

Section 5

Mitigation Strategy Requirements

Mitigation Strategy---Requirement §201.6(c)(3):

The plan **shall** include a strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

Local Hazard Mitigation Goals---Requirement §201.6(c)(3)(i):

[The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

- Does the plan include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards?

Identification and Analysis of Mitigation Measures---Requirement §201.6(c)(3) (ii):

[The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

- Does the plan identify a **comprehensive range** of specific mitigation actions and projects for each hazard?
- Do the identified range of mitigation actions and projects address reducing the effects of hazards on **new** buildings and infrastructure?
- Do the identified range of mitigation actions and projects address reducing the effects of hazards on **existing** buildings and infrastructure?

Implementation of Mitigation Measures---Requirement: §201.6(c)(3) (iii):

[The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

- Does the mitigation strategy include how the actions are **prioritized**?
- Does the mitigation strategy address how the actions will be **implemented and administered**?
- Does the prioritization process include an emphasis on the use of **cost-benefit review**?

SECTION 5

REGION 5 HAZARD MITIGATION PLAN CITY OF TACOMA MITIGATION STRATEGY SECTION

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Table 5-1 City of Tacoma Mitigation Strategy Matrix

Implementation Mechanism	Mitigation Measure (<i>Hazard(s)</i>) ¹	Lead Jurisdiction(s) / Department(s)	Timeline (years)	Plan Goals					
				Life and Property Continuity	Operations	Partnerships	Natural Resources	Preparedness	Sustainable Economy
Startup	1. Existing Mitigation Actions (<i>E,L,T,V,D,F,WUI,SW, MM</i>)	Tacoma	Ongoing	✓	✓	✓	✓	✓	✓
	2. Plan Maintenance (<i>E,L,T,F,V,WUI,SW, MM</i>)	Tacoma	Ongoing	✓	✓	✓	✓	✓	✓
HMF	1. Pierce County Hazard Mitigation Forum (<i>E,L,T,V,D,F,WUI,SW, MM</i>)	PC DEM; Tacoma	Ongoing	✓	✓	✓	✓	✓	✓
Tacoma Fire	1. Capability Identification and Evaluation (<i>E,L,T,V,D,F,WUI,SW, MM</i>)	Tacoma	1-2	N/A					
	2. Remodel of Emergency Operations Center for City of Tacoma (<i>E,L,T,V,D,F,WUI,SW, MM</i>)	Tacoma Emergency Management	1-2	✓	✓	✓			✓
	3. Contract a Consultant to Perform a Seismic Stability Study (<i>E,SW</i>)	Tacoma Emergency Management	5	✓	✓	✓			
	4. Port of Tacoma Major Evacuation Plan (<i>E,L,T,V,F,SW,WUI,MM</i>)	Port of Tacoma with EM and Tacoma Police	1-2	✓		✓		✓	
	5. Fixed Generator Purchases (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Fire Department	Ongoing	✓	✓				
	6. Seismic Retrofit of Tacoma Fire Facilities (<i>E,SW</i>)	Tacoma	5	✓	✓				✓
	7. Continuity of Operations Plan (COOP) (<i>E,L,T,V,D,F,SW,WUI,MM</i>)	Tacoma	5	✓	✓	✓			✓
	8. Additional Engine Company Response to Murray Morgan Bridge Closure (<i>E,F,SW,MM</i>)	Tacoma Fire Department	1-2	✓	✓				
Public Education	1. EMT Training for Fire Department Personnel (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Fire Department	Ongoing	✓	✓				
	2. Annual Paramedic Training (<i>E,L,T,V,D,F,SW,WUI,MM</i>)	Tacoma Fire Department	Ongoing	✓	✓			✓	
	3. Required ICS Training (<i>E,L,T,V,D,F,SW,WUI,MM</i>)	Tacoma Fire Department	Ongoing	✓	✓			✓	
	4. ICS-300 and ICS-400 (<i>E,L,T,V,D,F,SW,WUI,MM</i>)	Tacoma Fire Training	Ongoing	✓	✓			✓	
	5. HazMat Training (<i>E,L,T,V,D,F,SW,WUI,MM</i>)	Tacoma Fire Training	Ongoing	✓			✓		
	6. Technical Rescue Team Training (<i>E,L,T,V,F,SW,MM</i>)	Tacoma Fire Training	Ongoing	✓	✓	✓			
	7. Structural Collapse Training (<i>E,L,T,V,F,SW,MM</i>)	Tacoma Fire Training	Ongoing	✓		✓			
	8. Continuation and Increase of CERT Program (<i>E,L,T,V,F,SW,MM</i>)	Tacoma Emergency Management and PC DEM	Ongoing	✓		✓		✓	
Tacoma Police	1. Tacoma Police Firing Range (<i>E,L,F,SW,WUI</i>)	Tacoma Police with Tacoma Facilities	5	✓	✓		✓		
	2. Microwave Link to Tacoma Public Utilities (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police with Tacoma Utilities	1-2	✓	✓	✓			✓

Implementation Mechanism	Mitigation Measure (<i>Hazard(s)</i>) ¹	Lead Jurisdiction(s) / Department(s)	Timeline (years)	Plan Goals						
				Life and Property	Operations Continuity	Partnerships	Natural Resources	Preparedness	Sustainable Economy	
<u>Tacoma Police</u>	3. Build Four Sector Sub-Station (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police, Tacoma Public Works and Metro Parks	1-2	✓	✓	✓		✓		
	4. Additional Parking Required at New Police Station (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police with Tacoma Facilities	1-2	✓	✓					
	5. Mobile Command Unit for Police Department (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police with Multi-Agency Support	5	✓	✓	✓			✓	
	6. Purchase Zurmo Air Shelter (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police Department	1-2	✓	✓	✓				
	7. Evacuation Plans for Citizens (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police with other City Agencies	1-2	✓	✓	✓			✓	
	8. Threat Level Response Operational Plans (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police Department	Ongoing	✓	✓	✓			✓	
	9. South Puget Sound Regional Law Enforcement Mobilization Plan (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police and Regional Partners	1-2	✓	✓	✓				
	10. Full Scale Exercise in 2008, "Sound Shake 2008" (<i>E,L,T,V,SW</i>)	King and Pierce County DEM and Tacoma Police and Others	1-2	✓	✓	✓			✓	
	11. Table Top Exercise with School Districts (<i>E,V,F,SW,MM</i>)	Tacoma Police with support from PC DEM	Ongoing	✓		✓		✓		
	<u>Public Education</u>	1. Continue Specific Training in the Community (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police Department	Ongoing	✓	✓	✓			
		2. Continue Training Programs with Schools (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Police Department	Ongoing	✓		✓		✓	
3. Continue Required Patrol Officer Training (<i>E,L,T,V,F,SW,WUI,MM</i>)		Tacoma Police Department	Ongoing	✓	✓	✓			✓	
4. WEB EOC Training and Support (<i>E,L,T,V,F,SW,WUI,MM</i>)		Pierce County DEM with support from Tacoma Police	Ongoing	✓	✓	✓			✓	
5. Special Training as Required (<i>E,L,T,V,D,F,SW,WUI,MM</i>)		Tacoma Police Department	Ongoing	✓	✓	✓			✓	
6. IMT, Type III Training (<i>E,L,T,V,F,SW,WUI,MM</i>)		Pierce County DEM to include Tacoma Police	Ongoing	✓		✓			✓	
<u>Tacoma Water Utility</u>	1. Alternate Potable Water Supply System (<i>E,L,V,F,SW,MM</i>)	Tacoma Water Utility	1-2	✓	✓			✓	✓	
	2. Trailer Mounted 350 KW Standby Generator (<i>E,V,F,SW,MM</i>)	Tacoma Water Utility	1-2	✓	✓					
	3. Seismic Retrofit of Hood Street Water Treatment Plant (<i>E,SW,MM</i>)	Tacoma Water Utility	1-2	✓	✓					

