



REPORT

COMMUNITY SERVICES COMMITTEE

MEETING DATE: APRIL 25, 2016

FROM: Engineering and Construction Department

DATE: April 4, 2016

SUBJECT: Traffic Calming Process Update

LOCATION: Town wide

WARD: Town wide

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RECOMMENDATION:

1. That the update to the *Traffic Calming Process*, as detailed in the staff report dated April 4, 2016 from the Engineering and Construction department, be approved.
2. That staff report back to Budget Committee on plan to address the capital funding required for the ongoing costs associated with the use of twelve (12) *Radar Speed Display Sign (RSDS)* units as a permanent addition to the Traffic Calming Program.
3. That staff initiate the development of a *Pedestrian Safety Program* at a cost of \$100,000 to be funded from the Capital Reserve, and that staff report back to Council in Q2 of 2017 with the details of such a program to be considered.

KEY FACTS:

The following are the key points for consideration with respect to this report:

- Traffic calming has been implemented on town's roads for over 10 years
- Passive treatments have been applied on a reactive basis while physical treatments have been implemented at all warranted elementary school zones
- Physical calming treatments have generally been limited to elementary school zones
- 862 residents participated in a *Traffic Calming and Speed Limit Survey*; the results of the survey are further detailed in this report.
- Radar speed display signs (RSDS) have been piloted in 2014 and 2015 and have proven to be effective as a temporary traffic calming device
- The use of RSDS units are recommended as a permanent addition in the first phase of traffic calming process; in total 12 units will be deployed at appropriate candidate locations in the town.

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- Staff have developed a *Toolbox of Traffic Calming Measures* that would be used as appropriate traffic calming measures in Oakville.
- An updated Traffic Calming process is outlined in Appendices E and F.
- The estimated additional capital budget funding to support the use of RSDS units as a permanent addition of the traffic calming program going forward is approximately \$120,000 annually to utilize the units to their fullest potential; staff will be reporting back to Budget Committee on plan to address the capital funding required and with options for service levels for the RSDS program.
- While the traffic calming program addresses locations with speeding concerns, there are locations throughout town that do not have a speeding problem but have higher pedestrian activities that would merit some form of a protected pedestrian crossing or other means to address pedestrian safety. In many respects, residents/pedestrians equate the lack of safe crossings to a traffic speeding problem.
- Staff recommends that the development of a *Pedestrian Safety Program* be initiated at an estimated cost of \$100,000, to be funded from the Capital Reserve, and that staff report back to Council in early Q2 of 2017 with the details of such a program for its consideration.
- Upon the approval of this report, staff will undertake to complete a formal policy and procedure document outlining the details of a new traffic calming program as per this report.

BACKGROUND:

This staff report has been prepared to provide a review of the current process and traffic calming methods and to recommend modifications to update the town's *Traffic Calming Process* moving forward.

A *Traffic Calming Policy* was first approved by Council on June 16, 2003. The policy provided a set of factors for the initiation, preparation, and completion of a traffic calming project. It had been developed in recognition of the experiences and practices of other jurisdictions, and reflected the best practices in traffic engineering at the time.

At the time, the town adopted the use of "speed humps" and nine (9) of these devices were installed along Chartwell Road. Although the technical impact assessment of speed humps revealed significant reduction in operating speeds, the Oakville Fire Department and Halton Ambulance Services expressed concerns about them. They both advised that having a nine (9) vertical deflection devices along Chartwell Road have impacted significantly on overall emergency response times and requested that the number be reduced. As a result, five (5) of the speed

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humps were removed from Chartwell Road; the remaining speed humps remain in place today.

In 2009, Council approved that the *Traffic Calming Policy* framework be rescinded in favour of a more streamlined *Traffic Calming Process for Retrofit Situations*. The modified process rationalized some of the previous warrant criteria from 2003 to allow more effective evaluation and ranking of candidate locations. Further, the process adopted the 85th percentile speed as the major operating speed characteristic that is compared to the warrant criteria.

