



2026

Strategies for Small Water System Resilience

*A Small Water System's Guide
to Maintaining Safe, Affordable,
and Reliable Water*

SANTA CRUZ COUNTY



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Challenges Facing Small Water Systems

Most people in Santa Cruz County receive their water from one of six large water systems, which work diligently to ensure reliable and affordable service now and into the future. Smaller systems, however, often face different challenges. With fewer customers to share the costs, it can be harder to maintain infrastructure, respond to emergencies, and keep rates affordable.

Common challenges include:

1. Expanding Regulatory Requirements:

Small water systems, serving as few as 25 residents, must comply with many of the same regulations as the largest systems. Costs from new reporting requirements or contaminant treatment (e.g., PFAS or Hexavalent Chromium) are spread across fewer customers, increasing the financial burden.

2. Aging Infrastructure:

Many Small Water Systems were built between the 1960s and 1980s and utilize much of the original infrastructure. As these components reach the end of their useful life, significant investment is needed for replacement.

3. Lack of Personnel:

Most small systems are operated by volunteers and often struggle to find individuals to manage operations. While contractors can assist with some tasks, these systems still require consistent oversight.

4. Fiscal Sustainability:

Many Small Water Systems do not collect sufficient revenue to cover unexpected expenses or regularly scheduled repair work. When a major system component fails, the cost is usually covered through a one-time assessment. These unexpected financial burdens can be particularly difficult for residents on fixed incomes.

5. Vulnerable Potable Water Supply:

Many small systems rely on a single water source with limited options for backup. If the primary source fails or water quality declines, the system may be left without a potable supply.

This guide is designed to help small water systems navigate these challenges and ensure a reliable water supply for their customers into the future.

Definitions

Terms used throughout this guide include:

- **Consolidation:** When a smaller water system is permanently connected to a Large Water System and subsequently dissolved. Its customers become part of the larger system and receive water service directly from it.
- **Household Well:** A water system that serves between 1 and 4 residential connections. Also referred to as an *Individual Water System*.
- **Interconnection/ Intertie:** A physical connection between a smaller water system and a Large Water System, allowing the smaller system to purchase water as a backup supply. The smaller system remains independent. This arrangement is often referred to as an *intertie*.
- **Large Water System:** A water system that serves more than 200 residential connections.
- **Local Agency Formation Commission (LAFCO):** Agency that ultimately approves the connection of two water systems.
- **Managerial Consolidation:** Occurs when a water system is no longer managed locally. Instead, all management responsibilities are handled by a separate company or agency that also manages at least one other water system. There is no physical connection between the systems.
- **Resource Sharing Agreement:** A formal agreement—often in the form of a Memorandum of Understanding (MOU)—between two nearby water systems (typically small systems) to share costs or resources.
- **Small Water System:** A water system that serves between 15 and 199 residential connections, or 25 or more yearlong residents.
- **State Small Water System (SSWS):** A water system that serves between 5 and 14 residential connections, and less than 25 yearlong residents.

Where to Start

1) Contact the County.

Water systems are strongly encouraged to contact County staff if they face any issue—listed or not—that might affect their ability to provide safe, affordable, and reliable water. Our office will be able to provide key details that can aid you in determining what strategies are feasible for your water system. These details include:

- **Cost estimate for physical connections:** If you are interested in physically connecting with a Large Water System, we have created a cost estimate for interties between all the small water systems and their nearest Large Water System (Appendix A). Note, this estimate will only include the cost of installing the pipeline to connect the two systems. Costs related to design, permitting, management, and connection fees would not be included. County staff have discussed consolidation with all the Large Water Systems and can provide additional insights depending on the system.
- **Service Boundary information.** Water service providers are only allowed to provide services within specific areas. County staff can tell you if your water system is already within the consolidating system’s boundary or not.

Contacts: The county can connect you with the water system you are interested in partnering with, and the Division of Drinking Water SAFER Engagement Unit. Another important contact will be the Local Agency Formation Commission (LAFCO), which will ultimately approve an interconnection between your water system and another. [Visit the LAFCO website](#) to learn more about their processes.



Well head of a Small Water System

2) Review your system documents and consider internal changes.

To successfully pursue any of the strategies outlined below, it's essential to have a thorough understanding of your water system. Start by gathering key documents, such as:

- Operating permits
- System schematics
- Governing rules and bylaws
- Water quality records
- Violation history
- Rate structure
- Financial records

These materials will not only help you assess your system's current condition but will also be critical when collaborating with external partners. Sharing this information allows others to better understand your system and support your efforts.

Another important step is to review these documents to identify internal changes that could help address existing challenges. One area to pay particular attention to is your **rate structure**. Updating rates to reflect current conditions can provide two major benefits:

- **Increased revenue** to fund system improvements or hire professional operators. It is likely that significant upgrades will be required as part of a consolidation process, so having the revenue to cover those costs will be critical. This is discussed further below.
- **Alignment with potential consolidation partners**, which can ease the transition for customers. Starting this process early allows for gradual rate adjustments, helping residents adapt over time.

If you're considering **managerial consolidation**, aligning your rates with those of the prospective managing entity can also make your system more attractive. It reduces the likelihood that the new manager will need to implement immediate rate increases upon taking over.

Supply Resilience Strategies

There are four primary strategies to address the five challenges that were identified above, however not every strategy will be a solution for every challenge. The table below summarizes the four main strategies and indicates whether each one addresses the specific challenges.

Challenge	Expanding Regulation	Aging Infrastructure	Lack of Personnel	Fiscal Sustainability	Loss of Potable Water	Cost
Strategy 1: Consolidation	Green	Green	Green	Green	Green	\$\$\$\$
Strategy 2: Interconnection	Yellow	Yellow	Red	Red	Green	\$\$
Strategy 3: Managerial consolidation	Yellow	Yellow	Green	Green	Red	\$
Strategy 4: Resource Sharing Agreement	Yellow	Red	Yellow	Yellow	Red	\$

Table 1: Solution, Partial Solution, Not a Solution

Depending on the challenge your system is facing, you should select the most appropriate strategy and review the steps provided below.

Strategy 1: Consolidation

Consolidation has the potential to address all five of the previously outlined challenges, however it will be the most expensive and time-consuming option.

In addition to the cost of the intertie pipeline (Appendix A), many other factors must be considered when estimating the total cost of consolidation. A rough estimate for these additional costs is approximately \$50,000 per connection, on top of the expense to physically link the two systems. This represents a significant financial burden, and most Small Water Systems are unlikely to have the resources to cover it. While grant funding opportunities for consolidation do exist through the [State Water Resources Control Board](#), they are primarily targeted toward communities classified as disadvantaged. Currently, very few areas in Santa Cruz County meet this

designation, and most of those are already served by Large Water Systems. To qualify for any available funding, Small Water Systems will likely need to conduct an income survey of their customers to determine if they meet the eligibility criteria. Funding may also be available for systems that are considered failing.

Step 1 - Contact the Large Water System you will be working with

After completing the steps in the “Where to Start” section, use the table below to find key information on connection fees, rate schedules, and contacts for the water system you are interested in consolidating with.

Water System	New Connection Service Fee	Customer Water Rates	Consolidation Contact Person and Email Address
City of Santa Cruz	New Service Fees	Water Rates	Engineering Dept waterengineering@santacruzca.gov
City Of Watsonville	New Service Fees	Water Rates	Beau Kayser beau.kayser@watsonville.gov
Soquel Creek Water District	See rates and fees	Water Rates and Fees	Emma Western emmaw@soquelcreekwater.org
San Lorenzo Valley Water District	See rates and fees	Water Rates and Fees	Jason Lillion jlillion@slvwd.com
Scotts Valley Water District	See rates and fees	Water Rates and Fees	Dave McNair dmcnair@svwd.org
Central Water District	New Service Fee	Water Rates	Ralph Bracamonte admin@centralwaterdistrict.us.com

Table 2

Step 2 – Complete an engineering report

Unless you have an existing report, you will need to complete an engineering report that will show the Large Water System if your water system infrastructure meets its requirements. Generally, that will mean meeting the same standard as a brand-new residential service, which are the [American Water Works Association \(AWWA\) standards](#). AWWA standards are extensive and include properly sized pipes, shut-off valves, fire-hydrants, residential meters, and more. If your water system does not meet AWWA standards, the Large Water System will likely not proceed with consolidation until those standards are met.

An engineering firm can review your existing water system and determine what work is needed to make it acceptable for the Large Water System. They should also be able to provide an estimated cost to complete the upgrades.

Helpful resources:

- Santa Cruz County maintains a list of [engineering consultants with drinking water system experience](#).
- [UCLA Luskin Center for Innovation's Resource Guide: Designing Water System Consolidation Projects | Considerations for California Communities](#)

Step 3 – Create a financial support mechanism

Now that you have an estimated cost to upgrade your system, the next step is to establish a way to fund those improvements. Small water systems must create a funding mechanism that ensures every customer contributes, which can be challenging. One option is to form a County Service Area (CSA). For details on this process, visit the Santa Cruz County Public Works webpage on [CSA Formation](#).

More guidance on funding for infrastructure upgrades can be found through [The Rural Community Assistance Partnership \(RCAP\) Guide on Obtaining Infrastructure Funding](#).

Step 4 – Hire a contractor to complete the work

Once the financing is in place, a contractor should be hired to complete full design, permitting and construction of your Small Water System upgrades. There should be ongoing communication with your system and the Large Water System throughout this process to ensure nothing is overlooked.

Step 5 – Dissolve the Smaller Water System

Once the consolidation is completed, your water system will need to provide a written request to Santa Cruz County asking that its domestic water supply permit be cancelled. It will be necessary to cancel any associated business licenses and insurances for the dissolved public water system. Also consider the need to close bank accounts and transfer deeds, titles, and surface water rights if applicable. And finally, make sure to provide important records, such as distribution maps and operations plans, to the consolidating water system.



Santa Cruz County Pipeline Installation

Strategy 2: Interconnection

With this strategy, your system remains independently managed but purchases water from another system. This approach is useful if your water supply is unreliable, for example, if your source could fail or is affected by emerging contaminants such as PFAS or Hexavalent Chromium. Connecting to a nearby system provides water with known quality and capacity, reducing the regulatory burden of meeting water quality standards. However, this option will not address issues like failing distribution infrastructure or lack of managerial capacity within your system.

Step 1 – Complete an engineering report

You will need to complete an engineering report that will determine the best method of connecting to the Large Water System. This should be a significantly lower cost to design than the reports required for consolidation, because your water system will not need to be upgraded to meet AWWA standards. An engineering firm should be able to provide an estimated cost to complete the intertie. For reference, Santa Cruz County maintains a list of [engineering consultants with drinking water system experience](#).

