



Governance and Priorities Committee Report

For the February 26, 2015 Meeting

To: Governance and Priorities Committee **Date:** February 20, 2015
From: Dwayne Kalynchuk, Director, Engineering and Public Works
Subject: Pandora Avenue Protected Bike Lane – Update on Design Options/Consultation

Executive Summary

On August 28, 2014, Council approved a new cycling network to guide prioritized implementation of new bicycle facilities over the next five years (2015-2019). The top-ranked project was the installation of an "All Ages and Abilities" bike facility on Pandora Avenue between Store Street and Cook Street. Council directed staff to move forward with design work and consultation for proposed improvements on Pandora Avenue for people who ride bikes, including consideration of a two-way protected bike lane. In December 2014, Council subsequently directed staff to consult with the cycling community regarding the Pandora Avenue design, particularly the 700 block, and report back to Council on the recommended design.

The "All Ages and Abilities" level of design targets newer and less confident cyclists, and includes features that encourage a low-stress, high-quality experience for people who ride bikes, such as physical separation from traffic on major streets, safer crossings and intersections, and intersection design prioritizing cycling movements.

A cycle track, or protected bike lane, is an exclusive bike facility that is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks can be separated from motor traffic by raised medians, on-street parking, or bollards. By separating cyclists from motor traffic, cycle tracks offer a higher level of security than bike lanes, and are attractive to a wider spectrum of the public.

Several design options have been examined, including:

1. Two-way protected bike lane – with signal traffic changes
2. One-way protected bike lane – with traffic signal changes
3. One-way protected bike lane – no changes to traffic signals

Cost estimates for each of the options were based on providing physical separation through a combination of methods, including parked vehicles, paint markings, and raised concrete medians.

Although not planned for implementation as part of the Pandora Avenue project, staff also looked at design options for the Johnson Street corridor, as decisions made for Pandora Avenue could impact what would be constructed on Johnson Street. Each of the options were evaluated for functionality, safety, impact on all transportation modes, costs, and street design/curb use impacts were also identified.

The higher level of comfort and safety for people who ride bikes on a two-way protected bike lane facility is desirable, however, the required traffic signal changes to install this type of facility on Pandora Avenue would have an impact on people who walk downtown. While all three options are supportable, on balance, a one-way protected bike lane installation (without traffic signal changes) has the least impact on other modes of transportation.

Engagement opportunities, including in-person and online options, including an on-street open

house along the 700 block of Pandora Avenue, is planned to take place in April. Staff will report back on the results of the public engagement process in May 2015. Following Council confirmation of the preferred option, design drawings and final cost estimates will be developed, with construction currently scheduled to start in September 2015.

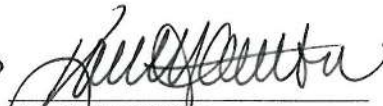
Recommendation:

1. That Council endorse the proposed engagement process for the Pandora Avenue Protected Bike Lane project.
2. That staff report back to Council on feedback received from public consultation on a proposed cycling facility for Pandora Avenue, prior to proceeding to final design.

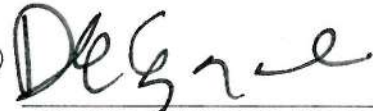
Respectfully submitted,



Brad Dellebuur
Acting Assistant Director,
Transportation and Parking
Services




Katie Hamilton
Director,
Citizen Engagement and
Strategic Planning



Dwayne Kalynchuk, P.Eng.
Director,
Engineering and Public Works

Report accepted and recommended by the City Manager:


Date: Feb 20/15

Purpose

The purpose of this report is to update Council on the review of a two-way cycle track option and comparisons with other design solutions for Pandora Avenue between Store Street and Cook Street, and seek Council endorsement of the proposed public engagement.

