

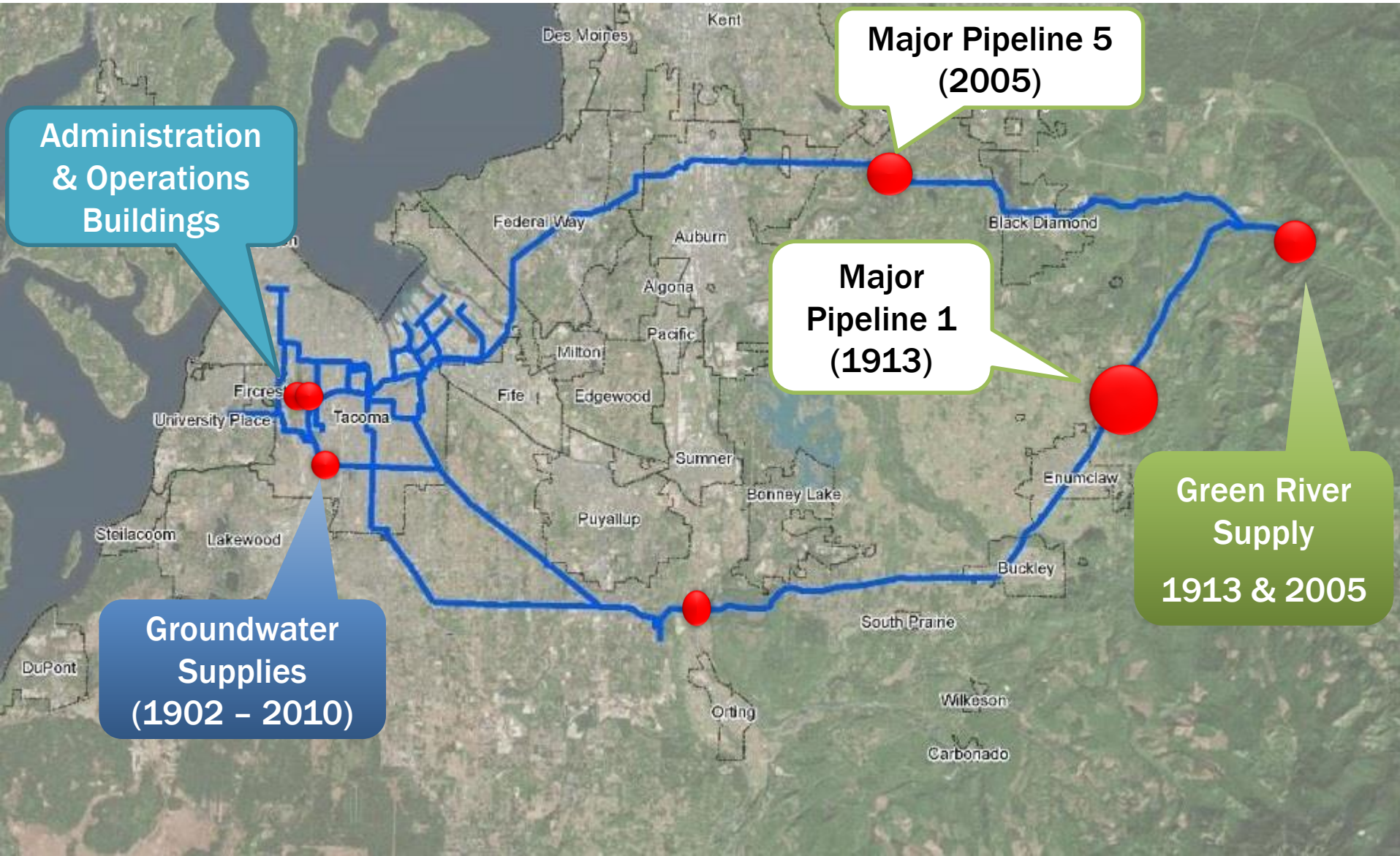
Tacoma Water Resilience Planning

March 2019

Presentation Overview

- **Resilient by redundancy & circumstance**
- **Modern era vulnerability & resilience planning**
- **Current focus areas**
- **Key work ahead**

A measure of *Resilience* through water system evolution



Modern Resilience Planning

DOCUMENT	DRIVER
1996 Seismic Assessment	<i>Post Northridge Earthquake</i>
2003 Vulnerability Assessment	<i>Bioterrorism Preparedness and Response Act of 2002 (Post 9/11 – Malevolent Threats only)</i>
2015 All Hazards Vulnerability Assessment	<i>Proactive, with all-hazards perspective</i>
2016-2018 Phase 1 & 2 Forum Resilience Plans	<i>Proactive Regional Resilience Planning</i>
2019-2020 New All Hazards Vulnerability Assessment requirement	<i>America’s Water Infrastructure Act (AWIA) of 2018 (New all hazards vulnerability assessment requirement)</i>

