

# South Park Street Bicycle Lane Improvements

## Public Engagement

November 2017



# South Park Street Bicycle Lane Improvements

## WHAT WE HEARD REPORT

### Introduction

To improve safety and bicycle route continuity the municipality is designing changes to the existing bike lanes on South Park Street between Sackville Street and Morris Street/University Avenue, and an extension of the bike lanes south to Inglis Street. This project is part of implementing the Municipality's Active Transportation Priorities Plan, which includes the objective of building safer and more comfortable bicycling facilities to attract more residents to cycling.

Feedback gathered at a public open house held in April 2016 (refer to Appendix A) informed the development of three options for South Park Street:

#### 1. Enhanced Painted Bike Lanes

- Install a painted buffer between parked vehicles and the bike lanes to help prevent "dooring"
- Continue the bike lanes south to Inglis Street
- Extend the bike lanes up to the intersections and introduce a new type of intersection crossing pavement marking
- Change or remove some of the turning lanes for motor vehicles at the intersections
- Use a more durable type of paint for all pavement markings

#### 2. Protected Bike Lanes

- Move the bike lane to the curb side of the parking lane to provide cyclists a greater level of protection from motor vehicles

- Continue the protected bike lanes south to Inglis Street
- Extend the bike lanes up to the intersections and introduce a new type of intersection crossing pavement marking
- Modify bus stops to prevent buses from having to stop in the bike lanes
- Install a physical barrier (e.g., bollards, curb, planter boxes, etc.) in the buffer between the bike lanes and parked vehicles and between the bikes lanes and traffic lanes
- Change or remove some of the turning lanes for motor vehicles at the intersections
- Use a more durable type of paint for all pavement markings

#### 2A. Protected Bike Lanes with Off-Street Variation

- Move the south-bound bike lane off street to the space between the curb and sidewalk from Sackville Street to Spring Garden Road and/or from Spring Garden Road to University Avenue
- Other potential changes are the same as the Protected Bike Lane - Option 2

This project is in the functional design stage. The extension and improvements will have to be approved by Regional Council. Staff's goal is to proceed with a recommendation to Council and detailed design in early 2018, and to implement the preferred option in 2018.

## Public Engagement Overview

A public engagement session was held January 31, 2017 from 6:30 p.m. to 8:30 p.m. at the Halifax Central Library, and a survey was available at **Shape Your City** between February 1-24. A few public comments were also received through e-mail. Input was submitted by close to 400 participants, 300 of these were via the survey:

- 40% of survey participants prefer Option 2A - A protected bike lane with the off-street variation south-bound between Sackville and Spring Garden Road or University Avenue
- 36% prefer Option 2 – A protected bike lane
- 13% chose Option 1 – Enhanced painted bike lanes
- 11% had other suggestions

Fifty-four percent of general comments were positive, 34% negative, and 12% offered suggestions. Positive comments relate to:

- Increased safety for all road users
- An enhanced cycling network
- Improved physical health and well-being

Top concerns of those opposed include:

- Insufficient cycling ridership to justify the project
- Loss of parking impacts to residents, businesses, and institutions
- Relocation of accessible parking spots

Questions raised during the Q&A portion of the engagement session pertain to the parking and cycling surveys, timing of the re-surfacing, the proposed design, and accessibility. Feedback from discussion groups consist of 21 positive comments, 22 concerns, 7 suggestions, and 5 other comments. Examples of unique comments include:

- Some customers want out-front parking, but cyclists can always park out front
- Free parking is not a right, let's change the thinking/attitude
- Off-street option may detract from pedestrian experience
- Can South Street to Inglis Street become one-way?
- Has wind and topography been factored in?

## Summary of Shape Your City Survey

The online survey consisted of 8 questions with multiple opportunities to add comments. There were over 1500 visitors to the survey site and 301 participants, giving a response rate of 20%.

### Survey Snapshot

Forty percent of participants prefer Option 2A - A protected bike lane with the off-street variation south-bound between Sackville and Spring Garden Road or University Avenue; 36% prefer Option 2 – A protected bike lane; 13% chose Option 1 – Enhanced painted bike lanes; and 11% had other suggestions.