Background

On August 28, 2014, Council approved a new cycling network to guide prioritized implementation of new bicycle facilities over the next five years (2015-2019). The top-ranked project was the installation of an "All Ages and Abilities" bike facility on Pandora Avenue between Store Street and Cook Street. In addition, Council also passed the following motions specific to the Pandora Avenue project:

- That Council authorize staff to proceed with design work and consultation for the proposed Pandora Avenue project, including consideration of a two way cycling track.
- That Council direct staff to bring forward the Pandora Avenue construction project for early consideration of approval, as part of the 2015 Financial Plan Review.

On December 18, 2014, to address concerns related to streetscape improvements and the provision of a protected bike lane associated with the proposed Official Community Plan Amendment and Development Permit Application for 1515 Douglas Street and 750 Pandora Avenue, Council passed the following motion:

- That Council direct staff to consult with the cycling community regarding the design of the proposed cycling track on Pandora Avenue, particularly the portion fronting the 700 Block, and report back to Council on its recommended design.

Prior to proceeding to consultation, staff would like to update Council on the review of a two-way cycle track option and comparisons with other design solutions for Pandora Avenue between Store Street and Cook Street, seek Council endorsement on a preferred design to take to the public for feedback, and inform Council on the proposed public engagement.

Issues & Analysis

The "All Ages and Abilities" level of design targets newer and less confident cyclists, and includes features that encourage a low-stress, high-quality experience for people who ride bikes, such as physical separation from traffic on major streets, safer crossings and intersections, and intersection design prioritizing cycling movements. Public input on the Bicycle Master Plan indicated cycling network improvements on Pandora Avenue would be paired with similar changes on Johnson Street, as part of a one-way couplet system. When Council formally approved the Bicycle Master Plan, they directed staff to evaluate if a two-way cycling track would be appropriate for Pandora Avenue.

A cycle track, or protected bike lane, is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane, and is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks can be separated from motor traffic by raised medians, on-street parking, or bollards. By separating cyclists from motor traffic, cycle tracks offer a higher level of security than bike lanes, and are attractive to a wider spectrum of the public.

Several design options have been examined for the Pandora Avenue corridor, including:

1. Two-way protected bike lane – with signal traffic changes
2. One-way protected bike lane – with traffic signal changes
3. One-way protected bike lane – no changes to traffic signals

Although not planned for implementation as part of the Pandora Avenue project, staff also looked at design options for the Johnson Street corridor, as a two-way protected bike lane on Pandora Avenue could impact decisions on what would be constructed on Johnson Street.

Each of the three options were evaluated for functionality, safety, impact on all modes, costs, and street design/curb use impacts were also identified.

Option 1. Two-way protected bike lane on Pandora Avenue – requires traffic signal changes

A two-way protected bike lane on Pandora Avenue would serve as an extension of the Galloping Goose Trail through downtown – people on bikes entering and exiting the downtown area would have the feeling of comfort travelling further on a bike facility physically separated from moving traffic. The Galloping Goose Trail is currently planned to end at the Pandora/Store intersection.

A two-way protected bike lane would require separate traffic signals, to advise people riding bikes when they have the right-of-way. People riding bikes would experience less delay and a higher degree of safety/comfort, if right turn vehicles at signalized intersections on Pandora Avenue were provided a separate signal phase. Drivers at intersections would be prohibited from turning right across the protected bike lane at the same time cyclists were using the protected bike lane, eliminating conflicts. This phasing arrangement would also eliminate potential conflicts between drivers and pedestrians. This arrangement is similar to that used on Hornby Street in Vancouver.

Additional hardware would be required at the seven signalized intersections on the corridor. Separate signal heads and signs would be required to regulate Pandora Avenue drivers turning right, and additional signal heads and signs would be required to direct people riding bikes, including those people riding bikes east on Pandora Avenue.