Since the start of the revised process/program in 2009, the town has focused primarily on the two types of the traffic calming treatments:

- Passive, i.e. line markings and/or signage; or
- Physical, i.e. intrusive treatments that modify the shape and/or form of the travel lane making it uncomfortable for drivers to attain high speeds

Passive measures have been implemented liberally throughout various local and collector class roadways in town. Passive traffic calming treatments are a simple modification in comparison to physical treatments. Passive modifications are intended to visually reduce effective lane width for a motorist and in most circumstances re-allocate some of road space to cyclists and on-street parking. Passive treatments were implemented on either a proactive or reactive basis and were typically applied uniformly over the entire road section. A map outlining town's passive traffic calming projects to date is included in Appendix A of this report.

The application of physical traffic calming treatments for the most part have consisted of speed cushions and flexible bollards for two-lane roadways and raised barrier medians for three-lane roadways. To date, speed cushions have only been installed at elementary school zones. It should be noted that speed cushions were developed to address the issues raised by emergency services with regards to the response time and vehicle damage with the speed humps used on Chartwell Road previously. The current design of speed cushions, flexible bollards and raised barrier medians have been acceptable to emergency services.

Application of the speed cushions in Oakville has also evolved since 2009. The originally installed speed cushions were portable rubber units, with restricted operating duration; they had to be removed during winter months to avoid snowplow damage. In 2011, the town initiated a pilot project to convert a rubber speed cushion to concrete. The pilot was considered successful and since that time all rubber speed cushion locations have been converted to concrete. The concrete versions provide year-round traffic calming and are highly successful in reducing speeds to the range of 30-35 km/hr (at the cushion). Physical traffic calming projects to date are included in Appendix B of this report.

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While speed cushions are very good at reducing speeds, they also may lead to traffic infiltration issues where motorists avoid road sections treated with cushions and divert their routes to other nearby roads. This was clearly the case when the town piloted speed cushions along Eight Line north of Upper Middle Road in 2010. Council directed staff to remove those cushions shortly after their installation. Council also approved the following recommendation:

That the speed cushion traffic calming treatments as a pilot project for Eighth Line and Postmaster Drive not be re-installed and that speed cushions not be considered as a physical traffic calming treatment for arterial and major collector roads.

Other physical traffic calming examples include midblock crossings that have been installed and one pilot project involving a mini-roundabout. Midblock crossings have been installed in Oakville along Bayshire Drive and on Grand Oak Trail. While they were installed to address pedestrian crossing issues, as they involve the placement of a median, they have had some calming effects on traffic speeds.

A mini roundabout was retrofitted at the intersection of Great Lakes Boulevard and Timeless Drive in 2012 as a pilot project. The speed reduction results at the intersection were very favourable; however, the cost of the mini roundabout was quite significant (approximately \$120,000 4 years ago).

As a means to manage speeding issues on local and collector roadways outside the school zone areas, staff undertook a pilot project involving Radar Speed Display Signs (RSDS) starting in 2014. RSDS are intended to lower the operating speed of a roadway by reminding drivers of the speed they are travelling at. By design, RSDS can be employed on two-lane roadways displaying and collecting data per lane per approach. RSDS were implemented in six locations (1 location per each Ward) in 2014 and another six locations in 2015 (again, one location per Ward).

RSDS locations were chosen based on reported traffic and speeding concerns. The results of this pilot show an initial drop in speeds (up to 7 km/hr) and then a slow increase of speeds the longer the units were in place.

North Oakville Traffic Calming Guidelines

The development process for new communities north of Dundas Street offers an opportunity to create more livable neighbourhoods that encourage walking and cycling in complement with a street network that, through its design, tempers vehicular travel speeds. New residential development is planned to be designed with calmed neighbourhood streets. This aspect is to be taken into consideration in the early plan development (road layout, lotting) to ensure that the short block concept

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is embraced. To meet the speed operational thresholds for local and collector roads with posted speed limits of 50 km/h, physical calming measures are required for long, straight roadway sections of 300 m or more. To meet the operational threshold for roads with posted speed limits of 40 km/h, physical traffic calming measures will be required for straight roadway sections of 160 m or more.