The three top choices for barrier-types which could be used in Options 2 and 2A are (multiple answers permitted):

- Planter boxes (44%)
- Concrete curb (35%)
- Raised bike lane (23%)

The proposed raised bus stop/bike lane treatment received approximately 100 supportive comments and about 50 in opposition. Similarly, about 100 respondents support the use of green pavement markings to highlight areas of potential conflict at intersections, approximately 50 are opposed or concerned, and over 60 are cautious.

The proposed three options have flexibility regarding parking. The top two criteria to consider are:

- Where the greatest number of spaces can be retained (47%)
- Proximity to commercial destinations on South Park Street (21%)

Fifty-four percent of general comments were positive, 34% negative, and 12% offered suggestions. Positive comments relate to:

- Increased safety for all road users
- An enhanced cycling network
- Improved physical health and well-being

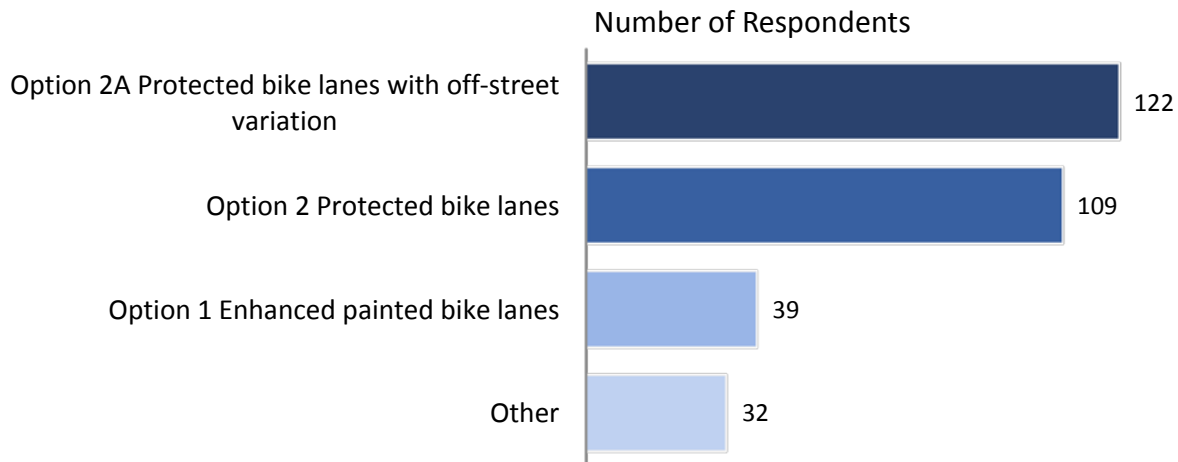
Top concerns of those opposed include:

- Insufficient cycling ridership to justify the project
- Loss of parking impacts to residents, businesses, and institutions
- Relocation of accessible parking spots

## Questions

### 1. In your opinion, which of the proposed options for improved and extended bicycle lanes on South Park Street best achieves the project objectives?

Forty percent of survey participants prefer Option 2A – to have protected bike lanes with the off-street variation, 36% prefer Option 2 – protected bike lanes, 13% chose Option 1 – to have enhanced painted bike lanes, and 11% had other suggestions.



Some participants chose to explain their preferences or propose other options.

#### Option 2A Benefits

- *Minimizes parking loss (21)*
- *Create better separation of road users (12)*
- *Minimize the amount of on-street disruption and congestion (6)*
- *Good use of road and park space (3)*

#### Option 2A Drawbacks

- *Loss of trees or green space (6)*
- *Parking loss (3)*
- *Potential for conflict with pedestrians (3)*
- *Challenges of effective winter clearance*
- *Intersection conflicts with cyclists exiting and entering the off-street pathway*
- *Complex option*

#### Option 2 Benefits

- *Improves the safety and comfort of the streetscape (84)*
- *Protected infrastructure is the best compromise (6)*
- *Protected option is the most cost efficient (6)*
- *Promotes health and wellness (3)*
- *Will slow the traffic to make the streets safer (3)*
- *On-street protected lane will not interfere with pedestrians (3)*
- *Will make cycling more convenient*
- *Will help Halifax achieve its goal of increasing cycling ridership*

## Option 1 Benefits

- *Most cost effective (6)*
- *Allows for greater flexibility of road use (6)*
- *Allows for year-round functionality of South Park Street (6)*
- *Painted buffers are not as intrusive (3)*
- *Promotes a “Share the Road” notion (3)*
- *Prevents pedestrian conflicts*

