City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	April 6, 2011
From:	John Irving, P.Eng. MPA Director, Engineering	**File:**	10-6050-03/2011-Vol 01
Re:	**Lane Design Standards**		

Staff Recommendation

That Council endorse a two tiered lane design standard that includes Standard 1 (asphalt and a piped drainage system) funded primarily by the City and Standard 2 that adds curbs and gutter to Standard 1, with the incremental costs funded by benefiting parties.

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ROUTED TO:	**CONCURRENCE**		**CONCURRENCE OF GENERAL MANAGER**		
Roads and Construction	Y ☑ N ☐				
Development Applications	Y ☑ N ☐				
Transportation	Y ☑ N ☐				
REVIEWED BY TAG	YES ☑	NO ☐	**REVIEWED BY CAO** DEPUTY	YES ☑	NO ☐

Staff Report

Origin

The purpose of this report is to provide Council background on the City's lane development program and to recommend a new suite of lane design standards.

Background

The City's current design standard for lanes includes asphalt pavement, curbs, street lights and drainage as illustrated in Figure 1 below.

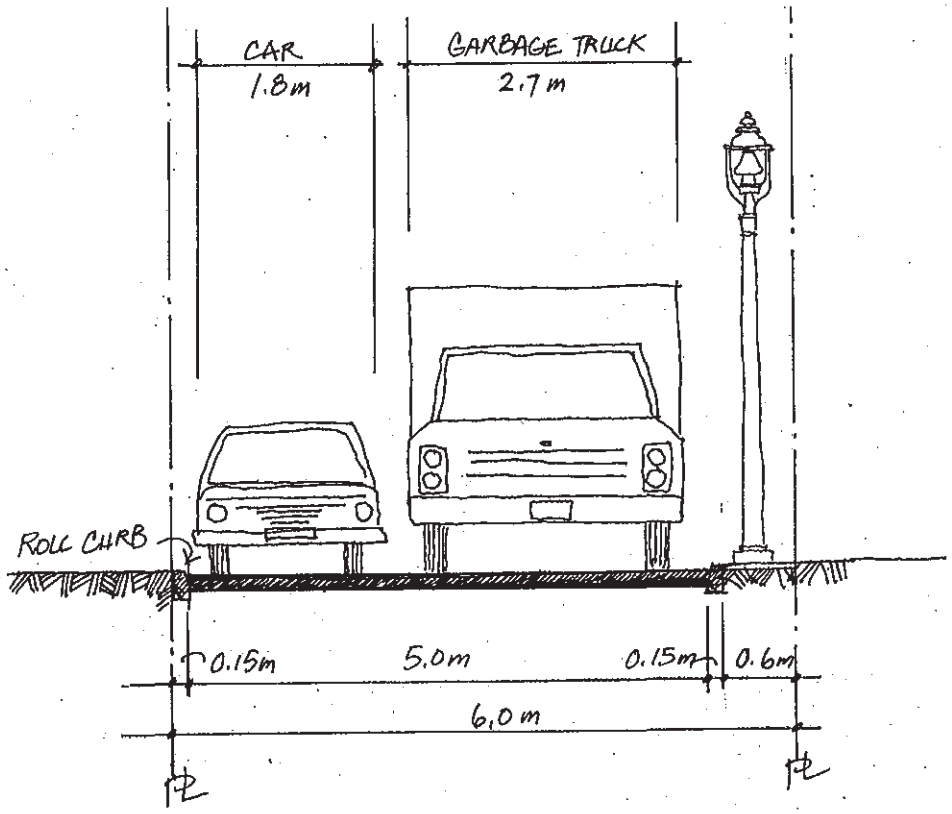

Figure 1 - Current Lane Standard

The lane standard has changed dramatically over the years. Previous standards included gravel surface treatments or paved surfaces with gravel shoulder drainage. While these standards met the public expectation and the drainage needs of the day, they are not adequate today. The public has a strong preference for paved lanes and environmental changes have increased demands on the drainage system. The City is trending toward higher urban density that includes less green space on private property which results in higher drainage demands. Combined with the impacts of climate change, the gravel lanes and paved lanes with gravel shoulders that provided good drainage service in the past do not perform adequately today.