Implementation Mechanism	Mitigation Measure (<i>Hazard(s)</i>) ¹	Lead Jurisdiction(s) / Department(s)	Timeline (years)	Plan Goals					
				Life and Property	Operations Continuity	Partnerships	Natural Resources	Preparedness	Sustainable Economy
	4. Tacoma Water Pipeline 1 Replacement, Orting Valley (<i>E,V,F,MM</i>)	Tacoma Water Utility	1-2	✓	✓		✓		✓
	5. Seismic Retrofit of Tacoma Water Transmission Pipelines (<i>E,SW,MM</i>)	Tacoma Water Utility	5	✓	✓				✓
	6. Tacoma Water EOC Upgrade (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Water Utility	5	✓	✓	✓			
	7. Tacoma Water North Fork Wellfield Backup Power (<i>E,L,V,F,SW,MM</i>)	Tacoma Water Utility	5	✓	✓				
<u>Tacoma Public Works</u>	1. Institute Commercial Occupancy Resumption Program (<i>E,L,V,SW,MM</i>)	Tacoma Public Works-BLUS	5	✓	✓	✓			✓
	2. Develop Backup Server (<i>E,L,T,V,F,WUI,SW,MM</i>)	Tacoma Public Works-BLUS	1-2	✓	✓				✓
	3. Update City Flood Plain Regulations (<i>L,F,SW</i>)	Tacoma Public Works-BLUS	1-2	✓		✓	✓		
	4. Provide Infrastructure Inspection Kits for Construction Division Staff (<i>E,L,V,F,SW,MM</i>)	Tacoma Public Works-Construction	5	✓	✓				✓
	5. Court 'E' Wall Repair at South 13 th Street (<i>E,L,F,SW</i>)	Tacoma Public Works-Engineering	1-2	✓	✓				
	6. Eells Street Bridge Rehabilitation (<i>E,L,V,F,SW</i>)	Tacoma Public Works-Engineering	5	✓	✓				✓
	7. East 11 th Street Bridge (Murray Morgan) Rehabilitation (<i>E,L,V,F,SW</i>)	Tacoma Public Works-Engineering	5	✓	✓				✓
	8. Create and Implement Standard for Ice and Snow Removal and Document Program (<i>E,L,V,F,SW,MM</i>)	Tacoma Public Works-Streets and Grounds	1-2	✓	✓				✓
	9. Pre-Positioning of Sand Bags (<i>F,SW</i>)	Tacoma Public Works-ES Operations/Maintenance	1-2	✓	✓				✓
	10. Environmental Services Emergency Operations Center (<i>E,L,V,F,SW,MM</i>)	Tacoma Public Works-ES & Engineering	Ongoing	✓	✓		✓		✓
	11. Central Treatment Plant Wet Weather Upgrade (<i>F,SW,MM</i>)	Tacoma Public Works-ES & Engineering	5	✓	✓		✓		
	12. Sewage Pump Station Backup Generators (<i>E,L,V,F,SW,MM</i>)	Tacoma Public Works-ES & Engineering	5	✓	✓		✓		
	13. Emergency Power Generator for Urban Waters Emergency Operations (<i>E,L,V,F,WUI,SW,MM</i>)	Tacoma Public Works-ES & Engineering	1-2	✓	✓		✓		
	14. Community Based Household Hazardous Waste Collection and Disposal (<i>E,L,V,F,WUI,SW,MM</i>)	Tacoma Public Works-Solid Waste	1-2	✓	✓	✓	✓		

Implementation Mechanism	Mitigation Measure (<i>Hazard(s)</i>) ¹	Lead Jurisdiction(s) / Department(s)	Timeline (years)	Plan Goals					
				Life and Property	Operations Continuity	Partnerships	Natural Resources	Preparedness	Sustainable Economy
<u>Tacoma Public Works</u>	15. Regional Debris Management Plan (<i>E,L,V,F,WUI,SW,MM</i>)	Tacoma Public Works-Solid Waste	1-2	✓	✓	✓	✓		
	16. Fleet Services Emergency Call-In Plan (<i>E,L,V,F,WUI,SW,MM</i>)	Tacoma Public Works-Fleet Services	1-2	✓	✓				
	17. Seismic Analysis of City of Tacoma Fire Stations (<i>E,SW,MM</i>)	Tacoma Public Works-Facilities with Tacoma Fire	1-2	✓	✓	✓			
	18. Auxiliary Generator Maintenance and Load Bank Tests (<i>E,L,V,F,WUI,SW,MM</i>)	Tacoma Public Works-Facilities	Ongoing	✓	✓				
	19. Tacoma Municipal Building Roof and Envelope Evaluation (<i>E,V,F,SW,MM</i>)	Tacoma Public Works-Facilities	1-2	✓	✓				
	20. Maintain Facilities Management Phone Tree (<i>E,L,V,F,WUI,SW,MM</i>)	Tacoma Public Works-Facilities	Ongoing	✓	✓				
<u>Public Education</u>	1. Continue CERT Training (<i>E,V,F,SW,MM</i>)	Tacoma Fire with Public Works-BLUS	Ongoing	✓		✓		✓	✓
	2. Public Service Announcements on Lateral Building Strengthening (<i>E,L,SW,MM</i>)	Tacoma Public Works-BLUS	1-2	✓		✓		✓	
	3. ATC-20 Training of Public Works Staff (<i>E,L,SW,MM</i>)	Tacoma Public Works-BLUS	Ongoing	✓	✓				✓
	4. FEMA ICS-100 Training for All Employees (<i>E,L,T,V,F,WUI,SW,MM</i>)	Tacoma Public Works-ES & Engineering	Ongoing	✓	✓	✓			
<u>Tacoma Power</u>	1. Back Up Energy Control Center (<i>E,T,V,SW</i>)	Tacoma Power – Transmission & Distribution	1-2	✓	✓			✓	
	2. Generator for Administration Building South (<i>E,SW</i>)	Tacoma Power – Generation	1-2	✓	✓			✓	
	3. Distribution System Feeder Relay Replacement (<i>E,F,SW</i>)	Tacoma Power – Transmission & Distribution/Control Engineering	5	✓	✓	✓			
	4. Feeder Sectionalizing (<i>E,V,SW</i>)	Tacoma Power Transmission & Distribution	5		✓				✓
	5. LaGrande #1 and #2 100 kV Line Sectionalizing Switches (<i>E,SW</i>)	Tacoma Power – Transmission & Distribution/Line Engineering & Construction	1-2	✓	✓				✓
	6. LaGrande Powerhouse Seismic Retrofit (<i>E,F,SW</i>)	Tacoma Power – Generation	1-2	✓	✓			✓	✓
	7. Seismic Upgrade of Mayfield Transformers (<i>E,F,SW</i>)	Tacoma Power – Generation/Plant	1-2	✓	✓			✓	✓