## Other Options

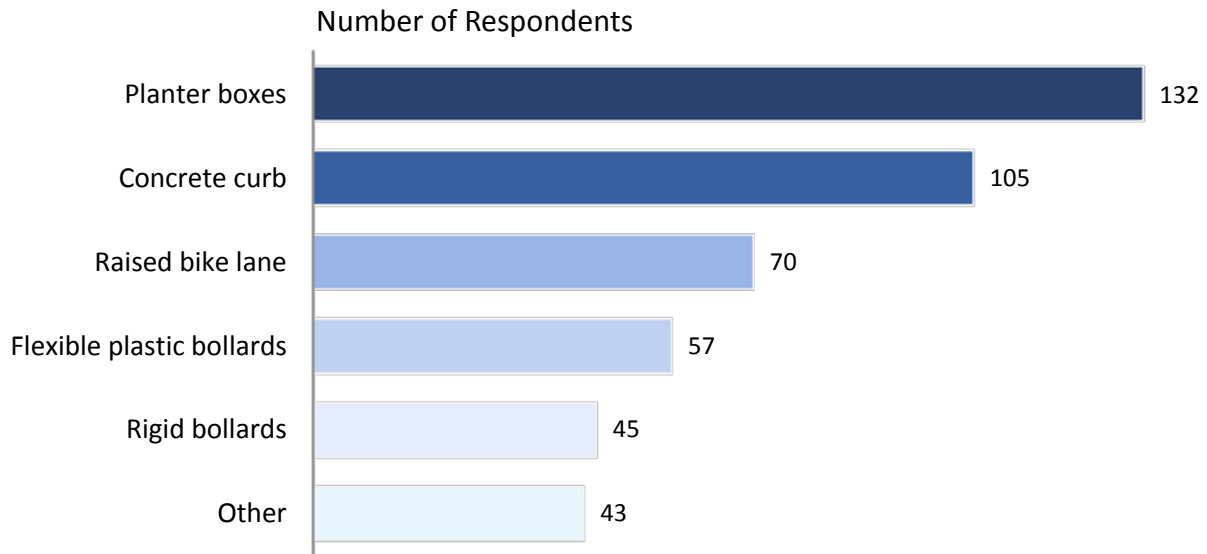
- *No change (3)*
- *Coloured asphalt*
- *Direct the bike lane from Sackville to Morris thorough the public gardens and common park areas*
- *Convert South Park from South Street to Inglis and beyond, into a one-way street*
- *Protected bike lanes with seasonal and weekend differentiation*
- *Run the bike lane between the sidewalk and parked cars*
- *Relocate the South Park bike lane to a less travelled route*
- *Split the sidewalks in half (one half for bikes, the other for pedestrians), or widen the sidewalks for shared use*
- *End the protected lane at Morris St and have it connect with the protected lane currently on University Ave*
- *Create seasonal painted bike lanes*
- *An option that preserves parking and pedestrian access around the hospital*

## General Concerns

- *Loss of parking (6)*
- *Bicycles should be on sidewalks (3)*
- *Bicycles should have registration plates and insurance (3)*
- *Not enough people currently use the bike lane to improve or expand it (3)*
- *Waste of municipal resources (3)*
- *Residential area needs an accessible curb*
- *Disruption to commerce*
- *Prioritize transit*

**2. For the protected bike lane options (Options 2 and 2A), what is your preference for the type of physical barrier to separate the bike lanes from the parking lanes and/or vehicle lanes?**

Forty-four % of participants chose planter boxes, 35% prefer a concrete curb, 23% a raised bike lane, 19% flexible plastic bollards, 15% rigid bollards, and 14% had other suggestions (multiple answers permitted).



Some participants explained their preferences or proposed other options.

**Protected Buffer (Option 2 and 2A)**

- *Has aesthetic and visual appeal (33)*
- *Ensures that motor vehicles and bicycles are separated and visible (30)*
- *Provides greater safety and protection for people on bikes (24)*
- *Protected buffers are more durable and have a longer life span (15)*
- *Ease of maintenance (9)*
- *Road user behavior is more predictable (3)*
- *Provides ecological services (3)*
- *Cheaper long-term option (3)*