Step 2 – Create a financial support mechanism

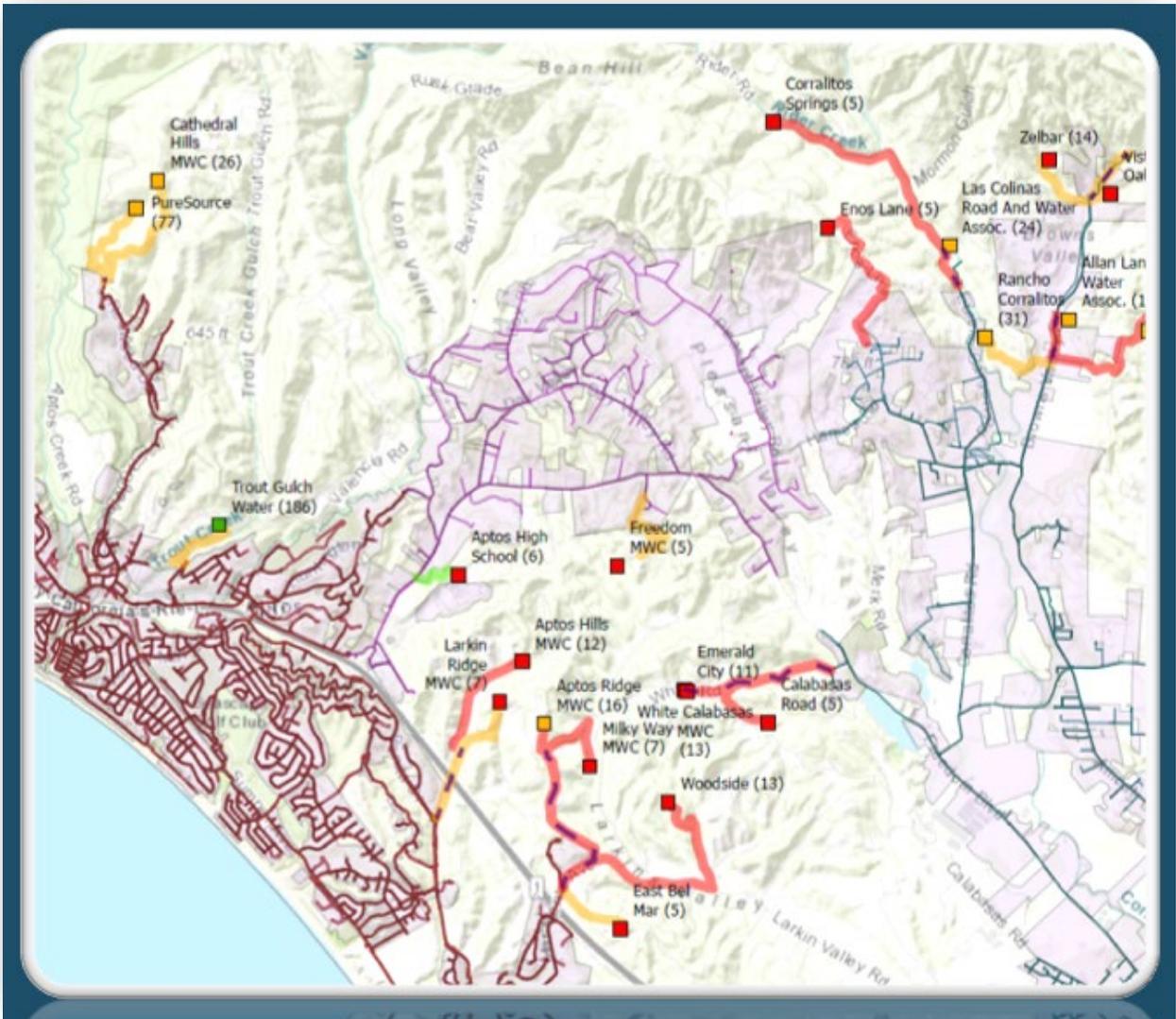
Unlike full consolidation, an intertie may have a price range that allows you to avoid creating a CSA to cover the cost of the project. Using the engineering report and cost estimate, your water system could pursue a private loan to cover the cost of installation. The monthly payment on that loan could then be incorporated into the customer's bill.

When planning potential rate changes due to the intertie installation, you should also consider the ongoing cost of connection fees for the Large Water System ([see Table 2](#)). These are a set charge that may be billed to the connection regardless of whether water is used or not.

More guidance on funding for infrastructure upgrades can be found through the [Rural Community Assistance Partnership \(RCAP\) Guide on Obtaining Infrastructure Funding](#).

Step 3 – Hire a contractor to complete the work

Once the financing is in place, a contractor should be hired to complete full design, permitting and construction of your intertie. There should be ongoing communication with your system and the Large Water System throughout this process to ensure nothing is overlooked.



Possible routes from a large water system pipeline to the small water systems in Santa Cruz County.

Strategy 3: Managerial Consolidation

In this strategy, the water system does not physically connect to any other system, but an outside agency takes over the governance, management and operation of the water system. This could be a neighboring Large Water System or a private company that operates water systems, such as [California American Water](#) (CalAm). This can solve problems related to the local management capacity.

Step 1 – Contact the possible managers

If the manager is a local public water system, please see the contact information provided in [Table 2](#). If you are looking for a private company to manage the system, a list of possible agencies is below.

Before contacting the manager, you should have already gathered and reviewed the documentation listed in the [“Where to Start”](#) section.

Note: if your system has not been increasing rates to keep up with rising costs, this can make your system less attractive to a new manager. Most managers will be hesitant to take over a Small Water System if it requires an immediate and substantial rate increase.

Company Name	Phone Number	Email
California American Water	888-237-1333	Nichole.Baxter@amwater.com
Lawrence M. Morales Precision Investments, LLC	909-727-0760	larry@precinvest.org
Tom Adcock Alco Water		Tom@alcowater.com
San Jose Water	408-279-7900	engineering.dept@sjwater.com

While Large Water Agencies may consider consolidation requests on a case-by-case basis, systems that do not meet current AWWA standards may face additional barriers to managerial consolidation. Aging infrastructure often requires significant repair or replacement, and those costs must be addressed to avoid financial impacts on existing ratepayers. As a result, Small Water Systems should not view managerial consolidation as a substitute for making necessary infrastructure investments, but rather as a potential partnership that works best when core system improvements are already underway or completed.

Strategy 4: Agreements for Shared Resources

This strategy can help two (or more) water systems work together to access greater economies of scale. As an example, two water systems may be independently contracting with an operator to collect samples and perform general inspections. By jointly contracting an operator, those systems may be able to negotiate a single contract that can be spread across the members of both systems, reducing the total cost per resident.

As part of our consolidation study, the County analyzed the estimated driving time between water systems as a proxy for how likely the water systems would be to utilize a Resource Sharing Agreement. This was largely based on a service provider, such as an Operator, being able to effectively serve both systems in a single day. This analysis generated a table that showed each water system and all the neighboring water systems that were within a reasonable proximity, such as a 10-minute drive (Appendix B).

Alternatively, your system could utilize the States [Consolidation Outreach Map Tool](#). This map tool allows users to locate water systems near an address or other existing water system

Step 1 – Contact the neighboring water system

Once you have reviewed Appendix B, you should be able to identify the water systems that you may wish to create a Resource Sharing Agreement with. Upon request, Santa Cruz County staff can provide contact information for any water system that you would like to contact. If desired, County staff can also facilitate communication between your systems.

Step 2 – Create and approve the agreement

Once your two water systems agree to work together, you will need to create a Resource Sharing Agreement and/or Memorandum of Understanding (MOU) that details specifically what your systems are expecting from one another. The State Water Quality Control Board has created a [Water Partnerships Toolbox](#) that includes an MOU writing guide.

Once created, both water systems governing bodies should review and approve the document before it becomes official. At that point, the document can be executed, and new contracts can be drafted accordingly.

Conclusion

Ensuring a safe, reliable, and affordable water supply for small systems in Santa Cruz County requires proactive planning and collaboration. The challenges facing small water systems—aging infrastructure, limited financial resources, and increasing regulatory requirements—cannot be solved by a single approach. This guide outlines four strategies that offer practical solutions, from full consolidation to resource-sharing agreements, each designed to strengthen resilience and protect public health.

When evaluating these options, it is important to consider both short-term feasibility and long-term sustainability. While consolidation offers the most comprehensive solution, it also requires significant investment and planning. Interconnection and managerial consolidation can address specific vulnerabilities, such as unreliable water sources or lack of management capacity, while resource-sharing agreements provide cost-effective ways to improve operations without major structural changes. Selecting the right strategy depends on your system's unique circumstances, financial capacity, and community priorities.

