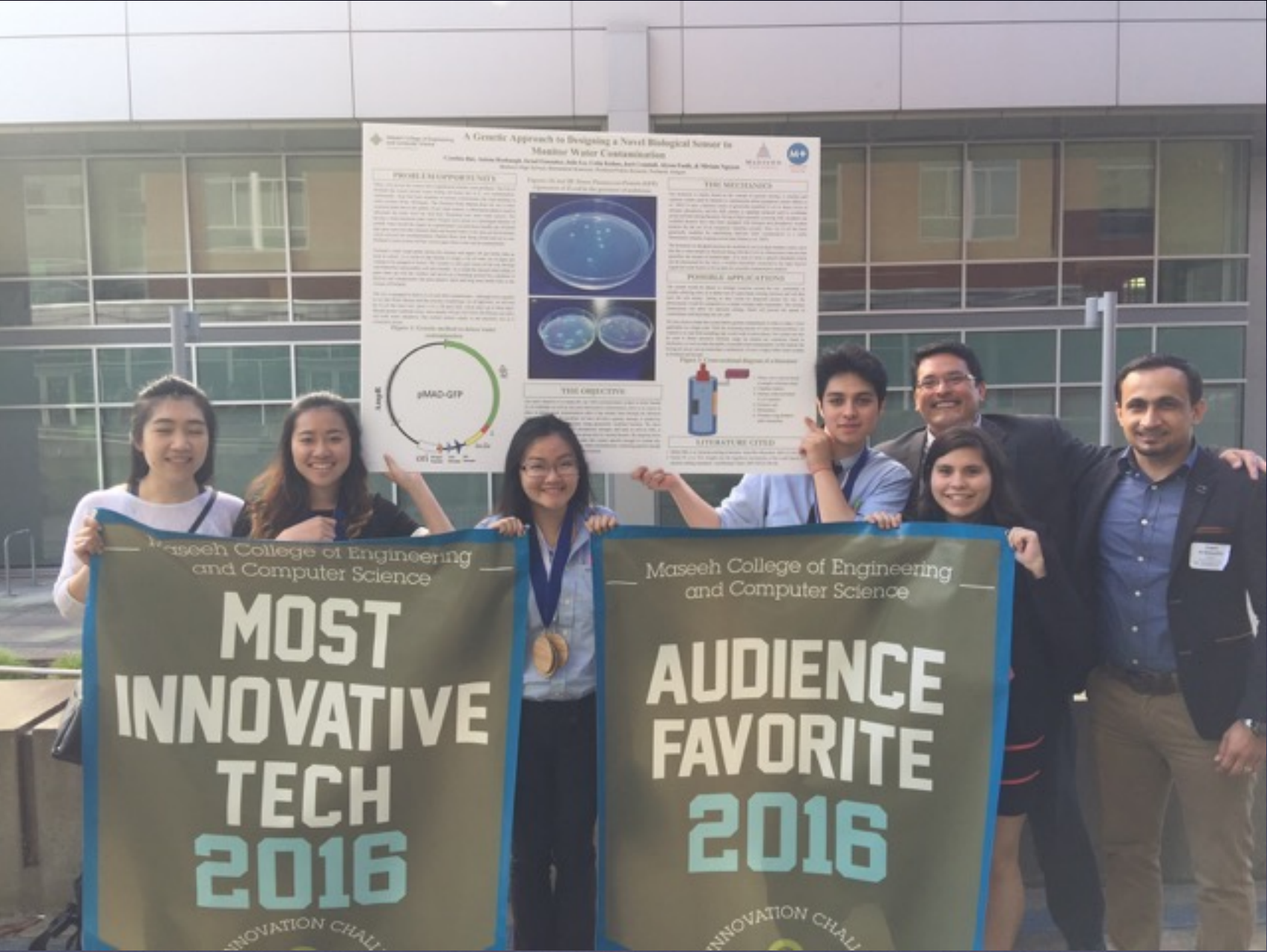


Create the Next Generation Workforce

Catherine Howells, Ph.D.