**Painted Buffer (Option 1)**

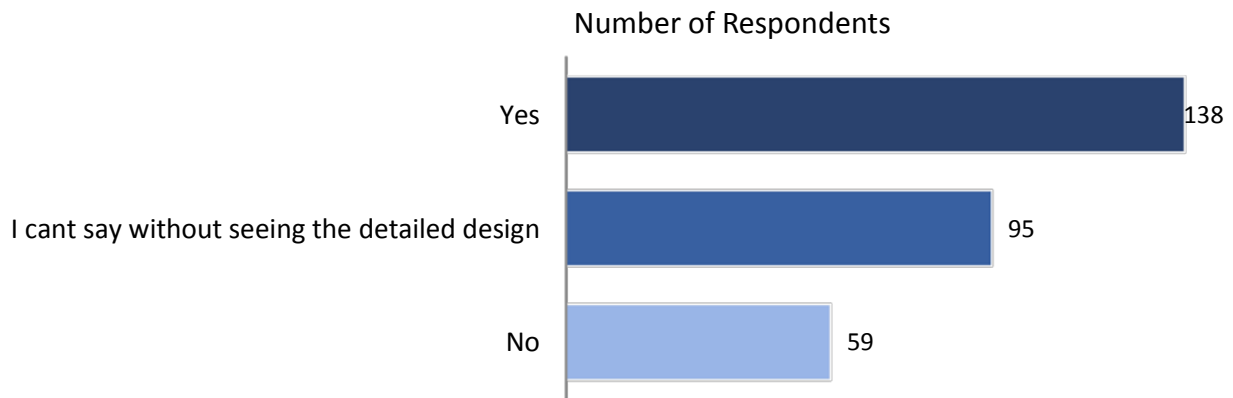
- *Ease of winter clearance (6)*
- *Protects cars from damage (3)*
- *Greater flexibility*

**Other Options and Opposition**

- *Against barriers (27)*
- *Green boulevard*
- *Plastic bollards on a concrete curb*
- *Meridian with greenery*
- *Movable, seasonal barriers*
- *Parked cars with bollards*
- *Parked cars with buffer*
- *Raised lane for winter maintenance and deliveries*
- *Coloured buffer*

**3. Option 2A (protected bike lanes with off-street variation) would include a transition from an on-street bike lane to an off-street bike path and back to the on-street bike lane before the intersections. Assuming this transition is designed to be safe and relatively seamless, do you think cyclists would choose to divert to the off-street bike path between Sackville Street and University Avenue?**

Forty-six percent of survey participants believe cyclists would choose to divert to the off-street pathway, 20% don't think so, and 32% felt they would need to see the detailed design (2% didn't answer).



Some participants explained their preferences.

**Yes**

- *It's a safer option (18)*
- *As long as it's easy and safe (6)*
- *Aesthetic appeal (3)*
- *It ensures equal rights*
- *Will slow down bikes*
- *If infrastructure is maintained*
- *If enforced*

**No**

- *Will create pedestrian and cyclist conflicts (9)*
- *Will slow down cyclists (6)*
- *May encourage sidewalk riding (6)*
- *Confusion or unclear how to do so safely (3)*

- *Issues with visibility of cyclists entering and exiting intersections (3)*
- *Reduces room for bikes*
- *The road will be in better condition*
- *Traffic entering mid-block could not use the off-road option*
- *Too much hassle*
- *Need enforcement*

**Can't Say**

- *Need ease of use and safety (15)*
- *Halifax is not designed for biking*
- *Need parking*
- *Must be accompanied by promotion*
- *As long as it doesn't take too long*
- *Should be on road*



**4. What do you think of the proposed bus stop/raised bike lane treatment shown on Option 2 and 2A? With this treatment, transit passengers would access the bus by crossing over a raised section of bike lane and bikes would be required to yield to pedestrians. This treatment is used in Toronto and Ottawa.**

**Supportive Comments or Suggestions**

- *If done well, this option is fine, acceptable, appropriate, reasonable, clear, safer, and, delineates traffic (99)*
- *People will need to adjust; an education program needs to be introduced to encourage bikes to yield and pedestrians to look before crossing (21)*
- *A pedestrian island would cause less conflict (18)*
- *Would require signage, markings, and lights (18)*
- *Pedestrians should yield to bikes*
- *Bikes should yield to pedestrians*
- *Transit needs to be a priority*
- *Balances infrastructure with stopping and rules*
- *Not ideal, but best option*
- *Paint the raised lane*
- *Separates bikes from the bus lane*
- *Has demonstrated to work well in other places-similar to boarding street cars in Toronto*
- *Install mirrors on buses at the exits to increase visibility*
- *Should have a curb cut at crossing to assist accessibility*

