MEMO

TO: Peter Kavcic, Andrew Giesen & Doug MacRae, City of London
FROM: Dave McLaughlin, James Schofield & Stephen Tam, WSP
SUBJECT: Corridor Selection and Evaluation for an East-West Separated Bikeway
DATE: January 17, 2019

OVERVIEW AND SUMMARY

The East-West Separated Bikeway study comprised two phases. In the first phase, the five study corridors shown in Appendix A: London Separated Bikeway Evaluation and Feasibility Study Corridors were evaluated to identify a preferred corridor for further feasibility study. In the second phase, a preliminary concept design for the preferred corridor was developed.

During the first phase of the study, WSP engaged with the London Bus Rapid Transit (BRT) project team, the consultant and City team responsible for the Old East Village (OEV) Dundas Street Corridor Secondary Plan, and with members of the public at the Old East Village Dundas Street Corridor Secondary Plan public meeting on June 27, 2018.

At the public meeting, feedback from the public, stakeholders and City staff overwhelmingly indicated that York and Dufferin were not preferred for an east-west separated bikeway. This and other feedback received was incorporated in applying 11 study corridor evaluation criteria. WSP then undertook a series of field investigations and documented observations. Further discussions with City Staff (who consulted with the OEV Business Improvement Area) and the OEV Study Team refined the scoring methodology and process. Through this evaluation process, the York, Dufferin, and King & Queens Couplet corridors were screened out.

Subsequent discussions with City staff and with the OEV Study Team yielded a new Hybrid option, which featured:

— eastbound and westbound unidirectional separated bike lanes on Dundas Street between Wellington Street and William Street;
— a southbound separated bike lane on William Street between Queens Avenue and Dundas Street;
— an eastbound separated bike lane on Dundas Street between William Street and Ontario Street; and
— a westbound separated bike lane on Queens Avenue between William Street and Quebec Street.
The Hybrid option emerged as one of the top two options, the other being the continuation of eastbound and westbound unidirectional separated bike lanes on Dundas Street through the OEV. The Hybrid option scored the highest as it balanced priorities throughout the OEV within a constrained right-of-way. This option includes a separated cycling facilities close to destinations, wide sidewalks, opportunities for patios, merchandising displays, and on-street parking on one side of the street. The Hybrid was selected for the development of a conceptual design, which was presented to the public at a second public meeting on November 1, 2018.

At the second public meeting, some members of the public expressed a preference for facilities in both directions on Dundas Street as well as cycling facilities on King and Queens throughout the OEV. In addition, further consultation with the Cycling Advisory Committee resulted in an alternative two-way proposal with a bidirectional facility on the south side of the street through the OEV. We have incorporated feedback received at this meeting to refine the original Dundas Street two-way corridor design, and have considered the bidirectional facility in our final evaluation.

Through the study, WSP ultimately considered the following corridors:

1. Dundas Street Unidirectional (one-way facility on both sides of the street, including through the OEV)
2. Dundas Street OEV Bidirectional (two-way facility on the south side of the street through the OEV; one way on both sides through the rest of Dundas)
3. Dundas & Queens OEV Hybrid (eastbound on Dundas Street and westbound on Queens Avenue through the OEV)
4. King & Queens Couplet
5. Dufferin Street until Adelaide Street, then Lorne Avenue
6. York Street

This memo outlines the process and methodology used to evaluate and rank the corridors, and identifies key insights that were revealed during the evaluation.

**EVALUATION PROCESS**

The intent of the evaluation process was to identify a preferred corridor that would function as a continuous east-west spine route and provide continuous spatial and physical separation.

**SCORING CRITERIA**

The criteria developed and used in the evaluation process were informed by route selection and evaluation criteria from Ontario Traffic Manual (OTM) *Book 18: Cycling Facilities*, City of London Cycling Master Plan, as well as evaluation criteria used in the previous London Queens and Colborne feasibility study. The criteria were presented to City staff who provided feedback that resulted in modifications to draft criteria which was then incorporated into the “Proposed Study Evaluation Criteria” board presented at the June 27, 2018 OEV Community Information
Meeting. Following the public meeting, the criteria were further refined based on public and stakeholder input and include the changes listed below:

- **Conflict Mitigation** includes considerations for pedestrians;
- **Feasibility** has been renamed **Constructability** to provide some differentiation between the **Cost** criteria;
- Clarification was added to **Cost** to ensure that it clearly communicated a high-level cost assessment;
- **Tree Impacts** has been revised to **Streetscaping & Public Realm** to address potential boulevard uses for the public and to stress the importance of integrating urban design into bicycle planning and design; and
- **Retail Economic Impact** was added as a new scoring criteria. This criteria acknowledges that cycling infrastructure has a major effect on local businesses due to potential changes in pedestrian, cyclist, transit and vehicle travel patterns.