The following are guidelines on the use of the traffic calming measures in newly developed areas of North Oakville:

- Curb extensions will be used at intersections where long, straight (including minor deflection and large radius curves and uninterrupted sections of a roadway equal or exceed 300 m for roads with a posted speed limit of 50 km/h, and 160 m for roads with the posted speed limit of 40 km/h.
- Chicanes will be used in midblock sections where long, straight (including minor deflection and large radius curves) and uninterrupted sections of a roadway equal or exceed 300 m for roads with a posted speed limit of 50 km/h, and 160 m for roads with a posted speed limit of 40 km/h.
- Traffic circles or mini-roundabouts may be used in lieu of curb extensions at intersections.
- Curb extensions may be used at locations other than at intersections, where high number of pedestrians may cross to utilize parks or other major pedestrian generators.
- Raised centre medians will only be used in unique cases such as opposite a left turn lane, where a corresponding left turn lane is not required in the opposite direction.

Curb extensions are already in place on a number of streets north of Dundas Street.

COMMENT/OPTIONS:

Traffic Calming Process Update Objectives

The objective of this traffic calming process update is to provide a comprehensive process that addresses vehicle speed issues on the town's local and collector road system. Since the inception of the town's initial *Traffic Calming Policy* in 2003, the town primarily focused on traffic calming the roadways around school zones. Alongside physical traffic calming, numerous locations have also received passive calming treatments where the measured traveling speeds have indicated driving behavior in excess of established traffic calming warrant criteria.

Now that the existing school zones have been addressed, staff have been reviewing how to expand and modify the traffic calming program. An updated traffic calming process is intended to establish more specific criteria for implementing physical traffic calming measures on local and collector roadways throughout Oakville.

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Fundamentals of this update will rely on the previously approved traffic calming process in terms of the technical and warrant system criteria; however the update will expand the areas where traffic calming devices can be used on local and collector roadways outside school zones, and will involve a wider range and different variations of the traffic calming devices.

Public Input for the Traffic Calming Process Update

In developing this traffic calming update, staff, through surveying of residents and consulting with town/Halton emergency services, attempted to balance the objective of operating speed reduction without impeding the optimal emergency response time.

Town Residents

In attempt to solicit public opinion, staff issued a *Traffic Calming and Speed Limit Survey* in September 2015. The town received 862 responses representing 1.4% of the total number of town's households. Key summary results of the survey are outlined below:

- The three (3) most preferred traffic calming measures selected by survey respondents are: radar speeds signs, raised crosswalks and passive calming techniques
- Majority of respondents indicated they would prefer physical traffic calming being implemented on a network level rather than on their neighbourhood or their street level, which seems to indicate that many like the idea of traffic calming in general but may not want the routes they use most often to be traffic calmed
- 265 (31%) of respondents indicated they currently have traffic calming implemented on their street
- Of those who responded they currently have traffic calming implemented on their street, 60 (23%) indicated the current traffic calming measures are effective, while 205 (77%) do not

Traffic calming survey questions and provided responses are attached in Appendix C of this report.

Fire, Transit and Emergency Services Access

Staff met with representative from Fire and Emergency Services (EMS) as well as Oakville Transit and the Roads & Works Operations Department to discuss various the traffic calming alternatives and what adverse impact they can have on the services they provide.

The Fire Department expressed some concerns with raised crosswalks; however, they agreed that some designs might be more acceptable than others. Emergency

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Services did not express any particular concerns with any of the listed traffic calming devices. Transit indicated that roundabouts and curb extensions are difficult for bus stop placement. Roads & Works indicated that curb extensions and chicanes are more challenging for the snowplow operation but they can adapt to address this.

It was agreed that before any design of the proposed measures are finalized, these stakeholders would be consulted for their comments.

Recommended Updated Traffic Calming Process (Policy/Procedure)

A new policy and procedure document for implementing traffic calming needs to be traceable and transparent such that the public understands it and that it provides guidance to town staff.