Implementation Mechanism	Mitigation Measure (<i>Hazard(s)</i>) ¹	Lead Jurisdiction(s) / Department(s)	Timeline (years)	Plan Goals					
				Life and Property	Operations Continuity	Partnerships	Natural Resources	Preparedness	Sustainable Economy
<u>Tacoma Power</u>	8. Microwave Link to Tacoma Police/Fire (<i>E,L,T,V,F,SW,WUI,MM</i>)	Tacoma Power Utilities with Tacoma Police	1-2	✓	✓	✓			✓
	9. Mobile Radio Improvements (<i>E,L,T,V,F,SW,MM</i>)	Tacoma Power – Transmission & Distribution with Communications	5	✓	✓	✓			
	10. North and Henderson Bay Tower Replacement (<i>E,T,SW</i>)	Tacoma Power – Transmission & Distribution	5	✓	✓				
	11. Overhead to Underground System Conversion (<i>E,V,SW</i>)	Tacoma Power – Transmission & Distribution	5	✓	✓	✓	✓		
	12. SONET Upgrade (<i>E,L,T,V,F,SW,MM</i>)	Tacoma Power – Transmission & Distribution with Communication	5	✓	✓				
	13. Common Verbal Field and Dispatch with Tacoma Police and Fire (<i>E,L,T,V,F,SW,MM</i>)	Tacoma Power with Tacoma Police & Fire	5	✓	✓	✓			
	14. Transmission Tower Seismic Retrofit (<i>E,SW</i>)	Tacoma Power – Line Engineering and Construction	5	✓	✓			✓	
	15. Transmission Switch Replacement (<i>E,F,SW</i>)	Tacoma Power – Transmission & Distribution, Line Engineering and Construction	5		✓				✓
	16. Tree Trimming Program (<i>E,SW</i>)	Tacoma Power – Line Construction	5	✓	✓				
	17. Vault Improvements (<i>E,T,F,SW</i>)	Tacoma Power – Line Construction, Downtown Network Group	5	✓	✓				
	18. WECC Compliance Study for Cyber Security (<i>MM</i>)	Tacoma Power – Transmission & Distribution	5	✓	✓	✓			

Startup Mitigation Measures

Existing Mitigation Actions

Hazards: E, L, T, V, D, F, WUI, SW¹, MM²

City of Tacoma will continue to implement existing programs, policies, and regulations as identified in the Capability Identification Section of this Plan. This includes such actions as updating the Critical Area Regulations and any ensuing land use policies with best available science. It also includes continuing those programs that are identified as technical capabilities.

1. **Goal(s) Addressed** = Protect Life and Property; Promote A Sustainable Economy; Ensure Continuity of Operations; Increase Public Preparedness for Disasters; Preserve or Restore Natural Resources; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma
5. **Timeline** = Ongoing
6. **Benefit** = City-Wide
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Plan Maintenance

Hazards: E, L, T, V, D, F, WUI, SW¹, MM²

City of Tacoma will adopt those processes outlined in the Plan Maintenance Section of this Plan.

1. **Goal(s) Addressed** = Protect Life and Property; Promote A Sustainable Economy; Ensure Continuity of Operations; Increase Public Preparedness for Disasters; Preserve or Restore Natural Resources; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget.
4. **Lead Jurisdiction(s)** = City of Tacoma
5. **Timeline** = Ongoing
6. **Benefit** = City-Wide
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Hazard Mitigation Forum

Pierce County Hazard Mitigation Forum

Hazards: E, L, T, V, D, F, WUI, SW¹, MM²

City of Tacoma will work in conjunction through the County with the Pierce County Hazard Mitigation Forum (HMF). The Forum will continue as a means of coordinating mitigation planning efforts among all jurisdictions within the County that have completed a mitigation plan. This ensures efficient use of resources and a more cooperative approach to making a disaster resistant county. The HMF meets annually; every October. This is addressed in the Plan Maintenance Section of this Plan.

1. **Goal(s) Addressed** = Protect Life and Property; Promote A Sustainable Economy; Ensure Continuity of Operations; Increase Public Preparedness for Disasters; Preserve or Restore Natural Resources; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = Minor
3. **Funding Source and Situation** = Funding could be obtained through local budget.
4. **Lead Jurisdiction(s)** = PC DEM; City of Tacoma
5. **Timeline** = Ongoing
6. **Benefit** = Regional
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

City Government Mitigation Measures

Capability Identification and Evaluation

Hazards: E, L, T, V, D, F, WUI, SW¹, MM²

City of Tacoma will develop a consistent and replicable system for evaluating the capabilities. A comprehensive evaluation will lead to specific policy recommendations to more effectively achieve disaster resistant communities. Further, a capability evaluation involves measurable variables so that capabilities may eventually be tracked in conjunction with the implementation of all mitigation measures. This is a key component in evaluating the success of the overall mitigation strategy.

1. **Goal(s) Addressed** = N/A. Goals addressed are contingent upon the mitigation measures resulting from this priority.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma
5. **Timeline** = Short-term
6. **Benefit** = City-Wide
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Tacoma Fire Department

Remodel of Emergency Operations Center for City of Tacoma

Hazards: E, L, T, V, D, F, SW, WUI¹, MM²

The current EOC located at the Fire Communication Center needs to be renovated to include some equipment updates, a meeting room in the upstairs area for breakout and working sessions during activations of the EOC.

1. **Goal(s) Addressed** = Protect Life and Property; Promote A Sustainable Economy; Establish and Strengthen Partnerships for Implementation; Ensure Continuity of Operations.
2. **Cost of Measure** = \$600,000 for two years
3. **Funding Source and Situation** = Funding could be obtained through local budget and state or federal grants.
4. **Lead Jurisdiction(s)** = City of Tacoma - Emergency Management
5. **Timeline** = Short-term
6. **Benefit** = Tacoma Fire and entire community, regional partners
7. **Life of Measure** = 20 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Contract a Consultant to Perform a Seismic Stability Study

Hazards: E, SW, MM²

City of Tacoma will contract a consultant to perform a Seismic Stability Study for City of Tacoma Fire facilities (study only; does not include seismic retrofitting).

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Ensure Continuity of Operations.
2. **Cost of Measure** = \$100,000 for study
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = City of Tacoma - Emergency Management
5. **Timeline** = Long-term
6. **Benefit** = Fire Stations and first responders, citizens and regional partners
7. **Life of Measure** = 10 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Port of Tacoma Major Evacuation Plan

Hazards: E, L, T, V, F, WUI, SW¹, MM²

Port of Tacoma with assistance from City of Tacoma wants to develop a Port-wide evacuation plan and perform a table-top exercise of the plan within the next two years. This will require coordination with City Emergency Management and other local and regional partners.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = TBD; primarily staff time
3. **Funding Source and Situation** = Funding could be obtained through local budget and other grants.
4. **Lead Jurisdiction(s)** = Port of Tacoma with assistance from Emergency Management and Tacoma Police
5. **Timeline** = Short-Term
6. **Benefit** = Port of Tacoma, residents and businesses, community and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Fixed Generator Purchases

Hazards: E, L, T, V, F, SW, WUI¹, MM²

Purchase fixed generator units to secure alternate power needs for Fire Stations and other Tacoma Fire buildings.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = \$25,000/year
3. **Funding Source and Situation** = Funding could be obtained through local budget and state or federal grants.
4. **Lead Jurisdiction(s)** = Tacoma Fire Department
5. **Timeline** = Ongoing
6. **Benefit** = Fire District Personnel and Citizens, regional partners
7. **Life of Measure** = 20 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Seismic Retrofit of Tacoma Fire Facilities

Hazards: E, SW¹

After completion of the proposed Seismic Study, structural retrofitting of identified Tacoma Fire facilities will be determined and these projects will be added to the capital improvement list.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma
5. **Timeline** = Long-term
6. **Benefit** = City of Tacoma, First responders, citizens and regional partners
7. **Life of Measure** = 30 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Continuity of Operations Plan (COOP)

Hazards: E, L, T, V, D, F, SW, WUI¹, MM²

Develop and coordinate a COOP for the City of Tacoma Fire Department.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma
5. **Timeline** = Long-term
6. **Benefit** = All of City Government, citizens of the City of Tacoma
7. **Life of Measure** = Perpetual, with ongoing updates
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Additional Engine Company Response to Murray Morgan Bridge Closure

