RESILIENT DAM & WATER INFRASTRUCTURE IN A MANAGED WATERSHED

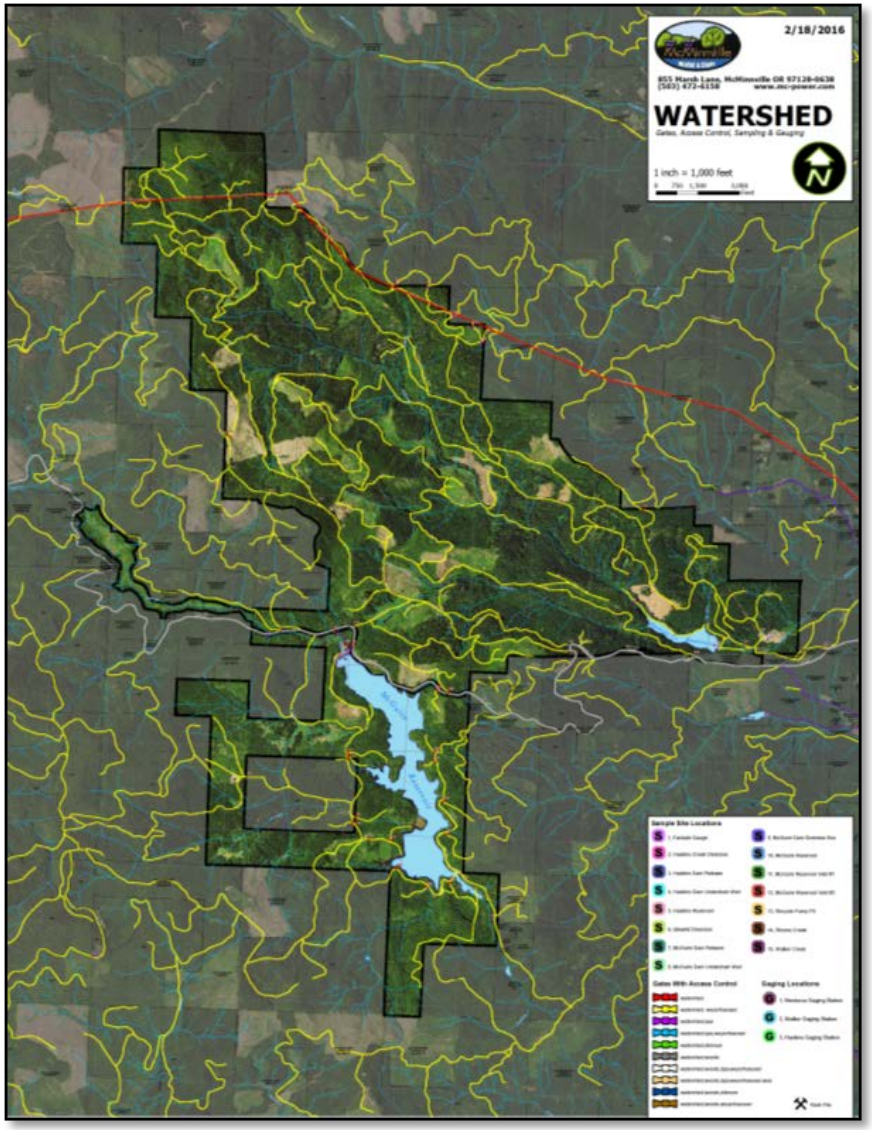
McMinnville Water & Light
Robert Klein, Water Superintendent
February 28, 2017

RELIABLE WATER SYSTEM:

- Secure Adequate Water Resources
- Plan and Budget for Infrastructure Expansion and Improvements
- Provide Staff and Resources for O & M

