2) with a maximum mass exceeding 3.5 tons in the road haulage and road transport of non-profit things. It means that the driver or owner of a delivery vehicle of less than 3.5 tons does not need to have a license to perform national road

haulage in the field of passengers and the carriage of goods. This subject is not brought up in any other regulations..

In this area, there is no information about legal solutions for deliveries. In Poland, deliveries in the city centre generally are realized by vehicles with a total mass of less than 3.5 tons. That is a cause of very dangerous situations in delivery on roads.

## 5. THE PROPOSED AMENDMENTS TO CERTAIN LEGAL ACTS TO IMPROVE THE STRATEGY OF SUSTAINABLE TRANSPORT IN URBAN AREAS IN THE SUPPLY OF GOODS IN THE CITY CENTRE

Security of supplies in the city centre depends on respecting the law by drivers and the ability of rational and logical solving traffic problems and provision of supplies to traders in the town centre. That suggest that is need to add to law regulation of new parameters:

### 5.1. Obligatory equipment all delivery vehicles (even it is rebuilding personal car) in the data recorder with recording of the time of work, total mass and speed.

A prototype is now being tested at the Institute of Vehicle Transport (Fig. 2) [17].

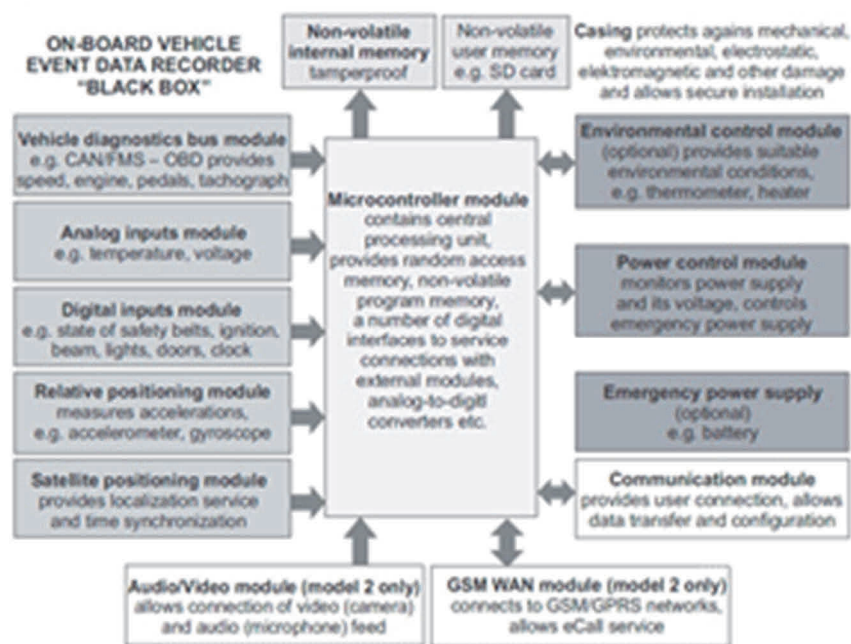


Fig. 2 The functional structure of the event data recorder [17]

The proposed recorder - a car black box, can be used to record data concerning the technical condition of the vehicle, the driving technique, and the driver's compliance with traffic rules and road traffic safety in the following vehicles [17]:

- passenger cars and privileged cars - will allow the registration of the data mentioned above and will provide evidence in the case of an accident,
- Buses and taxis - apart from the recorded data, it will help to ensure the safety of the driver and passengers, will enable the location of vehicles in the event of theft,
- trucks - provide data on the state registration of the technical location, will contribute to a reduction in the in the number of accidents and ensure safety of the driver.



## **5.2. Obligatory equipment of owners of trade points in the city centre and owners of delivery vehicles in hand truck for realization of delivery**

Based on Dz.U.2000.26.313 - Regulation of the Minister of Labour and Social Policy of 14 March 2000 [18]. On occupational health and safety manual handling, where which contains:

Art. 21. The movement of the wheelchair

1. The maximum permissible mass of the moving load in a wheelchair after the flat on a hard surface, plus the mass of the carriage, shall not exceed:

- a) 350 kg - for a 2-wheeled trolley,
- b) 450 kg - with a wheelchair with 3 or 4 wheels.

2. When moving loads in a wheelchair over gradients greater than 5%, the weight of the load, including the weight of the truck must not exceed:

- a) 250 kg - for a 2-wheeled trolley,
- b) 350 kg - with a wheelchair with 3 or 4 wheels.

3. Manual handling of loads on a wheelchair is prohibited on surface gradients of more than 8%, and at distances greater than 200 m.

Under the DORED program [13][14], information was collected that mass of one delivery for one trade point is about 450 kg, which means that each delivery vehicle must be obligatory equipment in a hand truck for the realization of delivery. Without this equipment, the supplier cannot perform the delivery operation in a short time. They may change the total time of delivery of the ordered cargo by the customer by dividing it into small parcels under transport in hands. That will reduce the time of delivery and the road blocking time where there are no specially designed places for delivery.

