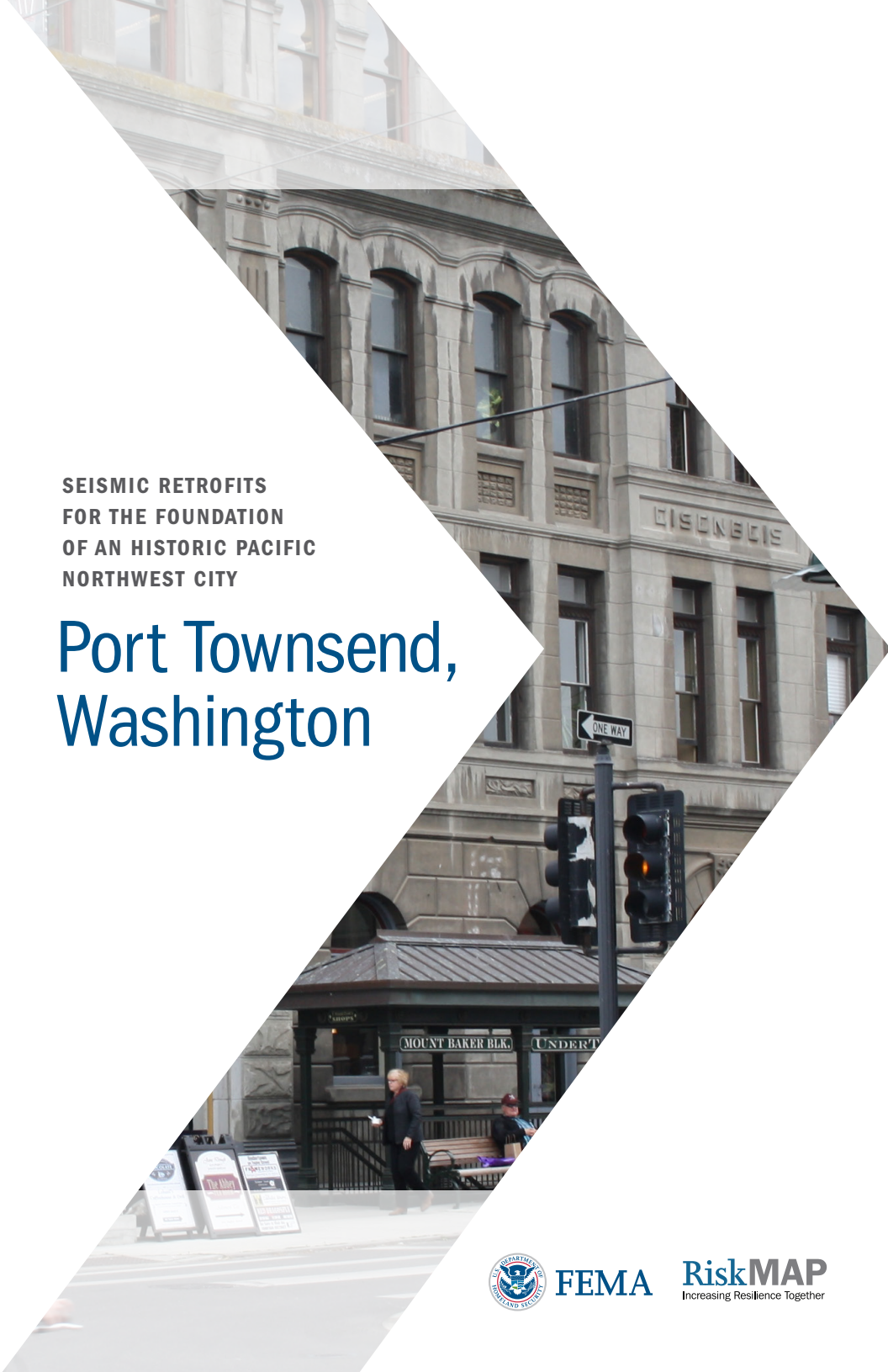
SEISMIC RETROFITS FOR THE FOUNDATION OF AN HISTORIC PACIFIC NORTHWEST CITY

Port Townsend, Washington

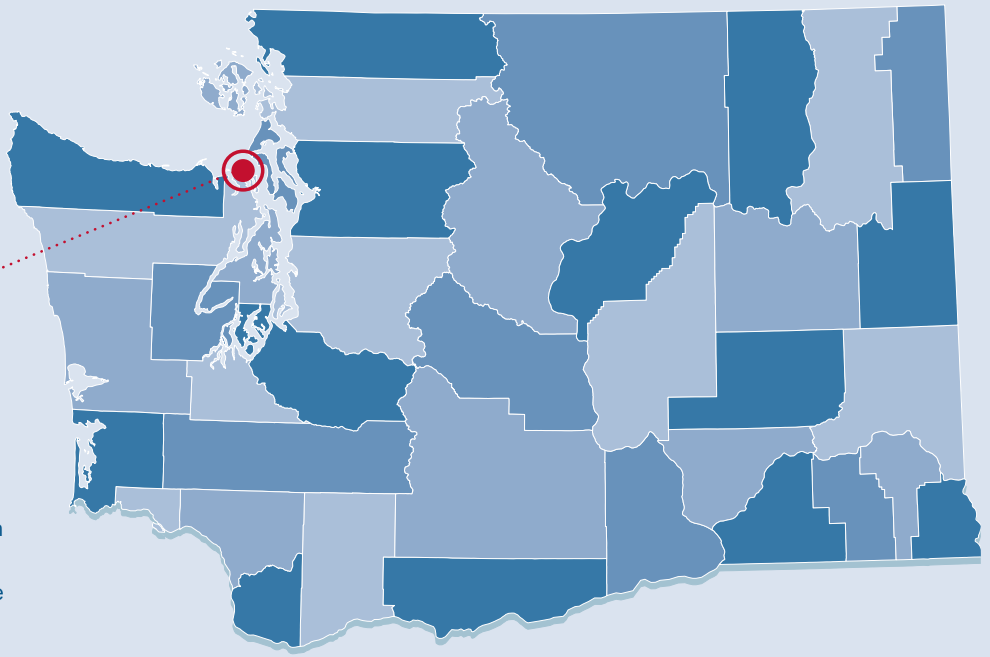


FEMA

RiskMAP
Increasing Resilience Together

"Port Townsend successfully handled some key project elements before, during, and after the retrofit work. They established great partnerships during the planning process, they took care of impacted businesses during construction, and they highlighted the successful mitigation measures after it was completed."

— Tim Cook, *State Hazard Mitigation Officer*



PORT TOWNSEND, WA

Port Townsend is an historic town along the Puget Sound, nationally recognized for its historic preservation and revitalization efforts. Like many cities in the Pacific Northwest, Port Townsend has an important network of underground tunnels built below the historic district's sidewalks. These tunnels are still used by businesses and the community, serving as both storage space and building storefronts. These tunnels were built in the late 1800s. One wall of the tunnel consists of unreinforced masonry walls that are part of the adjacent historic building, while the other wall consists of unreinforced stone that supports the edge of the street above. The sidewalks are the ceiling of the tunnels. The tunnels were deteriorating, losing their ability to support the above sidewalks, additionally, there was concern that in an earthquake, the tunnels could collapse resulting in severe damage or collapse of the supported historic buildings. Port Townsend receives over two million tourists per year because of its "Distinctive Destination" designation for its historic character; damage to the tunnels and sidewalks would disrupt the local business and tourist economies. The 2001 Nisqually earthquake, the 2010 Haiti earthquake, and 2011 Japan earthquake and subsequent tsunami compelled the city to explore solutions to protect its residents, economy, and infrastructure. Through a strong public engagement process of developing a community vision and business plan, the city's community elevated the historic identity of its downtown as a top priority to protect. Because of this, the city sought to strengthen the stability of the tunnels and sidewalks to withstand an earthquake. Solutions focused on ensuring public safety of residents and tourists, as well as preserving the community's way of life, historic identity, and promoting continued economic development.