McMinnville Water & Light

Community Owned Community Focused



McMinnville Water & Light
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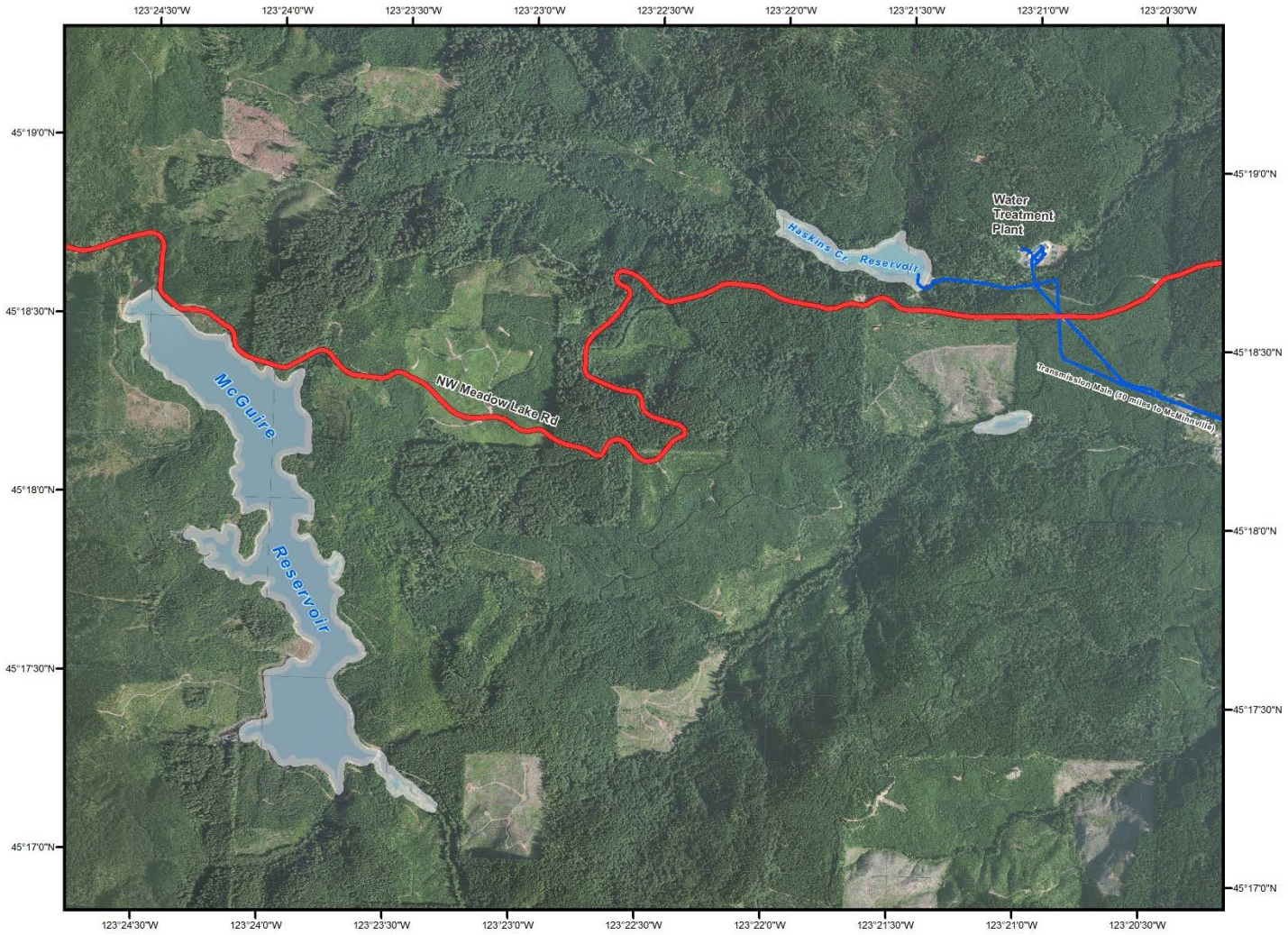
WATERSHED



MW&L WATERSHED

- 6300 acres
- Water rights: Haskins Cr., Nestucca R., Walker Cr.
- Reliable watershed yield: 30 mgd
- Managed by forester
- Sustainable yield practices
- Annual timber harvest
- $$ invested in infrastructure
- Vehicles & equipment for fire protection & maintenance

Top Priority:
Protect Water Resources &
Maintain Water Quality

MCGUIRE DAM AND RESERVOIR

- West side of coast range
- Nestucca River Basin
- Composite earth & rock fill dam

<u>Timeline</u>

- 1969: Constructed
- 2004: Raised & Improved

- 1895’ elevation
- 3250 MG
- Water from McGuire flows into Haskins Reservoir via pipeline

MCGUIRE DAM EXPANSION PROJECT - 2004

- $10.5 million construction project
- Raised 30 feet, expanded reservoir capacity to 3250 MG
- Updated and improved safety and operational capabilities
- Meets current engineering standards and seismic codes
- Mitigation of historical landslide area
- Reconstruction of 2.5 miles of roadway
- Expansion and enhancement of environmental habitat
- New valves, piping, drains, intake and diversion structures
- New on-site instrumentation and control systems
- New security and emergency warning systems
- Developed Emergency Action Plan