Hazards: E, F, SW, MM²

Obtain additional resources (equipment and manpower) for an Engine Company to provide services to areas affected by the Murray Morgan Bridge closure from Department of Transportation.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = \$2.0 Million first year, \$1.5 Million each additional year
3. **Funding Source and Situation** = Funding could be obtained through local budget.
4. **Lead Jurisdiction(s)** = City of Tacoma
5. **Timeline** = Short-term
6. **Benefit** = Citizens of Tacoma, Tacoma Fire, regional partners
7. **Life of Measure** = Depending on duration of bridge closure
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Public Education Mitigation Measures - Fire

EMT Training for Fire Department Personnel

Hazards: E, L, T, V, F, SW, WUI¹, MM²

Provide required EMT Training for specific fire department personnel.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = Staff time and materials and cost of instructor
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Fire Department
5. **Timeline** = Ongoing
6. **Benefit** = First Responders and citizens, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Annual Paramedic Training for Fire Department Personnel

Hazards: E, L, T, V, D, F, SW, WUI¹, MM²

All firefighters are required to take annual Paramedic Training to remain certified as Paramedics.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = Staff time, materials and cost of instructor.
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Fire Department
5. **Timeline** = Ongoing
6. **Benefit** = Tacoma Fire and Citizens and First Responders, surrounding communities and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Required ICS Training for All Levels of Fire Department

Hazards: E, L, T, V, D, F, SW, WUI¹, MM²

IS-100, IS-200, IS-700, IS-800 are required for all fire department personnel.

1. **Goal(s) Addressed** = Protect life and property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = Staff time, materials and cost of instructors
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Fire Department
5. **Timeline** = Ongoing
6. **Benefit** = Citizens and First Responders, surrounding communities and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

ICS-300 and ICS-400

Hazards: E, L, T, V, D, F, SW, WUI¹, MM²

Required training for middle and upper management of the fire department.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = Staff time, materials and cost of instructors
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Fire Department - Training
5. **Timeline** = Ongoing
6. **Benefit** = Fire District, Citizens and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

HazMat Training (Hazardous Materials)

Hazards: E, L, T, V, D, F, SW, WUI¹, MM²

Ongoing required training for the Tacoma Fire Hazmat Team.

1. **Goal(s) Addressed** = Protect Life and Property; Preserve or Restore Natural Resources.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma Fire and Training
5. **Timeline** = Ongoing
6. **Benefit** = Tacoma Fire, Community, Businesses, regional partners and citizens
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Technical Rescue Team Training

Hazards: E, L, T, V, F, SW, MM²

Required training for Tacoma Fire Department Technical Rescue Team.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma Fire Training
5. **Timeline** = Ongoing
6. **Benefit** = Tacoma Fire, City of Tacoma, Citizens and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Structural Collapse Training

Hazards: E, L, T, V, F, SW, MM²

Required Structural Building Collapse Training for the Tacoma Fire Department Technical Rescue Team.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma Fire Training
5. **Timeline** = Ongoing
6. **Benefit** = Tacoma Fire, City of Tacoma, citizens and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Continuation and Increase of Community Emergency Response Teams (CERT) Program

Hazards: E, L, T, V, F, SW¹, MM²

The Emergency Management Department maintains a program for citizen preparedness in the form of Community Emergency Response Teams (CERT). This program will continue to train citizens to prepare neighborhoods in response to future events.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = Staff time and materials
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma - Emergency Management
5. **Timeline** = Ongoing
6. **Benefit** = City of Tacoma community and citizens, first responders, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Tacoma Police Department

Tacoma Police Firing Range

Hazards: E, L, F, SW, WUI¹

The Tacoma Police Firing Range needs serious improvements such as bullet traps, lead traps, acreage and grounds improvements, upper range and lower range, buildings to be reconstructed and all based upon National Range Safety Standards to be compliant.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Preserve or Restore Natural Resources.
2. **Cost of Measure** = \$1.1 million
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department with City of Tacoma - Facilities
5. **Timeline** = Long-term
6. **Benefit** = Police Department, City, citizens, regional partners
7. **Life of Measure** = 25 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Microwave Link to Tacoma Public Utilities

Hazards: E, L, T, V, F, SW, WUI¹, MM²

This is a backup for fiber link using satellite or microwave link to TPU to provide a redundant feed into EOC at Police Station in the event the fiber link is compromised.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
2. **Cost of Measure** = \$10,000 to \$15,000 for link
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department with Tacoma Public Utilities
5. **Timeline** = Short-term
6. **Benefit** = TPD and entire city, citizens and regional partners
7. **Life of Measure** = 5 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Build Four Sector Sub-Station

Hazards: E, L, T, V, F, SW, WUI¹, MM²

To replace old sub-station at 45th & McKinley Streets and would cost more to fix than to rebuild. Station will build at Stewart Heights Park at 56th and McKinley Streets area.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = \$2.4 million, already approved
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department with Tacoma Public Works and Metro Parks
5. **Timeline** = Short-term
6. **Benefit** = TPD and citizens, regional partners
7. **Life of Measure** = 25 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Additional Parking Required at New Police Headquarters

Hazards: E, L, T, V, F, SW, WUI¹, MM²

The new Tacoma Police Station on Pine Street is also the Police Fleet Maintenance and there is a severe shortage of parking at the facility. A study needs to be done to determine possible locations for additional parking and how that might look.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department with Tacoma Facilities Management
5. **Timeline** = Short-term
6. **Benefit** = TPD and Community, citizens, other county and city employees, regional partners
7. **Life of Measure** = 25 years
8. **Community Reaction** = the proposal would be somewhat controversial

Mobile Command Unit for Police Department

Hazards: E, L, T, V, F, SW, WUI¹, MM²

This is an incident command field operations – mobile unit for police operations on scene. Current unit is old, out dated and too small.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation, Promote a Sustainable Economy.
2. **Cost of Measure** = \$500,000 estimate
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department with Multi-Agency Support
5. **Timeline** = Long-term
6. **Benefit** = TPD and community, Pierce County DEM, fire and other regional partners
7. **Life of Measure** = 10 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Purchase Zurmo Air Shelter

Hazards: E, L, T, V, F, SW, WUI¹, MM²

Need an air activated shelter structure that would ultimately attach to existing structures owned by county DEM. This is to provide shelter for officers on duty at scene for protection from weather and cold and allow for meetings in a dry location.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = \$15,000 per unit
3. **Funding Source and Situation** = Funding could be obtained through local budget or grant.
4. **Lead Jurisdiction(s)** = Tacoma Police Department
5. **Timeline** = Short-term
6. **Benefit** = TPD and community, regional partners
7. **Life of Measure** = 5 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Evacuation Plans for Citizens

Hazards: E, L, T, V, F, SW, WUI¹, MM²

Traffic Plans for specific areas of the City and specific to the Port of Tacoma. Develop formalized evacuation routes and alternatives to relocate specific areas of the City in the event of a catastrophic occurrence.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
2. **Cost of Measure** = Staff time, materials and equipment
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department with support from other City agencies
5. **Timeline** = Short-term
6. **Benefit** = Community, citizens and businesses, first responders and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Threat Level Response Operational Plans

Hazards: E, L, T, V, F, WUI, SW¹, MM²

This is Threat Level Response Operational Plans for Tacoma Police Department (COOP) and for Police Department as part of overall City Plans.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote A Sustainable Economy.
2. **Cost of Measure** = Staff time and materials
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department
5. **Timeline** = Ongoing
6. **Benefit** = TPD and City of Tacoma, Citizens and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

South Puget Sound Regional Law Enforcement Mobilization Plan

Hazards: E, L, T, V, F, WUI, SW¹, MM²

This is a working group to develop the South Sound Regional Mobilization Plan that is derived from the Fire Mob Plan and is now being adapted and rewritten for Police. This is in conjunction with Washington State Emergency Management Association (WSEMA) and is supported by them.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = Staff time and possible special equipment
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department and Regional Partners.
5. **Timeline** = Short-term
6. **Benefit** = TPD and regional partners, citizens and community
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Full Scale Exercise in 2008, "Sound Shake 2008"