Through partnerships built over many years with state agencies, such the WA Emergency Management Division, and a strong mutual trust between City Council and the City Manager, the Manager secured multiple sources of funding to complete the retrofitting of all sidewalks. Multiple funding sources (including: a city bond, Housing and Urban Development, Main Street Tax Incentive Program, FEMA Pre-Disaster Mitigation and Hazard Mitigation Grant Program) were leveraged so that the project was broken up into multiple phases and led to a successful project completion. In addition, the city partnered with the Main Street Program, local historical society, and the local historic preservation committee to develop "Meet Me in Port Townsend" a unique engagement strategy for residents and the business community to help maintain the local economy through the construction disruption. City staff worked closely with many departments internally and with many external community groups, to overcome construction related disruption in daily lives of residents and economic concerns from businesses and elected leaders.

Goal of Showcase:

This booklet highlights the City of Port Townsend's success in executing a retrofit project for downtown sidewalks, historically sensitive underground tunnel lids, using multiple FEMA Hazard Mitigation Assistance grants. This booklet, highlighting Port Townsend's story, is part of a collection, the FEMA Region X Mitigation Showcase, to illustrate different methods local communities have used to leveraged partnerships and collaborated with state and federal partners to complete mitigation projects that address vulnerabilities to earthquakes and/or tsunamis. These narratives describe how project partners worked together to effectively navigate FEMA Hazard Mitigation Assistance requirements, build political and public support, and describe what lessons were learned throughout the project process. Information provided in each booklet intends to inspire and support other communities that wish to pursue similar mitigation action.

Mitigation Project:

The City of Port Townsend began engaging their community after the Nisqually Earthquake in 2001. A number of events subsequently occurred that led to community discussions around residential and business priorities for future development and visioning. Preserving the historic nature of the City rose to the top priority. In order to preserve this character of the City, and increase protection for its community, the City developed a project to retrofit tunnel lids, sidewalk, covering underground business space downtown. The City used the project to creatively and extensively engage with the business Main Street community to gain support for temporary disruptions during the project period. This project highlights the success of local outreach and awareness efforts, by connecting to larger community goals, and a strong partnership with the State Hazard Mitigation Officer.

Defining the Hazard:

The Washington State coast is at-risk to earthquakes and tsunamis. In 2001, Port Townsend experienced the 6.8 magnitude Nisqually earthquake which elevated political and public awareness of local vulnerabilities to seismic events. In addition to seismic hazards, the City highlights potential disruptions to residents and the business community if a road, bridge, or ferry line is blocked for any reason. The tunnel lid retrofit project not only provided increased public safety, but was leveraged to engage the local community to discuss community vision priorities and develop a stronger relationship with the business owners, that included greater awareness for earthquake safety.

PHOTO: Downtown waterfront of Port Townsend showcases a community identity of maritime and historical resources.

PHOTO: Port Townsend Shoreline.

In 2001, many areas across Washington State including Port Townsend, were impacted by the Nisqually earthquake, 6.8 magnitude. This experience kicked-off discussions within Port Townsend's community around prioritizing actions for residents' safety, preserving community identity, and fostering continued economic development. Through City-led community engagement efforts, residents and business owners clearly identified preserving the historic integrity of the city as a top priority. Over the next 15 years, City Council, local businesses and residents rallied support to integrate historic preservation into the fabric of city planning.

Following the Nisqually earthquake, two key events led the City to pursing mitigation projects through FEMA's Hazard Mitigation Assistance. First, in November of 2007 the Washington State Department of Transportation notified the City that a ferry to Port Townsend would be taken out of commission indefinitely for repairs. This was a critical ferry that connected tourists and a steady stream of traffic to the city through the historic downtown. Business had relied on this traffic for many years and the ferry being taken out of commission was viewed as a potential hardship that would reduce revenue for businesses and the city. Second, another critical connector for the city, the Hood Canal Bridge, was shut down for mitigation work in 2009. These disruptions, relatively close together, elevated overall concerns by the City Council and the business community about the local

Project Timeline:

