

Planning Commission
Thursday, January 16, 2025
6:30 PM Regular Meeting

HYBRID Meeting

IN PERSON – McMinnville Civic Hall, 200 NE Second Street, or ZOOM Online Meeting

Please note that this is a hybrid meeting that you can join in person at 200 NE Second Street or online via Zoom

ZOOM Meeting: You may join online via the following link:

<https://mcminnvilleoregon.zoom.us/j/84796099428?pwd=71dyH6JvnKtol3AgRX6K7Pobbicn9C.1>

Meeting ID: 847 9609 9428 Meeting Password: 103076

Public Participation:

Citizen Comments: If you wish to address the Planning Commission on any item not on the agenda, you may respond as the Planning Commission Chair calls for "Citizen Comments."

Public Hearing: To participate in the public hearings, please choose one of the following.

- 1) **Written testimony in advance of the meeting** – Email written testimony at any time up to 12 p.m. the day before the meeting to heather.richards@mcminnvilleoregon.gov, that email will be provided to the planning commissioners, lead planning staff and entered into the record at the meeting.
- 2) *In person at the meeting* – Sign up in advance to provide testimony at the meeting by emailing heather.richards@mcminnvilleoregon.gov, or sign up at the meeting by filling out a testimony form found at the entry to the hearing chambers.
- 3) **By ZOOM at the meeting** - Join the zoom meeting and send a chat directly to Planning Director, Heather Richards, to request to speak indicating which public hearing, and/or use the raise hand feature in zoom to request to speak once called upon by the Planning Commission chairperson. Once your turn is up, we will announce your name and unmute your mic.
- 4) **By telephone at the meeting** – If appearing via telephone only please sign up prior to the meeting by emailing the Planning Director, Heather.Richards@mcminnvilleoregon.gov as the chat function is not available when calling in zoom.

----- **MEETING AGENDA ON NEXT PAGE** -----

The meeting site is accessible to handicapped individuals. Assistance with communications (visual, hearing) must be requested 24 hours in advance by contacting the City Manager (503) 434-7405 – 1-800-735-1232 for voice, or TDY 1-800-735-2900.

*Please note that these documents are also on the City's website, www.mcminnvilleoregon.gov. You may also request a copy from the Planning Department.

Commission Members	Agenda Items
Sidonie Winfield, Chair	6:30 PM – REGULAR MEETING
Brian Everest	1. Call to Order
Rachel Flores	2. Swearing in of New Commissioner Brian Everest
Matt Jones	3. Selection of Chair and Vice-Chair - (Exhibit 1)
Sylla McClellan	4. Citizen Comments
Elena Mudrak	5. Minutes:
Meg Murray	<ul style="list-style-type: none"> • April 4, 2024 (Exhibit 2) • September 19, 2024 (Exhibit 3) • November 21, 2024 (Exhibit 4)
Brian Randall	6. Public Hearings:
Beth Rankin	<p>A. <u>Quasi-Judicial Hearing: Comprehensive Plan Map Amendment (CPA 1-24) and Zone Change (ZC 4-24) for property at 2320 SE Stratus Avenue, Tax Lots R4427 600 and 604) – (Exhibit 5)</u></p> <p>Request: The applicant is requesting concurrent review and approval of a Comprehensive Plan Map Amendment from Industrial to Residential (CPA 1-24) and a Zone Change from M-1 to R-4 for property at 2320 SE Stratus Avenue, Tax Lots R4427 600 and 604, approximately 5.8 acres</p> <p>Applicant: Commonwealth Development Corporation c/o Daniel DeFrancesco on behalf of property owners Jodi Devonshire, Andrea Feero, and Jennifer Feero</p> <p>B. <u>Legislative Hearing: Comprehensive Plan Amendment (Docket G 7-24) Water System Element of Public Facility Plan - (Exhibit 6)</u></p> <p>Proposal: THE CITY OF MCMINNVILLE IS PROPOSING AN AMENDMENT TO THE MCMINNVILLE COMPREHENSIVE PLAN AS FOLLOWS: (1) adopt portions of the 2011 Water Master Plan as amended by the 2024 Water Master Plan Addendum as part of the Public Facility Plan, a supporting document to the McMinnville Comprehensive Plan; (2) amend Volume I of the Comprehensive Plan to update data consistent with the updated Water System element of the Public Facility Plan; and (3) amend Volume II of the Comprehensive Plan to update policies consistent with the updated Water System element of the Public Facility Plan.</p> <p>Applicant: City of McMinnville</p>
	7. Commissioner Comments
	8. Staff Comments
	9. Adjournment

The meeting site is accessible to handicapped individuals. Assistance with communications (visual, hearing) must be requested 24 hours in advance by contacting the City Manager (503) 434-7405 – 1-800-735-1232 for voice, or TDY 1-800-735-2900.

*Please note that these documents are also on the City’s website, www.mcminnvilleoregon.gov. You may also request a copy from the Planning Department.



EXHIBIT 1 - MEMORANDUM

DATE: January 16, 2025
TO: Planning Commission Members
FROM: Heather Richards, Community Development Director
SUBJECT: Agenda Item – Election of Planning Commission Officers

The annual election of officers has been placed on your January 16, 2025 meeting agenda. As part of this process, the Planning Commission shall elect a Chair and Vice-Chair at the first meeting of each year. The Chair presides over the meeting and public hearings. The Vice-Chair will preside over the meetings and public hearings in the Chair's absence.

The following outline is provided to help guide you through this election process.

Nominations of chair and vice-chair

1. Begin with the nominations for the position of the chair. Any Commission member may nominate another member. Commission members can also nominate themselves. Nominations do not have to be seconded. If a nominee does not wish to be considered, that person can decline the nomination. When nominations stop, the chair will call for any more nominations. When no other nominations are forthcoming, the chair will state that the nominations are closed. Once the nominations are closed, the chair will state the names of the nominees. Each member must state their vote for the chair. If one person receives a majority of the vote, the chair will declare the result of the vote. If no one receives a majority of the vote, the vote must be done again. No person can be eliminated as a nominee, but any nominee can withdraw their nomination. The voting will continue until one person receives a majority of the vote.
2. The vice-chair will then be elected in the same manner.
3. At the close of the elections, the new chair will preside over the remainder of the meeting.



EXHIBIT 2 - MINUTES

April 4, 2024
Planning Commission
Regular Meeting

6:30 pm
Hybrid Meeting
McMinnville, Oregon

Members Present: Sidonie Winfield, Dan Tucholsky, Gary Langenwalter, Beth Rankin, Brian Randall, Rachel Flores, and Elena Mudrak

Members Absent: Sylla McClellan

Staff Present: Heather Richards – Community Development Director, Taylor Graybehl – Senior Planner, and Bill Kabeiseman – Bateman Seidel

1. Call to Order

Chair Winfield called the meeting to order at 6:30 p.m.

2. Minutes

- June 1, 2023

Commissioner Langenwalter moved to approve the June 1, 2023, minutes as presented. The motion was seconded by Commissioner Rankin and approved unanimously 7-0.

- June 15, 2023

Commissioner Langenwalter moved to approve the June 15, 2023, minutes as presented. The motion was seconded by Commissioner Rankin and approved 5-0-2 with Commissioners Winfield and Mudrak abstaining.

- July 6, 2023

Commissioner Tucholsky moved to approve the July 6, 2023, minutes as presented. The motion was seconded by Commissioner Langenwalter and approved 5-0-2 with Commissioner Mudrak and Flores abstaining.

- January 4, 2024

Commissioner Tucholsky moved to approve the January 4, 2024, minutes as presented. The motion was seconded by Commissioner Rankin and passed unanimously 7-0.

3. Citizen Comments

None.

4. Public Hearings

A. Quasi-Judicial Hearing: Administrative Variance (AV 1-24), for a covered, unenclosed patio on property at 1768 NW Woodland Drive, Map & Tax Lot R4418DB 2100

Request: Request for review and approval of an Administrative Variance (AV 1-24) for property located at 1768 NW Woodland Drive, to allow construction of a covered, unenclosed patio, part of which would be located nine feet from the rear property line, plus eaves extending no more than an additional 24 inches.

Section 17.54.020(D) of the Zoning Ordinance states, "An unenclosed covered patio or a covered deck enclosed only by railings may be placed in the rear yard of a residence provided that no part is closer than 10 (ten) feet to a rear property line; eaves may extend 24 inches into this setback..."

Section 17.74.090 of the Zoning Ordinance states, "The Planning Director may grant limited adjustments to the terms of this title as follows:...B. Setbacks: Maximum adjustment of 10 (ten) percent of the required setback."

Applicant: Marilu Hernandez, on behalf of property owner Hernandez Marilu 2012 Trust

Chair Winfield opened the public hearing and read the hearing statement. She asked if there was any objection to the jurisdiction of the Commission to hear this matter. There was none. She asked if any Commissioner wished to make a disclosure or abstain from participating or voting on this application. There was none. She asked if any Commissioner had visited the site. Some of the Commission had.

Chair Winfield asked if any Commissioner needed to declare any contact prior to the hearing with the applicant or any party involved in the hearing or any other source of information outside of staff regarding the subject of this hearing. There was none.

Staff Presentation: Senior Planner Graybehl presented the request for an administrative variance to reduce the required rear yard setback by 10% and place an attached unenclosed covered patio within 9 feet of the rear property line. He discussed additional information received after the packet, public testimony and issues raised, residential accessory structures, staff/legal review, legal conclusion that the proposed project did not comply with the criteria and how changes to the findings and approval conditions were required. He then explained the subject site and nearby accessory structures, both attached and detached.

Community Development Director Richards noted the back building line was 20 feet from the property line and any structures past the back building line on both sides of the block were in the rear yard setback.