PNWS Conference

May 5, 2017



A GENETIC APPROACH TO DESIGNING A NOVEL BIOLOGICAL SENSOR TO MONITOR WATER CONTAMINATION



Madison High School
Biomedical Science Program
PSU Innovation Challenge
April 9th 2016



Presenters: Cynthia Bui, Anissa Rosbaugh, Israel Gonzalez, Julie Lu, Colin Kuhns, Joel Crandall,
Alyssa Faulk, & Miriam Nguyen

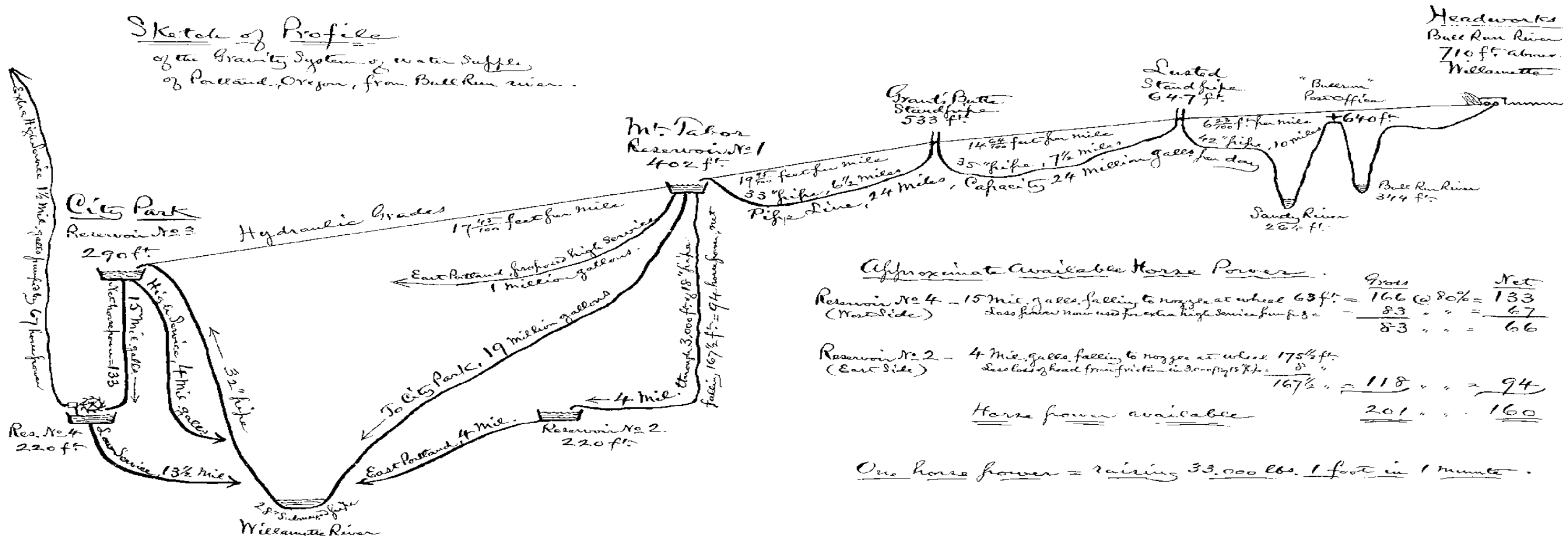




- Economics
- Mathematics
- Geology
- Public Health
- Architecture
- Philosophy
- History
- English
- Chemistry
- Biology
- Env. Sci.
- Music
- Geography/GIS
- Sociology
- Anthropology
- Urban Planning







D.D. Clarke's schematic sketch of Portland's water system, with calculations of possible power generation

