

Ad Hoc Committee to Study Depot Hill Bluff Pathway

Interim Report to City Council

23-October-2025

Agenda

- Summary of Current Situation
- History of Events and Studies of Depot Hill Bluff
 - Geological
 - Drainage
- Value of the pathway
- Options for Restoring a Pathway
- Current Situation
 - Pathway from Saxon to Oakland
 - Pathway from Central to Saxon

Current Situation - BLUF

- The unabated erosion of the Depot Hill bluff has resulted in failure and loss of the Grand Avenue pathway in two locations:
 - Between Oakland and Hollister (significant damage)
 - Between Saxon and Oakland (failure to edge of fencing, pathway temporarily closed)
- The Ad Hoc Committee studied options going forward
 - Inadequate storm drainage needs to be addressed
 - Pathway re-routing is possible

Overview of the Bluff

June 26, 2018

Central

Saxon

Oakland

Hollister

Marine Sediment Layer (~20 feet high)

Purisma Sandstonae formation (~60 feet high)



Photographs of Bluff Failures

Photo Credit : Snapshot taken from video shot on 19 April 2017, provided by Misha Burch. Original video can be seen on Youtube at <https://youtube.be/Y1kqzLPhk>



Oblique Photo Of Study Area On 19 April 2017
City of Capitola
Grand Avenue Coastal Bluff Footpath
Capitola, California

FIGURE #
1
JOB #
2017015-G-SC



Saxon to Oakland
section

Oakland to Hollister
section

Timeline of Events and Studies

5 Failures in 5 years

There have been temporary fixes to some drainage after each event

2000

2010

2020

2025

Griggs & Johnson Study 1979

- 1853 – 1973
- Erosion rate Avg. 1 ft/yr

Johnson and Associates Study

- Recommended concrete seawall and improved drainage
- Concurred that erosion avg. 1 ft/yr

Harris & Assoc study of Depot Hill Drainage, May 2007

- Recommended a network of drains to Monterey Ave; cost ~\$800k

Haro and Kasunich study of Drain pipes, January 2010

- Recommended use of Corrugated Metal Pipes (CMP) to well below Marine Layer

Pathway Fails between Oakland and Hollister, April 2017

- Path closed
- Some synthetic netting place over marine sediment layer

Marine layer fails undermining existing fencing between Saxon and Oakland

- RAKC erected a new fence, Feb 2023 approx. 8 feet inland of original

Marine layer fails undermining existing fencing between Saxon and Oakland

- Pathway closed
- Current State

Citizen Committee Formed

- Presented undersealing/groin solution to CC
- Rejected due to expense and expected resistance from Coastal Commission

Value of the Pathway

- We don't have any hard data but here are the Committee's observations:
 - The pathway is a popular spot for both tourists and City residents
 - Estimate of 200 – 300 pedestrians per day on average
 - Some reduction in traffic after the bluff collapse between Oakland and Hollister in 2017
 - Significant increase in traffic during Covid 19 still remains substantial
 - Tourist traffic is still robust

Options for Re-storing the Bluff Pathway

1. Do nothing
2. Move pathway onto the city's easement:
 - a. Improve drainage at Saxon Avenue & 302 Grand
 - b. Install pathway on the city's easement (8 houses)
 - c. Move fence to edge of pathway
 - d. Add simple retention system over the latest landslide (between 304 and 308 Grand)
3. Add reinforcement to the bluff at the top to protect the marine layer
4. Implement full Depot Hill drainage plan
5. Install a protective seawall

Options for Re-establishing the Bluff Pathway (1 of 2)

Option	Cost	Risks	Est. Life	Notes
1. Do Nothing	Minor	Utilities would be damaged Potential risk to life Unpredictable erosion	0	Needs better barrier at each end of the pathway Utilities need to be addressed
2. Move pathway onto easement	\$	May only last a year or two	6	Drainage needs to be addressed to improve the life of the new pathway Utilities need to be addressed
3. Reinforce Bluff	\$\$\$	Formation underneath will fail`		Requires study

Options for Re-establishing the Bluff Pathway

Option	Cost	Risks	Est. Life	Notes
4. Implement full drainage	Current estimate is \$2.4 M	May not solve the long term problem	TBD	Based on Study in 2008 where cost was \$800k
5. Install protective seawall	\$\$\$\$	Coastal Commission approval	Long	Not likely to get CCC approval

Committee's Conclusion

- The Committee determined the only feasible solution is to move the pathway inland approx. 10 feet
 - Quickest and easiest solution
 - Least expensive option
 - Probably gets 5+ years out of the existing pathway
- Rough Estimate of City's Costs

Item	Cost Estimate (\$k)	Notes
Pathway Design	\$50.0	Based on SSA Landscape Architects Estimate
Netting Retention System	\$29.8	Based on Granite Construction Estimate
Pathway Materials	\$50.0	WAG
Labor	\$0.0	Assuming its feasible the work would be done by RAKC