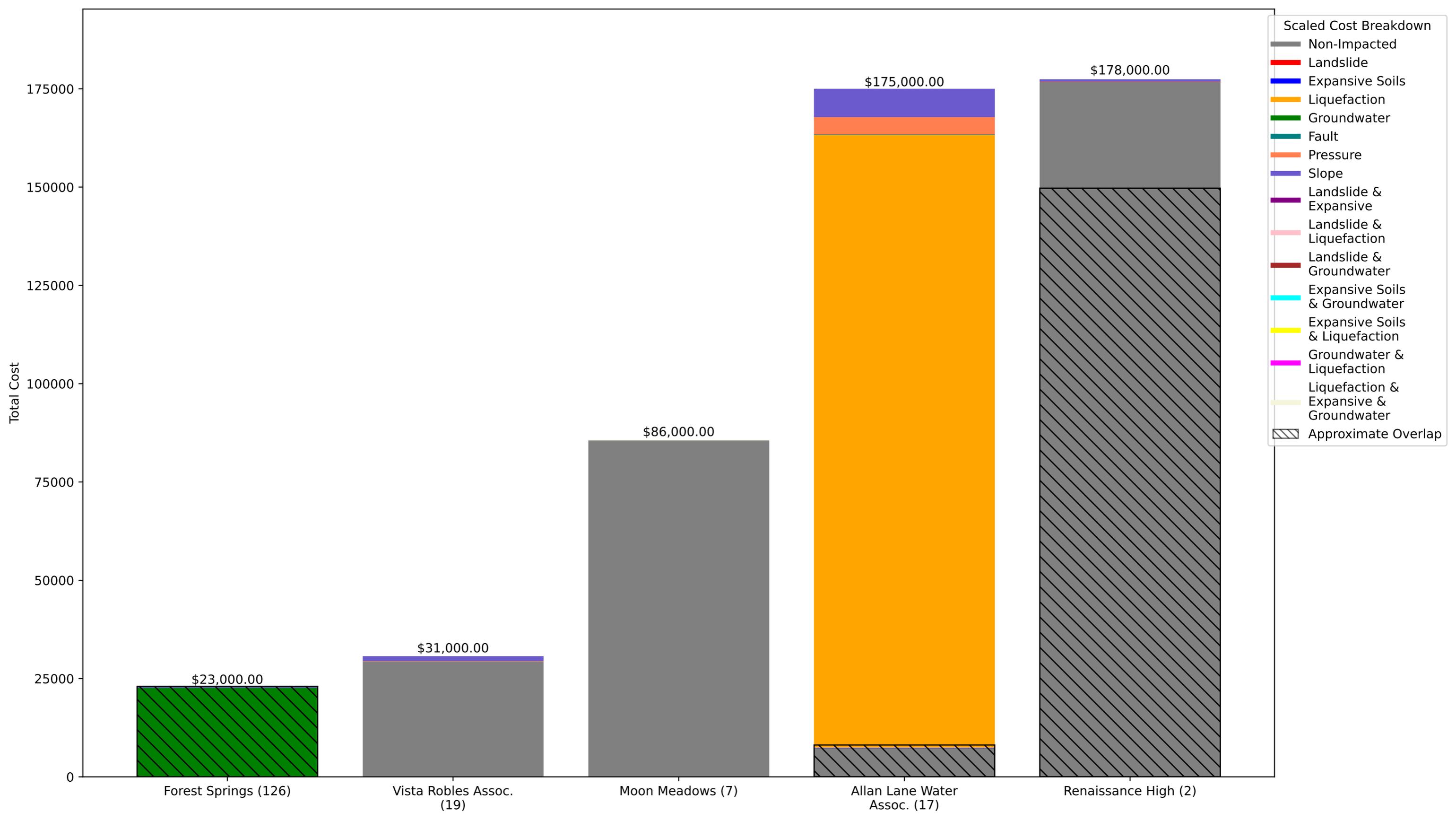
Ultimately, the success of any strategy depends on early engagement, transparent communication, and a willingness to adapt. Begin by reviewing your system's documents, assessing its financial health, and reaching out to County staff for guidance. By taking these steps now, small water systems can position themselves to meet future challenges and ensure that every customer has access to safe, dependable water for years to come.

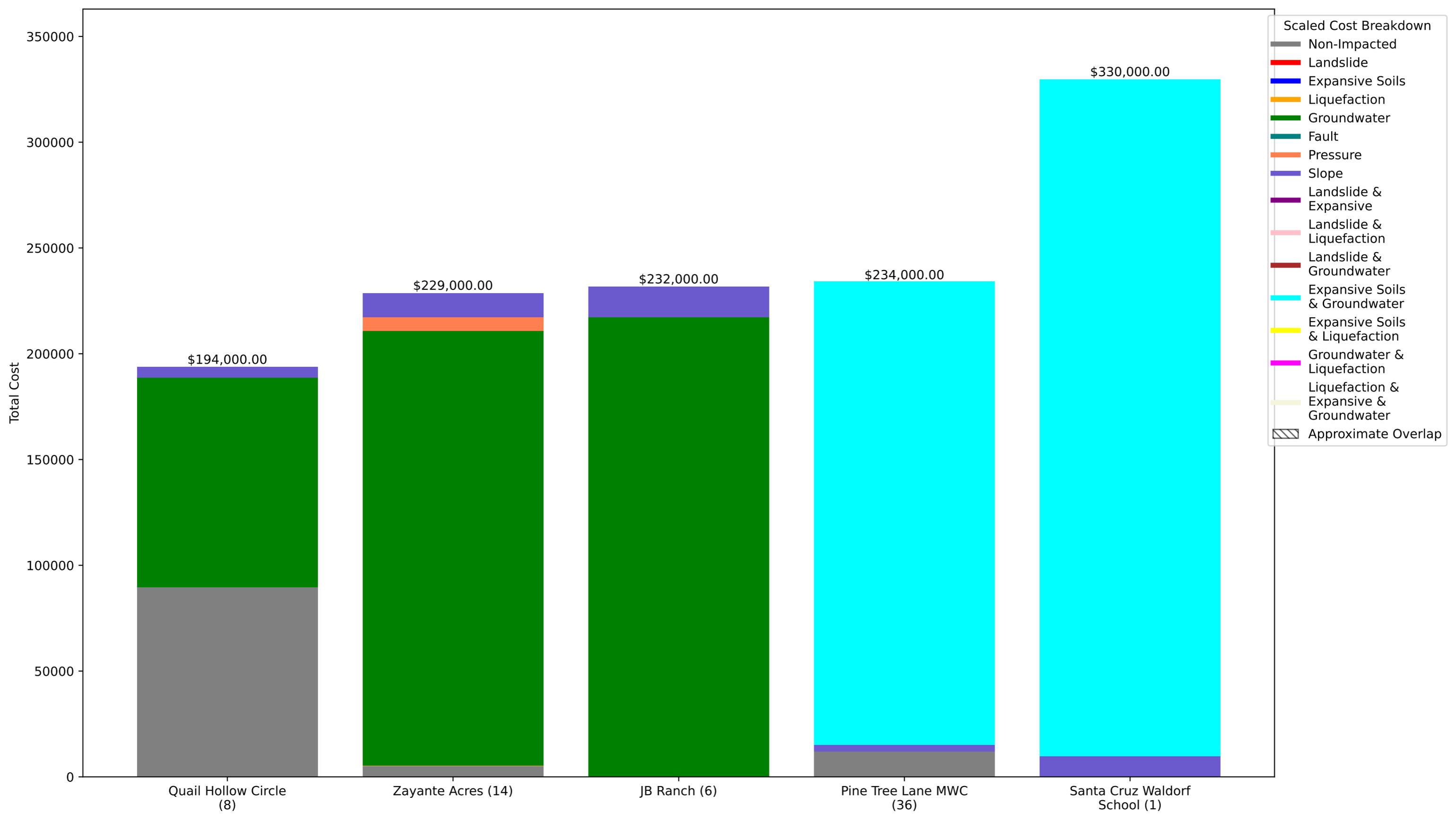
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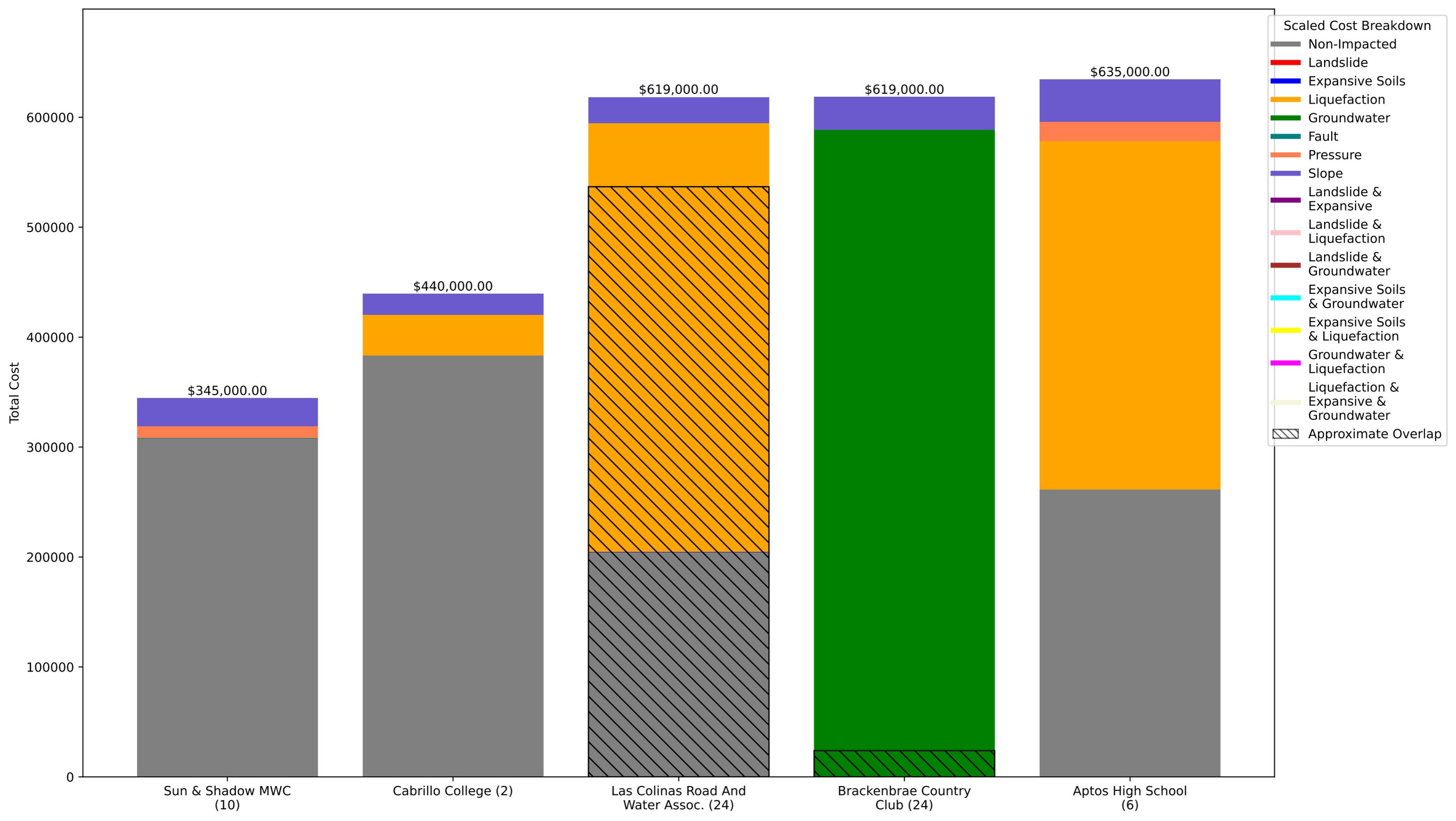
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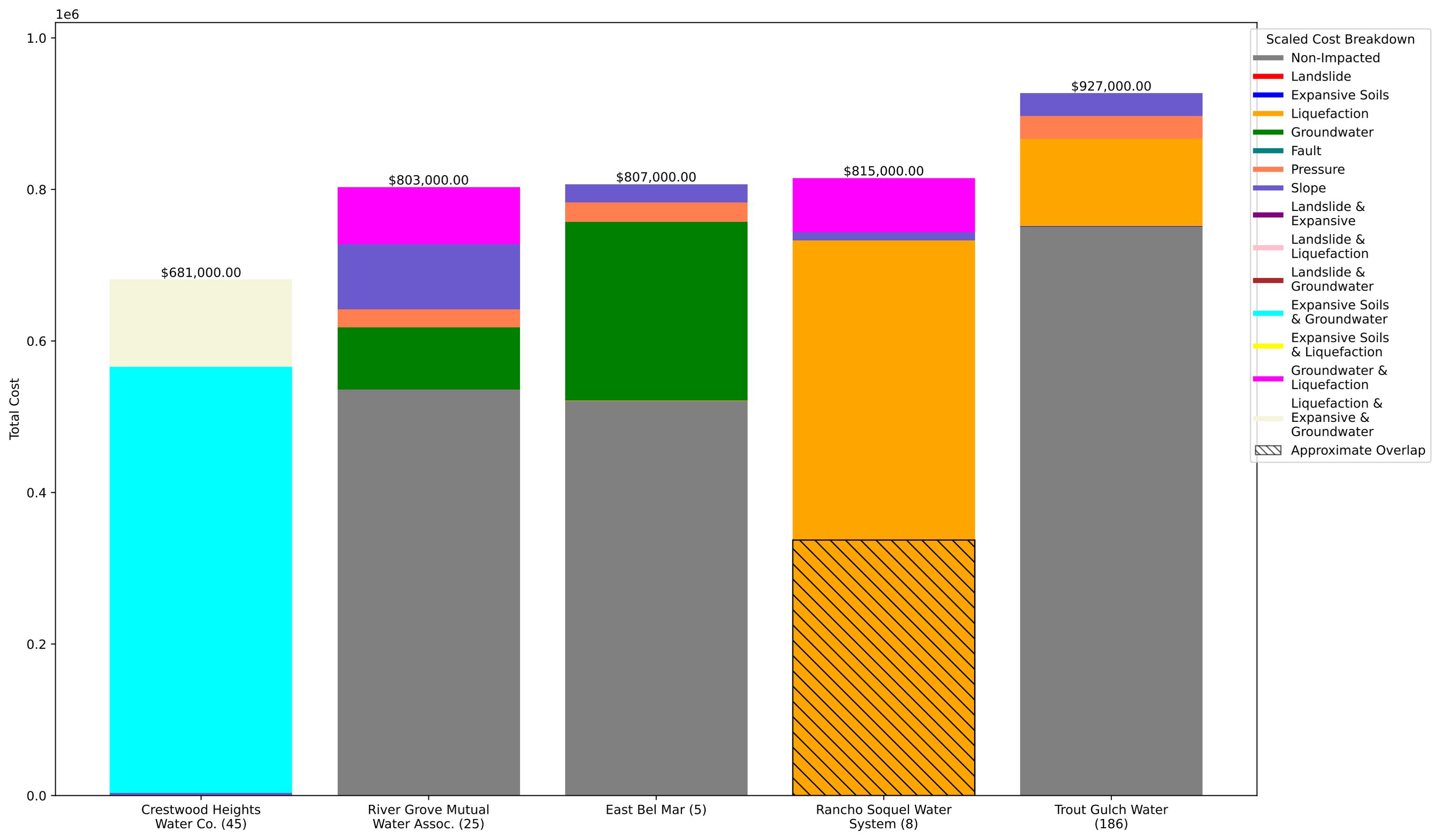