Current Focus Areas

2015 All-Hazards Vulnerability Assessment



Proximity Threat

- Rail
- Other Targets

Dependency Threat

- Loss of Utilities
- Loss of Suppliers
- Loss of Employees

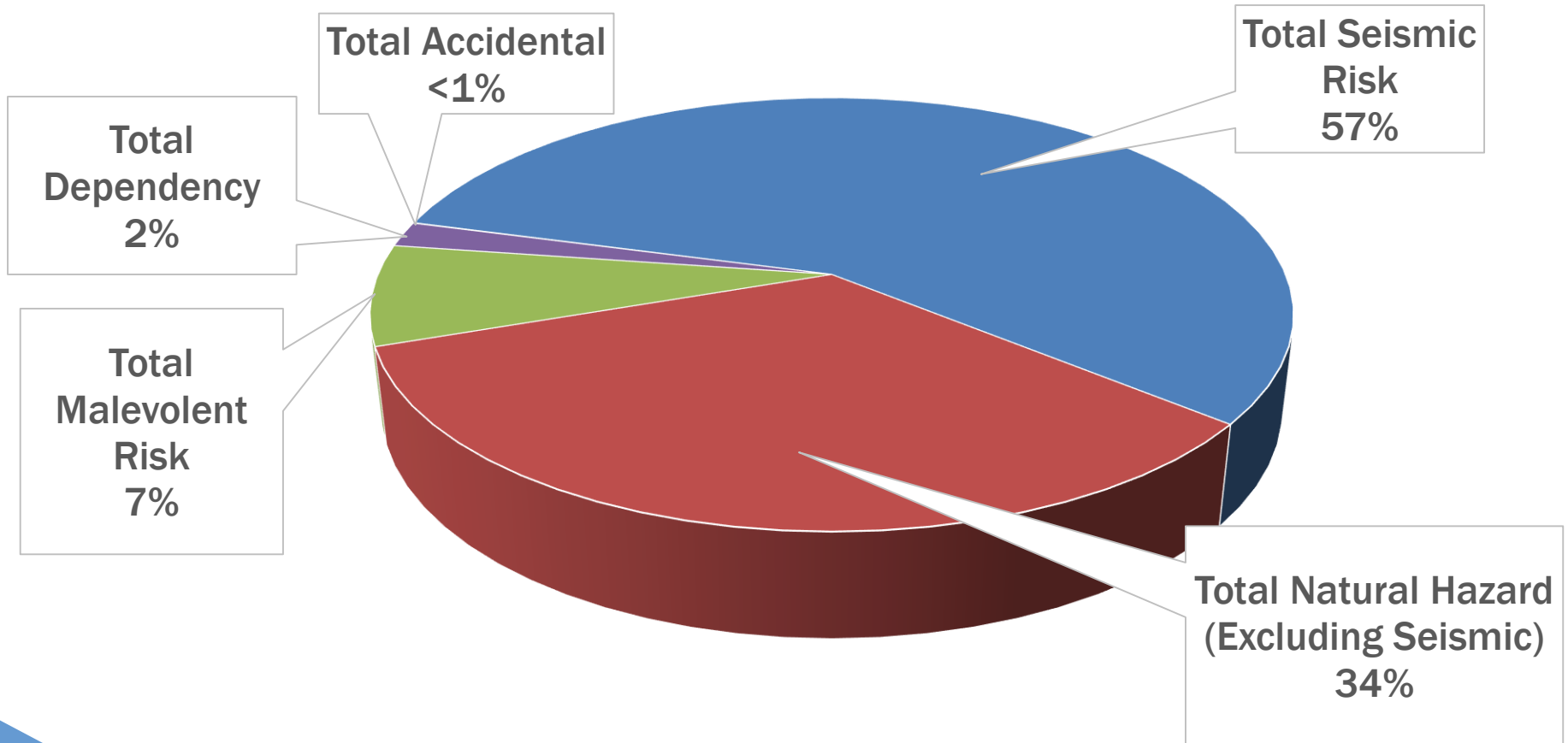
Natural Hazards

- Earthquake
- Flood
- Ice Storm/ Snow
- Wildfire / Plant Fire
- Lahar
- Volcano
- Drought
- Tsunami