This section provides a basis for the technical assessment of a speeding problem and determining the suitable traffic calming measures to be implemented to resolve the issue. While the process is intended to be clear and consistent, it is recognized that each location and traffic issue may be unique.

Toolbox of Traffic Calming Measures

Staff have identified a number of traffic calming measures with their purposes and descriptions that are applicable to the town's road network and that would be used in an updated traffic calming process. They are outlined in Appendix D of this report. Measures staff are recommending for use going forward are:

- Raised crosswalks
- Curb extensions
- Roundabouts
- Raised centre medians
- Concrete speed cushions
- Chicanes
- Radar speed display signs
- Passive traffic calming measures (various)

Overall Strategy

The approach for a new traffic calming process is best summarized by the flow chart presented in Appendix E.

The overall approach in implementing traffic calming measures involves the following steps:

1. Project Initiation and Screening
2. Speed Warrant and Problem Definition
3. Evaluation and Refined Problem Definition – Passive Traffic Calming Treatments

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4. Evaluation and Refined Problem Definition – Physical Traffic Calming Treatments
5. Identification and Evaluation of Alternatives
6. Stakeholder Communication
7. Identification of a Preferred Alternative and Public Voting
8. Post Implementation Review

Consideration for a speeding review process can be identified in number of ways. The project commencement could be in the form of public or business complaints or through proactive initiation by town staff. In either case, a process is required to record and track the issue so that it cannot be lost or set aside.

When a speeding concern is raised, it needs to be first compared to recent or outstanding requests for a traffic investigation. If similar requests have been made and an investigation was completed, it should be reviewed to determine if the findings are still pertinent. If it is determined that the scope of a previous investigation was adequate to address the problem, and that the findings are still valid, then a response can be prepared on the basis of the conclusions of that inquiry. If it is determined that the scope of a previous investigation was inadequate to address the concern, then the process for consideration of a traffic calming measure review should be initiated.

The traffic calming process will be determined based on the extent of the problem area for which the traffic calming review is proposed, and on the roadway classification within the town's road network. The study area will also assess the affected residents.

Urban street classification is important to the process because different traffic calming treatments are recommended for different road classifications. For the purpose of the updated process, roadways are grouped into two (2) categories:

- Local and Minor Collector Roadways
- Major Collector and Arterial Roadways

Local and Minor Collector Roadways

If a traffic calming project is being considered on a local or minor collector street, a comprehensive solution that will benefit adjacent streets, and not just the subject street, must be considered. Adjacent residential streets captive to the subject street will be included in the review to minimize the potential for impacts. Town staff will perform the investigation of the subject street and the area, and the study limits will be subsequently identified. The traffic calming project will therefore focus on those residents on the subject street, and residents on any street captive to the subject street.

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The type of traffic calming applicable on local and minor collector street would include both vertical and horizontal deflection devices as outlined in the *Tool Box of Traffic Calming Measures* (Appendix D)

Major Collector and Minor Arterial Roads

If a traffic calming project is being considered on major collector or minor arterial streets, the study limits will include the subject street and its characteristics. Town staff will perform the investigation of the subject street, and the study limits will be subsequently identified. Horizontal deflection devices in a form of raised barrier medians have already been implemented on major collector roadways adjacent to elementary school zones. In addition, pedestrian refuge island have been installed at several trail connections across the town to assist pedestrians in safer crossing of a road.

Based on the Eighth Line experience discussed under the background section of this report, staff continues to advise that vertical deflection devices are too intrusive for major collector and arterial roadways and are not consistent with the primary purpose of those roadways to move vehicles efficiently, safely, and at higher speeds than local and collector roads.

Vertical deflection devices are not recommended for major collector and minor arterial roadway classifications.

Traffic Calming Phases and Priority Ranking

An updated traffic calming process will consist of two primary phases as outlined below:

Phase 1 – Project Screening to Identify Potential Problem Condition

Phase 2 – Identification and Evaluation of Alternatives

Staff are proposing to use RSDS units as the first step to address a speeding concern (year 1). After one year, if the problem persists, staff would investigate and implement appropriate passive measures (year 2). After the second year, if the problem continues, staff would review and recommend the appropriate type of physical measure to address the problem, review it with the neighborhood and implement it. This philosophy places emphasis on driver education/awareness (using RSDS units) in the early stages of the traffic calming process; this is a critical step in addressing aggressive driving behaviours, as in many cases the speeders are the residents in the community.