Throughout the evaluation, we adopted a climate change based lens when assessing a corridor against any given criteria. Climate change and resilience have become central themes in urban and transportation planning that should be considered throughout a project’s life-cycle from planning to operations & maintenance. The objective of the project is to improve accessibility to and from the core of the City and to various built up areas. Increased cycling ridership provides benefits in terms of climate change mitigation and improved physical and social health. It is also recognized that climate change mitigation benefits may also be attributed to minimizing construction impacts, mitigating tree impacts, or providing for future planting zones or other green infrastructure. The following 11 criteria were applied in the evaluation process:

1. Conflict Mitigation: Minimize conflicts between motorists, cyclists and pedestrians.
2. Constructability: Assess the suitability of a roadway/corridor and the level of effort to implement a separated bikeway.
3. Parking: Impact to on-street parking supply.
4. Transit Operations: Impact and compatibility with local transit and the future BRT.
5. Traffic Operations: Impact to roadway capacity and intersection operations.
6. Streetscaping & Public Realm: Potential impacts to the public space within the boulevard that would affect urban design, streetscaping and the public realm (e.g. implementation of patios and street furniture).
7. Connectivity & Directness: Potential to connect to existing and proposed cycling routes in the Cycling Master Plan and Transportation Master Plan.
8. Destination Access: Connect to significant destinations or attractions.
9. Cost: Anticipated cost to construct a separated bikeway on a corridor. This is a high-level costing assessment based on the level of effort required.
10. Social Health & Equity: Provides a fair and accessible environment to users.
11. Retail Economic Impact: Recognizing the importance of providing customer access by all modes of travel, this criteria assesses the overall impacts to walking, cycling, and parking access.

SCORING METHODOLOGY

Each corridor was evaluated against the 11 different criteria and was given a score from 1 to 4 for each criterion. A score of 1 indicates least desirable conditions for the criteria in question, while 4 indicates most desirable conditions. Desirability refers to maximizing the benefit of the separated bikeway while reducing the overall impacts on the local neighbourhood and the City. The maximum score that a corridor could receive is 44 points (4 points × 11 criteria).

During discussions with City staff, it was decided that criteria should not be weighted, as each stakeholder will have different opinions regarding the relative importance of the criteria. During WSP’s evaluation process, several criteria were identified as being essential in meeting the goals and objectives of the study. These criteria were Conflict Mitigation, Connectivity & Directness, Destination Access, On-Street Parking, Social Health & Equity and Retail Economic Impact. These criteria are highlighted in green in the Corridor Selection and Evaluation Matrix. If any given corridor scores poorly on these categories, it would be difficult to justify it as a preferred east-west spine. For example, if a corridor receives a high total score, but presents major impacts in terms of Conflict Mitigation, it may not be an ideal spine route. The highlighted criteria were not weighted differently but applied as a consideration to look beyond the total score of each route.

The Corridor Selection and Evaluation Matrix is presented in the following pages. The first sheet is a summary table that uses “pie charts” to graphically show the scores associated with each corridor. The second sheet has commentary that documents the observations and analysis that were used throughout the decision making process and in scoring each criteria. This sheet is intended for internal use only.

TYPICAL CROSS-SECTIONS

Typical cross-sections were developed to inform the scoring process. The cross-sections were developed using the same section of road along each of the candidate corridors. Curb-to-curb road widths were determined using the City’s ortho and road CAD data (with the exception of King St, which uses dimensions from the BRT Plan), and field investigations. A location at each corridor east of Maitland Street was chosen as a representative area to develop cross-sections. This area has a mix of existing cross-sections with parking, bike lanes and through lanes that resulted in various solutions to accommodate a separated bikeway.

