Facts and Data:

Average Cost of a Back Injury $38,500

Reference: https://injuryfacts.nsc.org/work/costs/workers-compensation-costs/

Average weight of LDH Hose: 4” 93 LBS

5” 105 LBS

Reference: https://firehosedirect.com/products/yellow-5-x-100-pro-flow-rubber-hose-storz-couplings

Statement of Need:

The physical demands of firefighting, particularly the manual handling of large diameter hose (LDH), pose a significant occupational hazard to our personnel. Our department operates two engine companies, one pumper tanker, and one aerial ladder truck, each carrying 1,000 feet of either 4-inch or 5-inch LDH. The manual process of reloading this volume of hose, which can weigh 100 pounds per section, is extremely labor-intensive and has been identified as a primary cause of back injuries among firefighters. These injuries not only pose a risk to the long-term health and career of our personnel but also lead to increased workers' compensation costs and a reduction in operational readiness.

The ROLLNRACK® Hose Management System offers a critical solution to this problem by mechanizing the hose loading and unloading process. By acquiring this system, we can eliminate the need for firefighters to physically lift and carry heavy sections of hose, thereby directly mitigating the risk of musculoskeletal injuries. The system will enable our crews to reload hose efficiently and safely with minimal effort, allowing for faster response times and a quicker return to service. This grant is essential to helping our department proactively address a known safety issue, protect the well-being of our firefighters, and ensure we can continue to serve our community with the highest level of preparedness.

Project Narrative: Implementation of the ROLLNRACK® Hose Management System

This project is designed to directly address the critical need for injury prevention and operational efficiency identified in the Statement of Need. By acquiring and implementing the ROLLNRACK® Hose Management System, the Fire Department will protect its personnel from musculoskeletal injuries associated with large diameter hose (LDH) handling, improve post-incident readiness, and enhance safety during mandated annual testing. The implementation plan is divided into three distinct phases: Procurement, Training, and Operational Integration.

Phase I: Procurement and Acquisition (Months 1–2)

Upon receipt of grant funds, the department will immediately initiate the procurement process for the necessary ROLLNRACK® components. This phase includes:

1. **Ordering and Delivery:** Placing the purchase order with the approved vendor. We anticipate a 6–8 week lead time for delivery, during which administrative procedures will be completed.
2. **Facility Preparation:** Preparing the apparatus bay floor space for the secure storage and use of the system when not out on a fire scene or training/testing site.

Phase II: Comprehensive Training and Certification (Month 3)

Effective use of the system requires hands-on training for all personnel to ensure safety and maximize efficiency gains. This phase will be conducted following equipment delivery and assembly.

1. **Train-the-Trainer:** A core group of designated company officers and safety personnel will first receive specialized instruction from the vendor or a certified representative.
2. **Department-Wide Instruction:** The trained cadre will then conduct mandatory, shift-based training sessions to instruct all firefighters (across all shifts and companies) on the proper and safe use of the ROLLNRACK® system.
3. **Integration into Standard Operating Procedures (SOPs):** New SOPs for hose management and hose testing procedures will be drafted and implemented to officially incorporate the new equipment and practices.

Phase III: Deployment and Operational Integration (Month 4 & Ongoing)

Once training is complete, the equipment will be placed into active service, immediately impacting our operational readiness and safety profile.

1. **Immediate Deployment:** The ROLLNRACK® system will be shared and centralized for use by all companies immediately following any incident requiring large hose deployment.
2. **NFPA Hose Testing Optimization:** The system's greatest recurring value will be realized during our **annual NFPA 1962 required hose testing**. Currently, this process requires extensive manual labor for drying, rolling, and loading hundreds of sections of hose. The ROLLNRACK® will significantly reduce the time and physical strain associated with these annual mandates, turning a multi-day, high-risk physical evolution into a streamlined, safer process. This not only protects our firefighters but also minimizes the time our apparatus are out of service for testing.
3. **Evaluation and Feedback:** Within six months of deployment, the department Safety Committee will review incident reports, injury logs, and operational timelines to formally evaluate the system's impact on reducing back injuries and improving operational turnaround time.

Through these steps, the Fire Department is committed to ensuring a swift, effective, and sustainable transition to a safer hose management methodology, solidifying our commitment to firefighter health and community service.