Next Steps - simplified

- Fix the drainage outlet at the end of Saxon Avenue (complete)
- Get a landscape designer to create the pathway plans (see Appendix for quotes from SSA)
- Get approval from Public Works for these plans and the plans for the netting
- Order material and set a date for RACK to do the work
- Complete the pathway and the retention system
- Inspection by PW
- Open pathway to public

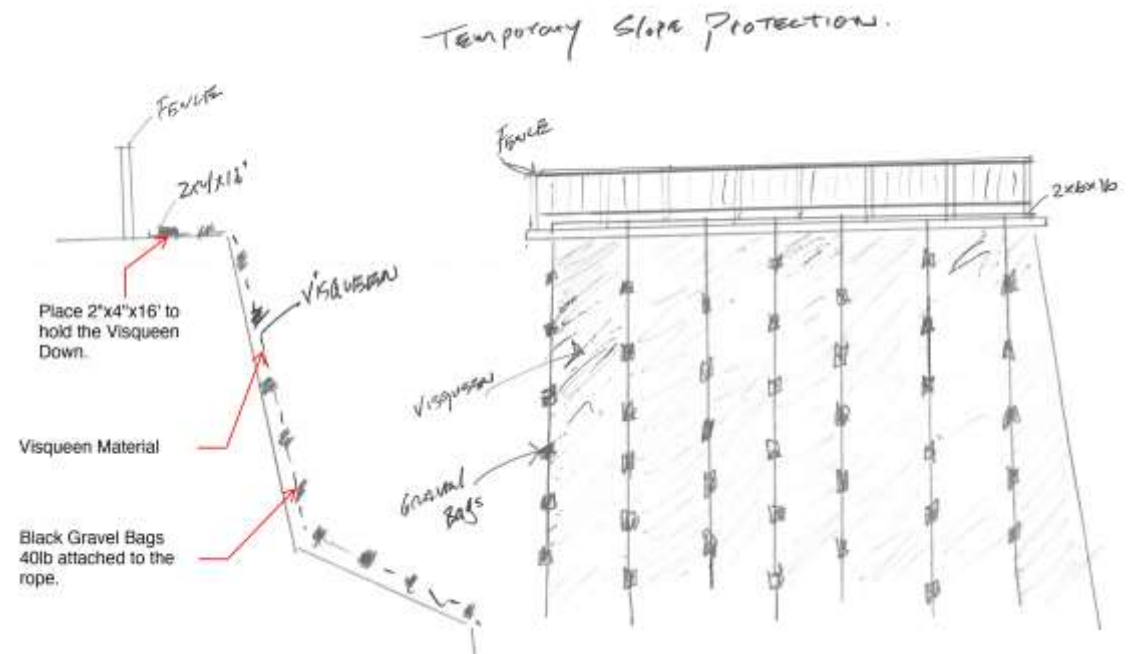
Appendix

References

1. Effects of the Santa Cruz Harbor on coastal processes of northern Monterey Bay, California, Griggs, G.B. and Johnson, R.E., 1976
2. Coastline Erosion: Santa Cruz County, Griggs, G.B. and Johnson, R.E., 1979
3. Geological Investigation, Depot Hill Geologic Hazard Abatement District, Rogers E. Johnson and Associates, April 2000
4. **Study of Depot Hill Storm Drainage, Harris & Associates, May 2007 (note: a map of proposed drainage system for Depot Hill with cost estimate provided in May 2008)
5. Depot Hill Drainline Installation, Haro & Kasunich, January 2010
6. **Limited Geological Investigation of coastal bluff failure Grand Avenue near intersection with Oakland Avenue and Hollister Avenue, Capitola, Zinn Geology, May 2017
7. **Limited Geological Investigation of coastal bluff failure Grand Avenue footpath near Intersection with Oakland Avenue and Saxon Avenue, Capitola, Pacific Crest Engineering Inc., June 2023
8. **Updated Geological Investigation of coastal bluff failure Grand Avenue footpath near Intersection with Oakland Avenue and Saxon Avenue, Capitola, Pacific Crest Engineering Inc., April 2025

** - completed for the City of Capitola, Public Works Department

Netting Retention Concept



Similar concept installed on Bluff at Sacramento

Proposed Initial Study Work by SSA Total Estimate \$11,893

PHASE ONE –CONCEPTUAL DESIGN

1. Attend a kick-off meeting with the CLIENT to review the program and goals.
2. Collect and review all available existing conditions and design information including City of Capitola design standards.
3. Initiate land surveyor to proceed with topographic survey
4. Prepare a base file in AutoCAD format
5. Prepare initial conceptual site plan to include the following program elements
 - a. Pathway location, configuration and material selections
 - b. Preliminary grades
 - c. Location of safety fence, previously designed and installed by community
6. Present Conceptual Site Plan to CLIENT in one meeting.
7. Update Conceptual Site Plan based on CLIENT comments.
8. Publish Final Conceptual Site Plan to CLIENT
9. Coordinate and liaise with CLIENT via phone conference and emails.

Conceptual Design Phase Deliverables:

1. Preliminary Conceptual Site Plan
2. Final Conceptual Site Plan
3. One (1) project kick-off meeting with CLIENT
4. One (1) presentation meeting with CLIENT