Senior Planner Graybehl continued by sharing information on the uniqueness of the property, proposed site plan, elevations, review criteria, unenclosed patio rear yard setback based on the new legal interpretation which was 20 feet for attached and 10 feet for detached, and 10% maximum reduction allowed for an administrative variance which made the proposed patio too close to the property line. He provided a response to the public testimony. Several of the items were not identified as review criteria for an administrative variance and the others were addressed in the memo from the City Attorney. The Planning Commission could adopt

conditions of approval to bring the proposal into compliance with MMC 17.54.020 Residential Accessory Standards, request staff to bring back revised findings to approve the placement of the proposed patio as a variance to the zoning ordinance, or deny the application.

Commission Questions: The Commission discussed examples of nearby outlying structures that were not in compliance and how examples could be found City-wide, how these were now grandfathered in, how this code should be amended since it was so widespread, Planning Commission decision options, and dimensions of the existing non-compliant structures.

Applicant's Testimony: David Martinez, McMinnville resident, explained how he wanted to improve his back yard. He was open to any decision.

Proponents: None

Opponents: Garald Ottoboni, McMinnville resident, thought the code had already been updated, but now it sounded like they were going to update the code to address large detached or attached patios. He was concerned that this was a back property adjacent to a side property where the neighbor's view would be blocked as well as light. He thought there should be some compromise in the design to accommodate the neighbor and be compatible with the neighborhood.

Patti Boge, McMinnville resident, said this would be a big change to the side of her house. She did not think it was right to approve structures that were not up to code. It was a big structure that would consume the west side of her home.

Rebuttal: Mr. Martinez was open to any changes recommended by the City. He wanted to be a good neighbor.

Commissioner Tucholsky moved to close the public hearing; Seconded by Commissioner Langenwalter. The motion passed unanimously 7-0.

Chair Winfield closed the public hearing.

The applicant waived the 7 day period for submitting final written arguments in support of the application.

Commission Deliberation: The Commission asked about the height allowed for canvas structures, height for landscaping, and noted that structures 12 feet or higher needed a building permit. They also asked about sizes of other patio structures in the neighborhood, setbacks for attached and detached structures, setbacks in newer developments, review criteria, decision options, if the roof of the patio would block light, and how there was logic for granting the variance that was equivalent to what had been allowed throughout the City, knowing the code would be updated. There was further deliberation on how the application could meet the variance criteria, how it was a 600 square foot structure which was larger than others in the neighborhood and concern about setting a precedence, allowing the setback variance to 9 feet but reducing the size of the structure, and if there was no need to restrict a smaller size on the project. It was suggested to add a condition that the cover shall exceed no more than 485 square feet and allow the applicant to revise the plan accordingly. Many of the Commissioners did not think a condition was necessary as past interpretation of the code would have allowed this type of request, and the application met the variance criteria.

There was consensus for staff to draft a decision document and findings to show the application met the variance criteria as it was presented.

5. Commissioner Comments

There was consensus for staff to bring back revisions to the accessory structure code.

6. Staff Comments

None.

7. Adjournment

Chair Winfield adjourned the meeting at 8:18 p.m.

EXHIBIT 3 - MINUTES

**September 19, 2024
Planning Commission
Work Session and Regular Meeting**

**5:30pm
Hybrid Meeting
McMinnville, Oregon**

Members Present: Sidonie Winfield, Dan Tucholsky, Gary Langenwalter, Sylla McClellan, Beth Rankin, Meg Murray, Rachel Flores, and Elena Mudrak

Members Absent: Brian Randall

Staff Present: Heather Richards – Community Development Director, Susan Muir – Parks & Recreation Director, Taylor Graybehl – Senior Planner, Evan Hietpas – Associate Housing Planner, and Matthew Deppe – Associate Planner

Others Present: Stephanie Deneke - Rogue Retreat Presenter

WORK SESSION

1. Call to Order

Chair Winfield called the meeting to order at 5:30 p.m.

2. Parks, Recreation and Open Space Master Plan

Parks and Recreation Director Muir reviewed the process and purpose of the plan, organization and components of the draft plan, community engagement, vision statement, goals and objectives, community survey and priorities, recommended projects and costs, five year action plan, and implementing the plan.

There was discussion regarding sports fields, volunteer groups, and next steps.

REGULAR MEETING

3. Call to Order

Chair Winfield called the meeting to order at 6:30 p.m.

4. Citizen Comments

None.

5. Presentation: Rogue Retreat re: Transitional Housing

Stephanie Deneke, Rogue Retreat, shared examples and pictures about their transitional housing called Hope Village and how it worked. She explained the things they had learned and how they had low impact to the neighboring residential areas.

There was discussion regarding repairs to the units, success rates for movement into permanent housing, community sentiment when the program was being put into place, locations, how many they served, screening for sex offenders, how violations were handled, need for vehicles since the site was not near stores, pet policy, people coming from other cities and other cities contributing financially, neighborhood compatibility, design standards, and how they brought the buildings through the building code process.

6. Public Hearings

A. Quasi-Judicial Hearing: Conditional Use Permit (Docket CU 1-24), Young Life, 535 NE 14th Street, Tax Lot R4416CC 01200 - (Exhibit 3)

Request: Request for review and approval of a Condition Use Permit application to allow for the operation of a Young Life facility providing study space, meetings, services, and activities for McMinnville students, within an existing building on a 12,000 square foot lot in an R-2 zone. The property previously had a conditional use permit approval for religious instruction for McMinnville students, which lapsed after at least 12 months of inactivity.

Applicant: Michael Rilee on behalf of Young Life

Disclosures: Chair Winfield opened the public hearing and asked if there was any objection to the jurisdiction of the Commission to hear this matter. There was none. She asked if any Commissioner wished to make a disclosure or abstain from participating or voting on this application. There was none. She asked if any Commissioner had visited the site.

Commissioner Dan Tucholsky stated they had visited the site.

Chair Winfield asked if any Commissioner needed to declare any contact prior to the hearing with the applicant or any party involved in the hearing or any other source of information outside of staff regarding the subject of this hearing.

Chair Winfield was involved in the process when it came from the LDS church several years ago.

Commissioner Tucholsky had spoken with Mr. Rilee recently on a different matter.

Staff Presentation: Associate Planner Deppe presented the staff report. This was a request for a Conditional Use Permit application to allow for the operation of a Young Life facility providing study space, meetings, services, and activities for McMinnville students. The previous Conditional Use had expired due to a year's gap in service. A neighborhood meeting had been held, but no one had attended. Notice had been sent for this public hearing and no public comments had been received. He discussed the subject site, applicable criteria, conditions of approval, site plan, and proposed uses. Staff recommended approval with conditions.

There was discussion regarding the use of astroturf and desirability.

Applicant's Testimony: Michael Rilee and Shaun Strong were available for questions. They spoke about the convenience, appropriateness, and desirability of the conditional use. This facility was located near the high school, and it would provide a safe place for kids before school, during lunch, and after school. They would work within the capacity requirements but would investigate increasing the number.

Public Testimony: None

Rebuttal: None

Commissioner Tucholsky moved to close the public hearing; Seconded by Commissioner Flores. The motion passed unanimously.

Chair Winfield closed the public hearing.

The applicant waived the 7 day period for submitting final written arguments in support of the application.

The Commission thought it was an appropriate conditional use.

Based on the findings of fact, conclusionary findings for approval, materials submitted by the applicant, and evidence in the record, Commissioner Tucholsky MOVED to APPROVE CU 1-24 subject to the conditions of approval; SECONDED by Commissioner Rankin. The motion PASSED unanimously.

B. **Legislative Hearing: Proposed Amendments to Chapter 17.54 of the McMinnville Zoning Ordinance Regarding Accessory Structures and Yards (Docket G 1-24) - (Exhibit 4)**

Proposal: This is a proposed legislative amendment to the Zoning Ordinance, initiated by the City of McMinnville. The proposal would amend various provisions of Chapter 17.54 regarding residential accessory structures and yards. The proposal would include the following changes:

- allow for attached unenclosed covered patios, unenclosed covered decks, and uncovered decks to encroach into the rear yard setback, provided they are no closer than ten (10) feet to the rear property line;
- also allow uncovered decks located behind the rear building line to encroach into the interior side yard no closer than five (5) feet to the side property line;
- remove the limitation of one (1) residential accessory structure allowed within the rear yard; and
- increase the maximum size of accessory structures which are allowed encroachments into certain yards from 100 square feet to 200 square feet.

Applicant: City of McMinnville

Disclosures: Chair Winfield opened the public hearing and asked if there was any objection to the jurisdiction of the Commission to hear this matter. There was none. She asked if any Commissioner wished to make a disclosure or abstain from participating or voting on this application. There was none.

Staff Presentation: Senior Planner Graybehl presented the staff report. This was a request for amendments to Chapter 17.54 of the City's zoning ordinance. He explained the process for the revisions and proposed changes including removing the detached

requirements for patios and decks, removing the restriction of a maximum of one accessory structure, providing additional examples of detached accessory structures, allowing the area of a residential accessory structure in the setback to be increased from 100 to 200 square feet, and residential accessory structures placed prior to these code changes would continue as legally non-conforming. Staff recommended approval.

Public Testimony: None

Commissioner Tucholsky moved to close the public hearing; Seconded by Commissioner Mudrak. The motion passed unanimously.

Chair Winfield closed the public hearing.

Based on the findings of fact, conclusionary findings for approval, materials submitted by the applicant, and evidence in the record, Commissioner Tucholsky MOVED to RECOMMEND the City Council APPROVE G 1-24; SECONDED by Commissioner Rankin. The motion PASSED unanimously.

7. Work Session: Follow-Up Discussion re: Transitional Housing

Associate Housing Planner Hietpas said staff would bring this back to the Commission in November. There was a Work Session scheduled with the Council on October 8. He had given an update to the Affordable Housing Committee and a subcommittee was formed to continue the discussion on local need and messaging. An open house was also being planned.

Commissioner Flores acknowledged the work being done by community partners to address the need for housing. They were currently meeting only 10% of the need across the resources available.