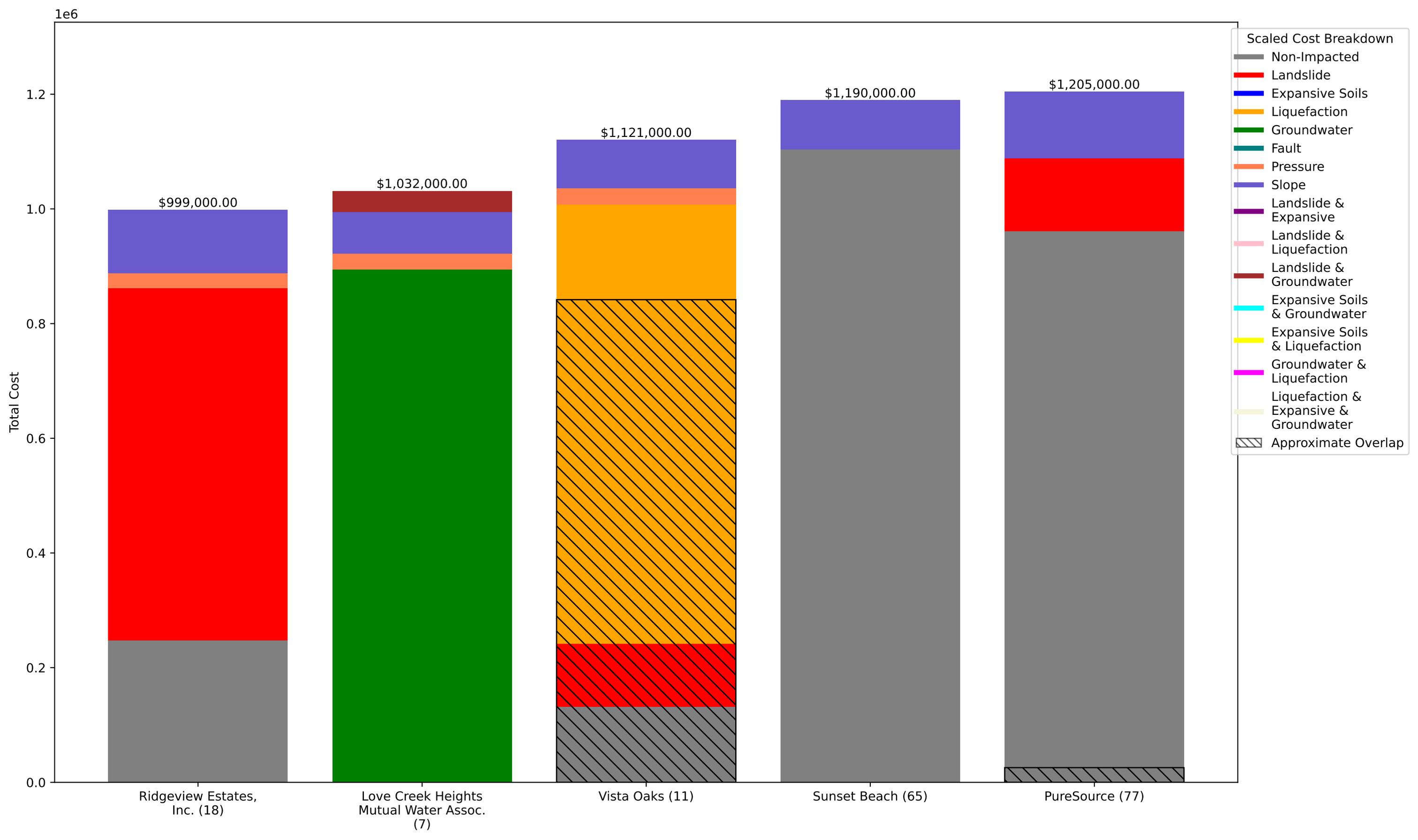
Appendix A

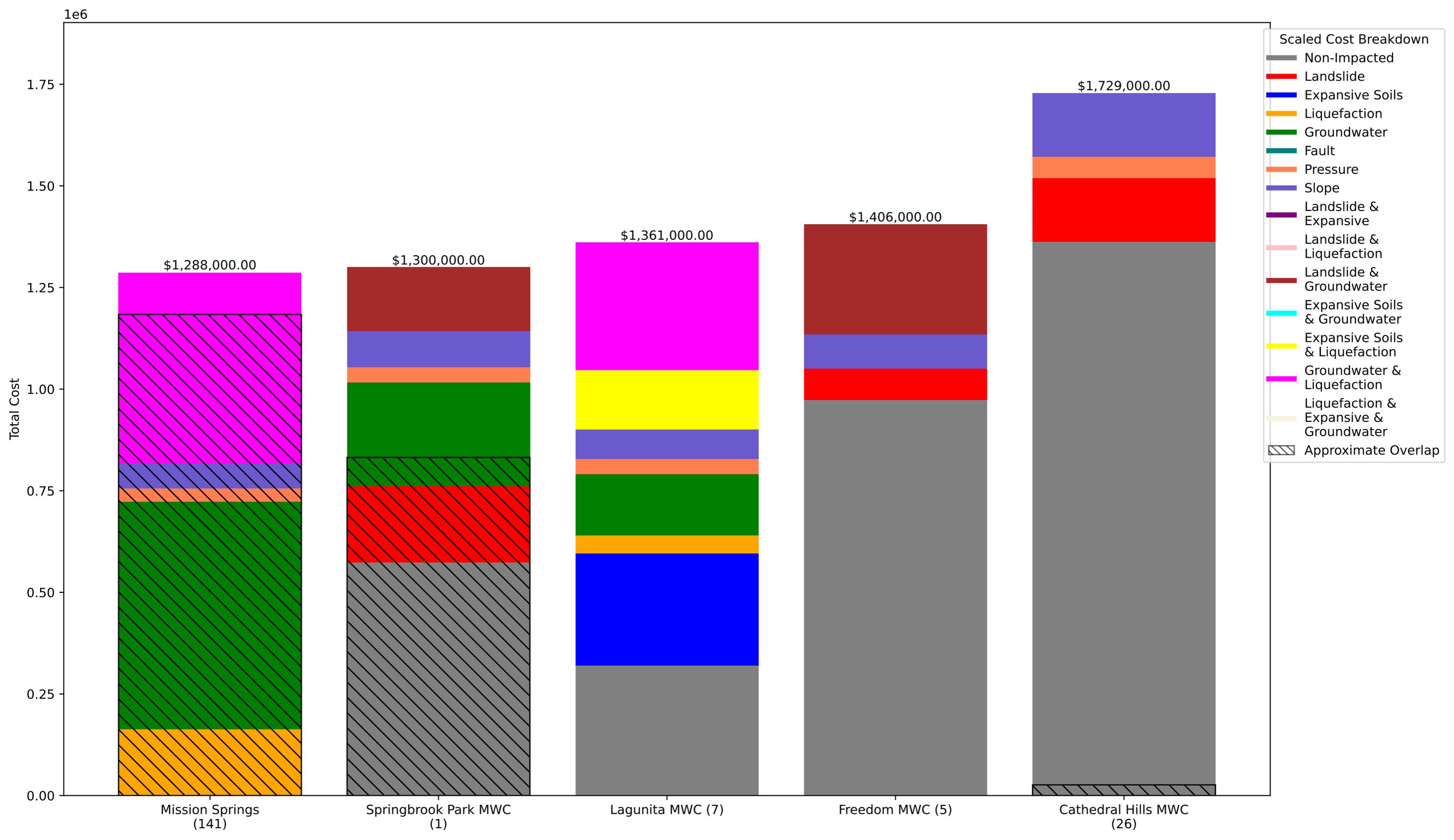


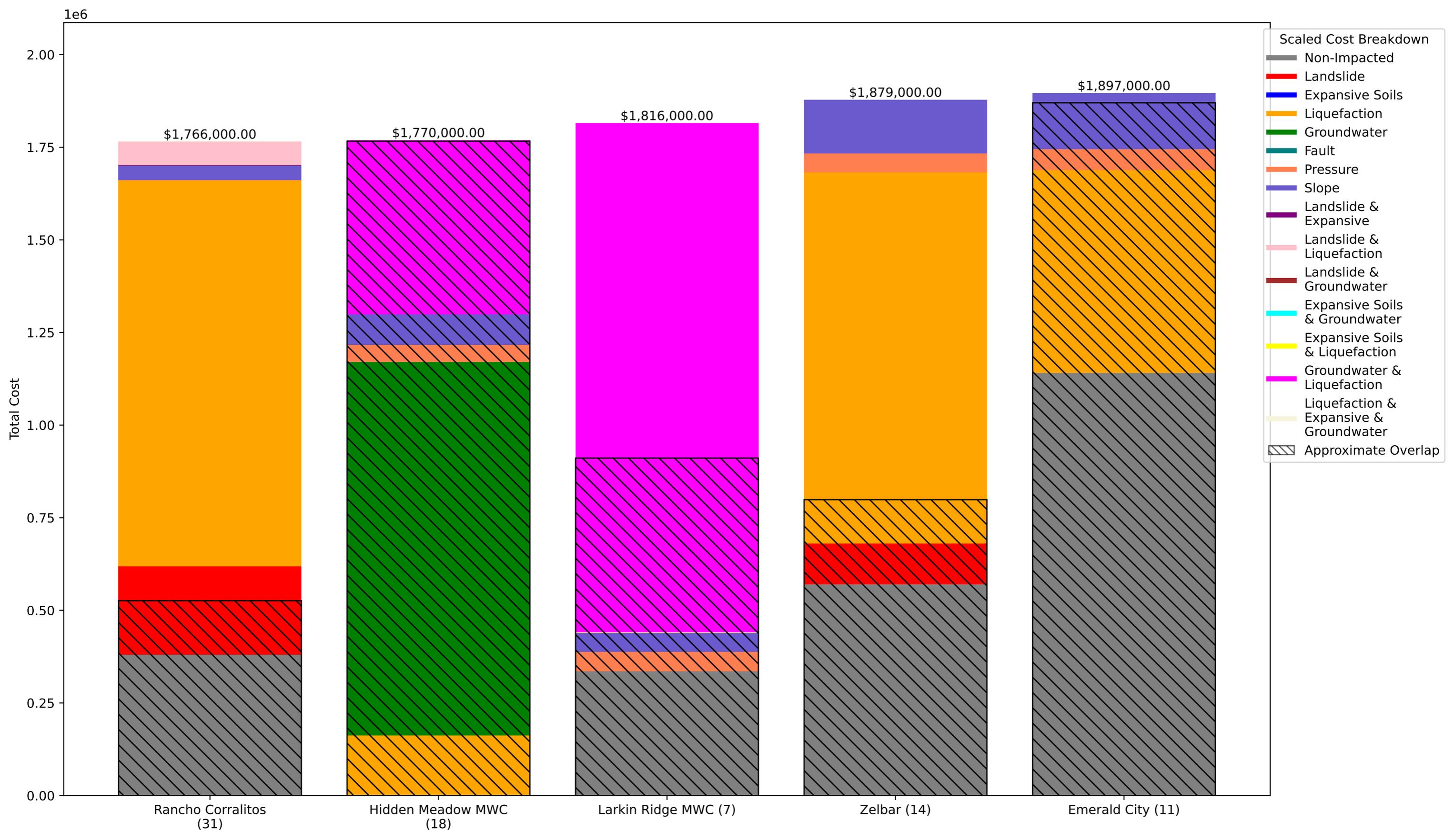