Two-way protected bike lane (with signal changes) – Pandora/Blanshard

As the traffic signals on Pandora Avenue are part of the Central Business District network of traffic signals, providing a separate phase for right-turn traffic on Pandora Avenue requires increasing the cycle lengths used for the entire downtown network. Given the existing volumes and traffic patterns, increasing the cycle length could increase fuel consumption, emissions and increased travel times on downtown streets. Lengthening cycle lengths would also increase overall

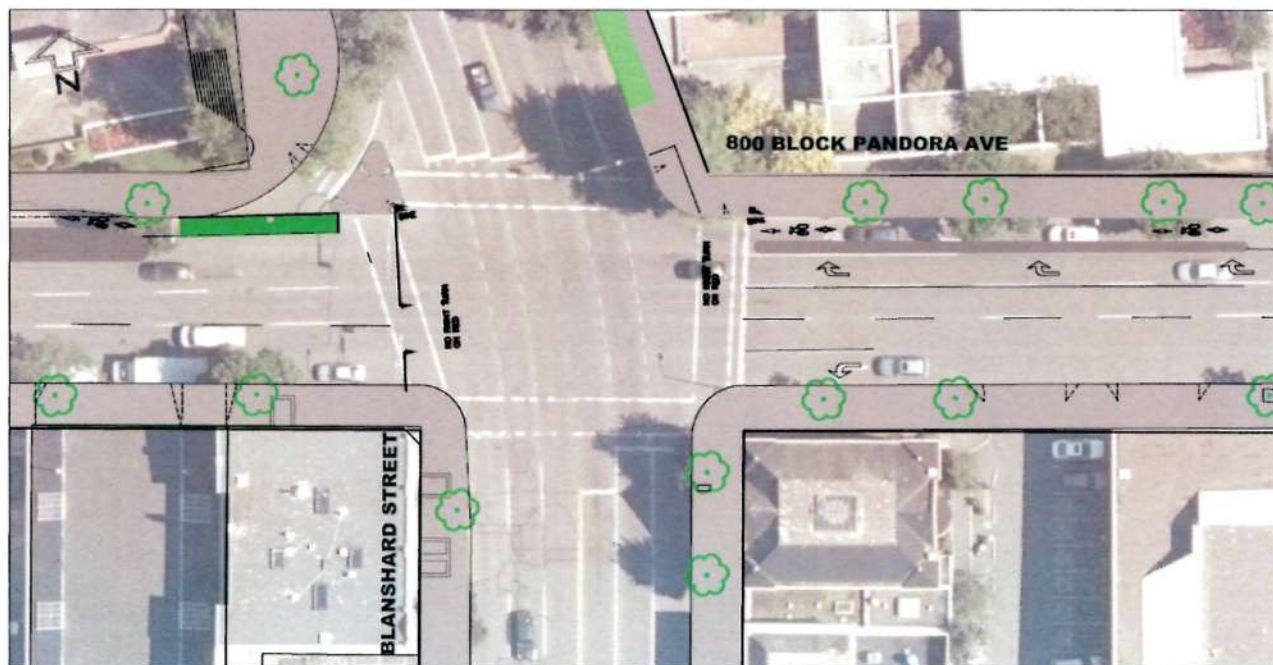
intersection delay to people walking downtown. As an example, pedestrians wishing to cross Douglas Street at Pandora Avenue intersection during the PM peak period (3:00-6:00pm) are currently delayed a maximum of 42 seconds. With an increased cycle length, pedestrians making the same movement could be delayed a maximum of 62 seconds. The maximum delay for all pedestrians at intersections not on the Pandora Avenue corridor could increase by 10 seconds.

44 of the 146 on-street parking spaces on the north side of Pandora Avenue between Store Street and Cook Street (30%) would be removed to accommodate a two-way protected bike lane. Generally, 9-11 parking spaces would be removed in each block, except in the 700 and 800 blocks, where 3 on-street spaces per block would be removed. The estimated reduction in annual parking revenue would be approximately \$85,000.

A Class D cost estimate for the two-way option was \$1.95M. The estimate included construction of concrete medians, reconstruction of curb, gutter and sidewalk as required, new traffic signal hardware and associated underground ducting, downtown traffic signal network changes, tree removal and replacement, partial road repaving, bus shelter relocations, signs, and paint markings.