8. Commissioner Comments

None

9. Staff Comments

Community Development Director Richards discussed a lawsuit relative to the Endangered Species Act which impacted FEMA and NFIP programs. Any city that allowed development in the flood plain would need to go through an Endangered Species Act analysis. Staff would be looking at how this would affect McMinnville. They had submitted the Housing Needs Analysis to the state and there were two objections to it from the Friends of Yamhill County, 1,000 Friends, and Mark Davis. The state had affirmed the City's work except for one objection, the parkland inventory of existing land. They City had elected not to appeal it and it would go back to Council to add the 76 acres to the inventory and reduce the needs analysis by that amount. Friends of Yamhill County, 1,000 Friends, and Mark Davis appealed the decision affirming the work and LCDC had scheduled the appeal hearing for October 25. They would be posting for a Planning Manager position soon, and interviews would be in November.

10. Adjournment

Chair Winfield adjourned the meeting at 7:51 p.m.



EXHIBIT 4 - MINUTES

November 21, 2024
Planning Commission
Work Session & Regular Meeting

5:30 pm
Hybrid Meeting
McMinnville, Oregon

Members Present: Sidonie Winfield, Dan Tucholsky, Sylla McClellan, Beth Rankin, Brian Randall, Rachel Flores, Meg Murray, Elena Mudrak, and Matt Jones

Members Absent:

Staff Present: Heather Richards – Community Development Director, Tom Schauer – Senior Planner, Taylor Graybehl – Senior Planner, Evan Hietpas – Associate Housing Planner, Matthew Deppe – Associate Planner, and Bill Kabeiseman – Legal Counsel, Bateman Seidel

1. Work Session: Water Master Plan Update (2021 – 2041)

Chair Winfield called the Work Session to order at 5:30 p.m.

Senior Planner Schauer introduced the Water Master Plan update including the water system, regulatory context, Statewide Planning Goal 11 for public facilities and services, and Oregon Administrative Rules for public facilities planning. This would come back to the January 16 Planning Commission meeting.

Community Development Director Richards discussed what needed to be adopted in the Comprehensive Plan in order to implement the program.

Shad Roundy with Jacobs presented the McMinnville Water & Light Water System Plan addendum. He explained the objectives of the addendum, population and demand projections, storage requirements, water supply requirements, water distribution system evaluation and capacity, Capital Improvement Plan summary and costs, and adoption steps.

There were questions regarding conservation efforts, industrial customers and largest water users, wholesale water to Carlton and Lafayette, undergrounding electric lines when streets were torn up for projects, standards for handling fire risk areas, and replacing old infrastructure.

Chair Winfield adjourned the Work Session at 6:20 p.m.

2. Call to Order

Chair Winfield called the regular meeting to order at 6:30 p.m.

3. Citizen Comments

None

4. Minutes

- September 19, 2024

Commissioner Tucholsky moved to approve the September 19, 2024, minutes. The motion was seconded by Commissioner Flores and passed unanimously.

5. Public Hearings

A. Quasi-Judicial Hearing: Planned Development Amendment (PDA 1-24) and Amendment to Subdivision Tentative Plan (S 3-24), No Site Address (Undeveloped), Tax Lot R4524 00801

Request: **PDA 1-24.** The applicant is requesting approval of a Planned Development Amendment to the current Planned Development approval applicable to the property for the remaining undeveloped phases, approximately 106 remaining acres. Principal elements of the proposed amendment include requests to: reconfigure parts of the street layout, change the number of remaining residential lots from 394 to 392, provide tracts for open space and recreation and pedestrian connections (approximately 13 acres) and stormwater management (approximately 1.6 acres), modify phasing boundaries, and request modifications to certain development standards, including reduced setbacks, lot size averaging with average lot size of 7,960 sf and minimum lot size of 5,000 sf, and flexibility to street/alley standards for address frontage for three lots, and request to remove all trees as necessary to accommodate the proposed development plan.

The proposal would also revise 43 of the lots currently approved for attached housing to standard lots proposed as detached housing.

S 3-24. The applicant is also requesting approval of an amendment to the corresponding Subdivision Tentative Plan for the property, to be consistent with the requested Planned Development Amendment.

Applicant: Holt Homes, Inc. c/o Applicant's Consultant: Zach Pelz, AKS Engineering & Forestry, LLC

Chair Winfield said this public hearing was closed at the last meeting on November 7, but the record was left open for additional testimony until 5 p.m. today. The record was now closed.

Staff Report: Senior Planner Schauer reviewed the applications, criteria, and updated conditions. This was a quasi-judicial decision with the Planning Commission making a recommendation to City Council. It was a request for a Planned Development amendment and subdivision tentative plan amendment for the remaining phases of the Hillcrest Planned Development, approximately 106 acres. He discussed the materials submitted after the November 7 hearing, key updated items, and staff recommendation for approval with conditions.

Commission Deliberation: The Commission discussed the conditions for tree removal mitigation and the applicant's concern regarding the cost, flexibility for planned developments,

play area for the kids, and concern about preserving the uniqueness of the land and larger trees.

Commissioner Tucholsky MOVED to RECOMMEND the City Council APPROVE Planned Development Amendment (PDA 1-24) based on the findings and conditions in the updated decision document except conditions 15 and 23. SECONDED by Commissioner Jones. The motion PASSED 8-1 with Commissioner Mudrak opposed.

Commissioner McClellan MOVED to RECOMMEND the City Council APPROVE Amendment to Subdivision Tentative Plan (S 3-24) based on the findings and conditions in the updated decision document. SECONDED by Commissioner Rankin. The motion PASSED 9-0.

B. **Quasi-Judicial Hearing: Zoning Variance Request (VR 2-24). 2005 NW Michelbook Lane) Tax Lot R4417BD00800**

Request: **VR 2-24.** The applicant is requesting approval of a Zoning Variance to install a pool and fence within the required exterior side yard setbacks of a property. The subject property is located on the corner of NW Michelbook Lane and NW 20th Street. The subject property is zoned R-1 (Low-Density, 9000 SF Lot Residential Zone). All adjacent properties are zoned R-1. The subject site is developed with a single detached house with an attached garage, and a driveway on the south side of the lot accessed from 20th Street.

Applicant: Andrew and Susanne Duvall

Chair Winfield opened the public hearing and read the hearing statement. She asked if there was any objection to the jurisdiction of the Commission to hear this matter. There was none. She asked if any Commissioner wished to make a disclosure or abstain from participating or voting on this application. There was none. Chair Winfield asked if any Commissioners had visited the site. Many Commissioners had visited the site. Chair Winfield asked if any Commissioner needed to declare any contact prior to the hearing with the applicant or any party involved in the hearing or any other source of information outside of staff regarding the subject of this hearing. There was none.

Staff Report: Associate Housing Planner Hietpas presented the request for a zoning variance. He discussed the criteria and review process, subject property, variance request for the installation of a pool and 6-foot tall fence within the required exterior yard setback, setbacks and standards, background, staff recommendation for approval, public comment of support, decision process, and options.

Applicant's Testimony: Andrew Duvall, applicant, said they were trying to comply with the City's standards and safety requirements. The neighborhood supported the application.

There was no other public testimony.

Commissioner Tucholsky MOVED to CLOSE the public hearing, SECONDED by Commissioner Murray. The motion PASSED 9-0.

Chair Winfield closed the public hearing.

The applicant waived the 7 day period for submitting final written arguments in support of the application.

Commissioner Deliberation: There was concern about the encroachments and pedestrian and bicycle safety. They were in agreement with the proposed four foot solid fence with a two foot pervious top.

Commissioner Tucholsky MOVED to APPROVE Zoning Variance Request (VR 2-24). 2005 NW Michelbook Lane) Tax Lot R4417BD00800 subject to the conditions in the decision document. SECONDED by Commissioner Murray. The motion PASSED 9-0.

C. **Quasi-Judicial Hearing: Northeast Gateway District Review with Waivers (NEG 1-24), 1050 & 1066 NE Alpine Avenue, Tax Lots R4421BA01000 & 01001**

Request: **NEG 1-23.** The applicant is requesting approval of a Northeast Gateway District Review with waivers to place a 17-unit hotel at 1066 NE Alpine Avenue. The application includes a request for a waiver to three (3) development standards of the Northeast Gateway Planned Development Overlay, specifically Sections 7.B.2, 7.I.1, and 7.I.2. The request includes a waiver for the requirement of 60% glazing below a point above the sidewalk for 7.B.2 and 7.I.2 and a waiver for the requirement of regularly spaced and similarly shaped windows on the front façade.

Applicant: Wechter Architecture / Duncan Scovil

Chair Winfield opened the public hearing and read the hearing statement. She asked if there was any objection to the jurisdiction of the Commission to hear this matter. There was none. She asked if any Commissioner wished to make a disclosure or abstain from participating or voting on this application.

Commissioner McClellan disclosed that she was friends with the applicant but could make an unbiased decision.

Chair Winfield asked if any Commissioners had visited the site. Many Commissioners had visited the site. Chair Winfield asked if any Commissioner needed to declare any contact prior to the hearing with the applicant or any party involved in the hearing or any other source of information outside of staff regarding the subject of this hearing. There was none.

Staff Report: Senior Planner Graybehl presented the request for a 17-unit hotel development in the Northeast Gateway District with three waivers. He reviewed the site plan, elevations, signage, parking, landscape plan and property line adjustment, staff recommendation for approval, existing conditions, Northeast Gateway Plan standards, review procedures, review criteria and compliance, waiver requests and criteria, and conditions of approval.

Commissioner Questions: There were questions regarding the size of the proposed sign.

Applicant's Testimony: Tim Wade, applicant, said the project would build on the momentum of the significant public improvement efforts on Alpine Avenue. He and his wife had been investing in McMinnville for nearly a decade and were excited to make this next contribution to the community. This small hotel was designed to align with the goals of the NE Gateway District, and it would bolster the surrounding businesses.

