

**Public Works Committee  
June 19, 2017  
Item 7.1**



**Hamilton**  
Public Works

**Public Works Department  
Engineering Services Division**

**Escarpment Rehabilitation & Strategy Plan**

*Providing services that bring our City to life !*

# Escarpment Rehabilitation & Strategy Plan

## City of Hamilton has 17 Escarpment Access Traffic Corridors:

- Community
- People
- Processes
- Finance



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- Fifty Rd
- McNeilly Rd
- Dewitt Rd
- New Mountain Rd
- Centennial Parkway
- Kenilworth Access
- Sherman Cut
- Sherman Access East
- Sherman Access West
- Claremont Access
- Jolly Cut
- James Street Hill
- Queens St Hill/ Beckett Dr
- Wilson St
- Old Dundas Rd
- Hwy 8 (Dundas)
- Sydenham Rd

# Escarpment Rehabilitation & Strategy Plan

## Ongoing Monitoring;

- City staff on a regular basis, field inspect these accesses
- In addition, Public Works retains geotechnical and civil engineers to assess the condition of the slopes, road platform and wall systems
- The assessments are visual evaluations and identify remedial needs
- Studies recommend short, intermediate and long term options
- Based on recommendations, staff will complete subsequent detailed assessment and investigations.

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## Outcomes of Recent Monitoring Program;

- The outcome of these assessments for the near-term projects is summarized in the following slides

# Escarpment Rehabilitation & Strategy Plan

## Update on Claremont Access



Bin Wall Failure – 2012 & 2016

### Completed Short-term Mitigation Measures

1. Removal of 1091m<sup>2</sup> Steel Panels
2. Installation of tie-back anchors and ropes
3. Installation of a 300m rock fall protection fence

Estimated total cost to date \$1.35 M

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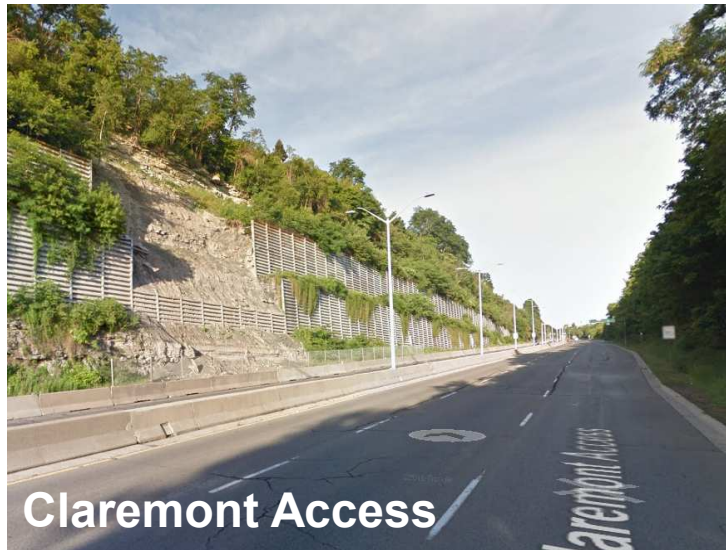
# Escarpment Rehabilitation & Strategy Plan

## Planned Capital Works:

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Claremont Access



Fifty Road



Sherman Access

# Escarpment Rehabilitation & Strategy Plan

## Planned Capital Work:

### Claremont Access

1. Removal of Steel Bin Wall in Section II in 1-5 years (\$4.5M)
2. Removal of Steel Bin Wall in Section I in 6-10 years (\$3.0M)
3. Intermediate measures to be identified and brought forward for consideration as part of capital budget deliberation
4. Investigate long term slope and rock face stability

### Sherman Access

Retaining wall system rehabilitation works in 2017 (\$2.5M)

### Fifty Road

Road rehabilitation and new retaining wall (\$2.5 M)

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## On-going Works:

- Studies based on lifecycle needs will be required to determine an escarpment access strategy
- Inspections of retaining walls
- Regular rock scaling and annual monitoring of escarpment slopes

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# Escarpment Rehabilitation & Strategy Plan

## Summary

Staff have put in place a pro-active program to manage the escarpment crossings that consists of;

- Ongoing inspections of rock face, road platforms and retaining walls
- Ongoing regular rock scaling and road maintenance
- Capital works as recommended in the following tables;

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# Summary

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Escarpment Access	RECOMMENDATIONS			
	Urgent (Now)	<1 year)	1- 5 years	Action
Fifty Road		STN 10+000 to 10+610 and from 10+800 to 10+950 (760m total): Full depth asphalt removal and reconstruction is recommended	STN 10+192 and 10+312 (120m): Connecting Asset No. RWE110465 to RWE110466 Install a retaining wall system using a gabion basket with aluminum zinc + PVC Coating to halt further horizontal slope movement and associated pavement settlement.	2022 Capital Works
		STN 10+000 to 10+655: (655m) Full depth asphalt removal and reconstruction is recommended.		
McNeilly Road		STN 10+000 to 10+350 and STN 10+698 to 10+750 (402m total): Full depth asphalt removal and reconstruction is recommended.		
Sherman Access - West Leg	RWN020310: Construct an engineered fill slope, or replacing with a new retaining wall. (Replace 31m wall)	RWN020297: Construct an engineered fill slope, or replacing with a new retaining wall. (Replace 320m wall)	RWE070297: Extend east end of retaining wall by 20m	2017 Capital Works
	RWN030118: Remediate wall depending on structural condition by constructing an engineered fill slope, or replacing with a new retaining wall. (Replace 73m wall)	Wentworth Stair Footing - (New retaining wall - 6m)	Between RWN020297 and RWN030113: Construct engineered fill slope between 3 m and 6 m from white line, or construct retaining wall.	
			RWE070118: Extend east end of retaining wall by 6m.	
			Between RWN030154 & RWN030114: Construct engineered slope or retaining wall at central slope between pullouts. (90m)	
Sherman Access - East Leg			RWN030162: Remediate wall by constructing an engineered slope or replacing with a new retaining wall. (205m)	
Claremont Access			Removal of steel bin walls (No. 3 & 4) in section II. Monitoring is required during removal. Inspection of exposed rock faces after wall removal	
All Escarpment Accesses - Maintenance Work	On going inspection of exposed rock faces.			On-going Maintenance
	Implementation of permanent rock fall protection measures.			
	Slop areas are inspected regularly.			
	Benches in rock face slopes are inspected regularly.			
	Regular debris removal from bench.			
	Scaling the rock faces regularly. Walls are monitored and inspected regularly.			

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Escarpment Access	RECOMMENDATIONS	
	6-10 years	>10 years
Fifty Road		
McNeilly Road		
Sherman Access - West Leg	RWE070113:Extend east end of retaining wall 20 m farther east.	Construct a wall to connect RWN030115 & RWE030155 - 10m
Sherman Access - East Leg		
Claremont Access	Removal of steel bin walls (No. 1 &2) in section I. Monitoring is required during removal. Inspection of exposed rock faces after wall removal.	
All Escarpment Accesses		

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# Questions?