Hazards: E, L, T, V, SW¹

The Police Department will be a major player in the upcoming Sound Shake 2008 exercise that is area wide with King and Pierce Counties. The exercise is already in the planning stages and will be a large project for Tacoma Police Department.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
2. **Cost of Measure** = Staff time, meetings and prep with other organizations and agencies
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = King and Pierce County DEM support by TPD among many others
5. **Timeline** = Short-term
6. **Benefit** = Communities and TPD, regional partners
7. **Life of Measure** = 5 years for benefits and lessons learned
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Table Top Exercises with School Districts

Hazards: E, V, F, SW¹, MM²

Each year the Tacoma Police Department designs and stages table top exercises for local school districts for lock down, active shooter and other related incidents. This has been a very successful program and will be continued into the future.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = Staff time and materials
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department with support from Pierce County DEM
5. **Timeline** = Ongoing
6. **Benefit** = Pierce County and City of Tacoma school districts, citizens and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Public Education Mitigation Measures - Police

Continue Specific Training in the Community

Hazards: E, L, T, V, F, SW, WUI¹, MM²

NIMS required training for various personnel in the police department as well as training partners with DEM for the entire county required training in ICS to include ICS-100,-200,-300,-400,-700,-800 and ICS-701,-702,-703,-704.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = Staff time, materials and equipment
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department
5. **Timeline** = Ongoing
6. **Benefit** = TPD and regional partners, community and first responders
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Continue Training Programs with Schools

Hazards: E, L, T, V, F, SW, WUI¹, MM²

Tacoma Police Department teaches ICS-100 and 700 for schools to the Public School Security staff and school police. They also do an annual orientation with local colleges and ICS-700 to college executives as required by NIMS.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = Staff time and materials
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department
5. **Timeline** = Ongoing
6. **Benefit** = School districts and colleges, students and community, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Continue Required Patrol Officer Training

Hazards: E, L, T, V, F, WUI, SW¹, MM²

There is a 40 hour mandatory training for Patrol officers each year. In addition the following are also required: Domestic Violence, First Aid and CPR, Fire Arms, Personnel Training, Computer Training on Law Enforcement Database, Supervisor Training for some, Officer Certification (RCW) and Hazmat Team Training.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
2. **Cost of Measure** = Staff time, cost of training materials, special equipment required as well as class fees in some cases.
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department
5. **Timeline** = Ongoing
6. **Benefit** = Officers and department, citizens and community, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

WEB EOC Training and Support

Hazards: E, L, T, V, F, WUI, SW¹, MM²

This is the County-wide WEB based tracking and support tool used during activations of the EOC and other incidents requiring ICS forms and interagency cooperation. All EOC responders and workers must be trained in the use of this tool and at a higher level officers help to design screens and input to the system.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
2. **Cost of Measure** = Staff time
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Pierce County DEM with participation from Tacoma Police Department
5. **Timeline** = Ongoing
6. **Benefit** = TPD and Community, PCDEM, citizens and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Special Training as Required

Hazards: E, L, T, V, D, F, WUI, SW¹, MM²

The Tacoma Police Department offers a full range of services which include specific training requirements for team members of Special Forces to include: SWAT Team, Explosive Ordinance Disposal, Mobile Command Unit/EOC Activation, Marine Service Unit, Search and Rescue, Disorderly Response Team, Bicycle Rapid Response and Fatal Accident Team.

1. **Goal(s) Addressed** = Protect Life and Property; Promote A Sustainable Economy; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = Staff time, materials and special equipment required
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Police Department
5. **Timeline** = Ongoing
6. **Benefit** = Community and first responders, TPD, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

IMT, Type III Training

Hazards: E, L, T, V, F, WUI, SW¹, MM²

Tacoma Police Department has two team members on the Regional Type III IMT Team requiring specific training and equipment to remain compliant and available for activation.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
2. **Cost of Measure** = Staff time, special equipment required
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Pierce County DEM to include Tacoma Police Department members.
5. **Timeline** = Ongoing
6. **Benefit** = Entire region, local responders, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Tacoma Water Utility

Alternate Potable Water Supply System

Hazards: E, L, V, F, SW¹, MM²

Develop equipment and methods to deliver potable water to citizens if the normal drinking water supply is unavailable.

1. **Goal(s) Addressed** = Protect Life and Property; Promote A Sustainable Economy; Ensure Continuity of Operations; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = TBD, estimated \$50,000
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Water Utility
5. **Timeline** = Short-term
6. **Benefit** = Tacoma Water customers, other citizens and community, regional partners
7. **Life of Measure** = 20 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Trailer Mounted 350 KW Standby Generator

Hazards: E, V, F, SW¹, MM²

Purchase portable generator to provide backup power to potable water pump stations.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = \$120,000
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants
4. **Lead Jurisdiction(s)** = City of Tacoma-Dept Public Utilities-Tacoma Water
5. **Timeline** = Short-term
6. **Benefit** = Water customers, community, regional partners
7. **Life of Measure** = 25 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Seismic Retrofit of Hood Street Water Treatment Plant

Hazards: E, SW¹, MM²

Seismic upgrade of 1930's era building which houses equipment used to treat potable water from South Tacoma wells.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = Estimated cost approximately \$100,000
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma-Dept. of Public Utilities-Tacoma Water
5. **Timeline** = Short-term
6. **Benefit** = Water customers, employees, first responders, community and regional partners
7. **Life of Measure** = 50 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Tacoma Water Pipeline 1 Replacement, Orting Valley

Hazards: E, V, F, MM²

Replace above-ground Pipeline 1 across Orting Valley floor, including above ground river crossing.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Preserve or Restore Natural Environment; Promote a Sustainable Economy.
2. **Cost of Measure** = \$6,800,000
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = City of Tacoma-Dept Public Utilities-Tacoma Water
5. **Timeline** = Short-term
6. **Benefit** = Tacoma water reliability, customers, first responders, citizens and regional partners
7. **Life of Measure** = 100 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Seismic Retrofit-Tacoma Water Transmission Pipelines

Hazards: E, SW¹, MM²

Seismically upgrade structures supporting above-ground transmission pipelines.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = Approximately \$100,000 to \$200,000
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = City of Tacoma-Dept Public Utilities-Tacoma Water
5. **Timeline** = Long-term
6. **Benefit** = Water system reliability, customers and regional partners
7. **Life of Measure** = 50 years
8. **Community Reaction** = the proposal would benefit those affected with no adverse reaction from other.

Tacoma Water Emergency Operations Center (EOC) Upgrade

Hazards: E, F, T, L, V, WUI, SW¹, MM²

Perform remodel Water Control Center to improve its ability to function successfully as Water's internal EOC.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Water Utility
5. **Timeline** = Long-term
6. **Benefit** = Tacoma water customers; part of Tacoma and portions of Pierce County, citizens and regional partners
7. **Life of Measure** = 50 years
8. **Community Reaction** = the proposal would benefit those affected with no adverse reaction from others.

Tacoma Water North Fork Wellfield Backup Power

Hazards: E, L, V, F, SW¹, MM²

Provide 1.5 MW genset to provide backup power to two North Fork wells.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Water Utility
5. **Timeline** = Long-term
6. **Benefit** = Water customers, first responders, community and regional partners
7. **Life of Measure** = 50 years
8. **Community Reaction** = the proposal would benefit those affected with no adverse reaction from others.

Tacoma Public Works

Institute Commercial Occupancy Resumption Program

Hazards: E, L, V, SW¹, MM²

CORP is a program to pre-certify private post-earthquake inspection of commercial structures by qualified licensed engineers. Pre-approved Engineers are authorized to post buildings with official City of Tacoma ATC-20 placards, before mutual aid arrives. The program is designed to speed up occupancy resumption, and thus hasten economic recovery.