There were questions about how the parking would operate, annual lease for parking, and potential for more parking if needed.

Proponents: None

Opponents: Greg White and Nathan Zook, business owners on Alpine Avenue, were concerned about the current congestion on Alpine and lack of parking. They suggested there be a plan for parking and to convert some of the large planters on the street into parking.

Community Development Director Richards noted a master planning process would soon be initiated for an update to the Downtown Plan which would include the NE Gateway District.

Rebuttal: None

Commissioner Tucholsky MOVED to CLOSE the public hearing, SECONDED by Commissioner Rankin. The motion PASSED 9-0.

Chair Winfield closed the public hearing.

The applicant waived the 7 day period for submitting final written arguments in support of the application.

Commissioner Deliberation: There was discussion regarding how the conditions could address parking, how the application met the existing code, how the application would bring more cars on Alpine instead of pedestrians, and the possibility that guests could park a little further away and walk.

Commissioner McClellan MOVED to APPROVE Northeast Gateway District Review with Waivers (NEG 1-24), 1050 & 1066 NE Alpine Avenue, Tax Lots R4421BA01000 & 01001 subject to the conditions in the decision document. SECONDED by Commissioner Randall. The motion PASSED 9-0.

6. Discussion – Transitional Housing

Associate Housing Planner Hietpas summarized the work that had been done and then discussed the outline for the upcoming open house including the facilitators, presentation on missing transitional housing opportunities, need and demand, and current proposal, four break out stations, comment cards, and promotion.

The Commission made suggestions for information to share at the open house including how transitional housing in this context did not cause disruption in the neighborhood or reduce property values, how the chutes and ladders approach represented the hardships faced by those in the community and how they became houseless, current unit numbers of transitional housing in the community and projection of what was needed, first person stories, adding a feedback loop for participants, collecting emails for people who wanted to know what was going on next as well as asking for authorization to use statements on comment cards but keeping them anonymous, adding churches to the additional potential attendees, creating flyers in Spanish, adding these questions for the open house: which zoning areas would be appropriate for transitional housing and should the public be informed of transitional housing in their neighborhood, and reaching out to Unidos for Spanish translation at the event.

Community Development Director Richards said they had received about 350 responses on the Housing Production Strategy survey and they wanted to get to 500 in the next week.

7. Commissioner Comments

Commissioner Mudrak thought they should consider small incremental changes to prioritize pedestrians and bicycles over automobiles as they moved forward.

Chair Winfield would be gone for the next meeting.

8. Staff Comments

Staff discussed upcoming meetings and Planning Manager interviews.

9. Adjournment

Chair Winfield adjourned the meeting at 9:14 p.m.

EXHIBIT 5 – STAFF REPORT

DATE: January 16, 2025
TO: Planning Commission Members
FROM: Evan Hietpas, Associate Housing Planner
SUBJECT: Comprehensive Plan Amendment and Zone Change (CPA 1-24/ZC 4-24)

STRATEGIC PRIORITY & GOAL:



GROWTH & DEVELOPMENT CHARACTER

Guide growth and development strategically, responsibly, and responsibly to enhance our unique character

OBJECTIVE: Strategically plan for short and long-term growth and development that will create enduring value for the community.

Report in Brief:

This agenda item is a quasi-judicial public hearing to consider the Comprehensive Plan Amendment and Zone Change application for property located at 2320 SE Stratus Avenue, Tax Lots R442700600 & R442700604. After conducting the Public Hearing, the Planning Commission will make a recommendation to the McMinnville City Council for consideration. The City Council will make the final decision on this application.

Comprehensive Plan Map Amendment (CPA 1-24) and Zone Change Application (ZC 4-24) -

The application requests the approval of a concurrent approval of a Comprehensive Plan Map Amendment and Zone Change from Industrial to Residential. The subject parcels are currently designated Industrial on the McMinnville Comprehensive Plan Map and are designated M-1 on the Zoning Map. The request, if approved, would designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map. A Comprehensive Plan Amendment and Zone Change proposal must satisfy all relevant requirements of the review criteria set forth in McMinnville Municipal Code (MMC) 17.74.020.

Staff is recommending **approval** of this Comprehensive Plan Map Amendment and Zone Change application.

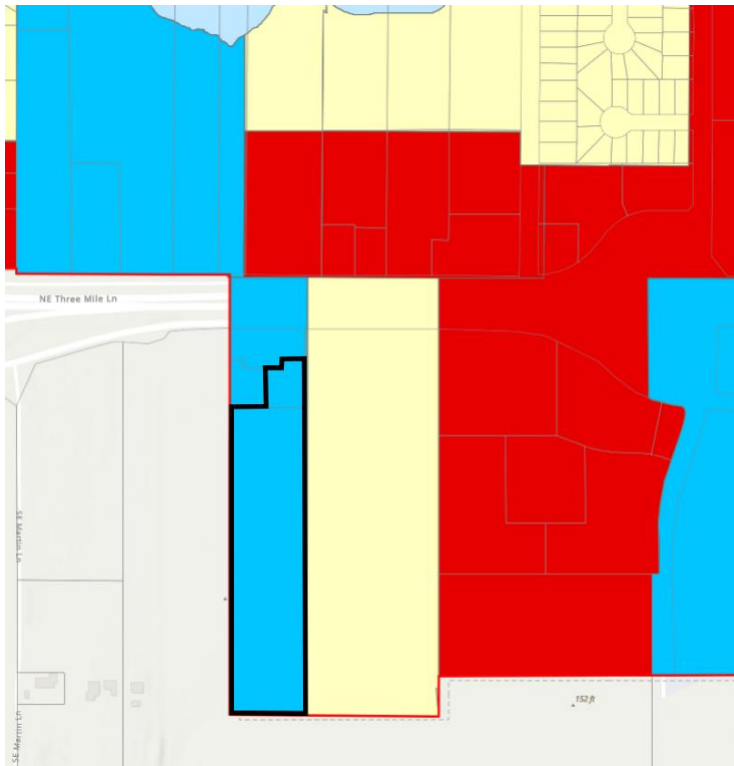
Background:

The applicant and property owner submitted a Zone Change application to the Community Development Department on October 4, 2024. The application was deemed complete on October 28, 2024. A Notice of public hearing was mailed to all property owners within 300 feet of the exterior boundary of the subject property on December 26, 2024. Notice of the public hearing was published in the News Register on January 10, 2025.

FIGURE 1. VICINITY MAP OF SUBJECT PROPERTIES (PROPERTY LINES APPROXIMATE)



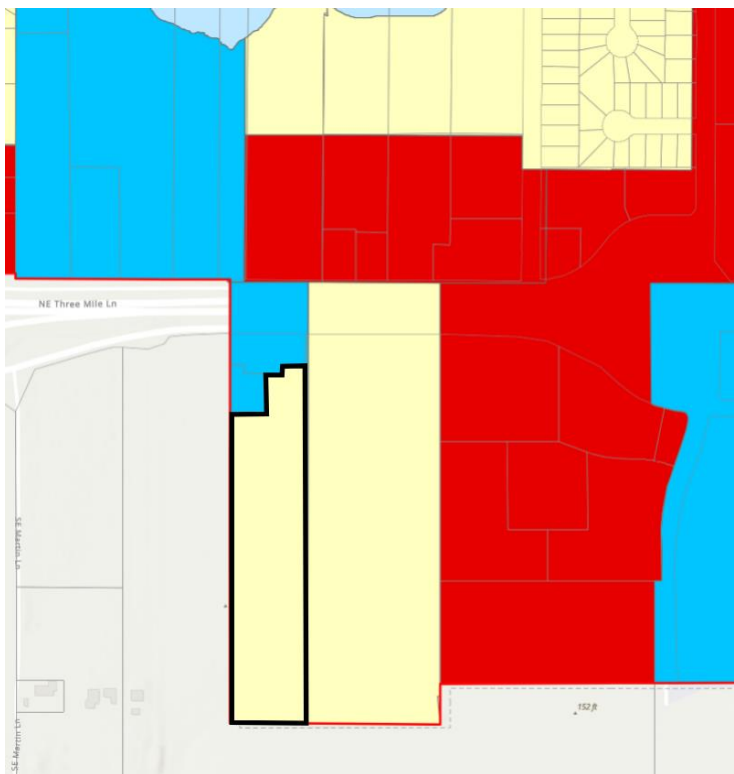
FIGURE 2A. EXISTING COMPREHENSIVE PLAN MAP



Comprehensive Plan

- Residential
- Urban Holding
- Commerical
- Industrial
- Mixed Use Urban
- Floodplain

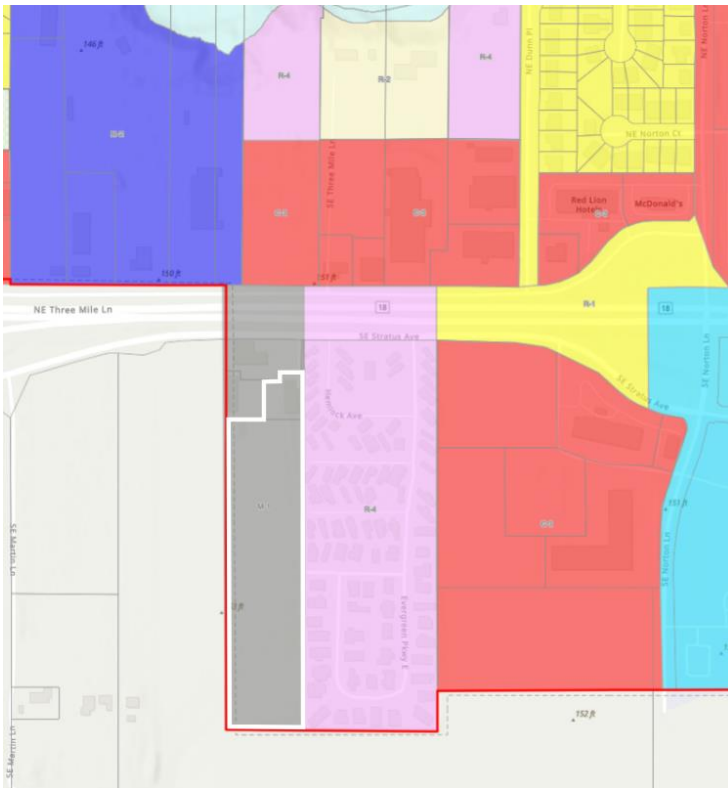
FIGURE 2B. PROPOSED COMPREHENSIVE PLAN MAP