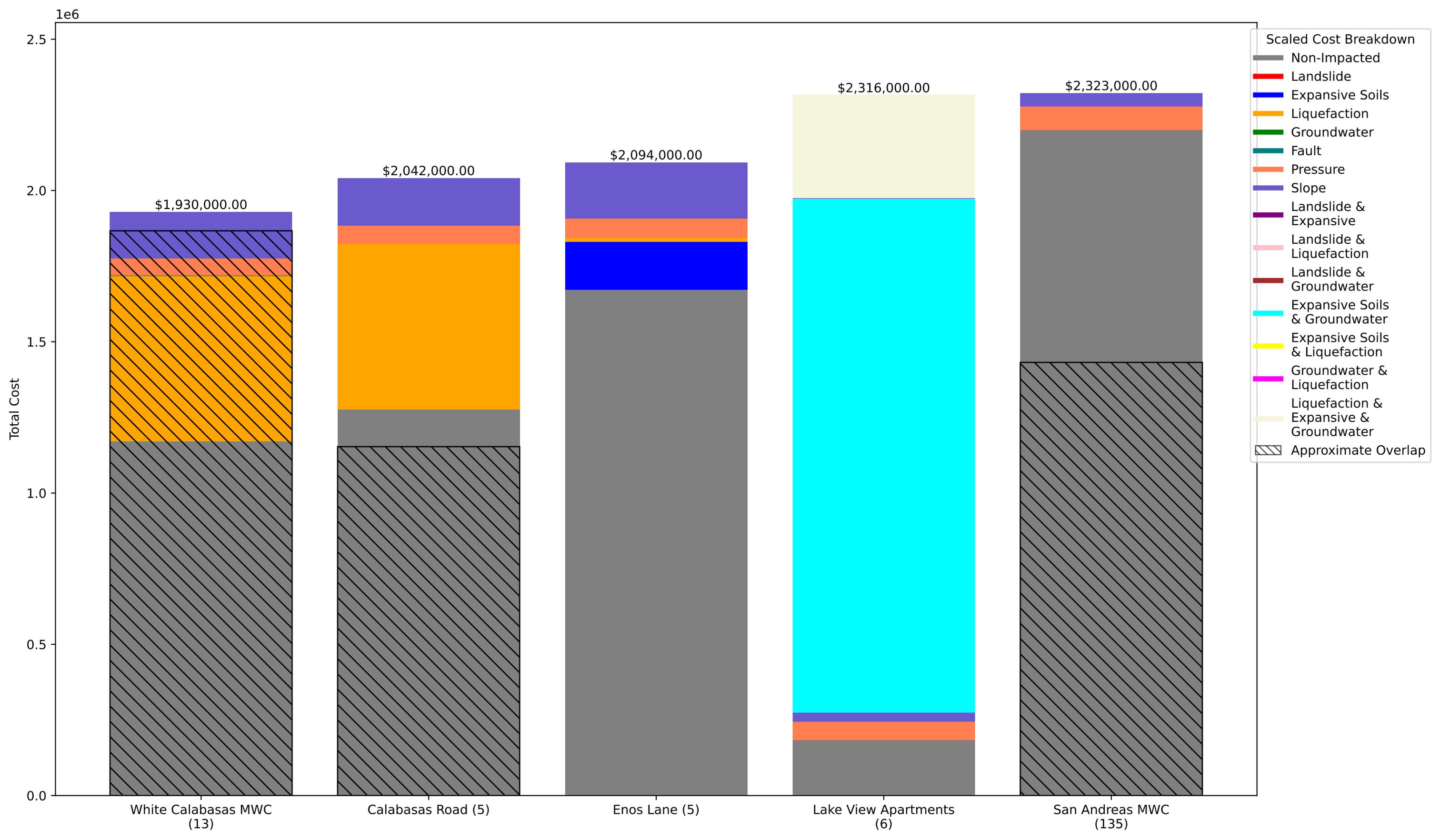


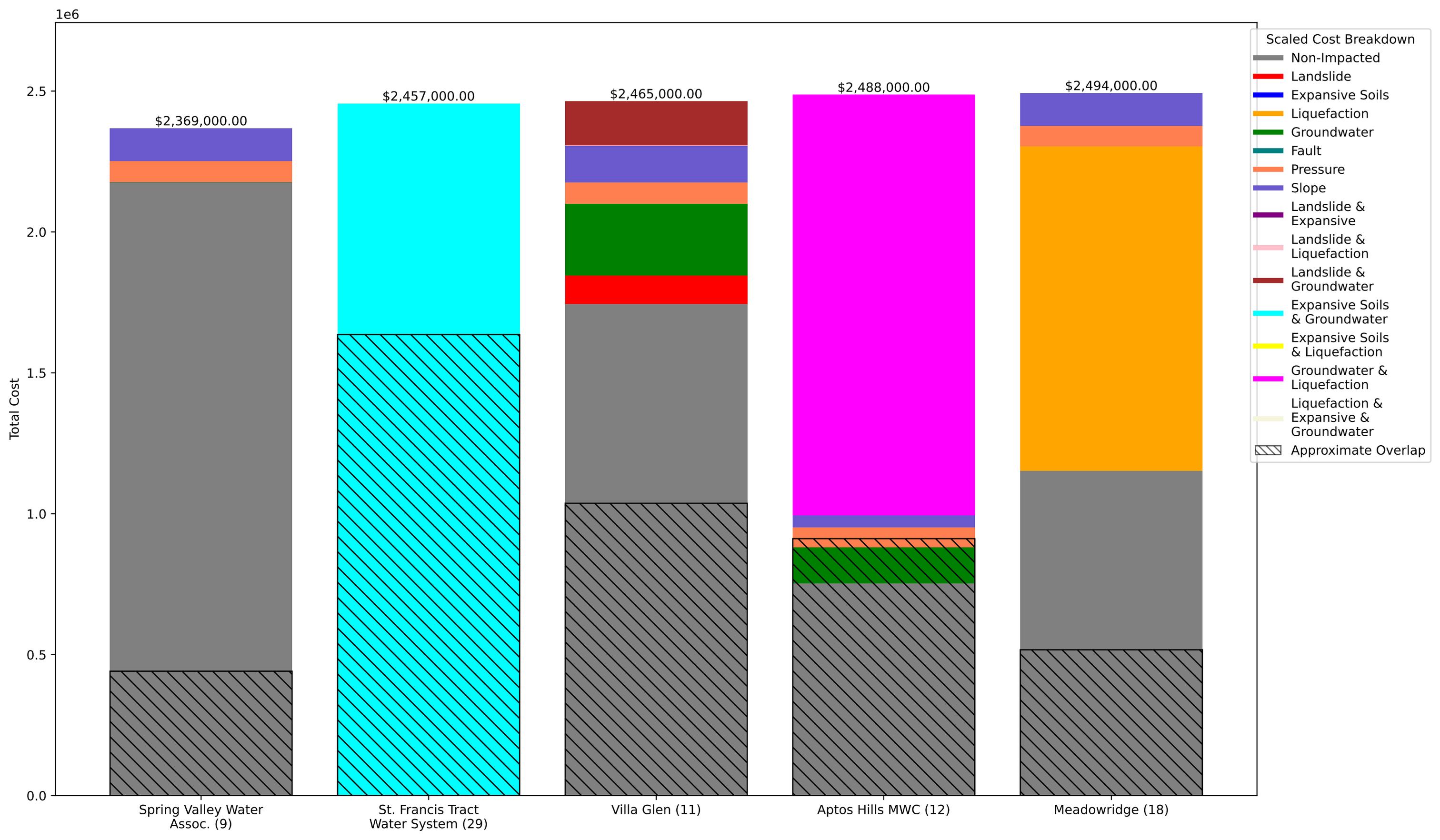


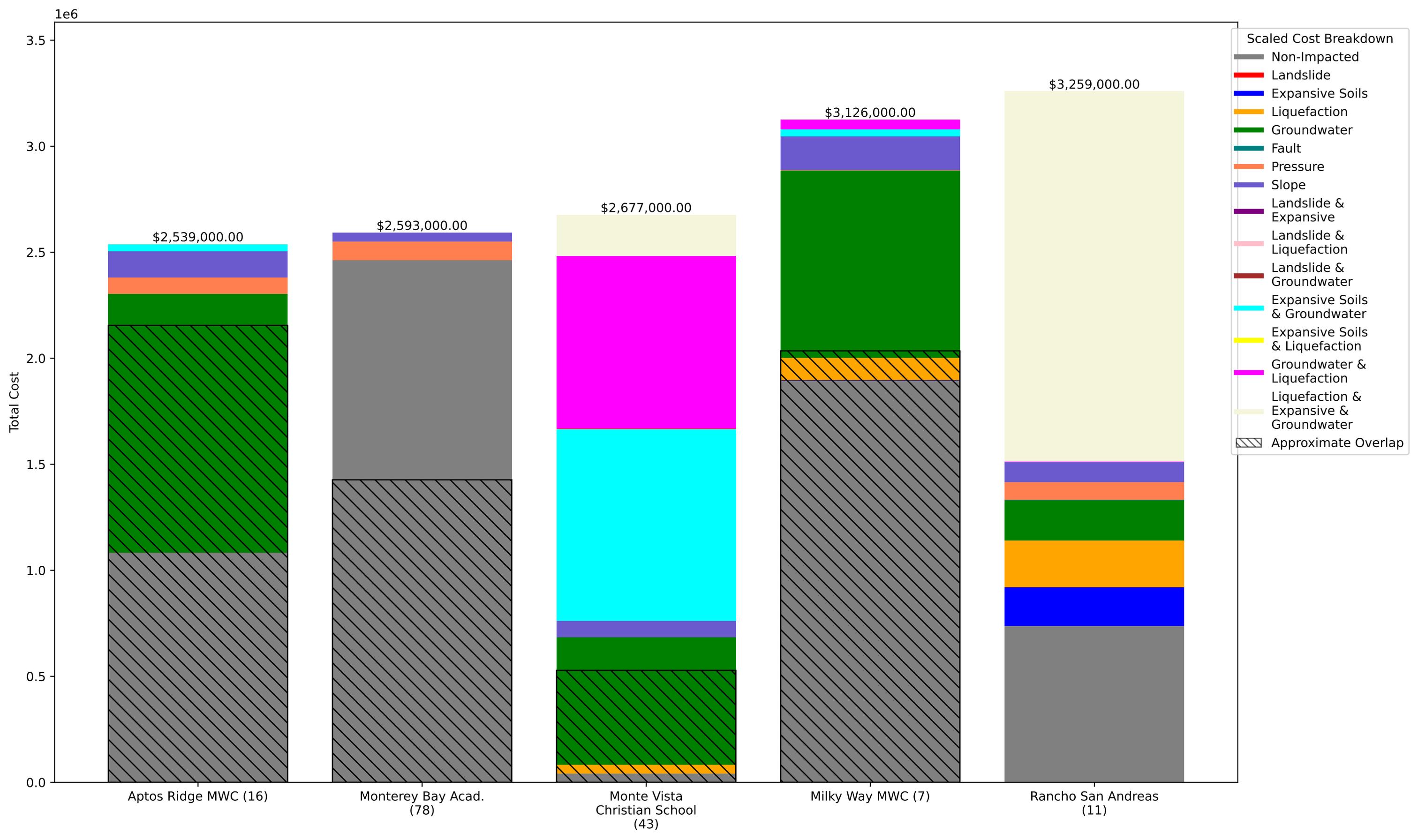


