8.0 Cumulative Effects

In order to consider the potential cumulative environmental effects of the project, the environmental assessment has identified other projects and activities that have been or will be carried out in the vicinity of the project, including future projects that are reasonably foreseeable.

The emphasis in this section is on "reasonably foreseeable" activities, e.g. projects that have already been proposed, approved, or that are advancing through the regulatory approvals process. In conducting the analysis, consideration was given to the potential for cumulative effects during both the construction and operations period of the project.

This cumulative effects assessment considered the potential for the combination and interaction of the projected effects of the TFD (Part A) project with the potential effects of other planned projects or activities that are expected to occur. (existing and/or past projects/activities were considered as part of baseline conditions).

8.1 Potential Cumulative Projects

In order to determine potential cumulative effects, other potential projects that could occur in the study area were identified. Reasonably foreseeable projects are listed in **Table 22** below and located in ***Figure 6***.

Table 22 – Expected Future Projects/Activities

Reasonably Foreseeable	Time Frame	Location
• Morgans Grant Subdivision	• Initiated prior to Part A but expected to be completed concurrent with Part A	• Adjacent project, same watershed
• Second Line Road extension	• Concurrent with Part A	• Adjacent project, same watershed
• TFD Completion (Part B)	• Same construction season	• Next section of connected roadway; partially in same watershed
• Future KNL Development	• Future > 5 years	• Partially in same watershed
• Goulbourn Forced Road Realignment	• Future > 5 years	• Partially in same watershed
• Future Richardson Ridge and Broughton Subdivisons	• Future >1-5 years	• At least 1 km to southwest; different watershed

8.1.1 Morgans Grant Subdivision Development

This subdivision, located adjacent to the project north of Second Line, has been cleared and is currently almost complete. The remaining work is completion of some individual housing units.

8.1.2 Second Line Road Extension

The approximately 400 m section of Second Line Road will be extended concurrently with the Part A project to connect to TFD. This will involve similar clearing and road works (although for a small ROW width) to Part A. As these roads are connected to Part A TFD, operation will be concurrent.

8.1.3 TFD Part B

The section of TFD south of Part A to Richardson Side Road has been approved though a municipal class EA and will link the project roadway infrastructure to TFD to the south. It is to be completed in the summer of 2010, so will be concurrent with Part A. This project will include similar clearing and roadworks activities to Part A. It also includes the provision of stormwater drainage ponds, wildlife crossings and the re-alignment of Shirley's Brook. As these roads are connected to Part A TFD, operation will be concurrent.

8.1.4 Goulbourn Forced Road Realignment

Goulbourn Forced Road will be realigned to connect with TFD to the south of the Part A project. Construction is not expected to occur within the next 5 year period, as such there is not potential for construction related cumulative effects from this project. As these roads are connected to Part A TFD, operation will be concurrent.

8.1.5 Future Subdivision Developments

Subdivision developments have been approved in the vicinity of TFD Part A and within the same watershed as the project. These include KNL Developments to the south of the alignment with portions within the Shirley's Brook watershed and Richardson Ridge and Broughton Subdivisions well to the south of Part A. The limits of the subdivision development reflect the City plan and will not extend north of the Second Line Road intersection area. Construction of these subdivisions is not expected to occur within the next 5 years.

8.2 Potential Cumulative Effects with Other Projects and Activities

The potential for cumulative effects from the other future projects and activities with the effects of the TFD Part A project include: surface water quality effects, air quality effects, noise during construction and net loss and fragmentation of habitat for migratory birds and wildlife, including species at-risk. There is also the potential for cumulative effects as a result of the other future road projects including the potential for additional vehicle collisions with wildlife including at-risk turtles.

The potential cumulative interactions between these projects and activities are summarized in **Table 23**.

Table 23 – Potential Cumulative Interactions of Other Projects with Past A TFD

Other Project or Activity	Air Quality	Water Quality	Noise	Migratory Birds	Landuse - ANSI	Species at-risk
Morgans Grant Subdivision (clearing complete)	X	✓	✓	X	X	X
Second Line Road extension	✓	✓	X	✓	✓	✓
TFD Completion (Part B)	✓	✓	X	✓	✓	✓
Goulbourn Forced Realignment	✓	✓	X	✓	✓	✓
Future KNL Developments	✓	✓	X	✓	✓	✓
Future Richardson Ridge and Broughton Subdivisons	✓	X	X	✓	X	✓

8.2.1 Air Quality

Construction related air emissions from the project and any of the identified other planned and future construction projects within the area will occur over a relatively brief period of time, will have only localized and reversible impacts, and may act cumulatively for short durations. The implementation of dust control measures for the project is expected to minimize these effects. It is also expected that the other projects would implement appropriate air emission controls as required through City by-laws and the Province.

There is potential for the Part A roadway operation to contribute cumulatively to greenhouse and smog producing gases. However, it is recognized that the relative contribution of this roadway to

overall greenhouse gas production is extremely low and that the intent of the roadway is to promote free flow of traffic reducing potential for idling related emissions.