Option 2. One-way protected bike lane on Pandora Avenue – requires traffic signal changes

A one-way protected bike lane on Pandora Avenue (with traffic signal changes) would provide a similar level of protection to cyclists as the two-way option, but would not require traffic signal hardware and signage for eastbound cyclists. The protected bike lane would be 1.8m wide. People on bikes would only travel westbound on the corridor, but would experience the higher degree of safety noted in the two-way option, due to the separate right turn signal phases. Because the separate signal phase requires increasing cycle lengths, impacts to other modes downtown would be the same as for the two-way option noted above.



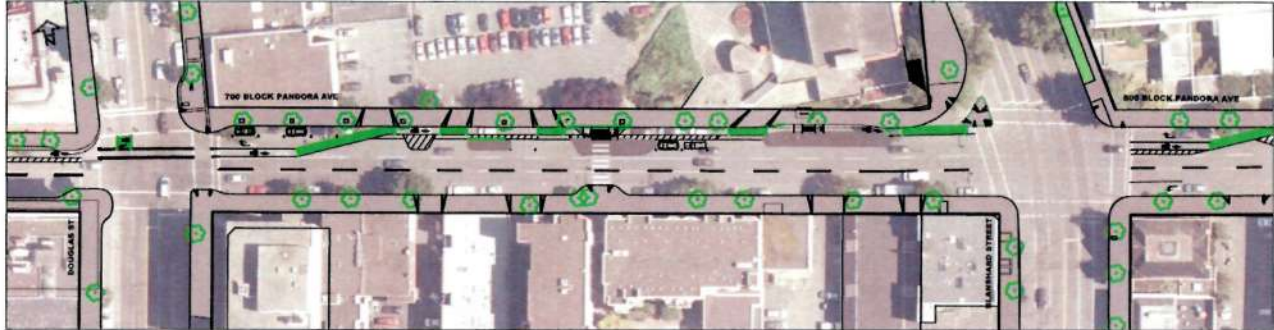
One-way protected bike lane (with signal changes) – Pandora/Blanshard

A one-way protected bike lane would displace 21 of the 146 on-street parking spaces (15%) on Pandora Avenue between Store Street and Cook Street. 4-6 parking spaces would be removed in each block, except in the 600 block, where 9 on-street spaces would be removed, and the 800 block, where only 1 on-street space would be removed. The estimated reduction in annual parking

revenue would be approximately \$40,000.