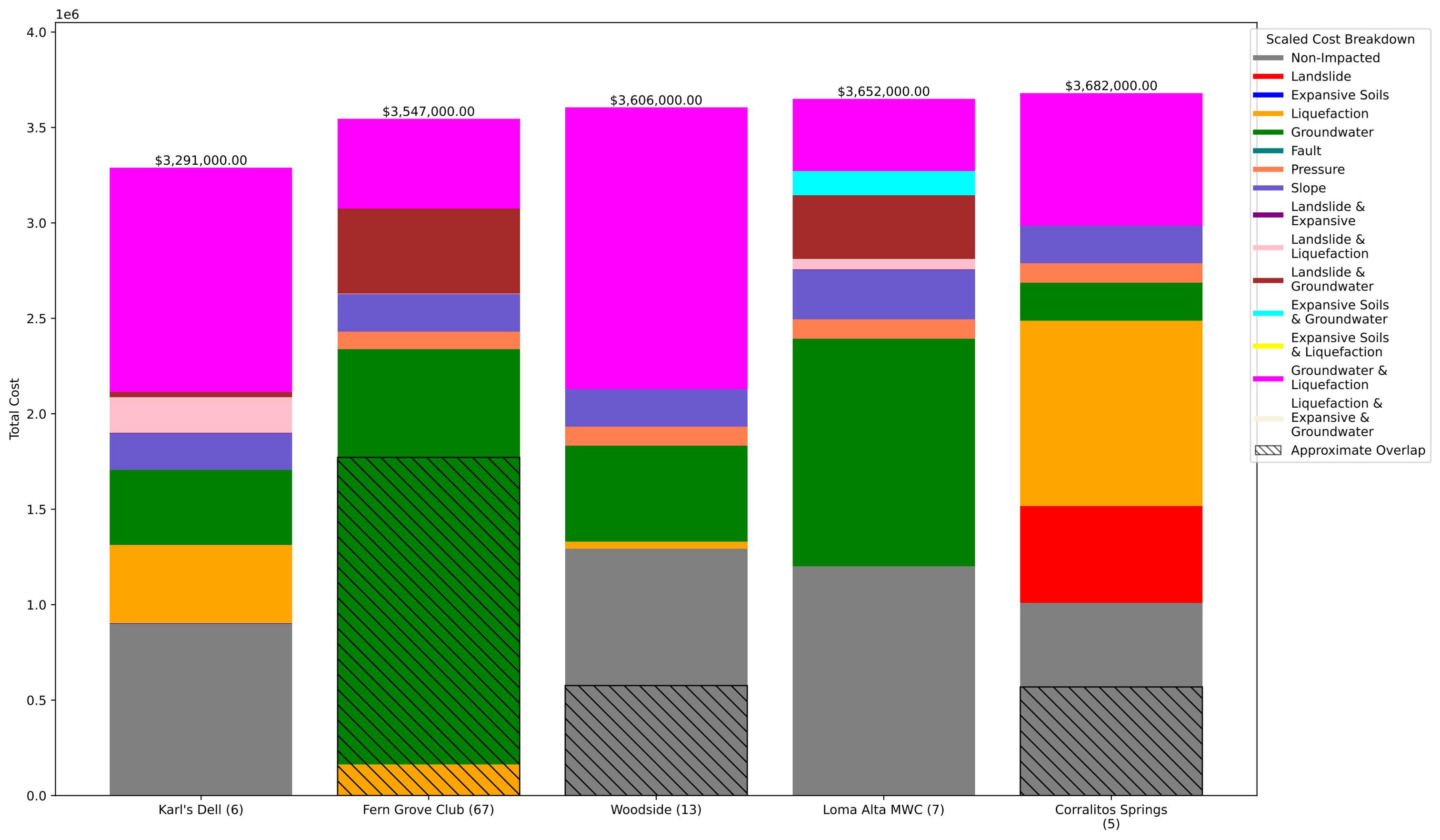


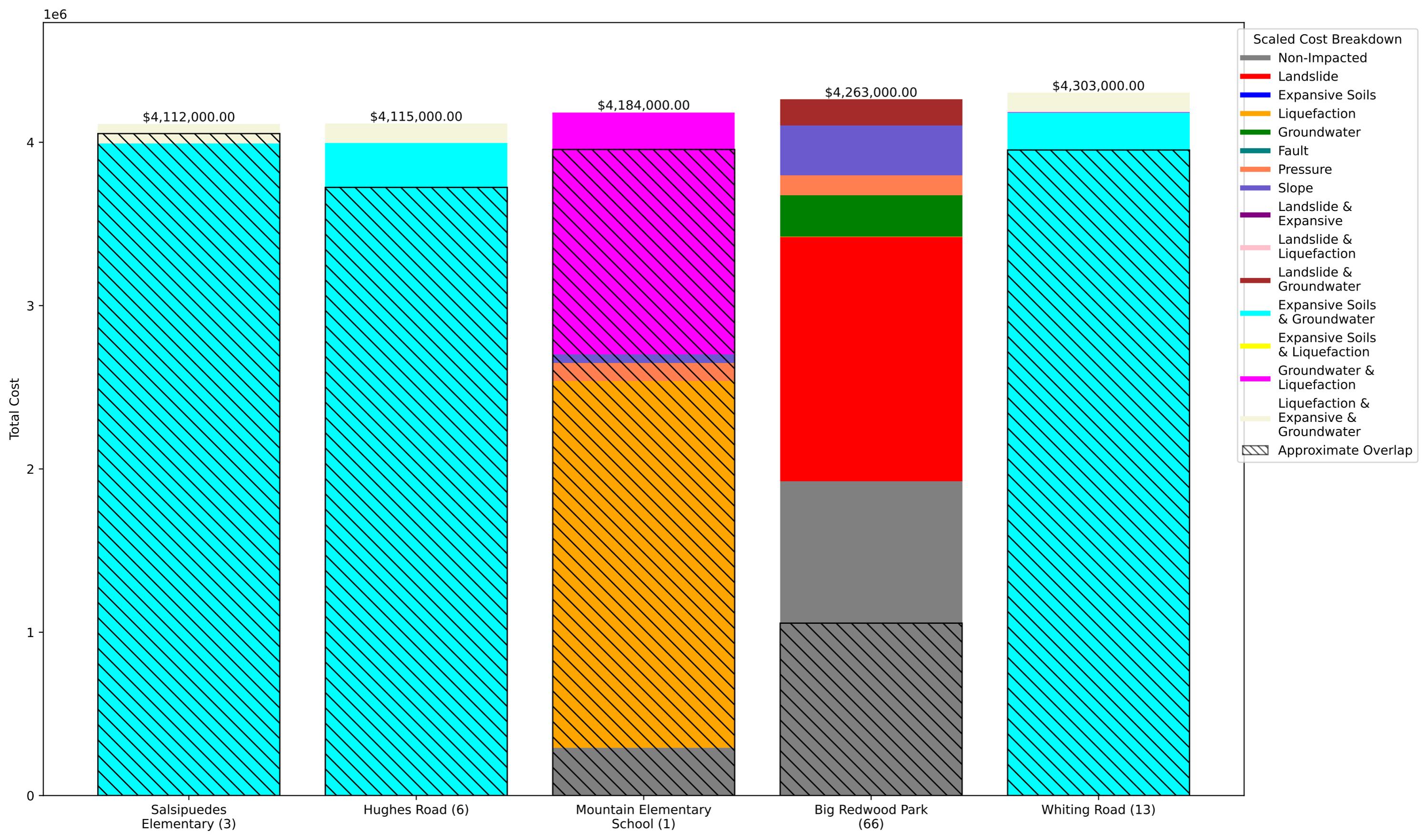


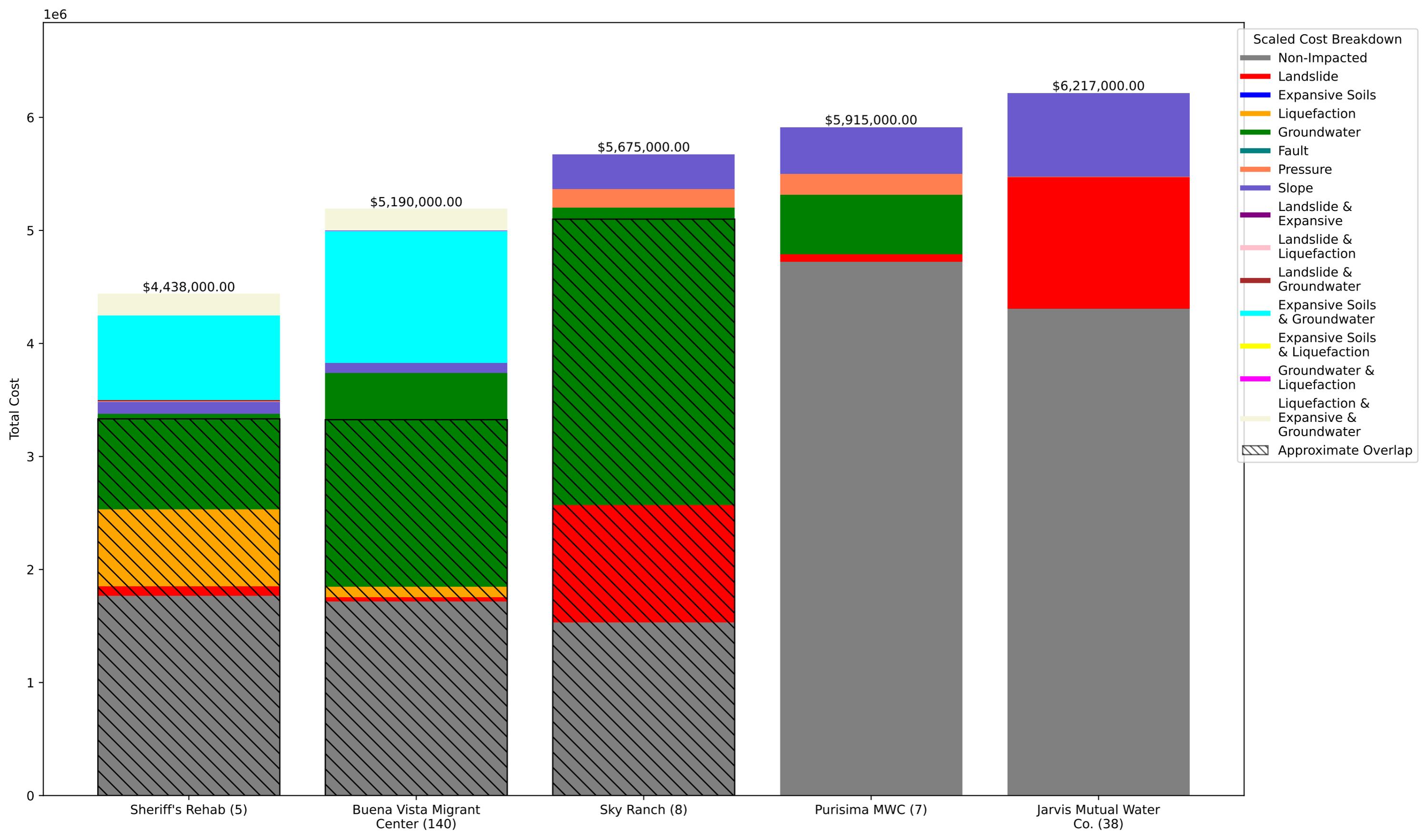