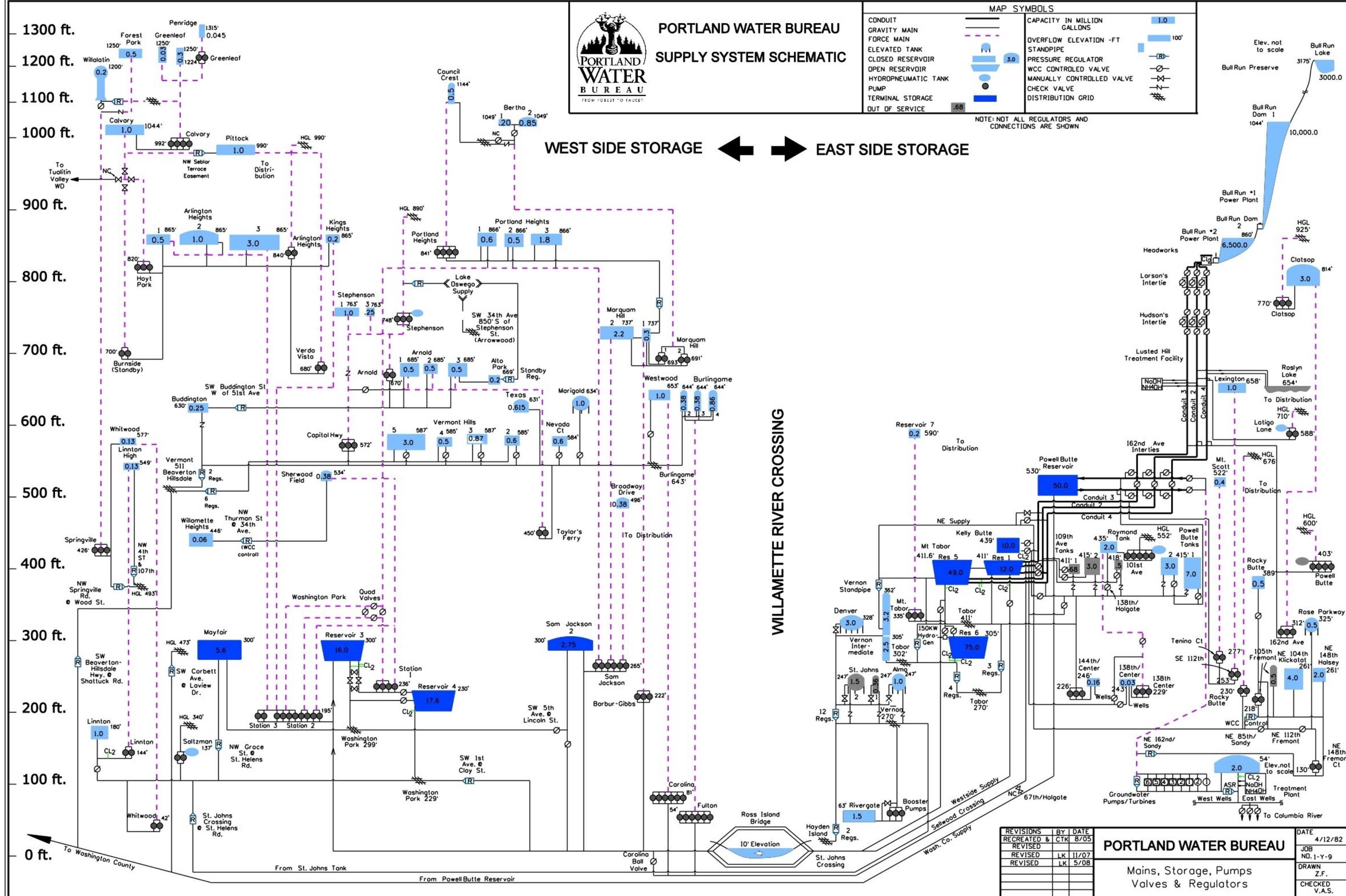




PORTLAND WATER BUREAU SUPPLY SYSTEM SCHEMATIC

MAP SYMBOLS	
CONDUIT	1.0
GRAVITY MAIN	100'
FORCE MAIN	100'
ELEVATED TANK	100'
CLOSED RESERVOIR	100'
OPEN RESERVOIR	100'
HYDRO-PNEUMATIC TANK	100'
PUMP	100'
TERMINAL STORAGE	100'
OUT OF SERVICE	100'