## **5.3. Obligatory input to the Act of 20 June 1997 - Road Traffic Law [1] regulation about conditions of delivery**

There is Art. 48 (repealed) (Polish: uchylony). Changes in it:

Art. 48

1. Delivery vehicles are allowed to stop

- a) at the place designated by road signs - Place for delivery
- b) on the sidewalk or part of a parking lot
- c) on a given stretch of road if spaces non-stop or a stop at designated times and days,
- d) stopping may do not interfere with the flow of traffic on the road

2. Stopping for delivery operations is allowed after the road sign of prohibited stopping or parking only with special marking

3. The place for the delivery vehicle is determined in consultation with stakeholders

## **5.4. Obligatory input to the Act of 21 March 1985 on public roads (1985) [2] that the road owner must decide about places for deliveries with agreement of stakeholders.**

Changes in it:

Art. 20. The manager of the road, in particular:

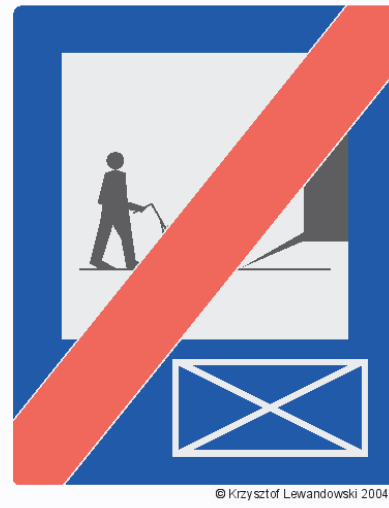
5a) determine free of charge places for delivery and determine the conditions for delivery to economic operators lying along a road in consultation with stakeholders

### 5.5. Input to use a new road sign: Place for delivery.

Based on the Regulation of the Minister of Infrastructure and Internal Affairs and Administration on road signs and signals of 31 July 2002, two new road signs were introduced (Fig.3 and Fig 4)..



**Fig.3.** D-50. Place for delivery, begin of place [12]



**Fig.4.** D-51. Place for delivery, end of place for delivery [12]

### 5.6. Obligatory input to legal acts about local government [4][5][6] right of responsibility of regulation that the road owner must decide about places for deliveries with agreement of stakeholders.

Change in it:

Act on communes. (1990) [4]:

Art 7.

4a) determine free of charge places for delivery and determine the conditions for delivery to economic operators lying along a road in consultation with stakeholders,

Other regulations should be introduces:

Obligatory training for town-clerks about delivery problems under normal road traffic in the city centre,

Act on counties. (1998) [5]:

Art. 4. 1.

6a) determine free of charge places for delivery and determine the conditions for delivery to economic operators lying along a road in consultation with stakeholders

Others regulations should be introduced:

Obligatory training for town-clerks about delivery problems under normal road traffic in the city centre,

Act on provinces,(1998) [6]:



Art. 14. 1.

10a) determine free of charge places for delivery and determine the conditions for delivery to economic operators lying along a road in consultation with stakeholders.

Others regulations should be introduce:

Obligatory training for town-clerks about delivery problems under normal road traffic in the city centre,

Each level of local government should have the possibility to get high penalties for vehicles parked in the designated place for delivery.

Obligatory indication of a free of charge place for delivery should be designated by each level of local government which decides about sustainable transport in urban areas.

### **5.7. Decreasing a total mass of vehicles without license from 3.5 tons to 1.5 tons.**

Unfair competition for company trucks with a license is illegal and unfair for economy. The increasing number of overloaded cars suggests that a change in legal acts is needed. All cars with a mass from 1.5 tons up to 3.5 tonnes uses for transport of goods must have a tachograph fitted.

In the case of an inspection on the road, the inspector must see that if in the car box there are for example, six pallets with sugar and the driver is the owner of the car and has a tax paper for him because this car is owned by a bakery that means this car is used for their own activity.

If in the car box, there is equipment for team repair building, this car is also used for non-profit activity. If in the car box there are six pallets with tax papers for another company that means this car is used for business activity.

## **6. CONCLUSION**

Amendments have been proposed to certain legal acts to improve strategies for sustainable transport in urban areas, the supply of goods in the city centre by reducing the number of accidents and reducing the cost delivery costs, which translates into the cost of the final product at the point of trade. These costs are paid by customers at trade points, inhabitants and guests. Thus, owing to these solutions, each supplier may have a chance to have high reliability for the expected time of delivery [16].