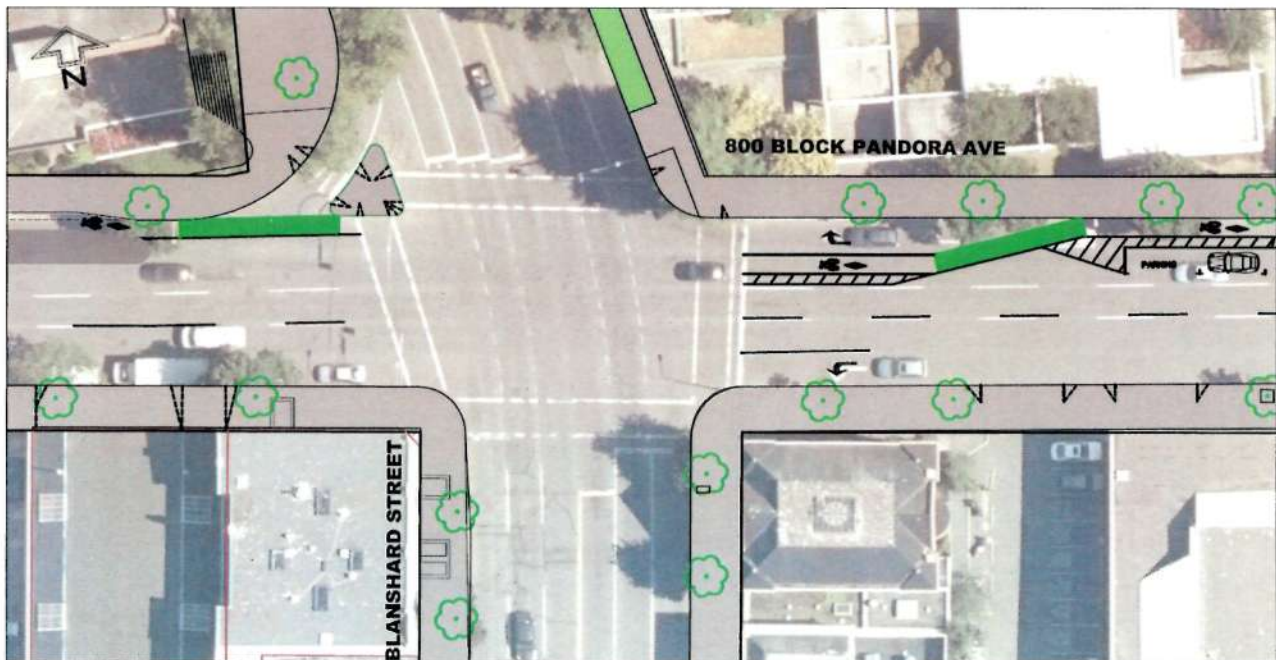
A Class D cost estimate for the one-way option with required traffic signal changes was \$1.53M. The estimate included construction of concrete medians, reconstruction of curb, gutter and sidewalk as required, installing new traffic signal hardware and associated underground ducting, downtown traffic signal network changes, tree removal and replacement, partial road repaving, bus shelter relocations, signs, and paint markings.

Option 3. One-way protected bike lane on Pandora Avenue – no traffic signal changes required



One-way protected bike lane (no signal changes) – 700 block Pandora Avenue

A one-way 1.8m wide protected bike lane on Pandora Avenue could also be installed, where no traffic signal changes would be required. This option would not require separate signal phases, and conflict zones where right-turning car-drivers and people on bikes converge would be highlighted with road markings and signs. Conceptual designs exceed the National Association of City Transportation Officials (NACTO) recommended minimum guidelines for bike lane width (1.8m vs. 1.5m min.), and the buffer space between parked vehicles and the bike lane would also be higher than the recommended minimum guidelines (1.0m vs. 0.9m min.). This improves the comfort level for people riding bikes, as well as for people entering and exiting parked vehicles.



One-way protected bike lane (no signal changes) – Pandora/Blanshard

For the majority of the corridor, people on bikes would be buffered from moving traffic by parked

cars and other physical barriers, similar to the two-way protected bike lanes. On the approach to a signalized intersection, the alignment of the protected bike lane would move away from the edge of the roadway, and bike riders and drivers turning right would cross paths – visibility would be maximized at these locations, and the bike path would be highlighted to indicate bike riders would be using this area. Options for intersection approach treatments are shown below:



Mixing Zone

A combined bike lane/turn lane encourages motor vehicles and bicyclists to negotiate the space within the travel lane in advance of the intersection.



Through Bike Lane

Maintaining the bike lane to the left of a right turn-only-lane positions road users to avoid right-hook collisions.

One-way protected bike lane - options for intersection approach treatments

Traffic signal changes would not be required for this installation. People riding bikes in the protected bike lane would move in concert with Pandora Avenue drivers. There would be minimal impact to other people walking or driving on Pandora Avenue, or on other downtown streets.

Constructing this option would displace 21 of the 146 on-street parking spaces (15%) on Pandora Avenue between Store Street and Cook Street, as per the other one-way option. The estimated reduction in annual parking revenue would be approximately \$40,000.

A Class D cost estimate for this option was \$1.33M. The estimate included construction of concrete medians, reconstruction of curb, gutter and sidewalk as required, tree removal and replacement, partial road repaving, bus shelter relocations, signs, and paint markings.