In 1991, the City initiated a Neighbourhood Improvement Charge (NIC) program whereby developers contributed to a NIC fund for future neighbourhood improvements. While the NIC program can be utilized for a variety of neighbourhood improvements, it has been used primarily for the development of neighbourhood lanes. Lane development under the NIC program does not proceed until sufficient funds are collected to cover design and construction costs. An example of a completed lane project under the NIC program is the lane adjacent to No. 1 Road between Francis Road and Williams Road.

Analysis

A lane's primary functions are to provide vehicle access and drainage. Lane access to the backs of properties eliminates potential traffic disruption caused by turn movements into driveways, which is primarily a benefit on arterial or collector roads. Lanes also provide drainage that accommodates storm run off from the lane surfaces and adjacent driveways.

The City has approximately 60 lane rights-of-way for a total length of 37 km. Of these, 8 km of lanes are developed to the current City standard and 29 km were developed to older standards that are no longer adequate. Of these older lanes, only 6 km have piped drainage that meet modern storm demands. 18 km of older lanes have surface pavement with gravel shoulder drainage and the remaining lanes have a gravel surface treatment.

Lane upgrades are required mainly as a result of local flooding and lane 'rideability' issues, which are often related. These issues impact the City through complaints from residents and high maintenance costs. The City has a lane maintenance program that is included with all other roads maintenance activities, and high lane maintenance costs for the older lanes have significant impact on the overall roads maintenance program.

Staff developed a lane inventory which has been used as a basis for prioritization and an ongoing upgrade program. The most recently upgraded lanes in 2010 were near Alanmore Place ($150K) and the north side of Williams Road, between No. 4 Road and No. 5 Road ($1.3M). Several other lane upgrades were completed in prior years.

Lane upgrades approved by Council in the 2011 Capital Program include the north side of Maddocks Road ($600K) and Ainsworth Crescent ($450K). Design of these upgrades has commenced and construction is anticipated to be completed in 2011. Staff have included additional lanes in the 5-Year Capital Program to Year 2015.

Lane upgrade funding has been derived from a number of sources: primarily the NIC program, the Drainage Utility, and the Public Works Minor Capital program. NIC funding collected for lanes to date has been based on lane construction to the full standard including paving, curb/gutter, drainage system and street lights.

City Bylaw No. 8204, Flood Plain Designation and Protection (September 8, 2008), includes provisions that require developers and constructors to maintain living space at an elevation of 2.9 m geodetic or 0.3 m above the crown of adjacent roadways. While there are methods of meeting the bylaw requirements without increasing property elevation, the majority of single family home builders choose to add imported fill material, increasing the surface elevation of their

property. Ultimately, this process will increase the surface elevation of entire neighbourhoods; however, in the short run, it creates elevation differences between adjacent properties, and this has resulted in localized flooding in some instances. A significant portion of the localized flooding is occurring in older lanes that do not have drainage infrastructure adequate for today's demands.

Staff are working toward solving the identified flooding issues through lane improvements, however, the timing of funding is an issue. NIC funds can only be utilized in the neighbourhoods where they are collected, which means that the majority of properties on a street have to redevelop before lane construction can proceed.

The Drainage Utility and Minor Capital programs have limited resources that can be appropriated for lane improvements. While the current funding strategy is adequate in the long run, some property owners with flooding issues will have to wait a number of years to have their flooding issues addressed. Additionally, the flooding issues in older lanes may grow in the short term as additional properties redevelop.

The City has an obligation to maintain its lanes to a standard that includes acceptable driving surfaces and adequate drainage. Improvement of the lanes in a timely fashion will reduce complaints and maintenance expense. The following is a recommendation to move toward a two tiered lane standard that will allow staff to address lane issues in a more timely manner within existing funding constraints.