Priority ranking assessments for locations of concern will be based on the relative magnitude of the speeding problem, the exposure to the community, and safety

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history. Results of any given projects would be compared to other traffic calming projects in order to prioritize a list of traffic calming projects throughout the town.

Traffic calming phases and warrant assessments are outlined in Appendix F.

Discussion – Funding and Implementation:

The number of traffic calming projects completed in a given year will depend on the town's annual capital budget allocations for traffic calming and staff resources available. A list of traffic calming priority projects and their priority ranking will be updated annually.

Based on the available speed data staff have on file, there are currently twelve (12) locations that exceed traffic calming warrant thresholds and would be eligible for preliminary assessment. However, more than half of these locations have had speed surveys conducted prior to 2013, making the data more than 3 years old. Staff is proposing to reassess all of these locations in the spring of 2016 by conducting new speed data collection. By doing this we would have a clearer indication if and how many of these locations are still having speeding problems and warranting traffic calming.

Radar speed display signs have been deployed at a total 12 locations (6 per year) during the pilot projects in 2014 and 2015; they were allocated on a per ward basis (1 per). The speed surveys collected during their operation showed decrease in operating speeds by up to 7 km/h in the short term.

The cost to purchase a RSDS unit is approximately \$4,000. However, there are ongoing annual costs associated with these units, including installation/removal, repairs, life-cycle replacement and the associated dedicated part-time staff resources necessary to manage them (e.g. establish appropriate location, troubleshooting, collecting/analyzing traffic speed data). These additional costs are approximately \$10,000 per unit/year.

The town presently owns six (6) RSDS units through the pilot project experience. Staff recommends the town keep an inventory of twelve (12) RSDS units, requiring the acquisition of six (6) additional units. The acquisition of the additional units (approximately \$24,000) would be funded from an existing balance in the 2015 Traffic Calming Program capital project (53411502). For this year, the ongoing costs associated with managing twelve units will be funded from the 2016 Traffic Calming Program (53411604). Staff will move forward to acquire the additional units upon Council's approval of the recommendation of this report.

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It should be noted that the units would be committed to locations where there is an identified need, based on priority ranking assessments – not on a per ward specific basis as was the case during the pilot project.

Going forward, the ongoing costs associated with the use of twelve (12) RSDS units (estimated at \$120,000 annually to utilize the units to their fullest potential) will need to be addressed. Staff will be reporting back to Budget Committee on plan to address the additional capital funding required for the ongoing costs associated with the RSDS units as a permanent addition to the Traffic Calming Program, effective 2017. The report to Budget Committee will also include a range of service levels for consideration of the Committee. The town currently allocates \$158,000 annually to address traffic calming initiatives; this is not sufficient to address the ongoing costs associated with the use of the twelve (12) RSDS units without significantly impacting the amount of passive and physical traffic calming measures that can be implemented in a given year.

It should be noted that some forms of physical traffic calming referenced in the Tool Box of Measures (Appendix D) have more significant costs associated with them. The town has had some experience in retrofitting a mini roundabout (\$120,000 in 2012). In addition, the retrofit of curb extensions and chicanes can also be expensive items, especially if surface drainage patterns and/or utilities are impacted. Due to the significant costs associated with these devices, any recommendation by staff to implement them would be referred to the budget committee as separate traffic calming items.

New Initiative - Pedestrian Safety Program

The town's traffic calming program explicitly addresses locations with speeding concerns. However, there are locations throughout town that do not have a speeding problem to warrant traffic calming but they have higher pedestrian activities that would merit some form of a protected pedestrian crossing or other means to address pedestrian safety. In many respects, residents/pedestrians equate the lack of safe crossings to a traffic speeding problem.

