Arthur Street Improvements & Elmira Bypass EA
Evaluation of Alternatives: Part A - Arthur Street (Waterloo to Elmira)

Region of Waterloo

Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

Evaluation Criteria			Alternative #A0 ("Do Nothing")		Alternative #A1		Alternative #A2		Alternative #A3	
No.	**Criteria**	**Indicator**	Maintain existing conditions, no improvements. DOES NOT ADDRESS PROBLEM STATEMENT		Extend 4 lane divided highway, add Multi-Use Trail		Widen to 4 Lanes with Raised Concrete Median, add Multi-Use Trail		Maintain 2 lanes, Add Multi-Use Trails	
			Comments	Score	Comments	Score	Comments	Score	Comments	Score
1.0 Natural Environment										
1.1	**Ecology - Impacts to Aquatic Habitat (Watercourses, Floodplains)**	Area of impact on existing habitat features (ha)	No additional impacts beyond existing condtions. DOES NOT ADDRESS PROBLEM STATEMENT	◕	Construction Footprint impacts 2.2 ha of land within watercourse flooplains. Primary impacts and in-water works required at Conestogo River for bridge widening and at creek crossings for culvert extensions near Listowel Road.	○	Construction Footprint impacts 1.5 ha of land within watercourse flooplains. Primary impacts and in-water works required at Conestogo River for bridge widening and at creek crossings for culvert extensions near Listowel Road.	○	Minor impacts within Conestogo River floodplain for MUT construction - paving of existing gravel trail (1.3 ha). Negligble impacts to actual watercourse. Presents opportunity for improvements at culverts.	●
1.2	**Ecology - Impacts to Terrestrial Habitats (Wetlands / Woodlots)**	Area of impact on existing habitat features (ha)	No additional impacts beyond existing condtions. DOES NOT ADDRESS PROBLEM STATEMENT	◕	Signficiant impacts to Conestogo River valley habitat areas for bridge reconstruction works. Minor impacts to vegetation (woodlot edge species) at Sta 1+750 and 7+150	○	Signficiant impacts to Conestogo River valley habitat areas for bridge reconstruction works. Minor impacts to vegetation (woodlot edge species) at Sta 1+750 and 7+150	○	No significant impacts to existing vegetation or habitat areas.	◕
2.0 Social Environment										
2.1	**Archaeological Impacts**	Relative area of impact on known or potential archaeoligical resources	No additional impacts beyond existing condtions. DOES NOT ADDRESS PROBLEM STATEMENT	●	Estimated construction footprint presents the greatest anticipated impact to known or potential archaeological resources.	◔	Estimated alternative construction footprint presents medium anticipated impact to known or potential archaeological resources.	◑	Estimated alternative construction footprint presents the least anticipated impact to known or potential archaeological resources.	◕
2.2	**Cultural Heritage Impacts**	Relative area of impact on known or potential built heritage resources (BHRs) or cultural heritage landscapes (CHLs)	No additional impacts beyond existing condtions. DOES NOT ADDRESS PROBLEM STATEMENT	●	Estimated construction footprint presents the greatest anticipated impact to known or potential BHRs and CHLs	◔	Estimated construction footprint presents medium anticipated impact to known or potential BHRs and CHLs	◑	Estimated construction footprint presents the least anticipated impact to known or potential BHRs and CHLs	◕
2.3	**Impacts on Private Property**	Area of impact on existing private property (ha)	No additional impacts beyond existing condtions. Does not solve any access issues. DOES NOT ADDRESS PROBLEM STATEMENT	◑	Significant impacts to all properties fronting the Road ROW north of Sawmill Road (4.6 ha / 27 Properties). Property acquisition of +/- 10m required on each side for new road R.O.W. 4 existing private dwellings at Gerrat Place to be aquired for demolition. Property Acquisition or Permanent Easement required for 2.7km MUT through vacant lands southeast of St. Jacobs	○	Significant impacts to all properties fronting the Road ROW north of Sawmill Road (1.85 ha / 24 properties). Property acquisition of +/- 4m required on each side for new road R.O.W. Property Acquisition or Permanent Easement required for 2.7km MUT through vacant lands southeast of St. Jacobs	○	Negligble impacts north of Sawmill Road. Roadworks to be contained within existing road R.O.W. Opportunities to improve access conditions. Property Acquisition or Permanent Easement required for 2.7km MUT through vacant lands southeast of St. Jacobs	●
