URBAN TRAFFIC CONGESTIONS IN MEDAN ARE SERIOUS

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Abstract
Urban traffic congestion often become topics in seminars, has been discussed and investigated by various experts, and often become chatting topics for community from various classes everywhere. Indeed, urban traffic congestion cannot be eluded, however it supposes to be minimized and not maximized (intentionally or not), like what has been visible now, that is “an interesting scene” or the contest of “line exhibition of various types of queuing vehicles” at every segment of roads in Medan. How is the existing policy objectives and the City Regional Layout Planning (RTRWK) of Medan? And how is the relationship with the urban transport systems of Medan?

Keywords: Traffic congestions, Urban transport

Traffic congestion occurred due to the road segment has started not to be able to accommodate/distribute the vehicle flows that spilled over the road. This could happen because of high side friction effects which lead to road segment stricture (bottleneck), for instance: on road parking, selling/market on road or on the sidewalks, trishaw and urban public transport (angkot) poles, on road social activities (party or funeral ceremony), pedestrians (on road walking and/or crossing), etc. In addition, the congestion is also often caused by less accurate intersection management (with or without traffic light), added by high accessibilities to the surrounded land use of the road segments.

Traffic congestion on the intersection segment can be observed from the long queued vehicles; due to the number of vehicle arrivals (pcu/minute) is quite high on the road segment, while the number of vehicles that can be distributed is very limited during the green-light time, cause the queue length becomes more intense. When the distances between intersections are close enough, then the traffic queue on the preceded intersection will affect the succeeded intersection, which consequently causes series of congestions at all integrated junctions. Furthermore, the traffic congestion/delay and harmful accident also occur due to the behaviour of angkot’s drivers that often turn up (nyelonong) and suddenly stop on/in the middle of road to get on/off the passengers due to “reaching the daily bill target” (kejar setoran). Therefore, the urban traffic jam is not only due to the unbalance ratio between infrastructure developments and means boost (vehicles) and low discipline level of motorists, like what always become reasons/arguments for various relevant government parties/individual to protect themselves.

The impacts and financial losses caused by traffic congestion that are directly affected are:
1. For users (travellers), e.g. wasting petrol, increase the travel time, and stress (triggering high blood pressure, heart disease),
2. For surrounded environment (non users) such as air and noise pollutions, less visitors to land use functions of surroundings roads (parking,
An illustration for the amount of financial losses per day that has to be borne by the traveler community in Medan based on author’s observations and estimations is as follows: Congestion locations per day in Medan are about 60 road segments (30 intersection spots, with assumption of 2 road segments are congested per intersection). Each congested road segment has average traffic volume of 2,500 pcu/hour at peak hours. In Medan, there are about 4 hours peak per day; therefore the average petrol waste is about 0.5 litre/pcu/road segment. While the petrol (BBM) price is Rp 1,850/litre, and the average delay is about 10 minutes/pcu/travel, and the average value of time of traveler is about Rp 40,000/productive hour (assumption: 1 vehicle contains 1 person). The average number of angkot’s users for 4 peak hours is about 120,000 passengers with value of time is Rp 20,000 per productive hour and the waiting time delays averaging about 10 minutes, therefore the loss of angkot due to less passengers (less trips) with about 15,000 total armada (angkot and taxi) is about Rp 12,000/vehicle.

The waste petrol occur = 2,500 x 0.5 x 4 x 60 x Rp 1,850 = Rp 555,000,000. The loss due to productive time = 2,500 x 60 x 15/60 x Rp 40,000 = Rp 150,000,000. The loss due to delayed waiting time = 120,000 x 10/60 x Rp 20,000 = Rp 400,000,000. The loss of public transport operators = 15,000 x Rp 12,000 = Rp 180,000,000. Therefore, the total financial loss for traveler community (user) is Rp 1,285,000,000 per day (± Rp 36 Billions per month), added by stress burden that has to be experienced. This is not even yet the loss that has to be carried by non-users (needs further investigation with more accurate data). Thus, the more the locations and the higher the levels of congestion, then the larger the loss that has to be borne by traveler community (user) and non-users.