Johnson Street Improvements – Integration with Pandora Avenue

As noted above, staff also looked at design options for the Johnson Street corridor. Should Council prefer to install a two-way protected bike lane on Pandora Avenue, the need to install fully protected bike lanes on Johnson Street may be reduced.

Installing a protected bike lane on Johnson Street between Cook Street and Broad Street would cost approximately \$490,000. However, the existing road width on Johnson Street is insufficient to provide a physically separated bike lane, without either removing all the on-street parking on the south side of the street, or widening.

Removing south side parking on Johnson Street between Store Street and Broad Street to provide a protected bike lane would cost an additional \$95,000.

Widening the same section of Johnson Street to maintain south side parking would cost an additional \$1.505M, and would impact space for people walking (the reconstructed sidewalks on these blocks would be less than 3m wide), and aesthetics (the seven boulevard trees on the south

side of the street between Government Street and Broad Street would have to be removed).



One-way protected bike lane (widening/maintain south side parking) - 500 block Johnson Street

For comparison, 1.8m marked bike lanes (extending the proposed bike lanes on the new Johnson Street Bridge) could be implemented in these blocks for approximately \$20,000.

Regardless of the final design chosen for Pandora Avenue, road space on Johnson Street should be allocated for people riding bikes. Construction of bike facilities on Johnson Street is currently scheduled for 2016.

Conclusions

The higher level of comfort and safety for people who ride bikes on a two-way protected bike lane facility is desirable, however, the required traffic signal changes to install this type of facility on Pandora Avenue would have an impact on people who walk downtown. While all three options are supportable, on balance, a one-way protected bike lane installation (without traffic signal changes) has the least impact on other modes of transportation.

Class D cost estimates for the various options in this report are outlined below:

Type of Facility	Cost
Pandora Avenue Two-way (with traffic signal changes)	\$1,950,000
Pandora Avenue One-way (with traffic signal changes)	\$1,530,000
Pandora Avenue One-way (without traffic signal changes)	\$1,330,000

Cost estimates for each of the options were based on providing physical separation through a combination of methods, including parked vehicles, paint markings, and raised concrete medians. A Class B estimate for the work will be developed during final design stage, following Council confirmation of the preferred option.

\$1.3M is currently identified in the 2015 Capital budget for the Pandora Avenue bike lane project, and construction is currently scheduled to start in September 2015.

Engagement Approach

In-person and online engagement opportunities will be provided this spring to ensure community members are able to participate in a way that is most convenient for them. An on-street open house is being proposed along the 700 block of Pandora Avenue with a portion of the street protected with a physical barrier to demonstrate what a protected bike lane could look like. Bike parking will be provided and cyclists will be encouraged to ride down to the open house. The highly visual event is anticipated to raise greater awareness in the community and encourage passers-by to stop and learn more about the project.

Information, including the conceptual illustrations of the three options, along with a survey, will be provided in-person and online.

The open house and survey will be promoted through social media, print media and through a targeted outreach to downtown and transportation stakeholders. Stakeholders include current cyclists and cyclist advocacy groups, Greater Victoria Cycling Coalition, Capital Bike and Walk, businesses along Pandora Avenue, members of the Downtown Victoria Business Association, residents and property owners along Pandora Avenue, Downtown Victoria Residents Association, pedestrians, drivers, BC Transit, emergency services, and the transportation sector.

Additional details regarding the engagement process are provided in Appendix A.

Next Steps

Public engagement is planned to take place in April. Staff will report back on the results of the public engagement process in May 2015. Following Council confirmation of the preferred option, design drawings and final cost estimates will be developed, with construction currently scheduled to start in September 2015.

Recommendations

1. That Council endorse the proposed engagement process for the Pandora Avenue Protected Bike Lane project.
2. That staff report back to Council on feedback received from public consultation on a proposed cycling facility for Pandora Avenue, prior to proceeding to final design.

w:\admin\word\committee reports\2015\gpc report_pandora protected bike lane.doc'