A separate set of cross-sections were created to aid in the evaluation of the OEV Hybrid and Dundas Two-way Bidirectional concepts. The OEV Hybrid shows an eastbound unidirectional facility on Dundas and a westbound unidirectional facility on Queens. The two-way bidirectional cross-section was adapted from a proposal provided by London Cycle Link and modified to fit within a typical 20 metre right-of-way. The block between Adelaide Street and Elizabeth Street was chosen for these cross-sections due to the constrained nature of Dundas with the parking laybys. Cross-sections for the OEV Hybrid and Dundas (both the two-way unidirectional and bidirectional options) were drawn to provide a visual comparison during the evaluation process.
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<th>Criteria</th>
<th>Least Desirable</th>
<th>Most Desirable</th>
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<td>Transit Operations</td>
<td>Impact cost/return to local transit for the OFM project</td>
<td>Potential to connect and separate pedestrian and cycling access to key destinations</td>
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<tr>
<td>Connectivity &amp; Directness</td>
<td>Potential to connect to existing and future transit lines</td>
<td>Can accommodate a two-way unidirectional traffic configuration</td>
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<td>Retail Economic Impact</td>
<td>Traffic volumes are heavier east of 10,000 average AADT along corridor.</td>
<td>Bikeability for Dundas could be achieved in most instances of the combined access/infrastructure renewal.</td>
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<tr>
<td>Sustainability &amp; Environment</td>
<td>Potential to connect to existing and future transit lines</td>
<td>Some additional costs associated with the adoption of continuous cycling will be required in most sections of the corridor.</td>
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<td>Can accommodate a two-way unidirectional traffic configuration.</td>
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**INTERNAL CORRIDOR SELECTION AND EVALUATION MATRIX**

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**Legend**

- 1: Least Desirable
- 2: Moderate
- 3: Most Desirable
- 4: Not Applicable

**Total Score**

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## INTERNAL CORRIDOR SELECTION AND EVALUATION MATRIX

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### Conflict Mitigation
- Eliminate conflict between motorists, cyclists and pedestrians
- Ensure the compatibility of a walking network and the need to implement a separated bikeway

### Connectivity
- King is being reinvented as part of the BRT project and is representative of a typical street in Toronto. Dufferin is similar to Queens and would include parking and pedestrian connections. Dufferin provides connectivity mostly from the Centre Island to the downtown area with commercial, institutional and retail environment along the corridor. This option does not connect the OEV to the East-West spine cycling route. There are not as many destinations on the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor, the East-West spine cycling route. There are not as many destinations on the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Parking
- Dufferin and Lorne would require extensive public consultation and approvals. The removal of parking for theflex street and the BRT, it is expected that York St volumes will be further narrowed, private property may be impacted. This option does not connect the OEV to the East-West spine cycling route. There are not as many destinations on the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Transit Operations
- The BRT will operate along King throughout the study corridor and is expected to impact the connectivity of the corridor. King and Queens were highly commercial and retail and were highly residential on the north side with commercial, institutional and retail environment along the corridor.

### Traffic Operations
- The proposed bike facility on King St. has connectivity to the BRT stops, and passes through the north end of the OEV. This option does not connect the OEV to the East-West spine cycling route. There are not as many destinations on the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Stewardship & Public Realm
- The proposed bike facility on King St. has connectivity to the BRT stops, and passes through the north end of the OEV. This option does not connect the OEV to the East-West spine cycling route. There are not as many destinations on the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Community & Accessibility
- The corridor is highly residential, with some commercial and urban intervention on the east side of the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Destination Access
- The corridor is highly residential, with some commercial and urban intervention on the east side of the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Cost
- The corridor is highly residential, with some commercial and urban intervention on the east side of the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Social Impact & Equity
- The corridor is highly residential, with some commercial and urban intervention on the east side of the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.

### Total Score
- The corridor is highly residential, with some commercial and urban intervention on the east side of the corridor. The corridor is highly residential. With some commercial and urban intervention on the east side of the corridor.
## Corridor Selection and Evaluation Matrix

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**Legend**
- **DUNDAS TWO-WAY**: Bidirectional
- **DUNDAS TWO-WAY BI-DIRECTIONAL**: Bidirectional with dedicated bike lanes
- **DUNDAS & QUEENS OEV HYBRID**: Hybrid with dedicated bike lanes
- **KING AND QUEENS COUPLET**: Couplet
- **DUFFERIN**: Unidirectional
- **YORK**: Unidirectional

**Conflict Mitigation**
- Minimize conflicts between motorists, cyclists and pedestrians
- Assess the suitability of a roadway/corridor and the level of effort to implement a separated bikeway

**Constructability**
- Impact on on-street parking supply
- Impact and compatibility with local transit and the future BRT project
- Impact to roadway capacity and intersection operations

**Parking**
- Potential impacts to the public space within the boulevard that would affect the implementation of public realm items (e.g., sidewalks, benches, etc.)