In conclusion, the urban congestion is not deserve just as a chatting topic for community, however it has to become a serious attention for all levels of road user communities, especially for regulators (The City Government and the Regional House of Representatives), law supervisors (police, Department of Communications/DLLAJ), researchers/planners of transportation and city region development.

Post application of policy package of determining the traffic movement direction from two ways to become one way in several road segments in Medan is increasingly discussed through seminars and newspapers, especially about the one-way policy on Gatot Subroto road segment (from roundabout of Petisah until Gatot Subroto – Iskandar Muda intersection).

From the existing road hierarchy, function and classification, Gatot Subroto Street is a Primary Artery Road and operating as a State Highway (inter-provinces) as well as S.M. Raja Street. As a Primary Artery Road, the City Government should rigorously mull the policy over through deeper and comprehensive (integrated) academic investigation/research in accordance with road network systems and traffic movement patterns.

The stipulations based on the road hierarchies, functions and classifications, state that the services of Primary Artery Roads, especially in large cities, should be sustained by managing the traffic systems in such a way in order to maintain the average operational velocity of vehicles, so that the traffic flow condition on the road segments is expected to be constantly fast, continuing along the roads, at both inside and outside the cities (suburban). To achieve these goals, then the accesses to local roads along the Primary Artery Roads should be limited, including limiting the direct accesses to surroundings land use (e.g.: market, plaza, real estate, schools and retail) and limiting the impacts of side frictions.

Prior to the one-way policy on Gatot Subroto Street, the traffic flow distributions according to the both directions are similar in general, with a small difference is at morning and afternoon peak hours. However, the prevailed one way policy is only from Petisah Roundabout until Gatot Subroto-Iskandar Muda intersection (from East to West direction), which causes:

1. Flow stricture occurs (bottleneck) on Gatot Subroto-Iskandar Muda intersection caused by the shift of one-way flow (from Medan to Binjai) to become two-way flows (starts from the intersection nozzle of Gatot Subroto-Iskandar Muda to Binjai direction), which consequently causes higher congestion level on one-way flow of Gatot Subroto Street, especially at afternoon peak-hours.

2. Adding susceptible spots and congestion levels on the other intersection road segments caused by shifting the traffic flow distributions, such as follows:
   a. Ayahanda intersection: traffic flow disposal of Gatot Subroto Street from West to East direction becomes more excessive to Ayahanda Street and/or Darussalam Street; The congestion from Darussalam Street will affect Pabrik Tenun Street, continually to the intersection of Skip Street and keep going to Gereja Street until Glugur junction.
   b. Asrama intersection: traffic flow disposal of Gatot Subroto Street from West to
East direction becomes more excessive to Asrama Street.

c. Western intersection, \textit{traffic flow disposal} of Gatot Subroto Street from West to East becomes more excessive to K.H Wahid Hasyim Street and affects the intersection of Gajah Mada – K.H.Wahid Hasyim and continually to the intersection of Gatot Subroto – Iskandar Muda (extreme congestion). The congestion from Gajah Mada Street flows to S.Parman Street and continually to Kejaksaaan Street (becomes more severe at the intersection of Imam Bonjol – Diponegoro). The congestion from Kejaksaaan Street will flow to Kpt. Maulana Lubis Street intersection and continually until the intersection of Raden Saleh Street (becomes extremely congested).

d. From KH.Wahid Hasyim Street, the traffic flow will affect the intersection of Abdulah Lubis Street, which will continually unite with the flow from Iskandar Muda Street at the intersection of Abdulah Lubis – Iskandar Muda causes severe congestion at the intersection.

e. The intersection of Gajah Mada – Iskandar Muda, the traffic flow comes from Gajah Mada Street to Iskandar Muda Street will cause travellers search alternative roads around the accessible roads, such as: Hayam Wuruk Street, Dr. T. D. Pardede Street, etc, which causes additional congestion in various intersections along Iskandar Muda Street and continually causes congestions at the intersections of each alternative road with S.Parman Street that affect the intersection of S.Parman Street with Sudirman Street.