Comprehensive Plan

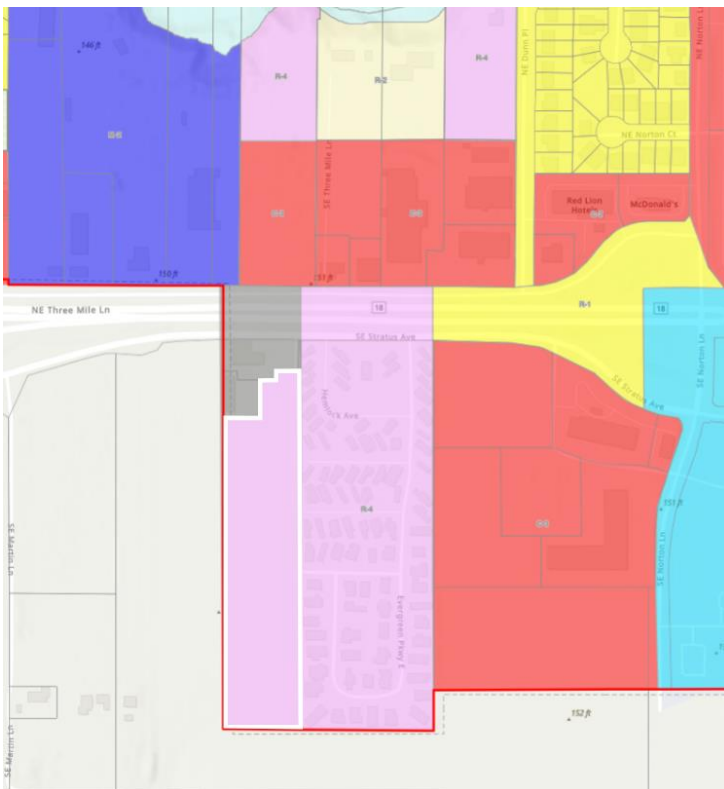
- Residential
- Urban Holding
- Commerical
- Industrial
- Mixed Use Urban
- Floodplain

FIGURE 3A. EXISTING ZONING MAP



City Zoning	
	R-1
	R-2
	R-3
	R-4
	O-R
	C-1
	C-2
	C-3
	M-L
	M-1
	M-2
	A-H
	F-P

FIGURE 3B. PROPOSED ZONING MAP



City Zoning	
	R-1
	R-2
	R-3
	R-4
	O-R
	C-1
	C-2
	C-3
	M-L
	M-1
	M-2
	A-H
	F-P

Discussion

The Conclusionary Findings are the findings regarding consistency with the applicable criteria for the application. The applicable criteria and standards for a Zone Change are found in the MMC, Title 17, Chapter 17.74 of the Zoning Ordinance.

In addition, the goals, policies, and proposals in Volume II of the Comprehensive Plan are to be applied to all land use decisions as criteria for approval, denial, or modification of a proposed request. Goals and policies are mandated; all land use decisions must conform to the applicable goals and policies of Volume II.

Amendments to the City's adopted and acknowledged planning documents, including amendments to the Comprehensive Plan Map and Zoning Map, are also subject to certain Statewide Planning Goals and associated statutes and administrative rules.

Staff found that comprehensive plan amendment/zone change application CPA 1-24/ZC 4-24 satisfied all code criteria, applicable Comprehensive Plan Goals and Polices, and applicable Statewide Planning Goals.

Attachments:

- Attachment 1. CPA 1-24/ ZC 4-24 Decision Document

Planning Commission Options:

- 1) Close the public hearing and recommend that the City Council **APPROVE** the application, per the decision documents provided which includes the findings of fact.
- 2) Close the public hearing and recommend that the City Council **APPROVE** the application, per the decision document provided which includes the findings of fact, **WITH ADDITIONAL CONDITIONS.**
- 3) **CONTINUE** the public hearing to a specific date and time.
- 4) Close the public hearing and **DENY** the application, providing findings of fact for the denial in the motion to deny.

***Note:** This is the first evidentiary hearing for these quasi-judicial applications. Any party may request that the hearing be continued or the record be left open.*

Recommendation/Suggested Motion:

Tonight's hearing will require a motion from the Planning Commission. Staff's recommendation for the motion is below:

Staff recommends that the Planning Commission make the following motion recommending approval of CPA 1-24 and ZC 4-24:

BASED ON THE FINDINGS OF FACT, THE CONCLUSIONARY FINDINGS FOR APPROVAL, AND THE MATERIALS SUBMITTED BY THE CITY OF McMINNVILLE, THE PLANNING COMMISSION RECOMMENDS TO THE MCMINNVILLE CITY COUNCIL THAT CPA 1-24/ZC 4-24 BE APPROVED SUBJECT TO THE ATTACHED DECISION DOCUMENT.

Attachment 1 - Decision Document



City of McMinnville
Community Development
231 NE Fifth Street
McMinnville, OR 97128
(503) 434-7311

www.mcminnvilleoregon.gov

DECISION, CONDITIONS, FINDINGS OF FACT AND CONCLUSIONARY FINDINGS FOR THE APPLICATION FOR A COMPREHENSIVE PLAN MAP AMENDMENT AND ZONE CHANGE FROM INDUSTRIAL, M-1 ZONING (LIGHT INDUSTRIAL) TO RESIDENTIAL, R-4 (MEDIUM, HIGH DENSITY RESIDENTIAL) FOR A PROPERTY OF APPROXIMATELY 5.8 ACRES, LOCATED AT 2320 SE STRATUS AVENUE, TAX LOTS R442700600 & R442700604.

I. INTRODUCTION

DOCKET: Comprehensive Plan Amendment (CPA 1-24) and Zone Change (ZC) 4-24

REQUEST: The application requests the approval of a concurrent approval of a Comprehensive Plan Map Amendment and Zone Change from Industrial to Residential. The subject parcels are currently designated Industrial on the McMinnville Comprehensive Plan Map and are designated M-1 on the Zoning Map. The request, if approved, would designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map.

LOCATION: Site Address: 2320 SE Stratus Avenue
Map and Tax Lots: R442700600 & R442700604

CURRENT COMPREHENSIVE PLAN DESIGNATION: Industrial

CURRENT ZONING: M-1 (Light Industrial)

APPLICANT: Commonwealth Development Corporation c/o Daniel DiFrancesco

APPLICANT'S REPRESENTATIVE: Cascadia Planning + Development Services c/o Steve Kay

PROPERTY OWNERS: Jodi L Devonshire, Andrea M Feero, and Jennifer L Feero

CITY STAFF: Evan Hietpas, Associate Housing Planner

DATE DEEMED COMPLETE: October 28, 2024

Attachments:

Attachment 1 – Application and Attachments

HEARINGS BODY & ACTION:

The McMinnville Planning Commission makes a recommendation to the City Council. A Planning Commission recommendation of approval is transmitted to the City Council for a decision. A Planning Commission recommendation/decision of denial becomes the final decision unless that decision is appealed to the City Council.

**PLANNING COMMISSION
HEARING DATE & LOCATION:**

January 16, 2025, at 6:30 P.M., Kent Taylor Civic Hall,
200 NE 2nd Street, McMinnville, OR 97128
Zoom Meeting ID: 893 6863 4307; Passcode: 989853

PROCEDURE:

Application for Comprehensive Plan Amendments and Zone Changes are processed in accordance with the procedures in Section 17.72.120 of the McMinnville Municipal Code. The application is reviewed by the Planning Commission in accordance with the quasi-judicial public hearing procedures specified in Section 17.72.130 of the McMinnville Municipal Code.

DECISION-MAKING BODY:

The McMinnville City Council makes the final decision, unless the Planning Commission recommendation is denial, in which case that is the final decision unless the Planning Commission decision is appealed to City Council.

**CITY COUNCIL MEETING
DATE & LOCATION:**

Tentatively scheduled for:
February 11, 2025, at 7:00 P.M. Kent Taylor Civic Hall,
200 NE 2nd Street, McMinnville, OR 97128
Zoom ID: 895 7953 6277; Zoom Password: 108222

CRITERIA:

The applicable criteria for Comprehensive Plan Amendment and Zone Change is specified in Section 17.74.020 of the McMinnville Municipal Code. In addition, the goals, policies, and proposals in Volume II of the Comprehensive Plan are to be applied to all land use decisions as criteria for approval, denial, or modification of the proposed request. Goals and policies are mandated; all land use decisions must conform to the applicable goals and policies of Volume II. "Proposals" specified in Volume II are not mandated, but are to be undertaken in relation to all applicable land use requests. The proposal must also be consistent with applicable provisions of state law.

APPEAL:

The Planning Commission makes a recommendation to the City Council. If the Planning Commission recommendation is approval, the recommendation is forwarded to City Council to make the final decision. If the Planning Commission recommendation/decision is denial, then that is the final decision unless the Planning Commission's decision is appealed to the City Council per Section 17.72.180 of the McMinnville Municipal Code.

As specified in Section 17.72.190 of the McMinnville Municipal Code, the City Council's decision may be appealed to the Land Use Board of Appeals (LUBA) within 21 (twenty-one) days of the date written notice of decision is mailed.

