County of Santa Cruz Board of Supervisors
Agenda Item Submittal
From: Community Development and Infrastructure
Subject: Report on 2016-17 Winter Storm Projects, 2023 Atmospheric River Projects, and Emergency Road Damage Assessment Resource
Meeting Date: March 25, 2025

Formal Title: Consider report on status of 2016-17 Winter Storm projects, 2023 Atmospheric River projects, and Emergency Road Damage Assessment Resource, and take related actions

Recommended Actions

1. Accept and file a report on the status of the 2016-17 Winter Storm projects, 2023 Atmospheric River projects, and Emergency Road Damage Assessment Resource; and

2. Direct the Community Development and Infrastructure Department to return on or before the second meeting in January 2026, with a progress report.

Executive Summary

The 2016-17 and 2023 storm events created damage at 410 sites throughout the County road system estimated at $266.7 million. The Community Development and Infrastructure Department Division of Public Works (CDI-DPW) has repaired 74% of these sites, restoring critical infrastructure and access to the public. Most of the funding for these projects will ultimately come from reimbursements from the federal government, either the Federal Highway Administration (FHWA) or the Federal Emergency Management Agency (FEMA). While CDI-DPW has obtained reimbursement obligations for most completed projects, slow payments, especially for 2023 FEMA projects, caused the County to issue $89.1 million worth of debt to maintain positive cash flow and significantly slowed progress on completion of the remaining damage sites. With limited financial options for future disasters, CDI-DPW partnered with the County Administrative Office (CAO) and Office of Response, Recovery and Resilience (OR3) to improve the methodology to assess projects for when resources are available. The Emergency Road Damage Assessment (ERDA) Resource is a transparent, systematic, and data-driven tool to aid in these decisions. Details on the ERDA Resource and status of the 2016-17 and 2023 storm event projects are detailed in this report.

Discussion

2016-17 Winter Storms

The 2016-17 Winter Storms created damage at 189 sites estimated at $132.9 million, as shown in Table 1 and outlined in the attached update. This item serves as the annual report on the status of the 2016-17 Winter Storm projects.

Table 1: 2016-17 Winter Storm Projects

Phase of Project	Number of Projects	Amount (in millions)
Completed	159	$ 115.7
Bid & Award	15	$ 7.2
In Design	13	$ 9.1
Denied	2	$ 0.9
Total	**189**	**$132.9**

2016-17 FEMA Projects

CDI-DPW is managing 95 FEMA projects from the 2016-17 Winter Storms. Of these 95 sites, FEMA has obligated 93 sites and denied two sites. There are currently no outstanding version requests or appeals. Additionally, 83 sites have completed construction, four sites are scheduled for bid and award, and six sites are in design development.

The FEMA projects have an estimated $59,105,676 in road damage, with funding of $48,661,041 from FEMA and Senate Bill (SB) 1. To date, expenses total $45,812,360, with $31,242,565 invoiced to FEMA and $5,839,072 invoiced to SB 1.

2016-17 FHWA Projects

There are also 94 FHWA storm-related road damage projects. Of these 94 sites, 76 sites have completed construction, 11 sites are scheduled for bid and award, and seven sites are in design development.

The FHWA projects have an estimated $73,789,458 in road damage, with funding of $73,746,432 from FHWA and SB 1. To date, expenses total $62,441,141, with $54,581,265 invoiced to FHWA and $7,859,876 invoiced to SB 1.

2023 Atmospheric Rivers

The 2023 Atmospheric Rivers created damage at 221 sites estimated at $133.8 million, as shown in Table 2 and outlined in the attached update. An annual report on the status of the 2023 Atmospheric River projects is being to the Board with this item.

Table 2: 2023 Atmospheric River Projects

Project Phase	Number of Projects	Amount (in millions)
Completed	145	$ 81.3
Bid & Award	5	$ 5.9
In Design	14	$ 12.3
On Hold	10	$ 6.8
Denied	4	$ 1.2
Future	43	$ 26.3
Total	**221**	**$133.8**

2023 FEMA Projects

CDI-DPW is managing 113 FEMA projects from the 2023 Atmospheric River events. Five of the 113 sites have not yet been constructed have been obligated by FEMA in the amount of $3,842,155. The remaining 108 sites, of which 67 have been completed, are in the FEMA obligation process.

There are currently no Determination Memos (denials), version requests or appeals outstanding with FEMA. One site is ready for construction, two sites are in the design phase, and 10 sites are on hold awaiting FEMA obligations.

There are 32 sites at which no work has been done and for which no funds have been identified for the required local match portion of project costs. Due to the challenging and lengthy process for obtaining FEMA obligations, projects without obligations are at risk of being deferred or cancelled.

The FEMA projects have an estimated $55,964,261 in road damage, with obligations of $5,500,927 in combined FEMA and SB 1 funding. To date, expenses total $31,286,424, with nothing invoiced to FEMA and $1,567,681 invoiced to SB 1.

2023 FHWA Projects

There are also 108 FHWA storm-related road damage projects. Of these 108 sites, 78 sites have completed construction, four sites are scheduled for bid and award, and 12 sites are in design development. The remaining 11 sites are categorized as future sites, and no source of funding has been identified for the required local match portion of project costs.

The FHWA projects have an estimated $77,865,693 in road damage, with obligations of $19,235,035 in combined FHWA and SB 1 funding. To date, expenses total $49,276,643, with $10,069,662 invoiced to FHWA and $3,062,024 invoiced to SB 1.