3. Reduce accessibilities to Petisah market and retails/office complex around the road due to the \textit{one way} flow, especially flows from West to East for land users on surroundings road segments, e.g. demand reduction to market/shopping areas, parking.

4. The reallocation of \textit{angkot} routes to other road segments, which previously passes the road segment of Gatot Subroto (specifically from West direction to East). Considering the too \textit{many} routes and \textit{angkot}'s armada that pass the road segment simultaneously with longer routes (chaotic reallocations, without solemn planning and up to \textit{angkot}'s will), cause the traffic chaotic and congestion more severe on road segments and intersections that accommodating the impacts. Not yet adding with financial loss for the \textit{angkot}'s drivers due to fewer passengers, less trips and longer travel distances.

5. Additional of heavy duties, higher costs and more plenty security guards (DLLAJ, police), especially during the policy application term.

What become salient questions are: \textit{Has City Government of Medan (Pemko) accurately mulled the amount of losses over including other effects caused by the one-way policies? How much more the losses, which have to be bare by the community? And to where the direction of further development of Medan, if not based on RTRW Medan City, that has to be integrated with RTRW of North Sumatra Province and has been enacted (Perda)?}

The author give temporary \textit{win-win solutions} (without comprehensive data analysis), about the possible policy that may be more effective to be applied (with the existence of Medan Fair Plaza), \textbf{in one conditional that the traffic flows should be changed back to two-ways flows}. The \textit{win-win solutions} are:

1. The development of Warga Street which has to be followed by the establishment of fly-over (\textit{jalan layang}) at the intersection of Gatot Subroto – Iskandar Muda, which will enable to reduce conflict spots of the intersection (therefore \textit{continued flows} will separate from \textit{turned flows}). Retail business owners/shareholders of Medan Fair Plaza are expected to (should) grant the financial compensation for the development of both types of road.

2. The \textit{ingress and egress accesses} of Medan Fair Plaza are not permitted from Gatot Subroto Street, therefore it is necessary to determine the both accesses from other surroundings road alternatives in accordance with the road functions and hierarchies. Thus, there will be no more \textit{direct access} from Gatot Subroto Street to Medan Fair Plaza.

The both solutions above will exactly minimize the traffic congestions along Gatot Subroto Street although the traffic flows are still in \textit{two-ways} flows like previously. Whereas for the policies of traffic flow direction management of other road segments in Medan, it is compulsory to undertake further investigations that are more integrated according to the comprehensive systems.

Enacting the \textit{one-way} policy on several road segments, causes community has experienced the negative impacts, only then the City Government \textit{(Pemko)} issues a plan to develop the Warga Street.
How long will the development vow be a fact so that the financial and psycho losses for the community can be estimated and bore? If, for instance, the vow has become a fact, the management of traffic problems might be different again, because the perceptions and the travellers’ traits have patterned on road network according to time. Therefore, it is better if the road networks (infrastructure) have been built primarily before applying the traffic management policies, so that the traffic management in Medan is not by spots, but it should be by network systems that are integrated, cooperative and sustainable.

The development of Medan City has rapidly advanced nowadays, especially for retails’ businesses that tend to be concentrated on the surroundings CBD (Centre Business of District) area, whereas the development of the road infrastructure has seen nothing. In the future, after the congestion problems become very serious and the solutions are only either to widen the roads or to establish a new road or a fly over, then these will cost huge money and social impacts and will cause a lot of stress to urban community as the expelled victims.

Therefore, it is highly expected that the development programs of Medan City is not centralized only in CBD area or in the other word “heaping sugar in city centre” so that the “ants will gather and rotate in city centre” that causes various bigger urban problems (not only in transportation sector but also in other sectors) so that the solutions become heavier and more complicated. The city establishment /development concepts are expected not only having temporary goals or just taking the advantages (lagi mumpung), moreover the effects will be very heavy and complicated for community.

Thus, the direction of city development is compulsory determined based on the City Regional Layout Planning (RTRWK) of Medan and it should be synergized for both inside and inter development sectors with RTRW of Metropolitan Medan – Binjai – Deli Serdang (MEBIDANG) simultaneously with RTRW of North Sumatra Province.

References