There have been several examples over the years where residents have requested the installation of stop signs as a means to provide a "formal" pedestrian crossing in cases where:

- There exist longer stretches of roadway without stop signs
- Trails/pathways lead pedestrians to the side of a road
- Formal pedestrian crossings do not exist in the vicinity of a park.

Stop signs have a specific warrant process applied to justify their placement. The purpose of a stop sign is to address vehicular conflict at an intersection – they are

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not appropriate devices for traffic calming. In many cases, we are finding that stop sign warrants are not met when a resident requests one – typically because of the conflicting purpose.

However, there can be other means to address the crossing issues mentioned above without requiring a formal stop sign to be placed. Examples include various types of “mid-block crossings” – the town has initiated the placement of some of these devices but not to any significant scale. The Ontario Traffic Manual (OTM) has recently been modified and provides several new ways to address pedestrian crossings that may be appropriate for Oakville.

Staff recommends the town develop a *Pedestrian Safety Program*. The development of a program will require the support of consulting engineers to carry out a town-wide review to establish a pedestrian crossing “needs” list based on a set of criteria— from there, specific recommendations on the types and scales of crossings to be implemented, including a recommended annual budget to implement, will be developed and presented to Council for its consideration.

Staff will retain a consultant to commence this review later in 2016 and report back to Council in 2017. The cost of such an assignment is estimated to be in the order of \$100,000 and is proposed to be funded out of the Capital Reserve.

Next Steps

Should Council approve the recommendations of this report, staff will undertake to complete a formal policy and procedure document template outlining the details of the new Traffic Calming Process as per this report.

CONSIDERATIONS:

(A) PUBLIC

A public notification of the Traffic Calming and Speed Limit survey has been published through town’s website, community centres, libraries and residents associations. Stakeholders indicating that they wished further communications regarding the final report were notified of the Community Services Committee meeting.

(B) FINANCIAL

Staff is recommending the town maintain an inventory of twelve (12) RSDS units, requiring the acquisition of six (6) additional units. The acquisition of the additional units (approximately \$24,000) would be funded from an existing balance in the 2015 Traffic Calming Program capital project

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(53411502). The ongoing costs associated with managing twelve units in 2016 will be funded from the 2016 Traffic Calming Program (53411604).

Going forward, the ongoing costs associated with the use of twelve (12) RSDS units (estimated at \$120,000 annually to utilize the units to their fullest potential) will need to be addressed. Staff will be reporting back to Budget Committee on plan to address the additional capital funding required for the ongoing costs associated with the RSDS units as a permanent addition to the Traffic Calming Program, effective 2017. The report to Budget Committee will also include a range of service levels for consideration of the Committee. The town currently allocates \$158,000 annually to address traffic calming initiatives; this is not sufficient to address the ongoing costs associated with the use of the twelve (12) RSDS units without significantly impacting the amount of passive and physical traffic calming measures that can be implemented in a given year.

The cost to initiate the development of a Pedestrian Safety Program is estimated to be \$100,000 and is proposed to be funded out of the Capital Reserve. Capital costs arising out of the program development recommendations would be presented to Council in 2017 and referred to a future budget committee.

(C) IMPACT ON OTHER DEPARTMENTS & USERS

Transportation Strategy staff consulted with key service agencies (Fire, Emergency Services, Transit and Roads and Works) in regard to the traffic calming process update to ensure their operational requirements would be addressed. Communications, Strategic Business Support, and IS+S staff provided support in the development and distribution of the survey and in the interpretation of results.

(D) CORPORATE AND/OR DEPARTMENT STRATEGIC GOALS

This report addresses the corporate strategic goal to:

- continuously improve our programs and services
- be accountable in everything we do

(E) COMMUNITY SUSTAINABILITY

The safe operation of our roadways is an important facet to the social pillar of community sustainability.

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APPENDICES:

- A. Passive Traffic Calming Treatments Implemented in Oakville
- B. Physical Traffic Calming Treatments Implemented in Oakville
- C. Traffic Calming and Speed Limit Survey Results
- D. Traffic Calming Measures Tool Box
- E. Traffic Calming Process
- F. Traffic Calming Phases and Warrant Assessments

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