**Opposed**

- *It is dangerous, would cause conflicts (45)*
- *Initially it will cause confusion (21)*
- *Cyclists will re-direct to road or sidewalk (3)*
- *Bikes won't follow rules*
- *Will increase congestion*

**Specific Concerns**

- *Needs to be designed to accommodate mobility challenges (9)*
- *Will need to enforce rules for cyclists (3)*
- *Emphasis on winter maintenance*
- *Concern for the elderly when crossing for buses*
- *What happens when there is bus congestion?*
- *Pedestrians should have priority*
- *Will depend on the traffic flow*
- *Needs a risk assessment conducted*
- *Need to ensure enough room for pedestrians to wait at bus stop*

**5. What do you think of the proposed intersection treatment shown for Options 2 and 2A? They feature a new treatment where green pavement markings in the intersection warn drivers and cyclists about potential conflicts. The bike lanes are extended to the intersection with solid white lines.**

**Supportive**

- Ensures that cyclists crossing at intersections will be safer (96)
- Warns of potential conflict
- Prevents right hooking of cyclists
- Helpful to automotive and cyclist traffic and prevents conflicts
- Reminds people of other types of road traffic
- Creates a visual cue/aid

**Cautious**

- Education will be needed (18)
- As long as it is obvious and clear (15)
- As long as it is maintained well, even in the winter (15)
- May cause conflict with turning bikes and cars (3)
- Green indicators (from image shown in presentation at public feedback session) will not be visible enough (3)
- Can't say without a detailed design (3)
- May be confusing (3)
- Painted bike lanes don't ensue safety or peace of mind (3)
- Will take an adjustment period
- As long as bikes have right-of-way when crossing through intersection
- Will need enforcement

**Concerned or Opposed**

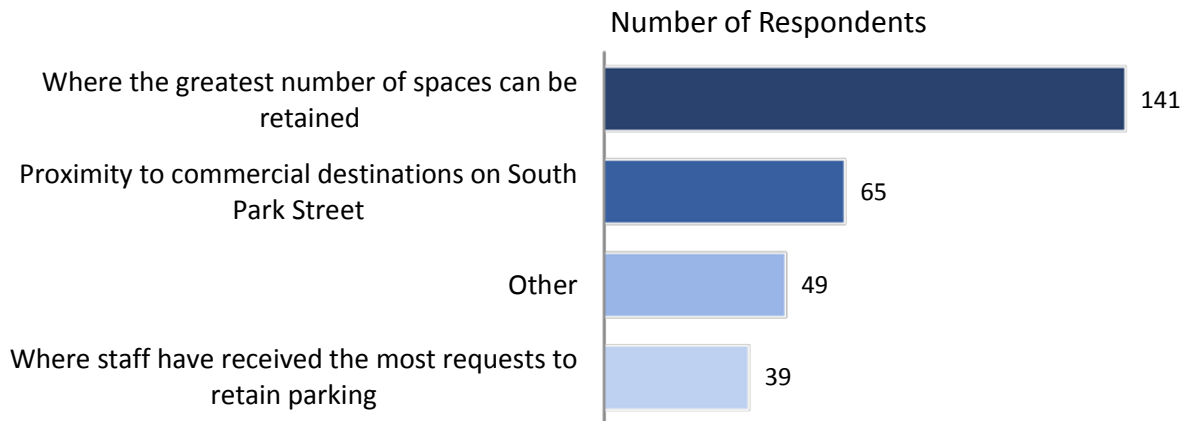
- Don't think it will help, or feel it is not necessary (18)
- Doesn't work in our climate (9)
- Waste of time and money (9)
- Dangerous for right turning vehicles (3)
- May be distracting for drivers

**Suggestions**

- Would like to see bike boxes for turns and stops (6)
- Install raised reflectors at the edge of lanes
- Should have visuals at eye level for road users as well
- Paint the entire lane solid through the intersection
- Explore if these markings have helped in other cities
- Installing stop boxes ahead of cars
- Install textured separation (rumble strips)
- Coloured asphalt
- Keep markings clear and simple
- Installing intersection cameras
- Introducing bicycle traffic specific lights
- Design full protected intersections
- What happens with legal right turns at intersections with bikes?
- Needs to be clear indication of who has the right of way.