- 1. Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote a Sustainable Economy.
- 2. Cost of Measure** = Staff time, materials, equipment
- 3. Funding Source and Situation** = Funding could be obtained through local budget or grants.
- 4. Lead Jurisdiction(s)** = Tacoma Public Works-BLUS
- 5. Timeline** = Long-term
- 6. Benefit** = City staff, local businesses, community, first responders, regional partners
- 7. Life of Measure** = Perpetual
- 8. Community Reaction** = the proposal is likely to be endorsed by the entire community.

Develop Backup Server

Hazards: E, L, T, V, F, WUI, SW¹, MM²

Develop a backup server for Public Works and install at the traffic signal shop/EOC location. The backup server will provide immediate access to essential information in the aftermath of a catastrophic incident. It will be sited at the signal shop, our backup headquarters in the event the Municipal Building is rendered inaccessible, and powered by emergency generator.

- 1. Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
- 2. Cost of Measure** = Cost of equipment, labor and installation fees
- 3. Funding Source and Situation** = Funding could be obtained through local budget and grants.
- 4. Lead Jurisdiction(s)** = Tacoma Public Works-BLUS
- 5. Timeline** = Short-term
- 6. Benefit** = Entire city, staff and citizens, regional partners
- 7. Life of Measure** = 5-10 years
- 8. Community Reaction** = the proposal is likely to be endorsed by the entire community.

Update City Flood Plain Regulations

Hazards: L, F, SW¹

Update the City of Tacoma flood plain regulations to comply with FEMA requirements according to the newest guidelines.

- 1. Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Protect and Restore the Natural Environment.
- 2. Cost of Measure** = TBD
- 3. Funding Source and Situation** = Funding could be obtained through local budget and grants.
- 4. Lead Jurisdiction(s)** = Tacoma Public Works-BLUS
- 5. Timeline** = Short-term
- 6. Benefit** = City and citizens, first responders, regional partners
- 7. Life of Measure** = Until new guidelines from FEMA
- 8. Community Reaction** = the proposal would be somewhat controversial.

Provide Infrastructure Inspection Kits for Construction Division Staff

Hazards: E, L, V, F, SW¹, MM²

Provide “Go Kits” (bridge, road and sewer pipe damage assessment kits) which would include a weather resistant trunk, powerful flashlights, extra batteries, yellow caution tape, stapler, notebook, safety vests, hardhats, pens, list of all city bridges and lifelines routes, digital cameras. This equipment would be available at the Municipal Building during normal working hours and at employee homes for occurrences outside of normal working hours and when the Municipal Building is rendered inaccessible.

- 1. Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations, Promote a Sustainable Economy.
- 2. Cost of Measure** = Approximately \$12,000
- 3. Funding Source and Situation** = Funding could be obtained through local budget and grants.
- 4. Lead Jurisdiction(s)** = Tacoma Public Works-Construction
- 5. Timeline** = Long-term
- 6. Benefit** = City, staff and citizens, first responders, regional partners
- 7. Life of Measure** = Perpetual
- 8. Community Reaction** = the proposal is likely to be endorsed by the entire community.

Court 'E' Wall Repair at South 13th Street

Hazards: E, L, F, SW¹

This is the reconstruction and repair of the failed retaining wall supporting Court 'E'. The severe rain storm in November 2006 caused pooling on Court 'E' which super-saturated the soil behind a 100 year old retaining wall causing it to fail. Its failure caused a portion of Court 'E' to also collapse closing the roadway.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = Cost of construction, labor and materials, engineering
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Engineering
5. **Timeline** = Short-term
6. **Benefit** = City and community, citizens, first responders, regional partners
7. **Life of Measure** = 50 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Eells Street Bridge Rehabilitation

Hazards: E, L, V, F, SW¹

The Eells Street Bridge is a 2,500 foot long structure. The project would rehabilitate a 117 foot long segment of this bridge. The 117 foot segment is a steel truss that is deteriorating. The project would replace this bridge segment.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = Cost of materials and labor
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Engineering
5. **Timeline** = Long-term
6. **Benefit** = City and citizens, community, first responders, regional partners
7. **Life of Measure** = 50 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

East 11th Street Bridge (Murray Morgan) Rehabilitation

Hazards: E, L, V, F, SW¹

Rehabilitate this existing bridge to allow standard truck loads across the bridge. The bridge is posted for a maximum load of 10 tons which is much less than the standard 40 to 50 ton tractor trailer. The reduced load limit is due to structural deficiencies in the bridge.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = Cost of labor and materials
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Engineering
5. **Timeline** = Long-term
6. **Benefit** = City and citizens, community, first responders, city services, regional partners
7. **Life of Measure** = 50-75 years
8. **Community Reaction** = the proposal would be somewhat controversial.

Create and Implement Standard for Ice and Snow Removal and Document Program

Hazards: E, L, V, F, SW¹, MM²

The activities in this manual pertain to procedures for the control of ice and snow. It will present general information such as ice and snow removal schedules, equipment, procedures for both normal and off-duty hours. It will also detail each operation such as anti-icing, sanding, snowplowing, and other with schedules for each and routes to be covered.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = \$365,000/year for actual street maintenance in winter
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Streets and Grounds
5. **Timeline** = Short-term
6. **Benefit** = City and citizens, first responders, city services, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Pre-Positioning of Sand Bags

Hazards: F, SW¹

Pre-position or stage pallets of loaded sandbags at selected pump stations to be ready in the event of flooding.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = \$900
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Environmental Science Operations/Maintenance
5. **Timeline** = Short-term
6. **Benefit** = City staff, citizens and community, first responders and regional partners
7. **Life of Measure** = Annual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Environmental Services Emergency Operations Center

Hazards: E, L, V, F, SW¹, MM²

During severe weather, flooding or other emergency situations as appropriate, an Emergency Operations Center is activated and all staff members are assigned emergency response roles, including incident command, telephone monitoring and dispatch, field inspection of known problem areas, claims investigation, catch basin clearing, etc.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Protect and Restore the Natural Environment; Promote a Sustainable Economy.
2. **Cost of Measure** = Staff time and materials or equipment
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Environmental Science & Engineering
5. **Timeline** = Ongoing
6. **Benefit** = City staff, citizens and community, first responders and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Central Treatment Plant Wet Weather Upgrade

Hazards: F, SW¹, MM²

A ballasted sedimentation treatment system will be installed to increase treatment capacity during periods of severe rainfall from 75 million gallons per day (MGD) to 150 MGD. Doing so will help prevent system backups and overflows and will avoid bypass of treatment during periods of exceptional flow.

The disinfection system will be changed from chlorine gas to a sodium hypochlorite system, eliminating the need for chlorine gas storage onsite. If power is interrupted, emergency power will automatically employ, replacing a manual procedure.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Protect and Restore the Natural Environment.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Environmental Services & Engineering
5. **Timeline** = Long-term
6. **Benefit** = City and citizens, community and regional partners
7. **Life of Measure** = 25+ years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Sewage Pump Station Backup Generators

Hazards: E, L, V, F, SW¹, MM²

Emergency power generators will be installed at each of 49 sewage pump stations to assure continued service and reduce the potential for sewage backups or overflows during extended power outages.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Protect and Restore the Natural Environment.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Environmental Services & Engineering
5. **Timeline** = Long-term
6. **Benefit** = City and citizens, entire community, regional partners
7. **Life of Measure** = 20 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Emergency Power Generator for Urban Waters Emergency Operations

Hazards: E, L, V, F, WUI, SW¹, MM²

A new building that will house the Environmental Services laboratory, engineers and source control staff must be equipped with emergency power generation for operation of the Emergency Operations Center that coordinates Stormwater flooding and sanitary sewer backup responses during flooding, severe weather or other emergencies.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Protect and Restore the Natural Environment.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Environmental Services & Engineering
5. **Timeline** = Short-term
6. **Benefit** = City and citizens, community and regional partners
7. **Life of Measure** = 20 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Community Based Household Hazardous Waste Collection and Disposal