## **REFERENCES**

- [1] ACT OF 20 JUNE 1997 - ROAD TRAFFIC LAW, pol. Ustawa z dnia 20 czerwca 1997 r. - Prawo o ruchu drogowym. Dz.U. 1997 nr 98 poz. 602.
- [2] ACT OF 21 MARCH 1985 ON PUBLIC ROAD, pol. Ustawa z dnia 21 marca 1985 r. o drogach publicznych. Dz.U. 1985 nr 14 poz. 60.
- [3] ACT OF 6 SEPTEMBER 2001 ON ROAD TRANSPORT, pol. Ustawa z dnia 6 września 2001 r. o transporcie drogowym. Dz.U. 2001 nr 125 poz. 1371.
- [4] ACT ON COMMUNES. pol. Ustawa z dnia 8 marca 1990 r. o samorządzie terytorialnym. Dz.U. 1990 nr 16 poz. 95.
- [5] ACT ON COUNTIES. pol. Ustawa z dnia 5 czerwca 1998 r. o samorządzie powiatowym, Dz.U. 1998 nr 91 poz. 578.
- [6] ACT ON PROVINCES, Ustawa z dnia 5 czerwca 1998 r. o samorządzie województwa. Dz.U. 1998 nr 91 poz. 576.
- [7] ACT OF REGULATION OF THE MINISTER OF LABOUR AND SOCIAL POLICY OF 26 SEPTEMBER 1997 ON THE GENERAL SAFETY AND HEALTH (1997) (pol. Rozporządzenie Ministra Pracy i Polityki Socjalnej z dnia 26 września 1997 r. w sprawie ogólnych przepisów bezpieczeństwa i higieny pracy, Dz.U. 1997 nr 129 poz. 844.)

- [8] CONSTITUTION. pol. Constitution of the Republic of Poland, Dz.U. 1997 nr 78 poz. 483, Konstytucja Rzeczypospolitej Polskiej z dnia 2 kwietnia 1997 r. uchwalona przez Zgromadzenie Narodowe w dniu 2 kwietnia 1997 r., przyjęta przez Naród w referendum konstytucyjnym w dniu 25 maja 1997 r., podpisana przez Prezydenta Rzeczypospolitej Polskiej w dniu 16 lipca 1997 r.
- [9] REGULATION OF THE MINISTER OF LABOUR AND SOCIAL POLICY OF 14 MARCH 2000. On occupational health and safety manual handling, (pol) Dz.U.2000.26.313 - Rozporządzenie Ministra Pracy i Polityki Społecznej z dnia 14 marca 2000 r. w sprawie bezpieczeństwa i higieny pracy przy ręcznych pracach transportowych Dz.U.2000.26.313 -
- [10] GITD, Główny Inspektorat Transportu Drogowego (2013), Informacja dotycząca działalności Inspekcji Transportu Drogowego w 2012 roku, Warszawa, marzec 2013,
- [11] KOBYLKA A., Wydział Informacji i Promocji General Inspection of Road Transport. Email from 24 January 2014.
- [12] LEWANDOWSKI K. Propozycja znaku drogowego miejsca wypadku. Logistyka. 2011, no 3, pp. 77.
- [13] LEWANDOWSKI K. The problems of supply of trade points in centres of cities. Results program DORED. (pol.) Problemy zaopatrzenia punktów handlowych w centrach miast: wyniki badań ankietowych programu DORED. Logistyka. 2012, nr 2, pp. 853-863.
- [14] LEWANDOWSKI K. 5 cases in the last 100 meters of delivery of goods. Procedia: Social and Behavioral Sciences 2014, vol. 151, pp. 183-195.
- [15] LEWANDOWSKI K. Safety of delivery process in city centre, case study. Journal of Polish Safety and Reliability Association, Summer Safety and Reliability Seminars. 2014, vol. 5, no 2, pp. 101-107.
- [16] LEWANDOWSKI K. Reliability of the delivery in the last 100 meters. Safety and reliability: methodology and applications, Proceedings of the European Safety and Reliability Conference, ESREL 2014, Wrocław, Poland, 14-18 September 2014 / eds. Tomasz Nowakowski [i in.]. Leiden: CRC Press/Balkema, cop. 2015. s. 2377-2386.
- [17] NOWACKI G, NIEDZICKA A.: Conception of event data recorder black box for all types of motor vehicles, Technical transactions, 5M-2012, Issue 10, Year 109, p. 163-172
- [18] REGULATION OF THE MINISTER OF INFRASTRUCTURE AND INTERNAL AFFAIRS AND ADMINISTRATION ON ROAD SIGNS AND SIGNALS OF 31 JULY 2002, pol. Rozporządzenie Ministrów Infrastruktury oraz Spraw Wewnętrznych i Administracji z dnia 31 lipca 2002 r. w sprawie znaków i sygnałów drogowych. Dz.U. 2002 nr 170 poz. 1393.
- [19] REPORT ON THE ACTIVITIES OF THE STATE LABOUR INSPECTORATE IN 2011, (2012) Warsaw (pol. Sprawozdanie z działalności Państwowej Inspekcji Pracy w 2011 roku, Warszawa 2012)
- [20] TVN24 WROCŁAW , ITD zważyła auta dostawcze. Posypały się mandaty, 26 listopada 2012, <http://www.tvn24.pl/wroclaw,44/itd-zwazyła-auta-dostawcze-posypaly-sie-mandaty,290937.html>