The attachments provide detailed information on FEMA and FHWA project status, amounts obligated, expenditures to date, amounts submitted for reimbursement, and funding sources for the 2016-17 and 2023 storm events.

Emergency Road Damage Assessment (ERDA) Resource

At the May 22, 2024 Budget Hearing for CDI, the Board of Supervisors (Board) directed staff to return in September with a proposal for an expanded tool to assist in the prioritization of transportation projects. As discussed in the 2024-25 budget hearings, CDI-DPW staff had previously utilized a limited prioritization methodology to rank 2017 and 2023 storm damage projects.

On September 24, 2024, staff presented a status report on the development of the tool, now referred to as the Emergency Road Damage Assessment (ERDA) Resource. Staff presented an outline of the tool that would evaluate all transportation projects in six major categories, including safety and collisions, system performance and preservation, financial impact, public health and equity, access for all, and alignment with County plans. In response to the presentation, the Board directed staff to limit the projects evaluated to emergency projects only. Additionally, the Board directed staff to continue to include an equity component as well as add criteria that evaluated the larger risk of

damage associated with each project.

On December 12, 2024, staff returned to the Board with an update on the tool focused on emergency projects. Data from the Santa Cruz County Regional Transportation Commission's (SCCRTC) Climate Adaptation and Vulnerability Assessment (CAVA) project was described with the goal of incorporating spatial Geographic Information System (GIS) mapping capability into the deliverables.

Criteria and Weighting

The ERDA Resource considers six criteria:

- **Travel Volume** – Based on recent traffic counts across the county collected by SCCRTC in 2024, as well as historic data.

- **Detour Time** – Based on length of detour route measured by time, with one way in/out road segments scoring the highest.

- **Loss of Lane** – Based on extent of damage to the road in terms of its continued useability, with shoulder damage that does not impede normal traffic scoring the lowest and damage to both directions that results in a closed road scoring the highest.

- **Compromised Utilities/Culverts** – Based on cumulative amount of effected infrastructure, including water, sewer, storm drains, franchise lines such as electrical, phone and cable service, etc.

- **Access and Functional Needs** – Based on overlays with disadvantaged community mapping from the Census Bureau's American Community Survey data.

- **Critical Facilities** – Based on whether the road provides primary or alternate access to one or more County designated critical facilities such as schools, fire stations, hospitals, etc.

The current weighting of criteria is shown in Table 3.

Table 3: Emergency Road Damage Assessment Resource Criteria and Weights

Criteria	Weight of Total Score
Travel Volume	15%
Detour Time	28%
Loss of Lane	25%
Compromised Utilities/Culverts	8%
Access and Functional Needs	12%
Critical Facilities	12%

The criteria of Travel Volume, Detour Time, Access and Functional Needs, and Critical Facilities utilize datasets derived from the CAVA report. CDI-DPW staff scored the Loss of Lane and Compromised Utilities/Culverts criteria on a site-by-site basis. Additionally, the Detour Time and Loss of Lane criteria have been weighted higher due to evacuation and safety concerns. Staff will continue to refine the data and weighting of criteria as we gather input and gain experience.

Resource Limitations

The ERDA Resource is not intended to be an end-all ranking of emergency projects. Several other important factors are considered when deciding whether to move forward with a project or not. Three major factors not included in the ERDA Resource include:

- **Funding** – A project may rank high but the resources to undertake the project may be unavailable. The tool also does not consider how much County funding may be leveraged by other outside funds for a particular project. The tool does include information on whether a project, if it were part of a declared disaster, would be reimbursed through FEMA or FHWA.

- **Risk** – The risk of not constructing a project is not included in the tool. A separate process of regular consultation with the County's risk team will be conducted.

- **Proximity to Vulnerable Infrastructure and Hazards** – Several project sites are in rural areas close to other vulnerable transportation infrastructure. Some sites may become more important if nearby roads are also at risk of failure. Currently, this is not evaluated in the assessment resource.

Resource Deliverables

ERDA deliverables include a methodology report that details the process of the creation of the resource, the assessment report listing the rankings of emergency projects including how they scored in each category, and an interactive GIS dashboard. The methodology and assessment reports are attached, and the GIS dashboard can be viewed on the following webpage:

https://experience.arcgis.com/experience/2aab89f4151b43adbf471f5370d7dd6b

The ERDA Resource has been designed specifically to assess emergency projects, as directed. Developing and using a similar tool for non-emergency transportation projects may require modifying the criteria and weighting.

Financial Impact

The combined damage between the 2017 and 2023 storm events is estimated at $266.7 million. Expenditures currently total $188.8 million and are funded by federal reimbursements, local discretionary transportation dollars, such as SB1, and proceeds from debt. Eligible costs will be reimbursed by FEMA and the California Governor's Office of Emergency Services (Cal OES) at a maximum of 93.75 percent for County or local roads and by FHWA at a maximum of 88.53 percent for federal roads. An additional $28.4 million in denied and future projects have no current funding solution. As funding solutions become available, the ERDA Resource will provide an assessment

of which projects may be considered to move forward.

Strategic Initiatives
Operational Plan - Reliable Transportation

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Artificial Intelligence Acknowledgment:
Artificial Intelligence (AI) did not significantly contribute to the development of this agenda item.