- **2001** Port Townsend celebrates its 150th year anniversary, is named a "Distinctive Destination" by The National Trust for Historic Preservation
- Nisqually Earthquake, Washington
- **2003** Port Townsend receives FEMA HMA grant to replace earthquake damaged fire station
- **2005** Jefferson Co Historical Society funds City Hall internal restoration and seismic retrofit
- **2006** Port Townsend is awarded "Preserve America Status" enabling the city to be eligible for heritage tourism grant sources.
- Main Street Tax Incentive program launched in WA State promoted by Main Street managers, providing tax credit to local businesses that led to local revitalization.
- **2007** Main Street Merchant Seminar- Disaster Preparedness in The Historic Districts
- Port Townsend Ferry Taken Out of Commission by Washington State Department of Transportation resulting in significant decline of tourists to Port Townsend
- City Receives $15,000 grant from the WA Department of Community, Trade, and Economic Development and WA State Tourism supporting "Meet me in Port Townsend" outreach campaign for local businesses before, during, and after the Hood Canal Bridge Mitigation Project
- **2008** City Develops Three-Year Strategic Management Plan with City Manager
- **2009** Monthly Small Business Roundtable sessions continue to help businesses prepare for the six week closure, "Meet me in Port Townsend" Campaign begins. Hood Canal Bridge Closes for Mitigation Work.
- **2010** Haiti Earthquake
- Historic District Planning Charrette
- City Council Requested Bond Measure for Additional City Projects
- **2011** Tohoku, Japanese Earthquake and Tsunami
- **2012** Closeout for Taylor Street Tunnel & Sidewalk Retrofit Project
- Grants Awarded for Water Street & East Business District Tunnel and Sidewalk Retrofit Projects
- **2013** Seismic Retrofit of City's Historic Public Library
- **2014** Closeout for Water Street & East Business District Tunnel and Sidewalk Retrofit Project
- **2015** *The Really Big One*, by Kathryn Schulz, New Yorker Article Published
- **2017** County and City Multi-Jurisdictional Hazard Mitigation Plan Update

economy, tourism industry, and how to preserve the community's identity. Because of these economic concerns, the Council started increasing engagement with the City Manager to develop a long-term capital investment strategy. The City Manager and Council worked to integrate community priorities, including historic preservation, into the City's capital investment strategy. Additional business marketing strategies were coordinated around this time as well. Port Townsend Main Street community, for example, worked with the Washington Department of Community, Trade, and Economic Development and Washington State Tourism to develop a marketing campaign that highlighted one business a week before, during, and after the Hood Canal Bridge closure (MeetMeInPortTownsend.com). Furthermore, in 2010, the City engaged the public and local businesses to develop an Historic District Planning Charrette to continue highlighting community priorities for preserving its character and lifestyle. Community members identified the preservation of historic structures as most important to maintaining its identity and to incorporate this component in any broader long-term strategic plan, or specific project, moving forward.

In 2010, the Council asked the Manager to coordinate a bond measure to fund additional projects highlighted in the 2008 Master Plan, building on the success of previously funded mitigation projects of historic buildings. The strategic business plan detailed priorities for achieving the City's community vision. This vision, along with efficient local grants management efforts and key partnerships fostered throughout previously completed mitigation projects, significantly contributed to the success of the seismic retrofitting of the sidewalks and tunnel lids. This strong working relationship between the City Manager and City Council resulted in the completion of seismic retrofit projects that not only increased the resilience of the City to earthquakes, but also contributed to increasing public awareness of earthquake risk by bringing the community together.