Hazards: E, L, V, F, WUI, SW¹, MM²

Tacoma Solid Waste has agreed to work with Pierce County to provide small scale Household Hazardous Waste (HHW) Collection services to localized areas affected by a natural disaster. Tacoma would use its satellite HHW facility to assist areas affected by floods or other localized impacts. This assistance could be used in the City of Tacoma, unincorporated Pierce County or one of the suburban cities. The main effort needed by Tacoma is to keep its satellite facility in good working order and to have an adequate level of staff available to provide the service. This service would not be of use in a large mass scale event affecting a large population or area.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations, Protect and Restore the Natural Environment; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = Cost of service determined by scope of operation
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Solid Waste
5. **Timeline** = Short-term
6. **Benefit** = City staff and citizens, community and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Regional Debris Management Plan

Hazards: E, L, V, F, WUI, SW¹, MM²

Tacoma Solid Waste is working with other jurisdictions in Pierce, King and Snohomish Counties to prepare a regional debris management plan. Tacoma's current plan is outdated and unusable. The regional plan is the first step towards developing a working plan for Tacoma. The regional plan will outline operational details, regional cooperation opportunities, and training plans that meet FEMA guidelines. Local initiatives and specific debris management procedures will be determined after the regional plan is in place. The completion of the regional plan is expected by May of 2008, and local portions of the plan should be complete by the fall of 2008.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Protect and Restore the Natural Environment; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = Cost of service determined by scope of operation
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Solid Waste
5. **Timeline** = Short-term
6. **Benefit** = City staff and citizens, community and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Fleet Services Emergency Call-in Plan

Hazards: E, L, V, F, WUI, SW¹, MM²

There is a need for a communications plan to notify and recall Fleet Employees in times of emergencies or disasters.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = Staff time
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Fleet Services
5. **Timeline** = Short-term
6. **Benefit** = City staff, citizens and community, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Seismic Analysis of City of Tacoma Fire Stations

Hazards: E, SW¹, MM²

The City will evaluate City owned fire stations to determine which meet current code and determine their earthquake structural integrity.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = TBD
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Facilities with Tacoma Fire
5. **Timeline** = Short-term
6. **Benefit** = City staff and emergency personnel, first responders, citizens and regional partners
7. **Life of Measure** = 5 years for study
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Auxiliary Generator Maintenance and Load Bank Tests

Hazards: E, L, V, F, WUI, SW¹, MM²

Maintain existing auxiliary generator maintenance including oil changes, fuel treatments, load testing, etc. Test each unit using a load bank to confirm electrical output.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = Staff time and materials
3. **Funding Source and Situation** = Funding could be obtained through local budget.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Facilities
5. **Timeline** = Ongoing
6. **Benefit** = City staff and citizens, regional partners
7. **Life of Measure** = 20 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Tacoma Municipal Building Roof and Envelope Evaluation

Hazards: E, V, F, SW¹, MM²

Evaluate Tacoma Municipal Building Roof and Envelope.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = Time and materials
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Facilities
5. **Timeline** = Short-term
6. **Benefit** = City staff and citizens, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Maintain Facilities Management Phone Tree

Hazards: E, L, V, F, WUI, SW¹, MM²

Maintain phone numbers of all Facilities Management employees in the case of an off hour emergency or disaster.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = Staff time
3. **Funding Source and Situation** = Funding could be obtained through local budget.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Facilities
5. **Timeline** = Ongoing
6. **Benefit** = City staff and citizens
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Public Education Mitigation Measures – Public Works

Continue CERT Training

Hazards: E, V, F, SW¹, MM²

Community Emergency Response Team training prepares citizens to assist in emergencies.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Increase Public Preparedness for Disasters; Promote A Sustainable Economy.
2. **Cost of Measure** = Staff time and materials
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Fire supported by Public Works-BLUS
5. **Timeline** = Ongoing
6. **Benefit** = Citizens, First responders, community and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Public Service Announcements on Lateral Building Strengthening

Hazards: E, L, SW¹, MM²

Create and distribute public service announcements regarding lateral building strengthening. In recent years bolting of homes to foundations has received a great deal of attention, however the practice of removing interior walls in order to create large interior rooms has been largely ignored. The PSA would address this through a program entitled “House of Cards”.

1. **Goal(s) Addressed** = Protect Life and Property; Establish and Strengthen Partnerships for Implementation; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = Staff time and cost of production and distribution
3. **Funding Source and Situation** = Funding could be accomplished with local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-BLUS
5. **Timeline** = Short-term
6. **Benefit** = Citizens and community, first responders, regional partners
7. **Life of Measure** = 25 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

ATC-20 Training of Public Works Staff

Hazards: E, L, SW¹, MM²

This is a continuing program with 40 staff trained and equipped to date. Each staff member is trained in ATC-20, and equipped with hard hat and case containing damage assessment tools and ATC placards for posting of buildings in the aftermath of an event. The kits are stored either in the employee's POV or home in the event City offices are rendered inaccessible.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = Staff time, cost of class and materials, equipment kits
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-BLUS
5. **Timeline** = Ongoing
6. **Benefit** = City staff, citizens and community, first responders and regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

FEMA ICS-100 Training for All Employees

Hazards: E, L, T, V, F, WUI, SW¹, MM²

All employees have completed the independent study course, ICS-100, and received certification of completion.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = Staff time and materials (on-line course)
3. **Funding Source and Situation** = Funding could be obtained through local budget.
4. **Lead Jurisdiction(s)** = Tacoma Public Works-Environmental Services & Engineering
5. **Timeline** = Ongoing
6. **Benefit** = City staff and citizens, regional partners
7. **Life of Measure** = Perpetual
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Tacoma Power

Back Up Energy Control Center

Hazards: E, T, V, SW¹

Design and build a back up Energy Control Center.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = \$1,818,000
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution Operations
5. **Timeline** = Short-term
6. **Benefit** = Employees and customers, regional partners
7. **Life of Measure** = 40 years, maintenance will be needed.
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Generator for Administration Building South

Hazards: E, SW¹

Design and install an adequate generator for the Administration Building South.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = \$50,000
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Generation
5. **Timeline** = Short-term
6. **Benefit** = employees and customers
7. **Life of Measure** = 40 years, maintenance will be needed.
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Distribution System Feeder Relay Replacement

Hazards: E, F, SW¹

Replace distribution system relays at various substations on various feeders.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = \$350,000 per year for several biennium's.
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution and Control Engineer Group
5. **Timeline** = Long-term
6. **Benefit** = customers
7. **Life of Measure** = 40 years, maintenance will be needed.
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Feeder Sectionalizing

Hazards: E, V, SW¹

Many of the lateral taps are connected directly to the main feeder. This project will provide for identifying unfused laterals and areas on the main line that have high exposure (typically tree exposure, wind, adverse weather, ice) and installing sectionalizing devices at those locations. This project proposes to install main line sectionalizing devices on 5 feeders and fuse sectionalizing on an additional 4 feeders every year across the entire system.