**Transit Operations**
- Potential to connect to existing and proposed cycling network routes identified in the Cycling Master Plan and Transportation Master Plan
- Potential to connect to significant destinations or attractions

**Traffic Operations**
- Impact to roadway capacity and intersection operations

**Streetscaping & Public Realm**
- Connecting to significant destinations or attractions
- Provides a fair and accessible environment for users

**Community & Directness**
- Recognizing the importance of providing customer access by all modes of travel, this criteria assesses the overall impacts to walking, cycling, and parking access

**Destination Access**
- Anticipated cost to construct a separated bikeway on a corridor. This is a high-level costing assessment based on the level of effort required

**Cost**
- Indicated cost to construct a separated bikeway on a corridor. This is a high-level costing assessment based on the level of effort required

**Social Health & Equity**
- Provides a fair and accessible environment for users
It is acknowledged the cross-sections will vary along the length of each corridor. These cross-sections are intended to inform the high-level evaluation of Constructability, Cost and Traffic Operations. The cross-sections inform what changes are required for a separated bikeway along each corridor. Unique and constrained locations such as several locations in the Old East Village or near the Catholic Central High School bus loading zone are likely to require design treatments that vary from the typical cross-sections.

In the development of the cross-sections, it was assumed that no curbs would be moved, and the curb to curb width would stay constant, except for minor modifications at specific locations. It is also assumed that the bike lane width is measured from the face of curb to the edge of the bike lane. As major infrastructure renewal is planned in the Old East Village on Dundas Street from Adelaide Street to Ontario Street, opportunities to reallocate roadway space to the public realm were considered in this section. Where the separation on the cross-section shows a buffer, there would be a precast concrete curb and bollards in the buffer space (similar to Colborne Street). At these locations, the bike lane width is measured from face of curb to the curbside edge of the buffer zone.
Corridor
Dundas (Outside of OEV)

Curb-to-Curb Width
~11.7 m

Existing Configuration
2 through lanes

Corridor
Dundas OEV Hybrid

Right of Way Width
20.0 m

Existing Configuration
2 through lanes and 2 parking lay-bys

Dundas: Typical

Dundas OEV Hybrid: Typical OEV
**Corridor**
Dundas Two-way Bidirectional

**Right of Way Width**
20.0 m

**Existing Configuration**
2 through lanes and 2 parking lay-bys

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**Corridor**
Queens (OEV and King & Queens Couplet)

**Curb-to-Curb Width**
~8.0 m

**Existing Configuration**
2 through lanes with a westbound bike lane on the north side
**Corridor**
King (BRT Proposal)

**Right of Way**
**Width**
20.0 m

**Proposed Configuration**
2 BRT lanes, eastbound travel lane, eastbound raised cycle track

**Corridor**
Dufferin

**Curb-to-Curb**
**Width**
~8.7 m

**Existing Configuration**
2 travel lanes with parking on both sides
Corridor
York

Curb-to-Curb Width
~13.0 m

Existing Configuration
4 through lanes

APPLICATION OF BIDIRECTIONAL BIKEWAYS

Bidirectional bikeways are occasionally considered as an alternative to two-way unidirectional facilities or couplet based corridors. As part of the evaluation, a bidirectional option through the OEV was considered at the suggestion of the Cycling Advisory Committee and at the request of City staff. Prior to scoring the bidirectional option, a comprehensive review of bidirectional bikeway design guidance was undertaken to evaluate whether the OEV provides a suitable context for a bidirectional facility. As part of this review the following design guidelines were reviewed that reflect a broad set of local and international best practices:

- Ontario Traffic Manual (OTM) Book 18 [Ontario]
- CROW Design Manual for Bicycle Traffic [Netherlands]
- MassDOT Separated Bike Lane & Design Guide [Massachusetts, USA]
- Federal Highway Administration (FHWA) Separated Bike Lane Planning and Design Guide [USA]
- Trafikverket Pedestrian, Bicycle and Moped (PBM) Manual [Sweden]
- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads [Canada]
TYPICAL DEPLOYMENT SCENARIOS

Bidirectional bikeways are typically implemented in areas where there are significant constraints that do not feasibly allow for unidirectional facilities. Common reasons for implementing a bidirectional bikeway include situations where:

- one side of the roadway has significantly more attractions and destinations;
- the opposite side has significantly more major conflict points such as driveways or intersections;
- one side has long, continuous and uninterrupted blocks;
- one side of the roadway has extra right of way that can be easily converted to a bikeway;
- a bidirectional facility provides a logical and short connection between two different cycling routes; or
- conflicts at intersections can be managed using intersection and roadway geometry and signal operation modifications.