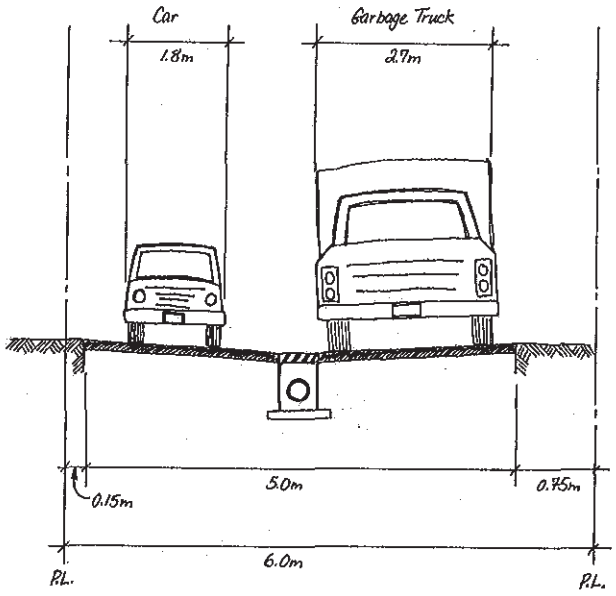

Figure 2 –Standard 1

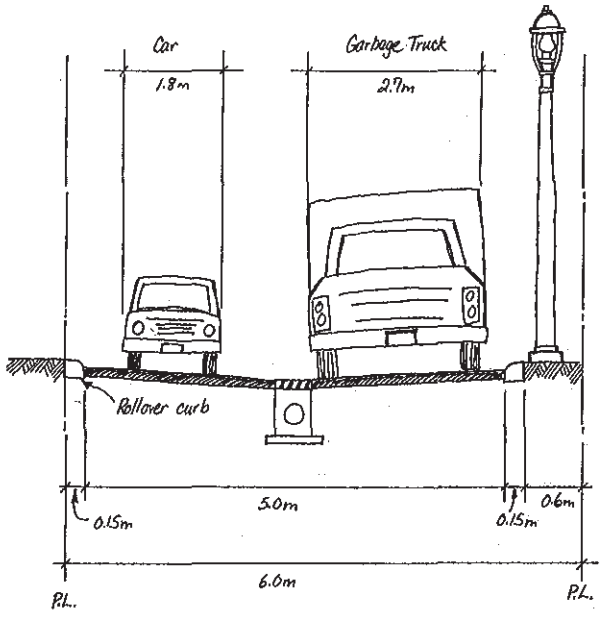

Figure 3 – Standard 2

Staff recommends that Standard 1 (Figure 2) be established that will include pavement and piped drainage. This is a basic standard that will allow lanes to perform their essential functions and reduce maintenance requirements with minimum capital funding requirements. Standard 1 lane

construction would primarily be funded by the City, but could potentially be augmented by other sources of capital on an opportunistic basis.

Staff also recommends that the current lane standard continue to be offered, but in an updated form, as Standard 2 (Figure 3). Standard 2 would include everything in Standard 1 plus curbs and street lighting. The incremental costs associated with Standard 2 would be borne by benefiting parties through funding vehicles such as NIC and LASP.

Standard 1 would be 35% less expensive than Standard 2, which would allow the City to address correspondingly more lanes each year with existing funding. Residents, businesses or developers that prefer Standard 2 would financially support the upgrade from Standard 1 through the City's LASP program or NIC charges.

All lanes within City Centre would be constructed to Standard 2 with pavement, piped drainage, curbs and street lights due to the dense nature of the City's urban core. Additionally, City Centre lanes are generally wider than the 6.0 m lane width depicted in Figure 3 to accommodate the higher traffic volumes and other uses typical of City Centre. It is intended that Standard 2 will include lane widths wider than 6.0 m adjacent to high density development, such as found in City Centre.

Summary

It is challenging to address the City's basic lane issues in a timely manner through the current "all or nothing" approach to lane construction due to funding limitations and competing priorities. Lane construction is primarily funded through NIC supplemented with utility funding at this time.

The proposed solution is offering a two-tiered lane standard. Standard 1, funded primarily by the City, will address surface treatment and drainage requirements. Standard 1 will facilitate addressing basic concerns in the City's older lanes in a shorter period of time, reducing public complaints and maintenance costs sooner. The current lane standard will continue to be offered as Standard 2, with incremental costs for curbs and street lights borne by benefiting parties.

Financial Impact

There is no financial impact at this time. Staff will present changes to NIC in a future report that will address lane construction cost correction due to inflation.

Conclusion

The City lane right of way inventory includes 37 km of lanes. Of these lanes, 8 km have been developed to the current City standard, which includes pavement, curbs, drainage and lighting. The City currently has programs in place to fund lane improvements; however, those programs will take time to come to fruition, which will be problematic for properties currently experiencing flooding. Constructing lanes to a basic standard that includes asphalt and piped drainage will allow the City to more readily address ongoing flooding issues in a timely manner.

Curbs and street lighting can be included in an enhanced lane standard, with the increased cost funded directly from benefiting parties.

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