The City of Ottawa is committed to overall planning initiatives which address direction provided by federal and provincial governments on air pollutants and greenhouse gases.

The cumulative effect on air quality is considered to be not significant.

8.2.2 Water Quality

Construction and operational impacts to water quality, such as potential for sediment impacts or overall changes to water quality associated with urbanization of the Shirley's Brook watershed, will be cumulative with other development projects occurring within this watershed.

Potential for cumulative sediment impacts from other concurrent projects are primarily construction related and will be short term in duration. Construction sediment impacts are minimized through the application of appropriate sediment and erosion control best management practices and will be short-term and reversible for all projects. Significant cumulative effects on water quality are not anticipated.

Significant long term operations related cumulative effects on water quality are not expected as stormwater run-off management systems will be in place.

8.2.3 Noise

Short-term noise impacts may be associated with construction of the roadway especially during activities such as rock excavation/breaking. Construction noise related to land development will occur but is likely to be less intense, therefore, cumulative effects related to noise are likely to be localized and of short duration.

8.2.4 Migratory Birds

Potential cumulative impacts to migratory birds primarily relate to the loss of habitat available in the study area. The loss of migratory bird habitat relating to the TFD Part A project (largely deciduous forest habitat) is relatively minimal in the context of other projects in the area. This effect will be cumulative with the other related effects from the other potential development

projects in the area. In addition, access opportunities for native nest parasites (e.g. brown-headed cowbirds) which actively seek edge habitats like stream corridors and roadways will increase (Canadian Wildlife Service 2007). This could result in a decrease in passerine nesting success. Access for both common urban native avian predators like raccoons, blue jays, crows and non-native predators like cats may also increase (Canadian Wildlife Service 2007).

8.2.5 Wildlife

The Part A TFD project will result in the removal of areas of deciduous forest which provides wildlife habitat. The amount of forest to be removed as a result of planned developments in the area will result in a net loss of habitat in the study area as well as fragmentation of habitat. These development areas have not been designated for protection by the City of Ottawa. Substantial amounts of natural areas that are protected through ESA designation are located to the north and northwest of the project. It is expected that the cumulative loss of this habitat will not result in significant changes to wildlife population and are not considered to be significant (SAR are discussed below).

8.2.6 At-risk Species

There is potential for cumulative loss of Butternut trees from both Parts A and B of TFD where Butternut is known to occur. In total, about 30 retainable butternut trees in the area would be lost. Additional butternut may be present within the area of the other identified proposed projects. Minimizing potential for overall population impacts on Butternut is a goal of the regulatory requirements associated with *SARA* and *ESA*. The City will work with the province to meet these requirements. For Butternut, this includes a net gain of retainable Butternut.

Potential cumulative impacts to Blanding's Turtle primarily relate to potential for habitat fragmentation and for vehicle collisions from this proposed roadway and other roadways in the area, including Part B TFD. The Part A TFD project does not cross designated habitat for the turtle and does not cross obvious migratory routes. For the Part B area, wildlife crossings are proposed to provide for small wildlife movement. As such the potential effects, including cumulative effects are not considered to be significant. As a species protected under the Ontario ESA, the City is committed to work with the province to minimize potential impacts to Blanding's Turtle from both Parts A and B of the TFD project.

8.2.7 Cumulative Effects Summary

Table 24 provides a summary of the cumulative effects assessment.

Based on review of potential effects and identification of available mitigation measures, it is unlikely that the construction and operation of the Part A TFD project will result in significant adverse environment impacts including cumulative effects.

Table 24 – Cumulative Effects Assessment

Environmental Component	Residual Effects of Future Projects/Activities	Potential Cumulative Effects	Part A Mitigation Measures	Residual Cumulative Effects and Significance
Air Quality	Potential for dust generation during subdivision development concurrent with TFD construction.	Short term reduced air quality.	Visual monitoring of dust levels and additional control if other cumulative dust occurs.	Short term and localized. Not Significant with mitigation.
	Operational air quality impacts from all roadways in the area	Contribution to poor air quality and GHG	Planning initiatives	Not significant with mitigation.
Water Quality	Construction sediment generation in combination with concurrent projects in watershed	Short term and reversible.	Sediment and erosion control	Not significant with mitigation.
	Operational stormwater from all roadways in watershed affecting water quality.	Localized	Stormwater control a component of overall TFD construction.	Not significant with mitigation.
Noise	Potential for construction noise particularly rock excavation in concurrent subdivisions and roadway construction.	Short term and localized increase in noise levels	Follow EPP and blast ordinances.	Short term and localized. Not significant with mitigation.
Migratory Birds and Wildlife	Loss of forest habitat, increased predation, reduced nesting success and habitat fragmentation	Permanent and localized	Follow mitigation measures related to timing of clearance activities. Alternate habitat available and not expected to affect populations	Localized. Not significant with mitigation.
At-risk Species	Loss of butternut and potential mortality or habitat fragmentation for Blanding's turtle in combination will similar effects from other development in the area	Loss of Species at-risk or habitat	Commitment to Ontario ESA obligations	Not significant with mitigation.