NOTE: NOT ALL REGULATORS AND CONNECTIONS ARE SHOWN



REVISIONS	BY	DATE
RECREATED & CTK	8/05	
REVISED	LK	11/07
REVISED	LK	5/08

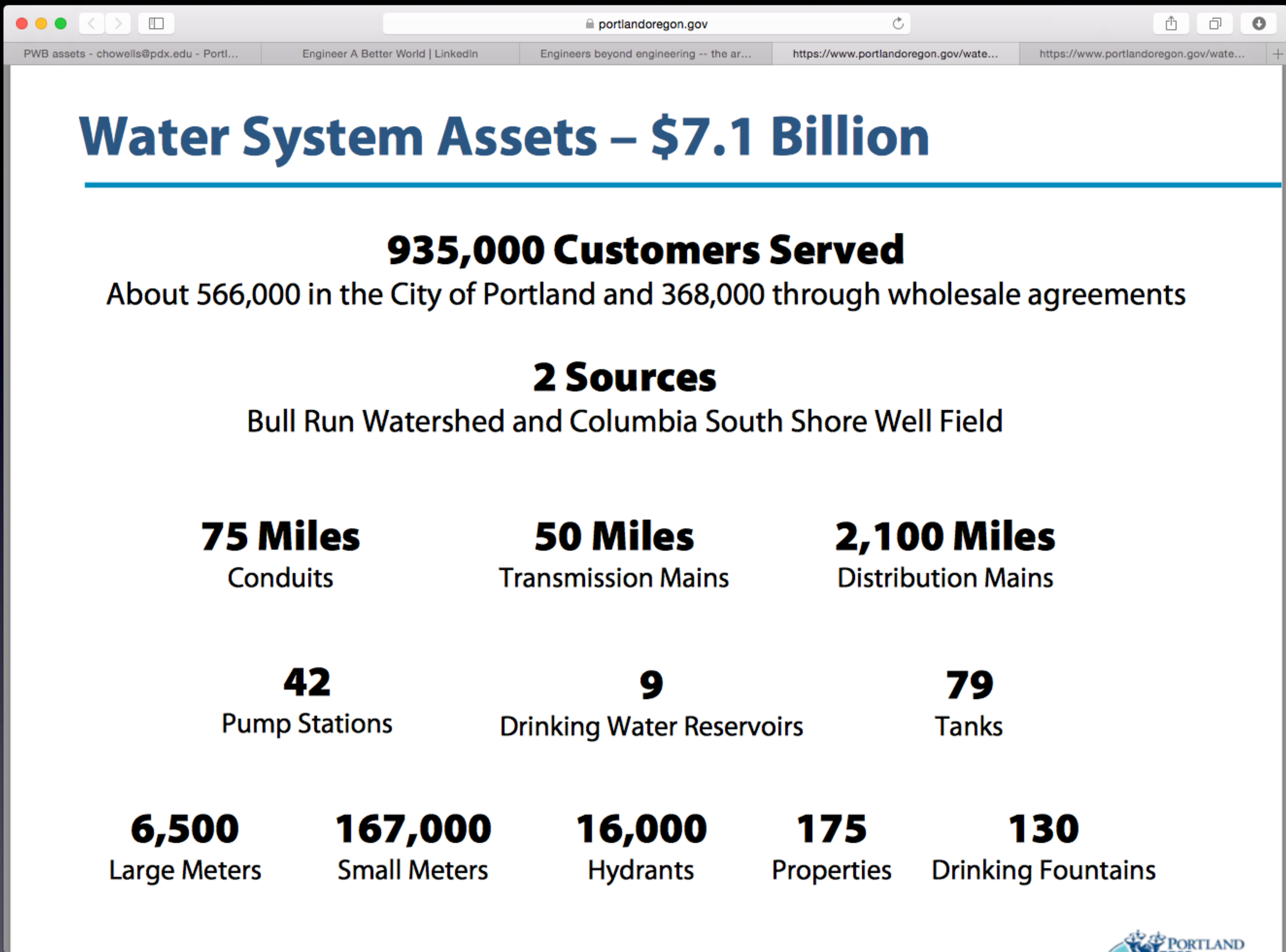
PORTLAND WATER BUREAU		DATE
Mains, Storage, Pumps Valves & Regulators		4/12/82
		JOB NO. 1-Y-9
		DRAWN Z.F.
		CHECKED V.A.S.