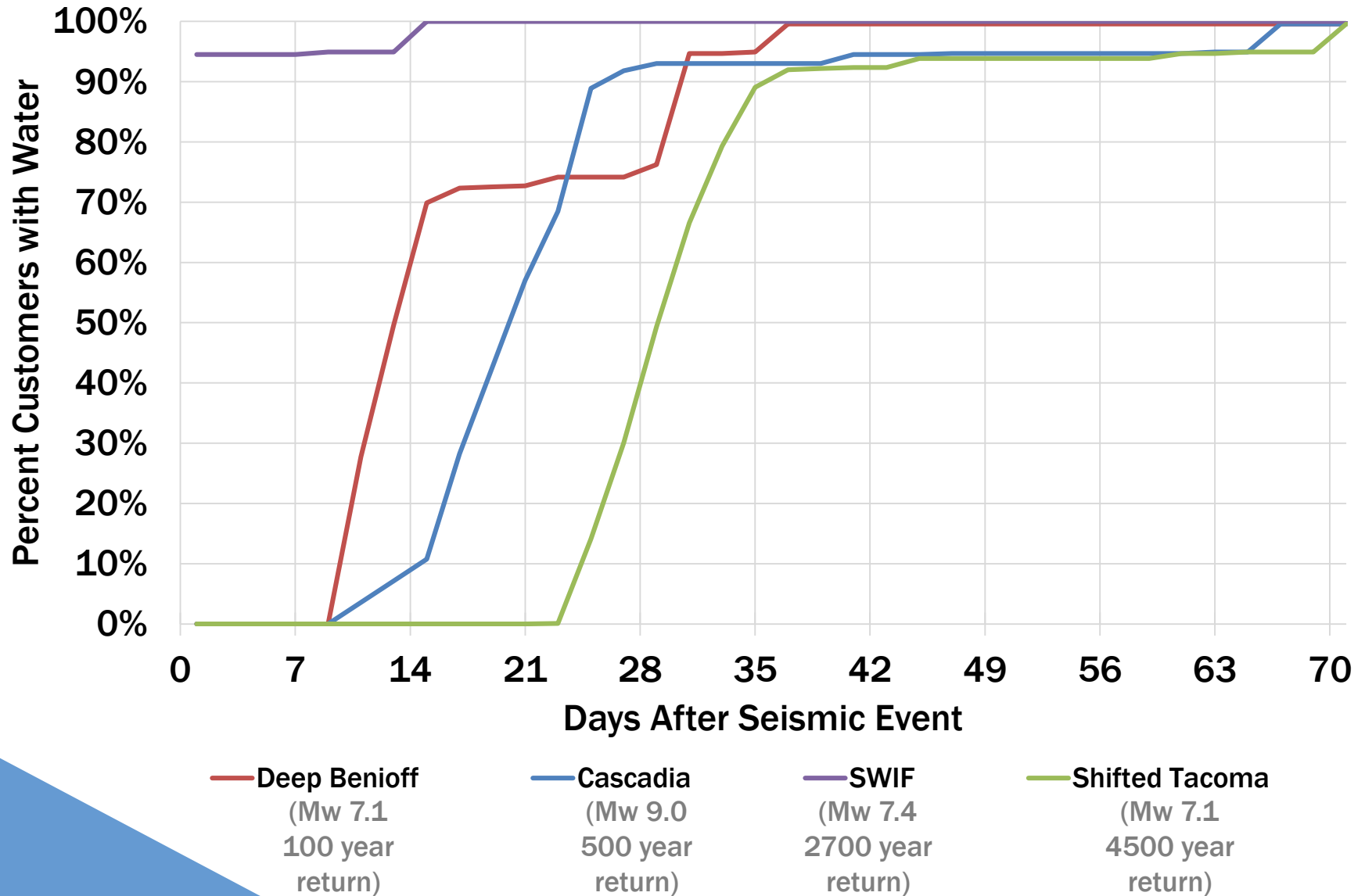
Malevolent Threats

- Diversion/Theft
- Product contamination
- Process Sabotage
- Human Error
- Aircraft / Marine / Automobile Attack
- Assailant

Major risk categories



Service restoration time (4 seismic scenarios – Tacoma Water)



Stakeholders interviewed



Health Care



Commercial
Businesses



Large
Industrial



Retail
Providers



Education



Assisted
Living

Themes from stakeholder interviews

- **Outage < 1 week is manageable for many customers.**
- **Longer-term (more than one week) outage may be unmanageable.**
- **Customers want to be informed about improvements being made, cost, benefit to themselves and their customers/business.**
- **Access to other utilities also important: (Electricity, Natural gas, Sewer)**
- **Hospitals estimated approximately 4 days of water on hand, after which time evacuation would be required.**

Key work ahead – bites at the elephant

- Focused hardening of groundwater supply components.
- Continued development and policymaker adoption of target Post-Earthquake Levels of Service, and a seismic resiliency investment plan to achieve those targets over a period of time.
- Continued and sustained relationships with Emergency Managers & Responders at all levels of government.
- Priority decisions with respect to hardening supply to hospitals.
- Conversations with customers regarding realistic expectations and personal preparedness.