It should be noted that bidirectional bikeways (excluding in-boulevard shared paths) are most commonly deployed on one-way roads. However, if a segment of roadway meets one or more of the criteria outlined above, a bidirectional facility may be considered on a two-way road. The following sections provide a consolidated summary of advantages and disadvantages of bidirectional bikeways.

ADVANTAGES

- Bidirectional facilities may use less roadway and boulevard space than two unidirectional facilities as buffer space from the adjacent roadway and sidewalk is only required on one side of the road.
- Potential cost savings if only one side of the road would require modifications.
- Possibility to provide a more direct route, depending on the context.

DISADVANTAGES

- Transitions from unidirectional to bidirectional facilities add complexity at intersections and may increase risk to vulnerable road users. Bidirectional facilities are also incompatible with several intersection treatments such as bike boxes.
- Bidirectional facilities in urban areas introduce more conflicts with turning vehicles and are less intuitive for motorists who may not anticipate cyclists approaching from the opposite direction. From a road safety and vision zero perspective, it is difficult to recommend a bidirectional facility.
- Transit operations and stop configuration are more difficult to implement and require additional boulevard space to accommodate transit platforms and pedestrian crossings.
- Bidirectional facilities increase sight distance requirements for both cyclists and drivers. Increased precaution must be taken when placing street fixtures or parking near driveways and intersections.

- OTM Book 18, MassDOT, FHWA, and NACTO note that when implementing bidirectional facilities within or directly adjacent to the roadway, dedicated bike signals and protected signal phases should be implemented to mitigate conflicts between turning vehicles and cyclists. These measures may negatively impact intersection capacity, and may also introduce increased delays for all road users.

- Bidirectional facilities are not typically implemented along commercial main retail streets as it may result in greater conflicts with pedestrian flow in comparison with unidirectional bikeways.

DISCUSSION

Our review of bidirectional facility guidance confirms that there are several major disadvantages associated with a bidirectional facility. Based on lessons learned and resources noted above, there is not a strong rationale to support the implementation of a bidirectional facility in the OEV.

As in any planning and design decision, the context of the facility should be carefully considered. Two-way cycle tracks are typically not implemented in main street settings similar to the OEV. They tend to be used more as a linear travel corridor (highway) and are not as conducive to support street level activity and retail/commercial businesses. In the OEV, destinations and driveways are relatively evenly distributed on both the north and south side of the street. Additionally, there is minimal cost benefit to implementing a bidirectional facility in comparison with the OEV Hybrid or two-way unidirectional alternatives in the OEV, as the corridor is planned to be reconstructed. This suggests a bi-directional facility is less suitable in the OEV context.

A bidirectional facility on Dundas would be challenging to implement from a conflict mitigation perspective. For example, protected signal phasing is recommended in conjunction with bidirectional facilities, but geometric constraints limit the ability to introduce dedicated turn lanes. Four guidelines reviewed also spoke specifically against implementing bidirectional facilities in a context similar to the OEV:

- "Bidirectional cycle/moped paths in built-up areas is strongly discouraged", CROW Design Manual for Bicycle Traffic

- "On two-way roadways, the design challenges associated with bi-directional protected bikeways can be avoided by designing protected bike lanes on each side of the road", TAC Geometric Design Guide for Canadian Roads

- "The reason that paths with two-way traffic are less safe than those with one-way is that they provide poor safety in crossings where the interplay among pedestrians, bicyclists, and drivers worsens... in a city environment where the crossings are close to each other, bicycle paths with one-way traffic are often preferable and should be the goal for new construction", PBM Manual

- "Practitioners may wish to only apply two way raised cycle tracks alongside one-way streets. Vehicles in the roadway parallel to the raised cycle track will only approach from one direction, thus reducing the number of conflicts with cyclists.", OTM Book 18
The findings summarized above have informed the evaluation of the OEV bidirectional option. As a result of additional conflict mitigation challenges, potential traffic operations impacts and costs for new signals and protected phasing, this option is not recommended.