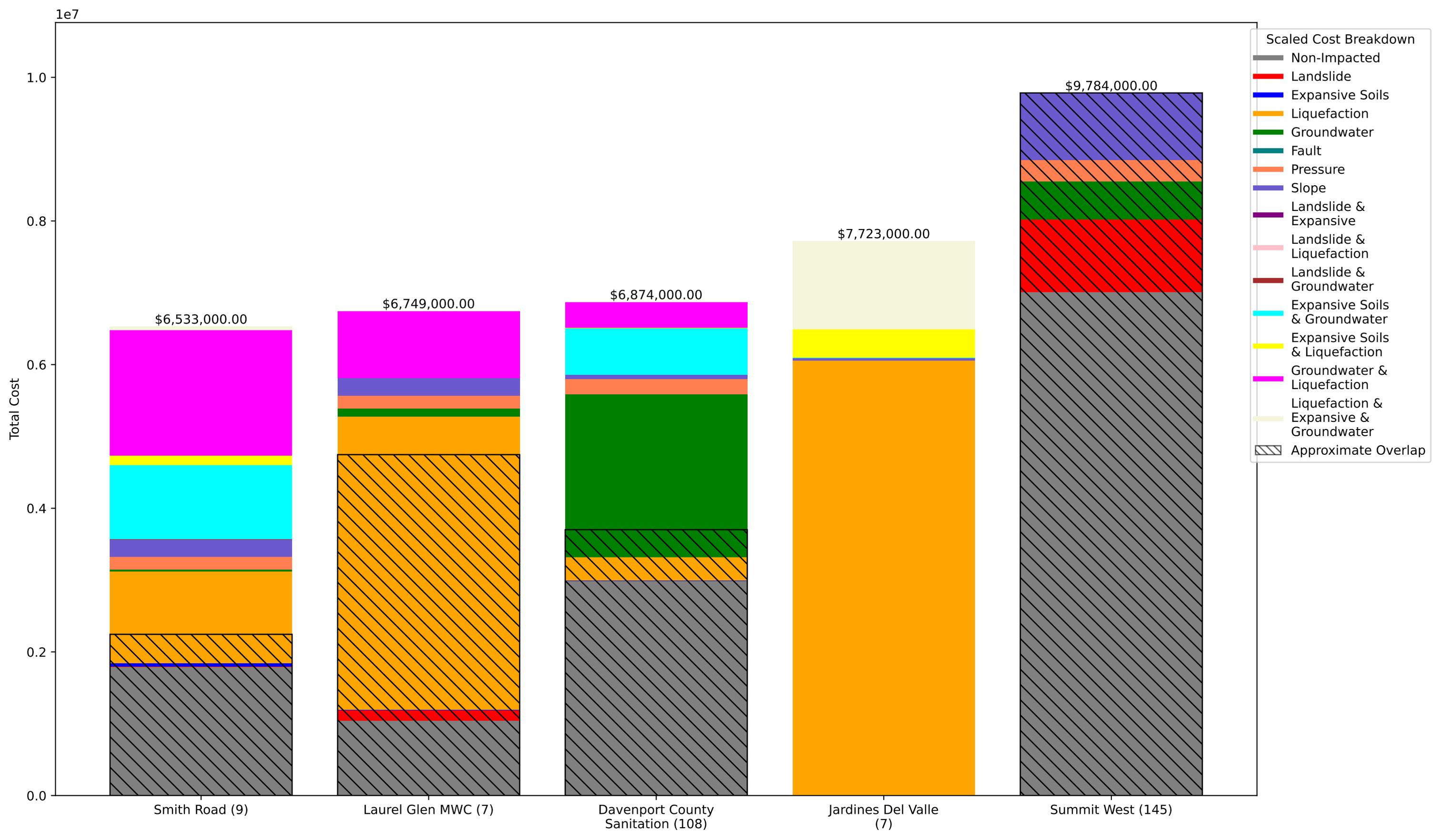


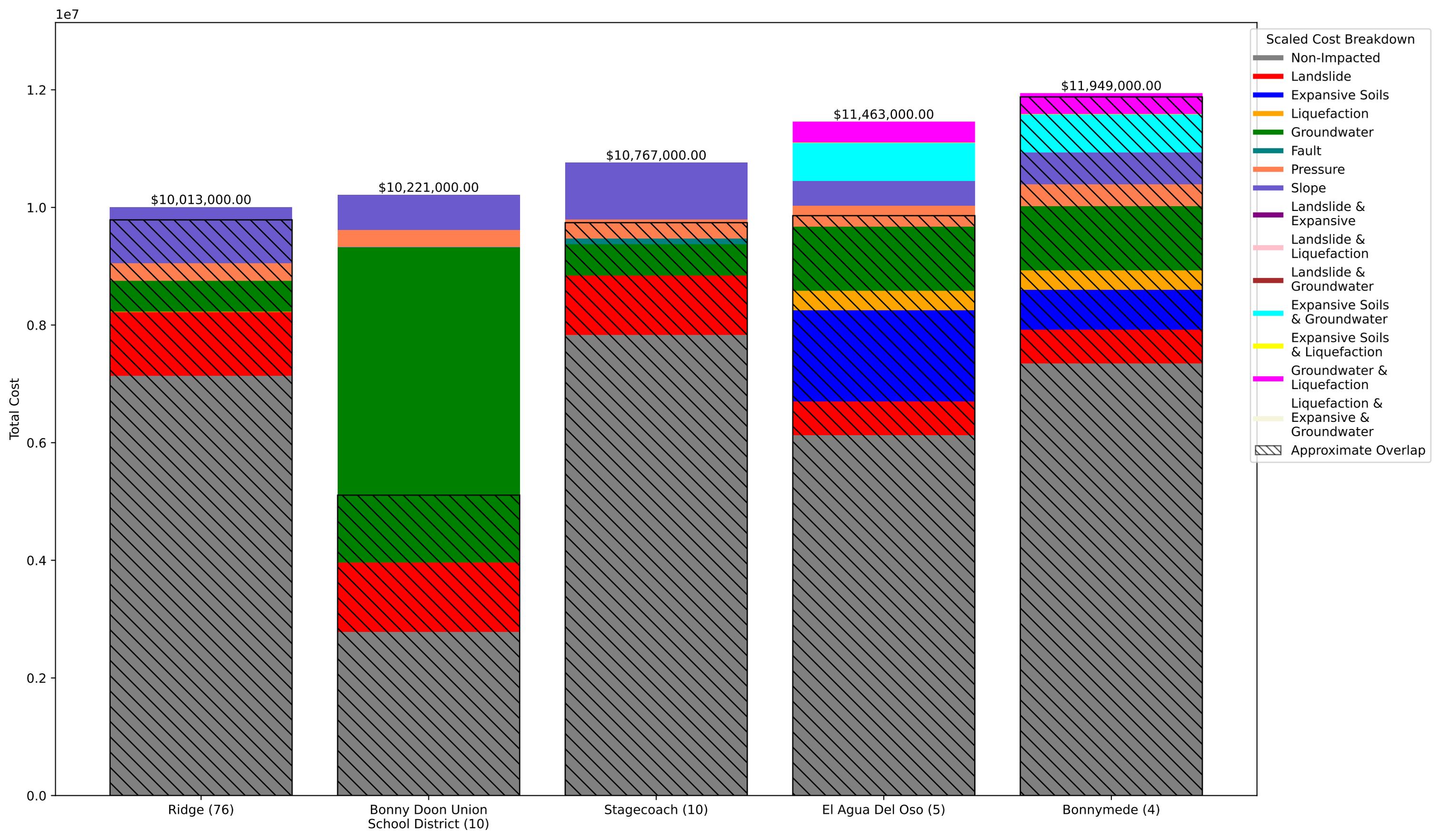


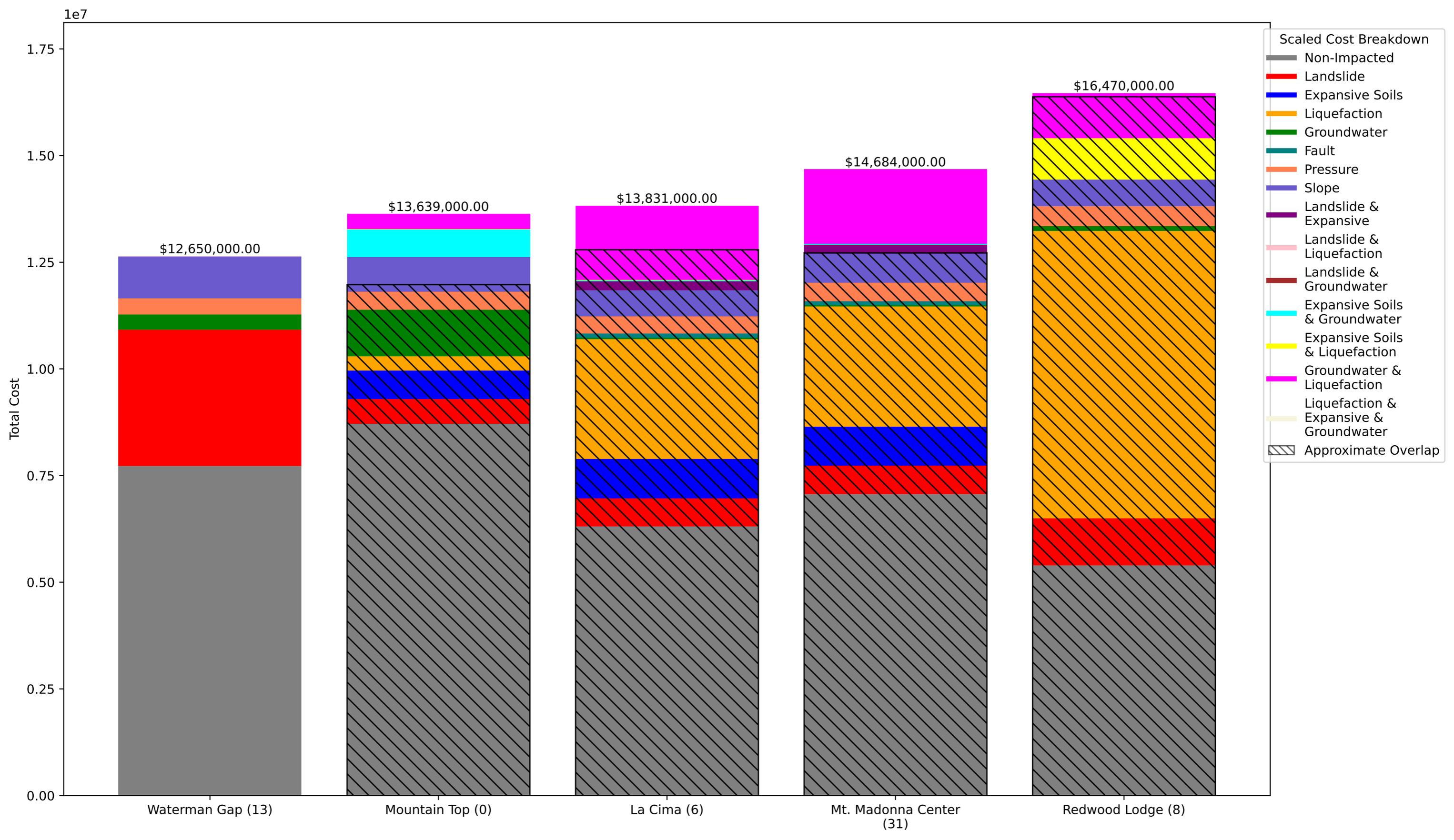