A project that was prioritized by the City in the hazard mitigation plan and capital improvement plan was retrofitting sidewalks, or tunnel lids, for specific places around the downtown business district. The original sidewalks were built in 1911 and in some places, these areas experienced flooding twice daily with high tides. To retrofit all sidewalks, smaller projects were leveraged using separate funding streams. The Washington State Hazard Mitigation Officer (SHMO) played a key role in the success of these projects by advocating for and supporting the City. The SHMO facilitated key communication between the FEMA Hazard Mitigation Assistance (HMA) program and key City contacts. The SHMO supported the City in meeting FEMA grant requirements in the application and grant management process. For example, by developing Benefit Cost Analyses illustrating

Through the declared disaster, Hazard Mitigation Grant Program (HMGP) funds became available to Washington State. Port Townsend's FEMA-approved hazard mitigation plan ensured eligibility for these funds and ensured that the City had prioritized projects, including seismic retrofitting, identified. The City successfully met grant timelines because initial work had already been completed for these identified projects. Additionally, the City's long term strategic plan had already put in place a process for heavily leveraging the City's budget wherever possible to provide the needed match for HMGP funding. Public support was gained through the previous engagement that occurred after the notice of WSDOT's removal of the ferry service.

PHOTO: Entrance to underground businesses. This space is available, and safe, because of the underground sidewalk retrofit project the city completed.

potential loss of life and ensuring that the correct reimbursement documentation was provided after the grant was awarded. Another example was a change-order form developed by the project manager with support from the SHMO. This form would be sent to the SHMO to help coordinate partners and streamline the process before the project started. In addition to the SHMO supporting the City, City staff who participated in grants management were trained in Section 106 review. This background improved dialogue with state historic preservation to develop hazard mitigation strategies that were in alignment with historic preservation and public safety. This additional understanding ensured specific lighting resonate of the early 1900s was installed in the tunnel lids, that steel materials were used instead of plastic, and other precautions taken in the seismic retrofitting to maintain characteristics sensitive to historic requirements. These requirements were integrated into the grant applications for the retrofit projects.

After disruptions in local business from the Nisqually earthquake, the WSDOT ferry removal, and the Hood Canal Bridge, great lengths were taken by the City project manager and the Main Street community to establish business continuity strategies throughout the sidewalk retrofit projects. The City's engineer, serving as project manager, and other staff, met with local business owners and the local business association to develop a schedule for ensuring access to business during sidewalk construction. First, for overall transparency on the project, a website was developed by a marketing consultant, that the City has contracted with on an ongoing basis, to provide a blog for regular project updates with pictures, status of sidewalk openings, and provided an opportunity for public comment and questions. To provide further clarity to the public, a local high school wove a moveable entrance arch indicating the sidewalk that would be open for foot traffic. The police chief advertised this archway by dressing up on the weekends to help visitors and residents cross the street. The result of this engagement was a public curious about the projects and exploring downtown to show kids the construction project and use the opportunity to explain risks to earthquakes.

To further support businesses, the City Council and project manager developed a comprehensive approach to building local partnerships. The City Council started by approving funding to help businesses pay bills over the course of the construction to compensate for any lost revenue. In addition, the City held monthly meetings throughout the project with the business community to answer questions and respond to comments or concerns. With the support of the City's marketing consultant public engagement campaigns were developed that included "Port Townsend Rocks" and "Light at the End of the Tunnel." Through "Port Townsend Rocks", businesses

"This is my most rewarding project of my career, I am proud of the work we did to refurbish downtown Port Townsend, while preserving its unique charm and historical significance."

— Scott Sawyer, *SCJ's Transportation Engineering Manager*

PHOTO: Reinforced underground sidewalk that includes materials to maintain historic nature and designation.

displayed pieces of the historic underground sidewalks and pieces of brick that would instigate questions from visitors and encourage people to visit businesses. “Light at the End of the Tunnel” developed through a collaboration with Port Townsend Main Street Program and the City and included a loyalty stamp card program, coupon books, raffles, sidewalk sales, and other special events that promoted businesses during construction.

In concert with these outreach campaigns, the Request for Proposals for the project included a requirement that the contractor be available for walk-in and spontaneous interactions with the community to answer questions and provide project updates. The contractor is quoted in another article (http://www.scjalliance.com/5612-2/) as discussing the relationship he built throughout the project, “The many relationships I formed with merchants and staff during the project are friendships I treasure,” Scott said. “I love going back, visiting Port Townsend and checking in with the wonderful people in the community.”