**PARKING IMPACTS**

During the OEV Community Information Meetings, it was acknowledged that parking was a significant issue for local business owners. A parking impact assessment was completed through a review of the Draft 2018 BRT Environmental Project Report and parking capacity and utilization data provided by the City. After establishing a baseline for parking, WSP estimated the potential parking reductions based on the implementation of a separated bikeway and determined the anticipated new parking utilization rates. Table 1 provides a high-level overview of the existing conditions of the corridor, and shows how a separated bikeway would affect parking capacity and utilization.

<table>
<thead>
<tr>
<th>CORRIDOR</th>
<th>EXISTING CAPACITY</th>
<th>CURRENT USAGE</th>
<th>NEW CAPACITY</th>
<th>EXISTING UTILIZATION</th>
<th>NEW UTILIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dufferin</td>
<td>206</td>
<td>56</td>
<td>74</td>
<td>27%</td>
<td>75%</td>
</tr>
<tr>
<td>Queens</td>
<td>131</td>
<td>43</td>
<td>95</td>
<td>33%</td>
<td>45%</td>
</tr>
<tr>
<td>Dundas (uni or bidirectional)</td>
<td>288</td>
<td>93</td>
<td>122</td>
<td>32%</td>
<td>76%</td>
</tr>
<tr>
<td>King</td>
<td>39</td>
<td>17</td>
<td>26</td>
<td>44%</td>
<td>65%</td>
</tr>
<tr>
<td>York</td>
<td>N/A</td>
<td></td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>OEV Hybrid Parking Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
</tr>
<tr>
<td>Dundas</td>
</tr>
<tr>
<td>Queens</td>
</tr>
</tbody>
</table>

*Table 1: Summary of Estimated Parking Impacts*

It is important to note that the parking impacts for Dundas unidirectional and bidirectional options and the OEV Hybrid are expected to be similar. During the parking impact analysis, it was assumed that the north side on-street parking would be retained, and south side on-street parking would be removed through the Old East Village to accommodate a separated bikeway for each option through Dundas. As a result of the consistent parking configuration, the boulevard and pedestrian realm widths would vary in each option.

The current utilization of parking is low across all corridors. With the implementation of a bikeway the projected reduction of parking capacity does not bring any corridor above 100%.
Additional parking spots have been reduced as part of the Dundas Place project.

While the table above provides a high-level overview, it is important to note that parking reductions vary significantly on a block by block basis. Parking reductions tend to be greater in the eastern portion of the corridors where there is less boulevard space available for a separated bikeway. However, the parking utilization around the Old East Village tends to be below 25%, with the exception of the block between Adelaide and Lyle, which sees higher utilization. Existing parking utilization is generally higher around the downtown core, where it is not uncommon to have utilization above 50%.

Potential parking reductions could be mitigated by encouraging the use of municipal and private off-street parking lots. For example, in the downtown core, there are several surface and parking structures that provide alternatives. In the Old East Village, there are four off-street parking lots with a total capacity of 432 spots. Strategies may also be explored to increase the turnover of on-street parking and ensure an adequate supply of vacant spaces.

**KEY INSIGHTS FROM THE EVALUATION**

The following discussion outlines the major themes that arose in the evaluation process. Detailed commentary relating to each evaluation criteria and each corridor is included in the internal Corridor Selection and Evaluation Matrix.

**YORK AND DUFFERIN**

After the benefits and impact analysis and the development of cross-sections, several key results emerged. First, it was confirmed that York and Dufferin were both low scoring corridors. The primary issues with York and Dufferin are the lack of connectivity to the downtown core and key social services. York is primarily industrial and commercial, while Dufferin is mostly single-detached residential until the downtown segments. Due to the narrow roadway widths, neither corridor could support a continuous 1.5 metre bikeway with a 0.5 metre separation space unless a travel lane is removed. The loss of a travel lane on York would be detrimental to the City’s traffic capacity as it will be a main arterial after the construction of the BRT. Finally, the Dufferin corridor is indirect and requires a jog through unsignalized intersections to connect from Dufferin to Lorne via Adelaide Street, which negatively affects constructability and conflict mitigation.