**6. There is some flexibility in the design of the protected bike lane options to locate the retained on-street parking on the East side or West side of South Park Street. What criteria should be considered when deciding on which side to retain parking?**

The majority of participants, 47%, want to retain the greatest number of parking spaces regardless of location, 21% prefer to retain parking close to commercial activity, 16% had other suggestions, and 13% prefer where staff receives the most requests (3% didn't answer).



**Some participants added comments:**

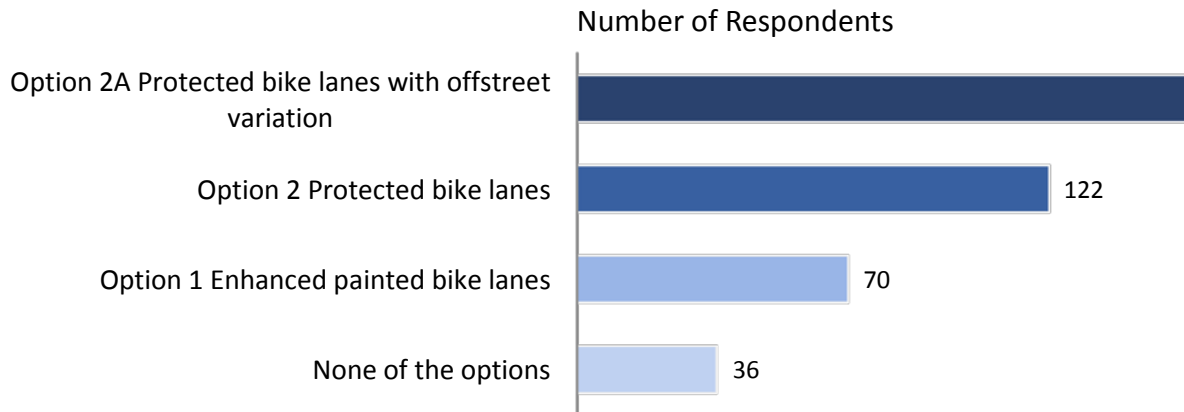
- Accessible parking should be a priority (12)
- Where cyclist safety is greatest (6)
- The safest option (6)
- Residents should be prioritized (6)
- Whatever promotes active transportation (3)
- Not based on proximity, but where greatest demand is –most efficient use of space (2)
- Need to preserve load/unload zones (2)
- Parking along the east side due to speed of cyclists heading southwards
- Priority for residents without driveways
- To maximize parking for businesses and institutions
- Should be based on level of traffic and duration of parking
- Preserve free parking

- The west side has fewer breaks in the curb/ stopping points
- Compliment the direction of traffic during work hours
- Allowance for parking permits
- West side should retain most parking since it's the direction that most traffic comes from. Consider a cross walk mid-block between Sackville and Spring Garden.
- The easiest and cheapest option
- Save maximum parking to encourage trips downtown
- Parking that promotes safe driving
- To accommodate commercial loading and unloading
- To accommodate long-term parking needs
- Location of parking does not matter

- East Side to avoid future development construction barriers along that side of the street
- Northbound side for access to services and homes
- To prioritize the needs of those who most often use the road

**7. One of the project objectives is to understand the implications to, and continue to accommodate, other street functions (i.e., pedestrians, car and truck traffic, on-street parking, loading, transit, trees). Do you think any of the options achieve this?**

Fifty-three percent of respondents think Option 2A accommodates other street functions, 40% think Option 2 does, 23% prefer Option 1, and 12% don't think any of the options do (multiple answers permitted).



**Preferences explained and other comments.**

**Option 2A**

- Flexibility (2)
- Removal from street alleviates associated road conflicts (2)
- Accommodates buses and taxis (2)
- Allows loading and accessible parking
- Best compromise
- Better flow of traffic
- Greater safety for cyclists

- Assists deliveries

**Option 2**

- Best option to accommodate all road users (5)
- Balance with all considerations and safety
- Minimizes conflict of uses and impact of surface drainage

## Option 1

- *Only option that accommodates all road uses*
- *Greatest flexibility*
- *Most concessions, but at the expense of fewer cyclists*
- *Uses space most efficiently*
- *Best accommodation (methodology should include weights for deciding)*
- *Physical barriers would make deliveries and shopping difficult*
- *Best for snow clearance*