A major component of this project was the emphasis on an inclusive public and business engagement strategy through the “Meet Me in Port Townsend” and “Light at the End of the Tunnel” campaigns. This project not only increased the safety of public spaces and businesses but it also brought the community together to participate in the process. People were curious about the project and regularly wanted to explore the downtown during construction to see the progression of the project. City staff encouraged community members to safely explore the project and ask questions. Ultimately, this has led to a more informed community about the risks of earthquake and how to prepare.

The large in-kind effort city staff contributed to the coordination and business community engagement for this project was to meet local grant match requirements.

PHOTO: Downtown Port Townsend, a National Historic Landmark District, showing the entrance to the underground sidewalk business space.

Technical Grant Information

All projects supported through the FEMA Hazard Mitigation Grant Program. The entire scope of the tunnel retrofit project was divided among three HMGP projects because of the extensive reach of each project and specific timing,

FEMA-1682-DR-WA-14-R

City of Port Townsend Taylor Street Tunnel Lids Seismic Retrofit Project

- Project Amount $464,131 ($348,098 Fed Share, $116,033 Local Share)
- Closeout of project requested May 2012. Termination of this project was requested by the City because preliminary engineering showed that the project cost would increase substantially and additionally funds were not available under this DR. Project was terminated and portion of this project was moved to and covered under DR-1734 award.
- Amount expended on project was $41,560.47 ($31,170.35 Fed Share and $10,390.12 Local Share)

FEMA-1734-DR-WA-15-R

City of Port Townsend Water Street Tunnel Lids Seismic Retrofit Project

- Original Project Amount $878,186 ($658,640 Fed Share, $109,773 Local Share)
- Part of the DR-1682 project was moved into this project. This increased the award for the project. Total project award $1,300,757 ($975,568 Fed Share and $325,189 Local Share)
- Project Area for this project was as follows
  - Along both sides of Taylor Street, between Washington and Waters Street and Along a portion of Washington Street at/around its intersection with Taylor Street, to include the areaway associated with Building 22
  - Along Water Street, between Taylor and Madison Streets and identified portions of Adams and Quincy Street.
- Project completed January 2014
- Amount expended on Project was $1,270,725.19 ($953,043.88 Fed Share and $317,681.30 Local Share)

SoP developed by the City to help manage grants.

FEMA-1825-DR-WA-8-R

City of Port Townsend East Business District Tunnel Lids Seismic Retrofit Report

- Original Project Amount $1,238,844 ($929,133 Fed Share and $309,712 Local Share)
- Original contract was amended to include the lower block of Taylor Street, which in turn resulted in an increased budget.
- Revised Project Cost $1,324,530 ($ 993,398 Fed Share and $331,132 Local Share)
- Project completed January 2014
- Amount Expended on this Project was $1,624,530 ($993,398 Fed Share and $331,132 Local Share)

LESSONS LEARNED:

- City Manager is responsible for grant applications but many staff have expertise that is utilized for various parts of the applications. The City engineer serves as project manager for an awarded project.
- Develop a Standard of Procedure for complex funding sources to maintain consistency in grants management across departments. For example, if necessary, one project may be funded through two disaster declarations. This creative use of funds can support enhanced or additional projects while a Standard Operating Procedure helps to constructively knit projects together to thoroughly understand each project and the required matches, finding gaps in grant coverage or management, and understanding what staff is needed for effective management. Each grant has specific reimbursement requirements that may differ from what city staff are used to managing. The relationship with state partners, such as the State Hazard Mitigation Officer, is dually critical to the success of the projects and understanding reimbursement requirements.
- There will always be unforeseen delays in the project. For example, a scope change was required to ensure American-made carriage-bolts were used in a project.
- “Being adaptable” is key to success in managing multiple grants and using different projects to complement one another. The City used multiple funding streams to support historical preservation projects while bringing historical buildings into compliance with seismic codes. Non-FEMA funded projects were done in concert with the PDM and HMGP projects: retrofit of historic City Hall, update of water treatment plant, and a retrofit of water reservoir to meet seismic standards.

For more information, contact: Amanda.Siok@fema.dhs.gov

www.fema.gov