Budget Justification: A Prudent Investment in Firefighter Safety

The total cost for the acquisition and implementation of the ROLLNRACK® Hose Management System is estimated at **$10,000**. The Fire Department is requesting **$5,000** in grant funding to secure this essential equipment. The remaining **$5,000** will be committed by the city from the department's operational budget, demonstrating a significant local investment and a shared commitment to firefighter safety.

This investment represents a fiscally responsible decision that offers a substantial return. The average cost of a single firefighter back injury is approximately **$40,000** in combined medical and indemnity payments. This conservative figure does not account for the significant indirect costs associated with such an injury, including:

- Lost operational capacity and productivity.
- The cost of temporary staffing or overtime to cover a firefighter on injury leave.
- Decreased crew morale and increased stress on the remaining team.
- The time and resources required for training and onboarding new personnel.

By investing $10,000 in the ROLLNRACK® system, the department is proactively preventing injuries and avoiding costs far greater than the initial outlay. The successful prevention of even a single back injury would result in net savings of at least $30,000 for the city. This project is not an expenditure but a strategic investment that will protect our most valuable asset—our firefighters—and ensure the long-term financial and operational health of the department.

ROLLNRACK® Hose Management System Project Timeline

This timeline outlines the key phases and milestones for the acquisition, training, and operational integration of the ROLLNRACK® system, ensuring a smooth and effective project rollout.

Phase I: Procurement & Acquisition (Months 1-2)

- **Month 1:** Finalize system specifications, including the exact quantity and configuration of equipment needed for the fleet. Place the purchase order with the approved vendor.
- **Month 2:** Complete administrative procedures and receive the equipment. Prepare the apparatus bay for secure storage and use of the system.

Phase II: Comprehensive Training & Certification (Month 3)

- **Month 3 (Weeks 1-2):** A core group of company officers and safety personnel will receive specialized "train-the-trainer" instruction.
- **Month 3 (Weeks 3-4):** The trained cadre will conduct mandatory training sessions for all sworn firefighters across all shifts on the safe and proper use of the system. Concurrently, new Standard Operating Procedures (SOPs) will be drafted to incorporate the new equipment.

Phase III: Deployment & Operational Integration (Month 4 & Ongoing)

- **Month 4:** The ROLLNRACK® system will be placed into immediate operational service. The new SOPs will be fully implemented.
- **Month 5:** The system will be utilized to streamline the annual NFPA 1962 required hose testing.
- **Months 6-10:** The department Safety Committee will begin a formal evaluation of the system's impact, reviewing injury logs and operational data to assess the project's success.
- **Ongoing:** The department will continue to use the system for all hose management needs, reaping long-term benefits in firefighter health and operational readiness.

The department will evaluate the benefits of the equipment primarily during Phase III, specifically from Month 6 onward.

The evaluation will be conducted by the department's Safety Committee and will focus on two key areas:

1. **Health and Safety Benefits:** They will review **injury logs** to determine if there has been a reduction in back injuries or other musculoskeletal injuries directly related to hose handling since the system was implemented. The goal is to see a significant decline in these types of incidents.
2. **Operational Efficiency:** The committee will analyze **operational data** to assess the system's impact on a day-to-day basis. This could include tracking the time it takes to reload apparatus after an incident and, most notably, the time and labor required for the annual NFPA hose testing. By comparing these metrics before and after the system's deployment, they can quantify the savings in time and manpower.

Conclusion:

In conclusion, this project represents a proactive and fiscally responsible investment in the long-term health, safety, and operational readiness of the Fire Department. The ROLLNRACK® Hose Management System directly addresses the critical risk of musculoskeletal injuries from manual hose handling, a costly and frequent hazard. By implementing this system, we will not only protect our firefighters but also achieve significant gains in efficiency, particularly during the labor-intensive annual NFPA hose testing. With the city's committed match funding, the grant of **$5,000** will be the catalyst for a solution that avoids the far greater costs—both human and

financial—associated with a single back injury, which can exceed **$40,000**. We are confident that this project will serve as a model for firefighter wellness and operational excellence, ensuring our department remains prepared to serve the community for years to come.