Note: *The City's final decision is usually subject to a 120-day processing timeline, including resolution of any local appeal. However, per ORS 227.178(7), the 120-day period does not apply to a decision of the city making a change to an acknowledged comprehensive plan or a land use regulation that is submitted to the Director of the Department of Land Conservation and Development under ORS 197.610.*

COMMENTS:

This matter was referred to the following public agencies for comment: McMinnville Fire Department, Police Department, Engineering Department, Building Department, Parks Department, Public Works Department, Waste Water Services, City Manager, and City Attorney; McMinnville Water and Light; McMinnville School District No. 40; Yamhill County Planning Department; Ziplly Fiber (formerly Frontier Communications); Comcast; Recology; Northwest Natural Gas; Oregon Department of State Lands; and Oregon Department of Transportation. Their comments are provided in Section IV of this document.

II. RECOMMENDATION

Based on the findings and conclusionary findings, the Planning Commission finds that the applicable criteria are satisfied and **RECOMMENDS APPROVAL** of Comprehensive Plan Map Amendment and Zone Change (CPA 1-24 & ZC 4-24).

////////////////////////////////////
////////////////////////////////////
RECOMMENDATION: APPROVAL
////////////////////////////////////
////////////////////////////////////

Planning Commission: _____
Sidonie Winfield, Chair of the McMinnville Planning Commission

Date: _____

Planning Department: _____
Heather Richards, Community Development Director

Date: _____

Table of Contents

I. INTRODUCTION 1

II. RECOMMENDATION 4

III. APPLICATION SUMMARY 6

Subject Property & Request..... 6

Figure 1. Vicinity Map OF SUBJECT PROPERTIES..... 6

Figure 2a. Existing COMPREHENSIVE PLAN Map 7

Figure 2B. PROPOSED COMPREHENSIVE PLAN Map..... 7

Figure 3a. Existing Zoning Map..... 8

Figure 3b. Proposed Zoning Map 8

IV. CONDITIONS..... 9

V. ATTACHMENTS..... 9

VI. COMMENTS 9

Agency Comments 9

Public Comments 10

VII. PROCEDURAL FINDINGS OF FACT 10

VIII. GENERAL FINDINGS OF FACT 11

IX. THREE MILE LANE AREA PLAN 12

Summary..... 12

Land Use Concept..... 12

X. CONCLUSIONARY FINDINGS 14

Section 17.74.020. Comprehensive Plan Map Amendment and Zone Change - Review 14

Criteria 14

Comprehensive Plan Volume II 20

CHAPTER II. NATURAL RESOURCES 20

CHAPTER V. HOUSING AND RESIDENTIAL DEVELOPMENT 22

CHAPTER VI TRANSPORTATION SYSTEM..... 24

CHAPTER IX. URBANIZATION 25

CHAPTER X. CITIZEN INVOLVEMENT AND PLAN AMENDMENT 26

Statewide Planning Goals 27

III. APPLICATION SUMMARY

Subject Property & Request

The applicant requests concurrent amendments to the Comprehensive Plan Map and Zoning Map from Industrial to Residential and M-1 (Light Industrial) to R-4 (Medium, High-Density, 5000 SF Lot Residential Zone), for two parcels of approximately 5.8 acres, located at 2320 SE Stratus Avenue (Tax Lots R442700600 & R442700604). **See Vicinity Map (Figure 1), Comprehensive Plan Map (Figure 2A), and Zoning Map (Figure 3A).**

Comprehensive Plan Designations

The City establishes the following Comprehensive Plan Map Designations, which relate to the zoning map. The Residential designation covers all the zoning designations from R-1 through R-5, and any additional zones that may be created for residential uses. The Industrial designation covers all the industrial zones, from M-L to M-2, and any future industrial designations.

Zoning Designations

The M-1 (Light Industrial) zoning district is suitable for industrial uses that can be operated within a wholly enclosed building (outside storage of materials permitted if properly screened), and which are engaged in the manufacturing, processing, assembly, packaging, or treatment of finished or semi-finished products from previously prepared or processed materials. Warehousing, wholesaling, and limited commercial uses are also permitted. Residential uses are prohibited.

The R-4 (Medium, High-Density, 5000 SF Lot Residential Zone) zoning district allows a broad range of residential uses, including middle housing, apartments and large single-resident occupancy (SRO) developments, and requires a minimum lot size of 5,000 square feet. However, as a reminder, this application is for a zone change and comprehensive plan map amendment, not an approval for a specific use. The proposed amendments would not limit which R-4 permitted uses would be authorized on the subject property.