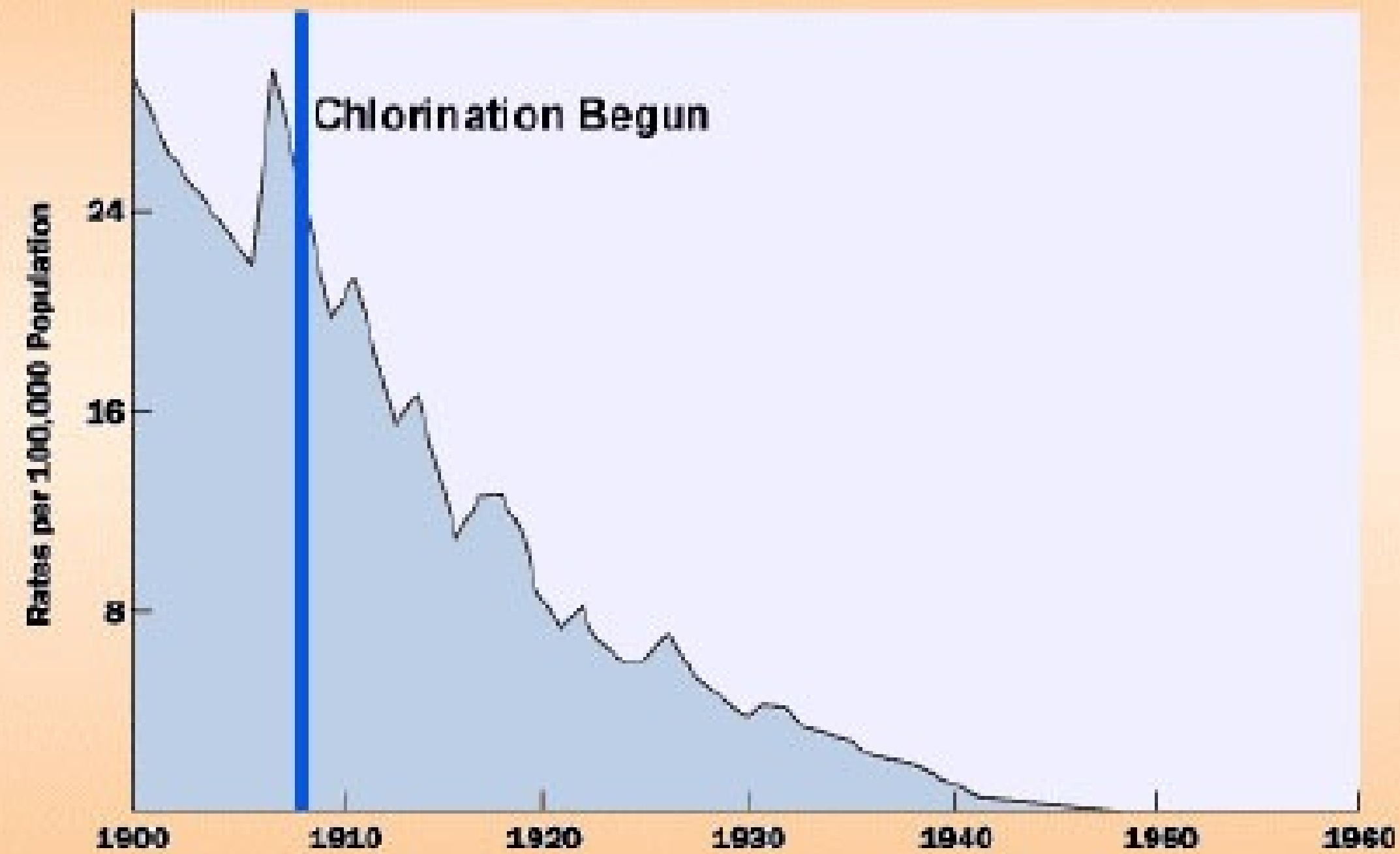




PM 2:02 MAY/26/2016



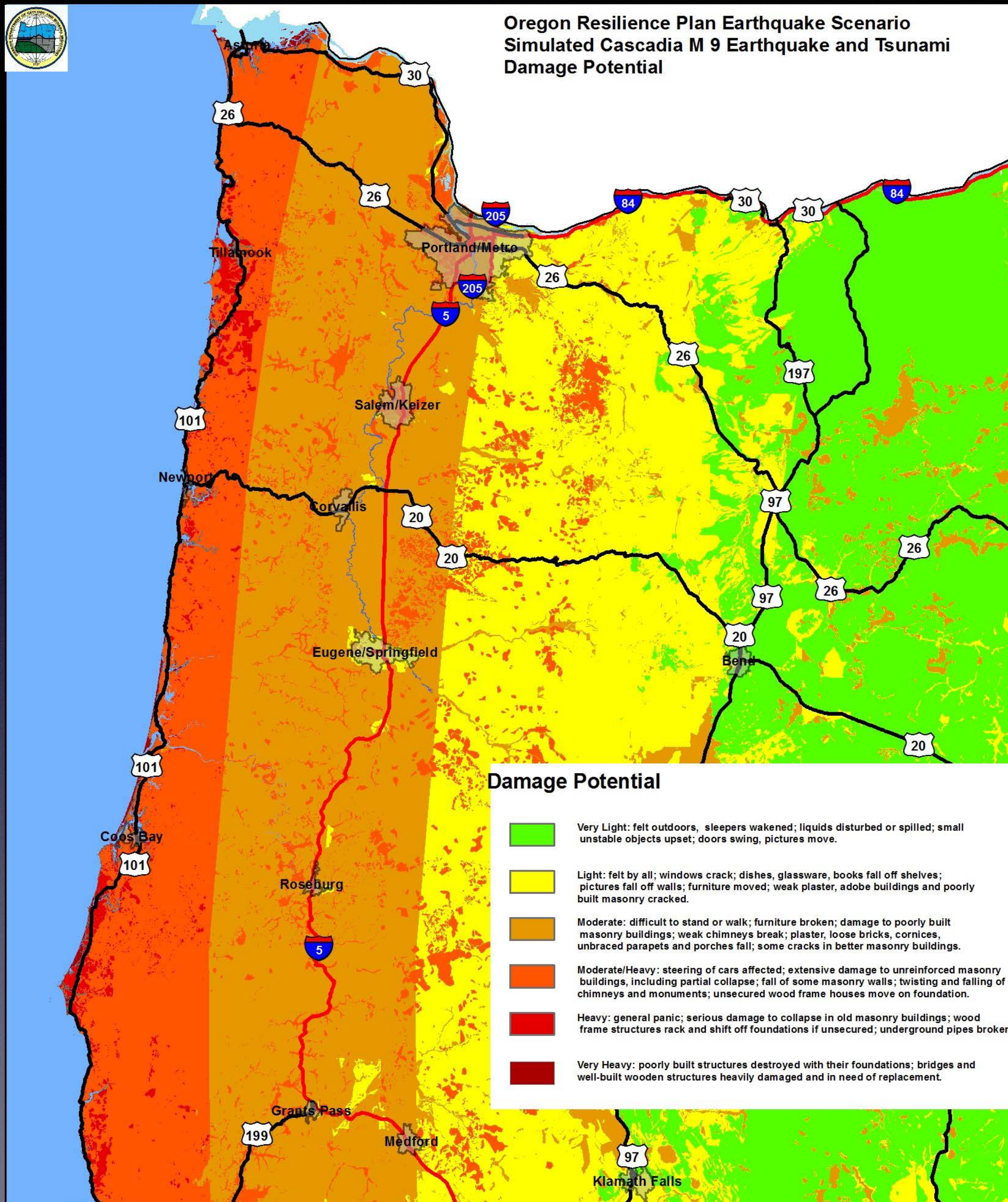
Death Rate for Typhoid Fever United States, 1900-1960



Source: U.S. Centers for Disease Control and Prevention, Summary of Notifiable Diseases, 1997.



Oregon Resilience Plan Earthquake Scenario Simulated Cascadia M 9 Earthquake and Tsunami Damage Potential



- films
- pamphlets
- social media
- puzzles
- coloring books
- walking tours
- Google Earth tour
- farmers mkt booth
- beer/coffee
- games
- surveys

Action Plans

- show up in person
- guest lecture in departments
- mentor high school students
- create an AWWA student group
- job shadowing
- ask students for their ideas

Questions?

chowells@pdx.edu