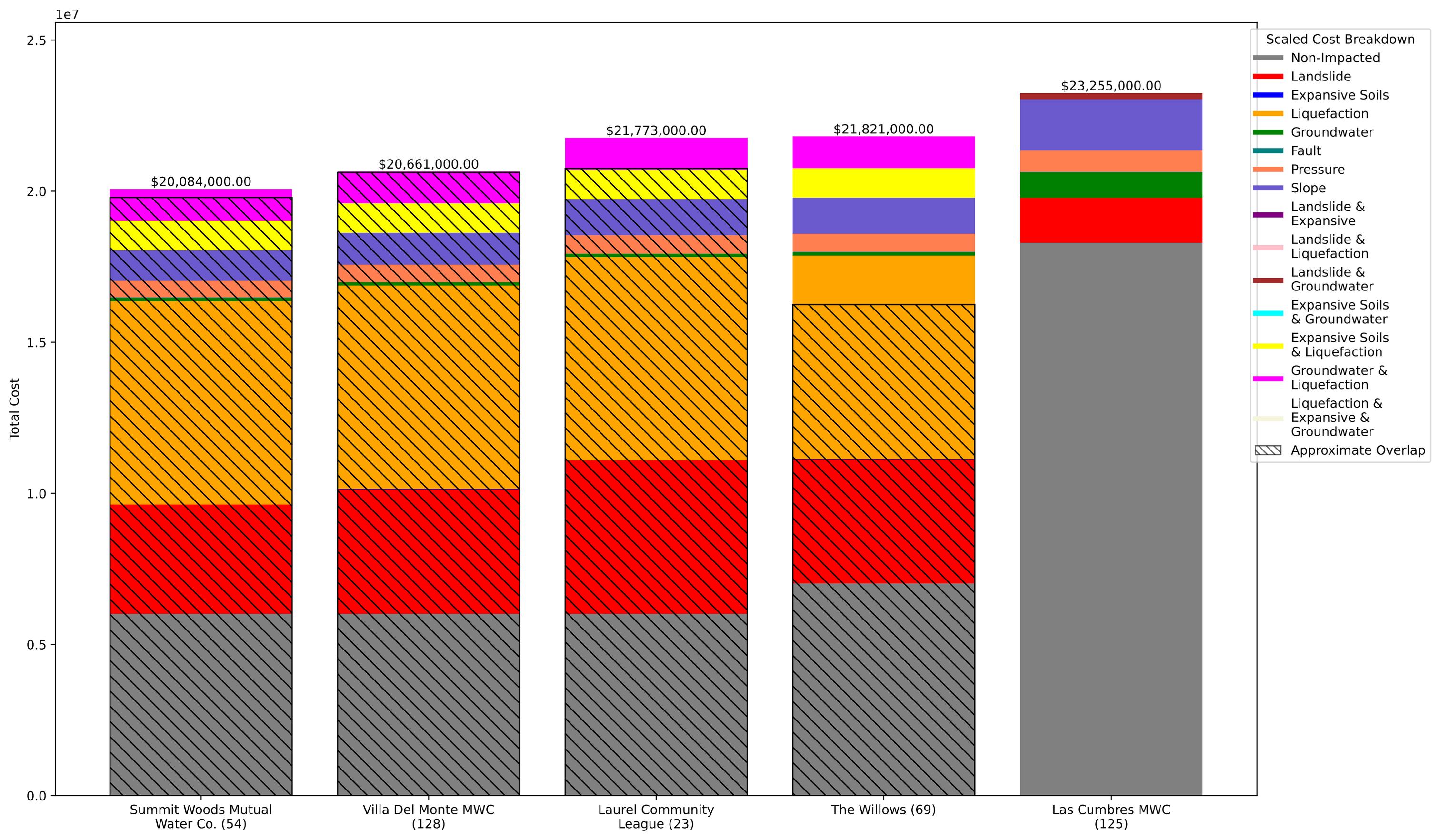












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Appendix B