3.0 Technical Environment										
3.1	**Traffic operations**	Transportation Level of Service (LOS), v/c, queuing and delays	No additional impacts beyond existing condtions. Planned TCP Projects include intersection improvements. DOES NOT ADDRESS PROBLEM STATEMENT	◑	Traffic operations are improved - 4 lanes allow faster vehicles to pass slower moving vehicles, however, overall capacity is primarily dictated by LOS & Delays at intersections. More gaps are available for the farm accesses along the corridor when there's four laning in place. Continuous 4 lanes eliminates the merge condition at the Sawmill Road Roundabout and for southbound traffic from Listowel Road.	◕	Traffic operations are improved - 4 lanes allow faster vehicles to pass slower moving vehicles, however, overall capacity is primarily dictated by LOS & Delays at intersections. More gaps are available for the farm accesses along the corridor when there's four laning in place. Continuous 4 lanes eliminates the merge condition at the Sawmill Road Roundabout and for southbound traffic from Listowel Road.	◕	LOS & Delays primarily impacted by intersections. Existing 2 lane conditions allows for average speeds that exceed posted limits. Provides opportunities for access improvements. North and South departure lane merges from the Sawmill Road Roundabout create turbulence and/or delay that impacts operations and could worsen as traffic volumes increase.	◑
3.2	**Multi-Modal Accommodation**	Level of Service for all modes, with focus on pedestrians, cycling, transit and Horse-&-Buggy	No existing pedestrian or cycling facilities. Existing condition is that slow moving AT uses paved shoulders immediately adjacent to high speed traveled lanes. DOES NOT ADDRESS PROBLEM STATEMENT	◔	Addition of Multi-Use-Trail provides significantly improved MMLOS	●	Addition of Multi-Use-Trail provides significantly improved MMLOS	●	Addition of Multi-Use-Trail provides significantly improved MMLOS	●
3.3	**Safety**	Conformance with Municipal Policy Objectives (Traffic, Transit, Active Transportation)	No additional impacts beyond existing condtions. Existing 2 lane traffic has low collision history, but conditions present a greater risk of head on collisions. Use of paved shoulders for AT and Buggys presents safety concerns re: passing. DOES NOT ADDRESS PROBLEM STATEMENT	◑	Widening to 4 lanes and separation of traffic by wide median improves safety, allowing faster vehicles to pass without risk of head-on collision. However, wider road increases operating speeds. Separation of MUT from travelled lanes improves safety for non-motorized users.	●	Widening to 4 lanes and separation of traffic by wide median improves safety, allowing faster vehicles to pass without risk of head-on collision. However, wider road increases operating speeds. Raised median presents a potential obstacle for collision. Separation of MUT from travelled lanes improves safety for non-motorized users.	◕	Existing 2 lane traffic conditions presents a greater risk of head on collisions. Opportunities to address access issues. Separation of MUT from travelled lanes improves safety for non-motorized users.	◕
4.0 Economic Environment										
4.1	**Capital Cost**	Estimated capital cost (incl. property acquistion)	$7,000,500	●	**$98,930,000**	○	**$91,850,000**	○	**$27,150,000**	●
		Average = $56,232,625	Based on planned TCP projects in the Part A Study Area		Major costs for Conestogo Bridge Replacement and Property Acquistions.		Major costs for Conestogo Bridge Replacement and Property Acquistions.		Cost primarily related to planned infrastructure maintenance (pavement rehab, culvert replacements, etc) and addition of Mulit-Use-Trail	

Impact Ranking Scale				
●	◕	◑	◔	○
Most Preferred	More Preferred	Neutral	Less Preferred	Least Preferred