## Other

- *Need to prioritize accessibility*
- *No option can accommodate all needs*
- *All options require cooperation*
- *Best option is the one that balances cost with minimal disruption*

## 8. Do you have any other comments related to the project?

### Supportive

- *A protected bike lane will improve safety for all road users (21)*
- *A bike lane on South Park street should be designed for all ages/abilities (15)*
- *Existing cycling infrastructure needs upgrades and connections to other bike lanes to expand the cycling network (12)*
- *The South Park bike lane will promote physical health and well-being (6)*
- *Should be accompanied by education for all road users (3)*
- *A protected bike lane on South Park diversifies transportation options and plans for the future (3)*
- *Supportive of infrastructure but please preserve the existing trees*
- *A bike lane on South Park will increase economic prosperity for the street*

## Negative/Concerns

- *Cycling ridership is too low to justify building a bike lane (9)*
- *Winter ridership too low to justify building a bike lane (6)*
- *Will significantly impact parking for residents, businesses, deliveries, and institutions (6)*
- *Bike lanes will increase congestion (3)*
- *Cyclists don't use existing bike lanes (3)*
- *Not enough people go downtown and would cause less people to travel downtown (3)*
- *Locate to areas with greater need*
- *There is no room for bike lanes on South Park*
- *The city should be prioritizing public transit instead of cycling infrastructure*
- *Bike lanes will negatively impact property values along South Park Street*
- *Existing bike lanes are sufficient*
- *Concern about merging at intersections for protected lanes and off-street bike routes*
- *Consideration to accommodate accessibility needs*
- *Cyclists should be required to pay license and registration fees*

## Suggestions

- *Decrease lane widths to 3 meters*
- *Minimize the amount of space that the bike lane requires*
- *Lead a guided 'walkabout' along South Park so people can visualize proposed changes in context with staff*
- *Cut across Victoria General hospital parking lot to connect with Tower Road, then put bike lane on Tower road south of South Street*
- *On South Park Street make a bike lane to South Street, then make a local bikeway to Inglis Street.*

- *Create time limits for parking along South Street between South Park and Queen street*
- *Reduce underutilized taxi zone spots*
- *Move location of the bus stop on Fenwick before the northbound turn onto South Park Street*
- *Conduct more studies on current bicycle usage of entire South Park route*
- *Pedestrian phase for traffic lights that would allow bicycle to cross as well*
- *Move bikes to streets with less traffic*
- *Increase the amount of accessible parking*
- *Remove the “slip lane” from the existing painted bike lane from Westbound Sackville to Northbound South Park*
- *Convert South Park from South Street to Inglis Street into a one-way to maintain residential parking*

## Summary of Engagement Event

A public engagement event, attended by approximately 65 people, was held January 31, 2017 from 6:30 pm - 8:30 pm at the Halifax Central Library. The event consisted of browsing display boards and informal discussions, a Q&A session, and small group discussions.

### Q&A

Q. When you conducted the parking survey, why did you only survey parking during regular business hours? Parking demand increases significantly around the hospital during free parking hours in evenings and weekends.

A. Surveying parking is a time and cost intensive process; this is why we only represented peak hours.

Q. Why did you only count bicycles travelling south at South Park & Sackville?

A. Counts were conducted at 2 or 3 intersections as part of the survey. Usage near Sackville was chosen to represent findings because it acts as an entrance to the region.

Q. When does re-surfacing occur along South Park?

A. This project could impact when resurfacing occurs.

Q. There are utility poles and trees along South Park, why not move the curb?

A. It would be expensive, and the existing trees are too close to the curb. New trees will be planted further from curb.

Q. Were the parking counts based on current availability or before recent development projects?

A. Counts were completed before construction. The Mary Anne complex parking is now available.

Q. For the concrete platform (island) option, how would people with accessibility challenges access this platform?

A. Curb cuts would be installed.

Q. It may be important to differentiate between north of South Street and south of South Street. The north side is a commercial and retail district, whereas, the south is residential. Overall, parking loss for the street may be 10% (varying for each design option), but parking loss will be 50% in the residential district along South Park. Loss of this parking is a significant price to

pay. Some people are losing the only parking they have for their home.

A. Perhaps we need to look at north and south differently and maintain flexibility as to where we can retain parking.

Q. Have you considered the impacts on an emergency vehicle route? Think about traffic density when heading south on South Park, is there enough room for cars to clear the lane?