MCGUIRE DAM EXPANSION - CONSTRUCTION

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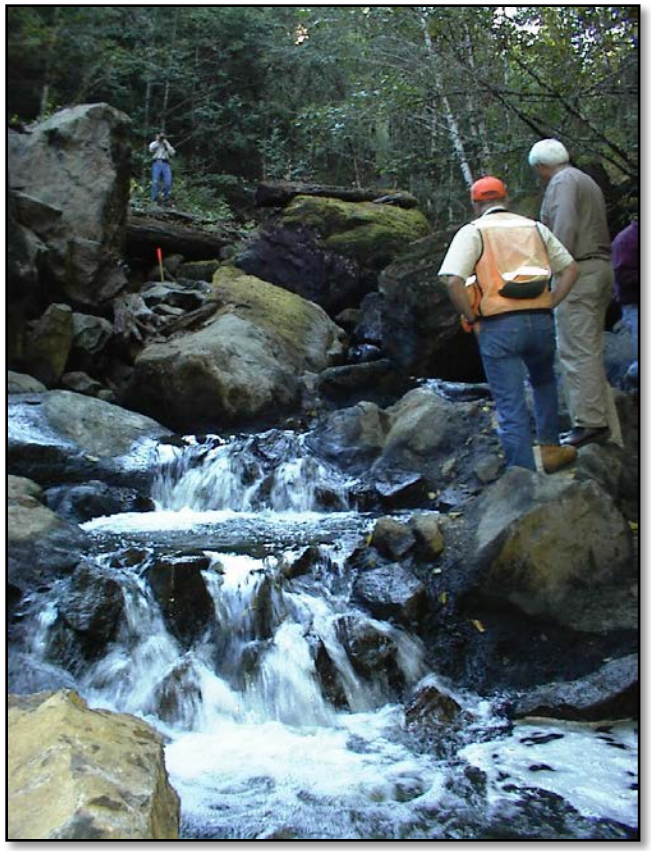
MCGUIRE DAM EXPANSION - MITIGATION



Chute for fish passage

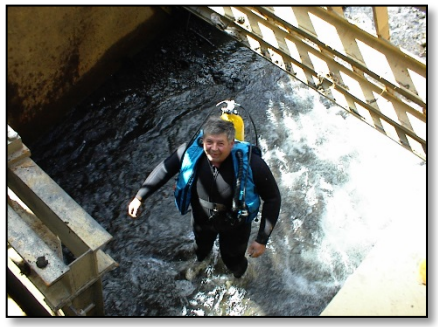
Wetlands and fish passage mitigation

Chehalem Mitigation Site

O & M

24/7

- Monitor operational and emergency warning systems



Daily

- Record operational data
- Visual inspections
- Monitor for required fish flow releases

Weekly

- Turbidity analysis
- Inspect generator, batteries, solar and hydraulic control systems

Quarterly

- Operation of all valves and control systems

Annual

- Hand clear vegetation from the faces of the dam, spillway access and stilling basin
- Survey crest of dam to record any movement
- Comprehensive maintenance and inspection of entire dam and facilities
- Annual inspection by Oregon Water Resources Department

SECURITY

- Strict control of access to all property
- No public access allowed
- Access roads are gated and locked
- Fencing around the perimeter of McGuire Dam & Reservoir
- Security alarms in the control building
- Video cameras at multiple locations and accessed 24/7
- Yamhill County Deputies patrol the area

EMERGENCY WARNING SYSTEMS

- Stilling Basin elevation level monitor to detect sudden increases in flow
- Seismic monitor to detect earthquake activity
- Security alarms to detect unauthorized entry
- Diversion box level for fish flows
- Emergency warning siren system along the Nestucca River

MCGUIRE DAM EMERGENCY ACTION PLAN (EAP)

Purpose: Safeguard lives and reduce risk of potential property damage in developed areas and other public access areas along the Nestucca River downstream from the McGuire Dam in the event of a dam breach.

- ✓ Outlines responsibilities and emergency procedures
- ✓ Periodically reviewed and updated
- ✓ Agencies involved:
  - McMinnville Water and Light
  - Tillamook County 911
  - Tillamook County Emergency Management
  - Oregon Water Resources Department Dam Safety Engineer
  - Law Enforcement Officials

HASKINS DAM AND RESERVOIR

- East side of coast range
- Yamhill River Basin
- Earth & rock fill dam

Timeline

- 1927: Constructed
- 1952: Raised
- 1996: Emergency repair
- 2001: Upgraded & Improved

- 815’ elevation
- 250 MG
- Raw water intake to WTP

SCOTT WATER TREATMENT PLANT

- 1977: Constructed
- 2010: $30 million upgrade/expansion

- Original capacity: 13.3 mgd
- Current capacity: 22 mgd
- Future expansion: 30 mgd
- Highest MDD to date: 12.5 mgd

TRANSMISSION LINE

- 2 Water Transmission Lines
  - 24” Ductile Iron (1971)
  - 16” Steel / 14” AC (1940s)
  - Current capacity: 16 mgd
- Replace 16” with 36”
  - Ductile Iron pipe
  - 5 Phases over 20 yrs.
  - Future capacity: 30+ mgd

Phase 1:
2nd Tunnel
completed 2014

Phase 2:
Replace 7000’
scheduled 2017

- Watershed yield:
- Future expansion of WTP:
- Transmission line replacement:
- Projected MDD in 2045:

30 mgd

PLANNING FOR THE FUTURE

SOURCE: WILLAMETTE RIVER

YAMHILL REGIONAL WATER AUTHORITY (YRWA)

- MW&L, Carlton, Lafayette Partnership
- Water Right: 28.5 mgd
  - MW&L share: 21.35 mgd
- 2016: Preliminary engineering study and budget for future development and construction of intake structure, transmission line, WTP

MW&L

- Additional 5 mgd Willamette senior water right, no fish flow restrictions
- Future water resource for growth and water system redundancy

Questions?

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