1. **Goal(s) Addressed** = Ensure Continuity of Operations, Promote a Sustainable Economy.
2. **Cost of Measure** = \$300,000 per year for several biennium's.
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission and Distribution
5. **Timeline** = Long-term
6. **Benefit** = Customers
7. **Life of Measure** = Perpetual, with some maintenance.
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

LaGrande #1 and #2 100 kV Line Sectionalizing Switches

Hazards: E, SW¹

Install transmission switches at a mid-point on the LaGrande lines. These switches will be equipped with motor operations to enhance operational capabilities.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = \$300,000 in one biennium
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Power Trans & Distribution, Line Engineering & Line Construction
5. **Timeline** = Short-term
6. **Benefit** = Customers
7. **Life of Measure** = 40 years, with some maintenance
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

LaGrande Powerhouse Seismic Retrofit

Hazards: E, F, SW¹

Upgrade necessary structures at the LaGrande Powerhouse to meet seismic requirements for earthquake damage prevention.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters; Promote a Sustainable Economy.
2. **Cost of Measure** = \$500,000
3. **Funding Source and Situation** = Funding could be obtained through local budget or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Generation Department
5. **Timeline** = Short-term
6. **Benefit** = Employees and customers
7. **Life of Measure** = 40 years, with some maintenance.
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Seismic Upgrade of Mayfield Transformers

Hazards: E, F, SW¹

Secure transformers at the Mayfield project from shaking loose and falling into the river during seismic events.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters; Promote a Sustainable Economy.
2. **Cost of Measure** = \$100,000
3. **Funding Source and Situation** = Funding could be obtained through local budget and grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Generation/Plant
5. **Timeline** = Short-term
6. **Benefit** = Employees and customers
7. **Life of Measure** = 40 years, with some maintenance.
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Microwave Link to Tacoma Police / Fire

Hazards: E, L, T, V, F, SW, WUI¹, MM²

To provide backup for fiber link using satellite or microwave link to Tacoma Police and Fire to provide a redundant feed into EOC at TPU in the event the fiber link is compromised.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Promote A Sustainable Economy.
2. **Cost of Measure** = \$10,000 to \$15,000 for link
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power Utilities with Tacoma Police Department
5. **Timeline** = Short-term
6. **Benefit** = TPU and entire City
7. **Life of Measure** = 5 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Mobile Radio Improvements

Hazards: E, L, T, V, F, SW¹, MM²

Replace mobile units of 900MHz radio system. Develop design alternatives for continued use of licensed 900 MHz radio channels. Maintain private radio system.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = \$1,600,000 first biennium and \$20,000 second biennium.
3. **Funding Source and Situation** = Funding could be obtained through local budgets and grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution and Communications
5. **Timeline** = Long-term
6. **Benefit** = TPU and entire City.
7. **Life of Measure** = 5 years
8. **Community Reaction** = the proposal would be somewhat controversial.

North and Henderson Bay Tower Replacement

Hazards: E, T, SW¹

Replace the eight (8) in water towers at Henderson and North Bays on the Potlatch transmission line with new galvanized steel towers being purchased with funds in 2006 at an estimated cost of \$400,000.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = \$5 Million per biennium for two biennium's
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution
5. **Timeline** = Long-term
6. **Benefit** = Customers and staff
7. **Life of Measure** = 80 years, with some maintenance
8. **Community Reaction** = the proposal would be somewhat controversial.

Overhead to Underground System Conversion

Hazards: E, V, SW¹

This project is for the conversion of overhead power line to underground. This is time-consuming and therefore would need to be implemented in segments starting with the worst reliable parts of the system and progressing to the more reliable parts over the course of several bienniums.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation; Preserve or Restore Natural Resources.
2. **Cost of Measure** = \$2.275 Million to underground about 0.5% of the system. That's \$800k for city labor, \$800k for materials and \$800k for construction contracts.
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution
5. **Timeline** = Long-term
6. **Benefit** = Customers
7. **Life of Measure** = 30 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

SONET Upgrade

Hazards: E, L, T, V, F, SW¹, MM²

Upgrade SONET Fiber Optic communications rings to OC-3 from OC-1.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = \$670,000
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution and Communications
5. **Timeline** = Long-term
6. **Benefit** = TPU and entire City
7. **Life of Measure** = 4 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Common Verbal Field and Dispatch with Tacoma Police and Fire

Hazards: E, L, T, V, F, SW¹, MM²

Connect with Tacoma Police and Fire via the telephone system for common dispatch.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = \$500,000
3. **Funding Source and Situation** = Funding could be obtained through local budgets and grants.
4. **Lead Jurisdiction(s)** = Tacoma Power with Tacoma Police & Fire
5. **Timeline** = Long-term
6. **Benefit** = TPU and entire City
7. **Life of Measure** = 5 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Transmission Tower Seismic Retrofit

Hazards: E, SW¹

Upgrade necessary structures or towers on the Potlatch lines, LaGrande lines and/or other transmission lines to meet seismic requirements for earthquake or severe weather damage prevention.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Increase Public Preparedness for Disasters.
2. **Cost of Measure** = \$2,000,000
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Line Engineering and Construction
5. **Timeline** = Long-term
6. **Benefit** = Customers
7. **Life of Measure** = 40 years, with ongoing maintenance.
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

Transmission Switch Replacement

Hazards: E, F, SW¹

Replace transmission system switches at various locations. Selected switches will be equipped with motor operators to enhance operational capabilities. 72 switches have been identified for replacement.

1. **Goal(s) Addressed** = Ensure Continuity of Operations; Promote a Sustainable Economy.
2. **Cost of Measure** = \$1,260,000 for 72 replacements spread over four biennium.
3. **Funding Source and Situation** = Funding could be obtained through local budgets and grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution, Line Engineering and Construction
5. **Timeline** = Long-term
6. **Benefit** = Customers
7. **Life of Measure** = 40 years, with some maintenance.
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Tree Trimming Program

Hazards: E, SW¹

Maintain phone numbers of all Facilities Management employees in the case of an off hour emergency or disaster.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = \$200,000 / biennium
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Line Construction
5. **Timeline** = Long-term
6. **Benefit** = Customers
7. **Life of Measure** = 4 years
8. **Community Reaction** = the proposal would be somewhat controversial.

Vault Improvements – Downtown Network and Tide Flats

Hazards: E, T, F, SW¹

Improve vault resistance to water infiltration.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations.
2. **Cost of Measure** = \$300,000
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Line Construction, Downtown Network Group
5. **Timeline** = Long-term
6. **Benefit** = Customers
7. **Life of Measure** = 20 years
8. **Community Reaction** = the proposal would benefit those affected, with no adverse reaction from others.

WECC Compliance Study for Cyber Security

Hazards: MM²

Study entire system to determine any network system security problems.

1. **Goal(s) Addressed** = Protect Life and Property; Ensure Continuity of Operations; Establish and Strengthen Partnerships for Implementation.
2. **Cost of Measure** = \$25,000 for study
3. **Funding Source and Situation** = Funding could be obtained through local budgets or grants.
4. **Lead Jurisdiction(s)** = Tacoma Power – Transmission & Distribution
5. **Timeline** = Long-term
6. **Benefit** = TPU and entire city
7. **Life of Measure** = 5 years
8. **Community Reaction** = the proposal is likely to be endorsed by the entire community.

Endnotes

¹ Hazard Codes:

Where necessary, the specific hazards addressed are noted as follows:

A:	Avalanche
E:	Earthquake
F:	Flood
D:	Drought
T:	Tsunami
V(L OR T):	Volcanic (lahar or tephra-specific)
SW:	Severe Storm (wind-specific)
L:	Landslide
WUI:	Wildland/Urban Interface Fire
MM:	Manmade to include terrorism
ALL:	All hazards, including some man made. Where only natural hazards are addressed, it is noted.

² While this Plan is strictly a *Natural* hazard mitigation plan, where a measure stems from a facility recommendation (Infrastructure Section) that deals specifically with terrorism, the mitigation strategy will use that analysis. Other measures, such as those that deal with multi-hazard community preparedness or recovery planning, mitigate man-made hazards and are noted as such. It is not the intent of this notation to imply that all measures were analyzed with regards to man-made hazards or that measures were identified with that in mind. Rather, the notation merely illustrates the potential on this template for the inclusion of man-made hazard analysis.