A. The widths allow enough room for cars to clear the way for emergency vehicle to pass through.

Q. Have you considered creating a one-way street to increase road width on South Park, (south of South Street)?

A. We have not fully explored that option.

## Feedback from Discussion Groups

(x) = number of comments

### Positive Comments

- *Prefer Option 2 - parking protected (4)*
- *Floating island for bus is preferred (3)*
- *Option 2A is the safest for riders (3)*
- *Prefer Option 2A as it reduces parking loss*
- *Support raised bollards*
- *Protected facility is required*
- *Prefer parking protected or off-road lane*
- *Like how snow can rest in buffer zone*
- *Safety is paramount, preference for separation*
- *Want to ride with families and feel safe*
- *Group consensus that protected facilities are needed, worth the effort*
- *Some customers want out-front parking, but cyclists can always park out front*

- *In regards to residential parking, area is well serviced by public transit*
- *Free parking is not a right, let's change the thinking/ attitude*

### Negative/Concerns

- *Concern for residents of South Street, especially in south (4)*
- *Densification increases stress on parking facilities (3)*
- *Concern about pedestrian conflicts (2)*
- *Need to maintain parking for those who really need it, and densify parking in areas for those more mobile (2)*
- *Parking protected is attractive to mitigate parking loss, but concern about detail of design, need more information*
- *Concerns about raised cycle track aesthetics*
- *Concerns regarding merging at intersections*
- *Car dooring*
- *Option 1 is worse than not doing anything*
- *Safety for entering and exiting off-street facility*
- *No room for cars, are lanes wide enough*
- *Loss of trees*
- *Loss of parking will negatively impact businesses*
- *Off-street section may be underutilized (like off-street on the Commons)*
- *Off-street option may detract from pedestrian experience*

### Suggestions

- *Move bike lane to Tower Road south of South Street, make Tower Road a one-way street (2)*

- *South Park loss of parking right beside Lord Nelson impacts residents, visitors, and businesses along this side of the street. Is it possible to move remaining parking to east side? If we retain parking on Public Garden side of street, then people must travel to crosswalk to cross the street. This is difficult for people with mobility challenges.*
- *How will left turns work? Need something like a bike box.*
- *At Sackville and Bell, where the curb rounds, there is enough room for bikes and cars at the north end of the intersection but at the south end of the intersection there is no more room for both. Bikes get pinched between car and curb. Signage is needed, the curb needs to be pushed back, and bike lanes needs to be painted into the intersection.*
- *Can South Street to Inglis Street become one-way?*

- *The solution presented doesn't address the issue of parking between South and Inglis*

#### Other

- *Has wind and topography been factored in?*
- *Half the bus stops along South Park need to be removed because they are violating `Moving Forward Together Plan` goals*
- *What is the value of the parking being kept and being lost?*
- *Should residents get some priority?*
- *Is this project being planned to coincide with other development? i.e., streetscaping, development*



## Summary of Additional Public Comments

Four e-mails were received by Halifax staff in January and February 2017. One supports Option 2, one Option 2A, and two oppose the project, particularly because of the potential loss of on-street parking close to the QEII VG site.

## Appendix A – April 2016 Open House Summary

A public open house was held on April 25, 2016 at the Halifax Central Library to gather feedback on two options for extending and improving the South Park Street bike lanes.

Feedback on the options was received via comment cards at the open house (58), as well as through direct emails to staff (17). The submissions fall into four categories:

- Supportive of cycling infrastructure
  - 51 comments supportive of protected bicycle lanes
  - 7 comments generally supportive of cycling
- Supportive of cycling infrastructure with suggestions
  - 9 comments
- Specific concerns
  - 7 comments
- Opposed
  - 1 comment

In total, 77% were supportive of cycling infrastructure, with general comments encouraging Halifax to build dedicated cycling facilities. Among the comments supportive of cycling infrastructure, many expressed the need for:

- all ages and abilities design
- sharing the road with all users
- feeling safe on the road
- increasing the number of cyclists

Concerns relate to:

- cyclist safety at intersections
- connecting to the rest of the cycling network
- impacts to commercial, residential, and accessible parking
- the loading and unloading of goods for businesses
- how new rules and restrictions will be communicated and enforced
- impact on property values
- how street cleaning will be affected
- how to incorporate traffic calming measures