FIGURE 1. VICINITY MAP OF SUBJECT PROPERTIES



FIGURE 2A. EXISTING COMPREHENSIVE PLAN MAP

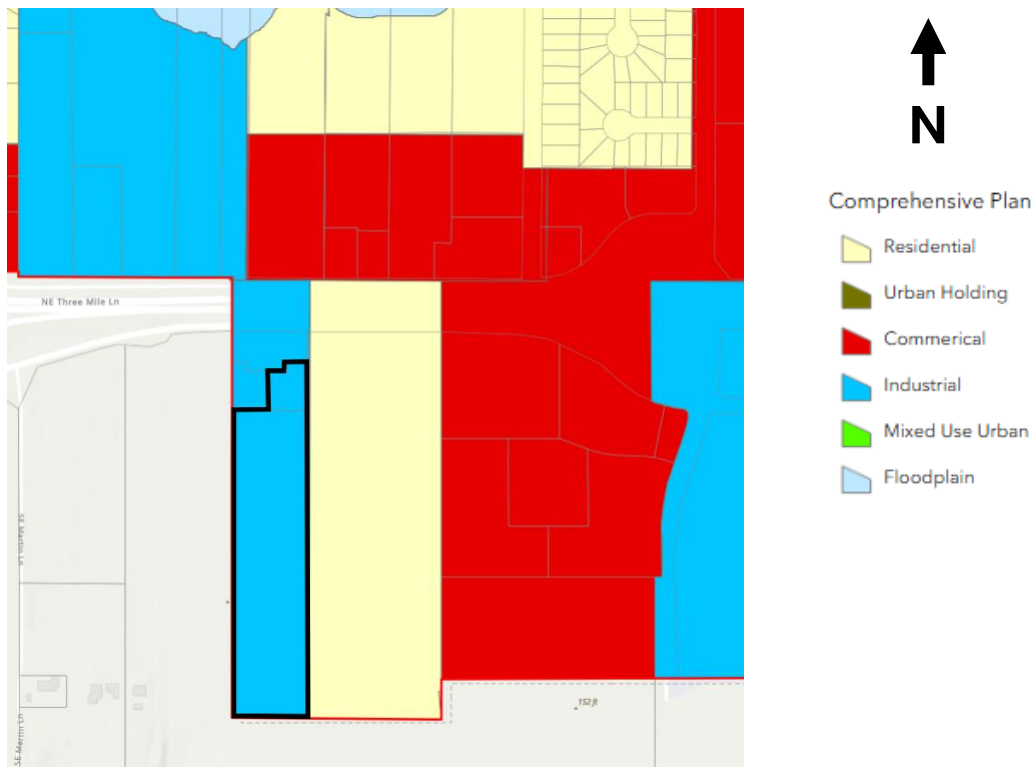


FIGURE 2B. PROPOSED COMPREHENSIVE PLAN MAP

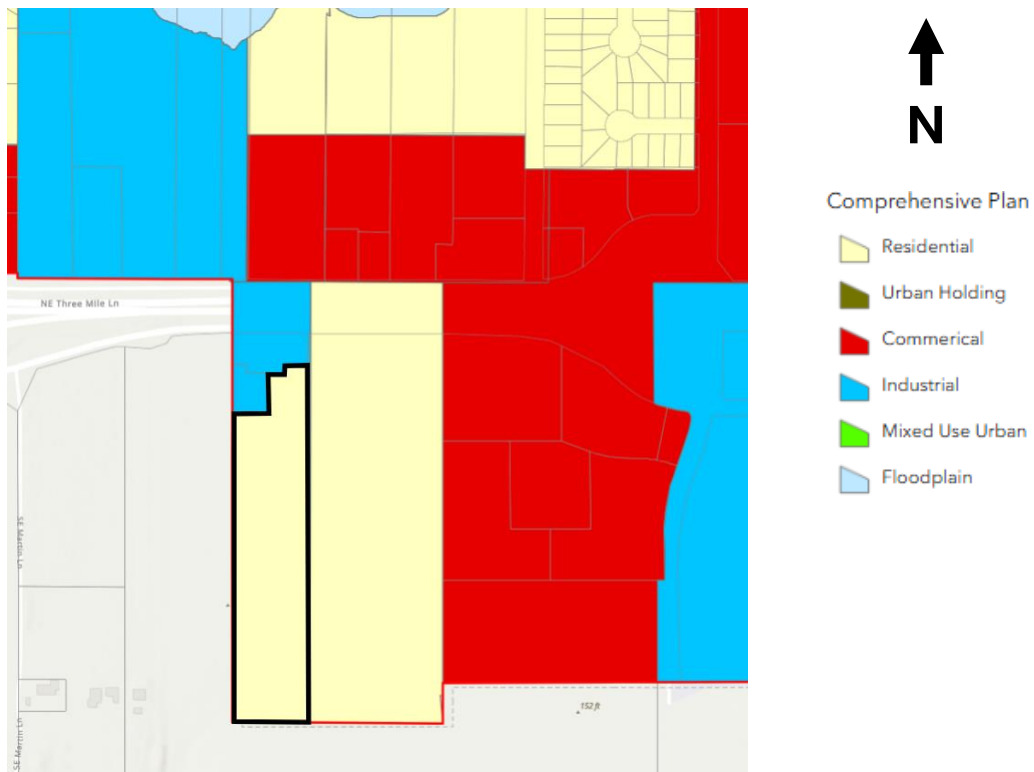


FIGURE 3A. EXISTING ZONING MAP

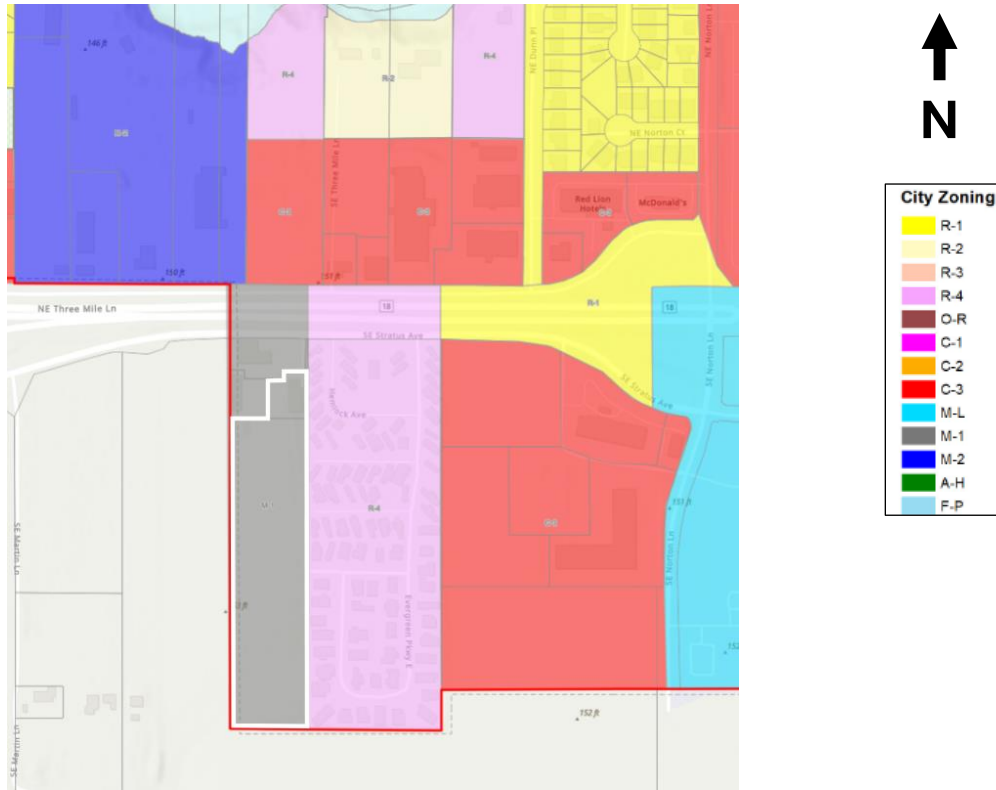
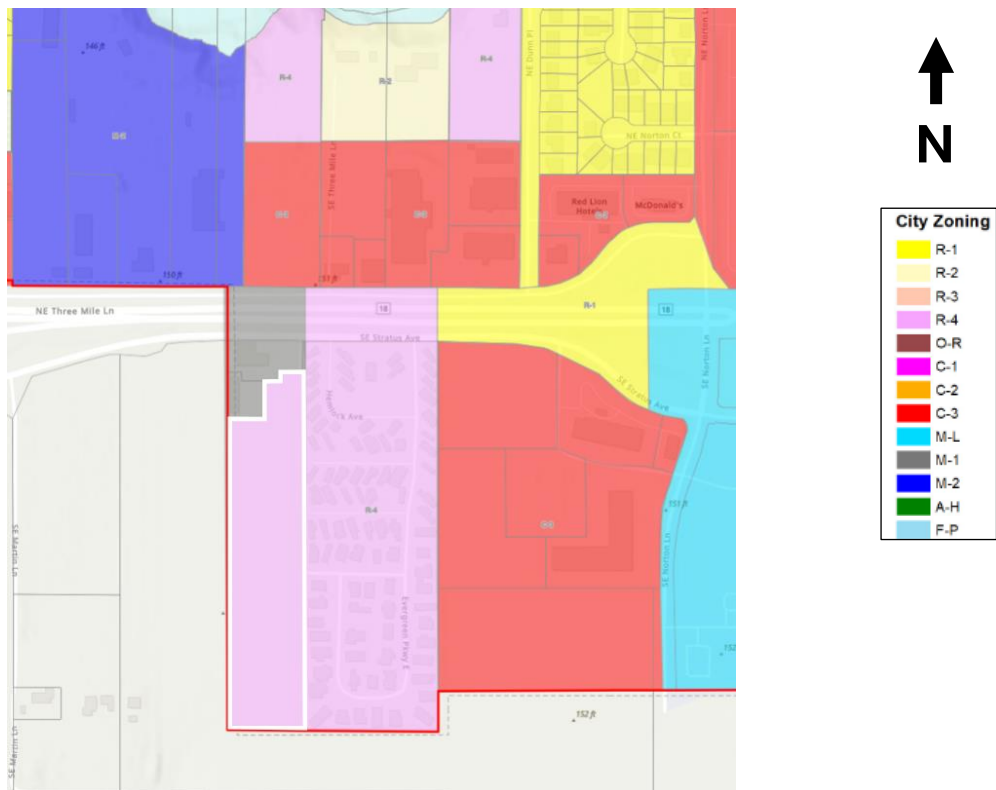


FIGURE 3B. PROPOSED ZONING MAP



IV. CONDITIONS

The decision is subject to the following conditions of approval:

1. Prior to any building permit issuance, the applicant shall be required to enter into a reimbursement agreement with the City for modeling the impacts of the proposed sanitary impacts. Depending on the results of this analysis the applicant may be responsible for associated costs for improvements to increase system capacity.
2. The applicant shall be required to clearly delineate on-site vehicular circulation to avoid conflicts between entry access to the site and the parking lot area. These details should be clearly shown on future site plan drawings submitted during the development permitting stage, including the Landscape Plan Review and Three Mile Lane Area Development Review processes.
3. The City does not have a formally adopted threshold for a “significant effect” to require a Transportation Planning Rule Analysis, therefore, the City will implement the Oregon Department of Transportation’s threshold, which has not been met for this Comprehensive Plan Amendment/Zone Change application. However, the City reserves the right to require a development Traffic Impact Analysis (TIA) at the time of development if the proposal will result in an increase of 200 daily round trips or 20 daily peak hour trips.
4. Landscape plan approval is required prior to issuance of a building permit for development in the R-4 zoning district, except the construction of a detached house or plex residential units), per MMC Chapter 17.57.
5. Development applications located within the Three Mile Lane Area are subject to an administrative development review process that must be completed prior to any building permit issuance, per Ordinance Nos. 4131 and 4572.

V. ATTACHMENTS

1. CPA 1-24, ZC 4-24 Application and Attachments (on file with the Planning Division)

VI. COMMENTS

Agency Comments

This application was referred to the following public agencies for comment: McMinnville Fire District, Police Department, Engineering Department, Building Department, Parks Department, Public Works Department, Waste Water Services, City Manager, and City Attorney; McMinnville Water and Light; McMinnville School District No. 40; Yamhill County Planning Department; Ziply Fiber (formerly Frontier Communications); Comcast; Recology; Northwest Natural Gas; Oregon Department of Transportation; and Oregon Department of State Lands.

Responses were received from the following agencies, provided below:

- McMinnville Engineering Division
 - The existing sanitary system serving this property has capacity constraints. Changing zoning from M-1 to R-4 results in an increase from 360 (gpnad) to 2,848 (gpnad). Depending on the proposed density within the R4 zone there may or may not be a capacity concern.

- Prior to any building permit issuance the applicant will be required to enter into a reimbursement agreement with the City for modeling the impacts of the proposed sanitary impacts. Depending on the results of this analysis the applicant may be responsible for associated costs for improvements to increase system capacity.
- McMinnville Water & Light
 - McMinnville Water & Light’s electric distribution system serving the Three Mile Lane corridor has capacity to supply power to a 96-unit residential apartment complex. However, future development would require additional electric infrastructure to be extended from the development site to MW&L’s distribution system. The cost and method of extension is unknown at this time and will be determined after the developer submits an application for service and related development plans.
 - Water system serving SE Stratus Avenue is a 10” water main. Adequate water may be available to serve the proposed development, but a hydrant flow test performed by the applicant’s engineer or fire flow professional may be required to determine actual capacity. This proposed development will require additional domestic, irrigation, fire line and hydrant infrastructure to be extended from the development site to MWL’s water distribution system.
- Oregon Department of Transportation
 - No objection or comments on this comprehensive plan amendment/zone change proposal. Likely will have comments when a development application comes in.
- McMinnville Building Division - No building code concerns
- McMinnville Fire District – No comment
- Comcast - No comment

Public Comments

Notice of this request was mailed to property owners located within 300 feet of the subject site on December 26, 2024. As of 3:00PM on January 9, 2025, no public testimony was submitted.

VII. PROCEDURAL FINDINGS OF FACT

1. The application was submitted with the fee provided on October 4, 2024. The applicant submitted the necessary documentation to demonstrate a neighborhood meeting was noticed and held in accordance with the provisions of Section 17.72.095 of the Zoning Ordinance.
2. The application was deemed complete on October 28, 2024.
3. On November 14, 2024, notice of the application was provided to the Oregon Department of Land Conservation and Development (DLCD).
4. On November 15, 2024, notice of the application was referred to the following public agencies for comment in accordance with Section 17.72.120 of the Zoning Ordinance: McMinnville Fire Department, Police Department, Engineering Department, Building Department, Parks Department, Public Works Department, Waste Water Services, and City Manager; McMinnville Water and Light; McMinnville School District No. 40; Yamhill County Planning Department; Ziply Fiber (formerly Frontier Communications); Comcast;

Recology; Northwest Natural Gas; Oregon Department of Transportation; and Oregon Department of State Lands. Comments received from agencies are addressed in Section VI of this Decision Document.