**KING & QUEENS COUPLET & BRT CHALLENGES**

During the analysis of the BRT’s drawings, conceptual renderings, and the May 2018 Draft Environmental Project Report, it became apparent that the King and Queens couplet would not be an ideal east-west corridor, as there is not sufficient space on King Street and Queens Avenue between Ridout Street and Wellington Street.

The BRT does not propose to include any eastbound cycling facilities on King Street between Ridout and Wellington, and it does not include any cycling facilities on Queens Avenue. Figure 1 shows the proposed configuration of the intersection of King and Wellington, where the eastbound cycling facility begins. The King and Queens couplet would result in a significant gap in connectivity between Ridout and Wellington. These challenges result in low scores for destination access, connectivity, constructability, and cost.
In addition to the space constraints noted above, there are other significant concerns with a King and Queens couplet. Along King and Queens, there are many driveways, which reduce the amount of separation that could be provided and introduce more conflicts to be managed. North-south connectivity is more challenging with the couplet. Cyclists will require one or more north-south routes to provide connections between King, Dundas and Queens. This adds complexity to the project and may increase costs.

![Figure 1: Proposed BRT Bike Facility at Wellington](image)

**OEV HYBRID AND DUNDAS (TWO-WAY UNIDIRECTIONAL)**

In the scoring process, the Dundas two-way unidirectional ("Dundas" option) and the Dundas & Queens OEV Hybrid ("Hybrid" option) have comparable scores, with the Hybrid option having a slightly higher overall score than the Dundas option. It is important to note that the evaluation assumed a separated bikeway would be the only suitable facility type along either corridor. For both options, one side of parking along Dundas Street would be lost to accommodate a separated bikeway. The Hybrid would also require the reconfiguration of angled parking on William Street, resulting in some potential reduction of capacity.

The OEV Hybrid option allows for an increase in sidewalk space as well as the opportunity to include loading zones on both sides of Dundas to support the local businesses. The two-way unidirectional Dundas option would make implementing loading zones on Dundas more challenging on north and south sides due to space constraints that limit the ability to provide wider sidewalks and additional public realm features such as patios and merchandising stands. An alternative strategy that could be applied to both options is to provide more loading zones on side streets.

East of William Street, the Hybrid would include a unidirectional eastbound facility on Dundas Street, while westbound cycling traffic is shifted to Queens Avenue. The Hybrid option scores significantly higher for Streetscaping & Public Realm/Trees because this option preserves sufficient boulevard space to accommodate a wide landscaping zone on both sides of the street. In addition, the Hybrid scores significantly higher in retail economic impact as this option can preserve more space for on-street parking and flexible boulevard spaces for businesses to use (for
example to implement patios or merchandising stands). However, Connectivity and Directness, Destination Access, and Social Health and Equity are slightly lower in the Hybrid option, as Queens provides less connectivity than Dundas to the Old East Village for westbound cyclists.

The OEV Hybrid and Dundas two-way unidirectional options both achieve a strong score due to the connectivity and directness through downtown London. The corridors pass through the downtown core, and provide connectivity to the Colborne Street cycle tracks, two major high schools, and the Old East Village. In addition to these major destinations, both options provide direct connections to important social services such as pharmacies and food banks. There are opportunities for cost savings in implementing a separated bikeway on Dundas in conjunction with the planned OEV infrastructure renewal works. Both options would take a similar level of effort to construct and implement.

At the western end of the corridor, both Dundas and the Hybrid options would continue a cycling route through Dundas Place from Wellington Street to Ridout Street which accommodates cyclists in a “shared space” design.

**RECOMMENDATION**

As a result of the evaluation process, the findings documented to date, and given the goals for renewal of the Old East Village, WSP, in consultation with the Old East Village Dundas Street Corridor Secondary Plan team and City Staff, recommends proceeding with the OEV Hybrid option.
Proposed Study Corridors
- Dundas (Unidirectional/OEV Bi-directional)
- Dundas & Queens Hybrid OEV Couplet
- King & Queen (couplet)
- Dufferin
- York

Existing Cycling Facilities
- Multi-Use Path
- Bike Lane
- Signed Bike Route
- Signed Route with Sharrows
- Separated Bikeway

Proposed On-Road Cycling Facilities
- Separated Bikeway
- Bike Lane
- Signed Bike Route
- Signed Route with Sharrows

Community Features
- Park
- School
- Community Centre

Data provided courtesy of City of London, June 2018