5. On December 26, 2024, notice of the application and the May 16, 2024, Planning Commission public hearing was mailed to property owners within 300 feet of the subject property in accordance with Section 17.72.120 of the Zoning Ordinance.
6. On January 10, 2025, notice of the application and the January 16, 2025, Planning Commission public hearing was published in the newspaper in accordance with Section 17.72.120 of the Zoning Ordinance.
7. The Planning Commission held a public hearing on January 16, 2025 to consider the request.

VIII. GENERAL FINDINGS OF FACT

1. **Location:**
 - o **Site Address:** 2320 SE Stratus Avenue
 - o **Map and Tax Lots:** R442700600 & R442700604
2. **Size:** Total of 5.8 acres. R442700600 is approximately 5.4 acres and R442700604 is approximately 0.4 acres.
3. **Current Development:**
 - a. R442700600: The property does not currently have any structures on the property.
 - b. R442700604: The property has one building on it that is currently being used as a single-family dwelling/storage building (pictured below).
4. **Comprehensive Plan Map Designation:** Industrial
5. **Current Zoning:**
 - a. **Subject Property:** M-1 (Light Industrial)
 - b. **Surrounding Properties:**
 - **North:** M-1 (Light Industrial)
 - **West:** Outside of McMinnville city limits
 - **South:** Outside of McMinnville city limits
 - **East:** R-4 (Medium, High-Density, 5000 SF Lot Residential Zone)
6. **Overlay Zones/Special Districts:** Three Mile Lane Area Plan (Ordinance 5126)
7. **Other Features:**
 - a. **Slopes:** The property is generally flat.
 - b. **Easements:** No city easements identified on the property.
 - c. **Trees:** There are approximately fifteen trees located throughout the project site.
8. **Utilities:**
 - a. **Water:** McMinnville Water & Light has a water system with a 10" water main serving SE Stratus Avenue.
 - b. **Sewer:** The existing sanitary system serving this property has capacity constraints. Depending on the proposed density of future development, there may or may not be



a capacity concern. Prior to any building permit issuance the applicant will be required to enter into a reimbursement agreement with the City for modeling the impacts of the proposed sanitary impacts. Depending on the results of this analysis the applicant may be responsible for associated costs for improvements to increase system capacity. (*Condition of Approval #1*)

- c. **Stormwater:** Adequate stormwater infrastructure will be required by the City’s Engineering Division at the time of development. The Engineering Division has noted that on-site infiltration systems may have constraints in this area due to soil conditions, based on recent experiences with nearby development projects.
 - d. **Power:** McMinnville Water & Light’s electric distribution system serving the Three Mile Lane corridor has capacity to supply power to a 96-unit residential apartment complex. However, future development would require additional electric infrastructure to be extended from the development site to MW&L’s distribution system. The cost and method of extension is unknown at this time and will be determined after the developer submits an application for service and related development plans.
9. **Access:** The property has access thorough an easement to the North that connects the properties to SE Stratus Avenue, which is identified as a Minor Collector in the City’s Transportation System Plan.
 10. **Public Transit:** Yamhill County Transit provides bus service to the neighborhood through “Route 2”. The subject property does not currently have a bus stop directly in front of it, but future development of the Three Mile Lane Area, including residential and employment center developments may encourage increased access to bus service in the future. (map of Route 2 stops included to the right)¹

IX. THREE MILE LANE AREA PLAN

Summary

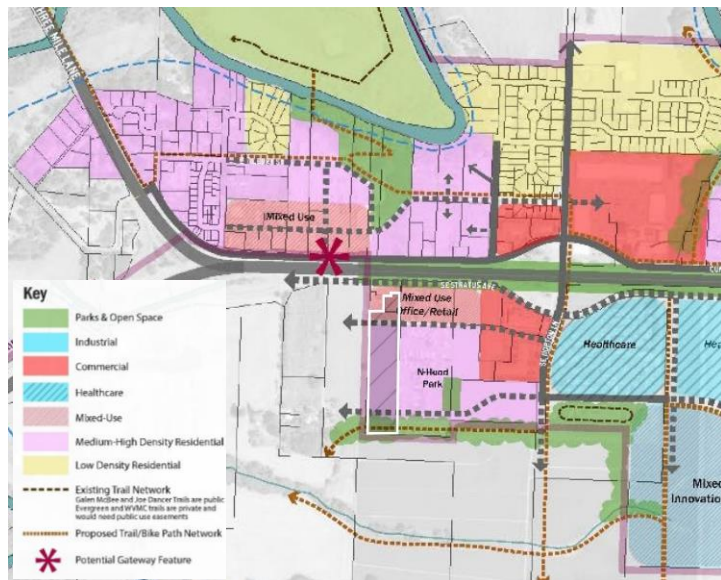
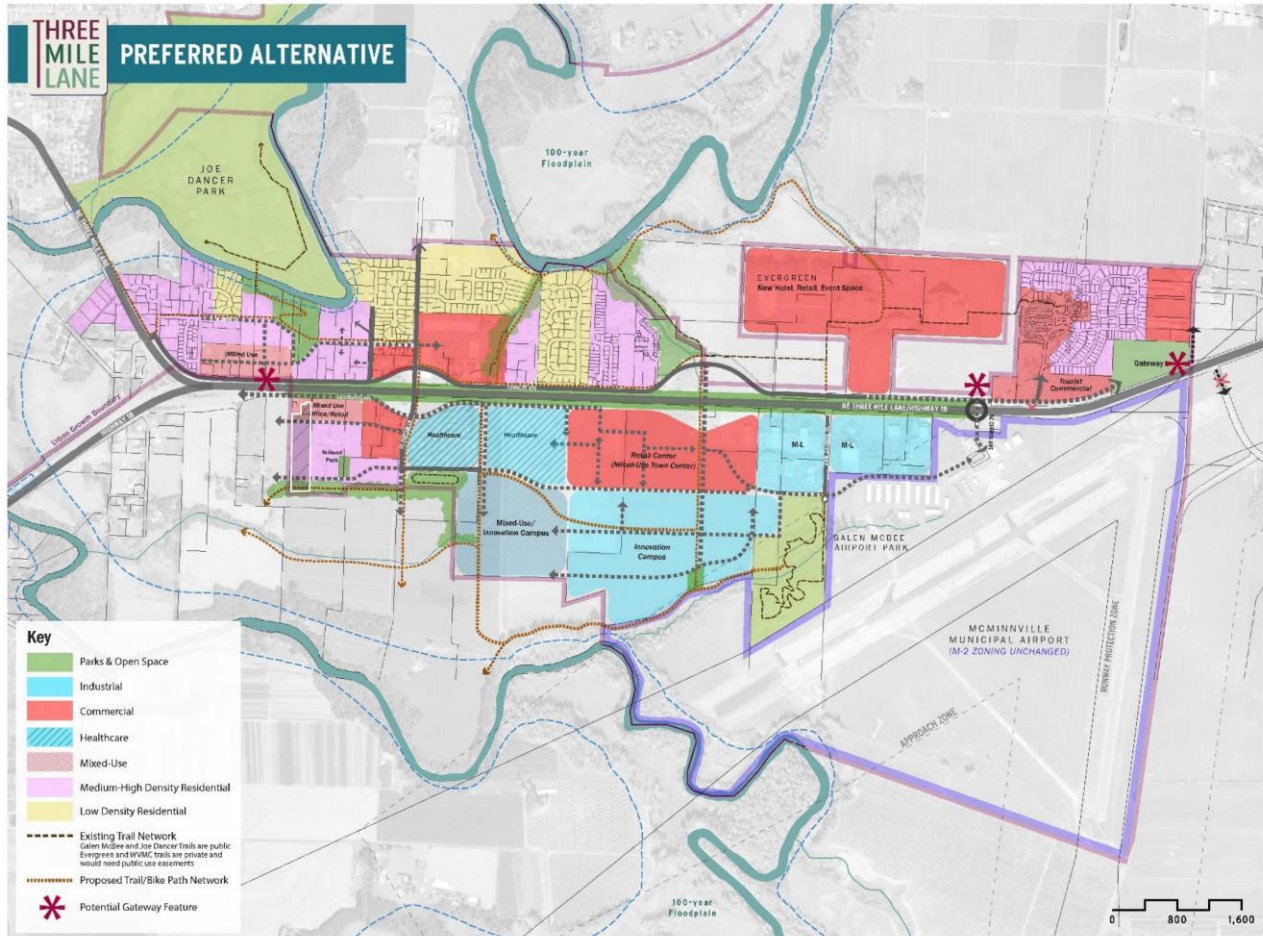
On November 8, 2022, the City Council voted to approve Ordinance No. 5126 adopting the Three Mile Lane Area Plan and its appendices as a supplemental document to the McMinnville Comprehensive Plan. The Three Mile Lane area is a unique district in the southeast portion of the City of McMinnville. The area contains approximately 1,340 acres of land with a variety of existing land uses and several large vacant parcels. The Three Mile Lane Area Plan serves as a guiding document for land uses and public facilities in the delineated area of this plan.

Land Use Concept

The Three Mile Lane Area Plan’s land uses are shown in Figure 6. The defining characteristics south of the highway include a mixed-use high-density residential neighborhood with neighborhood serving commercial amenities west of the hospital. A key feature of the plan included new residential neighborhoods and continued development of existing neighborhoods in locations in the western parts of the study area. In the land use concept, the subject properties for this application were assigned two different designations. The smaller, northern property with an existing shop was designated as “Mixed-Use”. The larger, southern property was primarily designated as “Medium-High Density Residential”.

¹ Yamhill County Transit. Routes and Schedules. <https://ycbus.org/routes-and-schedules/schedules/>

Figure 6. Three Mile Lane Area Plan



X. CONCLUSIONARY FINDINGS

The Conclusionary Findings are the findings regarding consistency with the applicable criteria for the application. The applicable criteria and standards for a Comprehensive Plan Map Amendment and Zone Change are found in Chapter 17.74 of the Zoning Ordinance.

In addition, the goals, policies, and proposals in Volume II of the Comprehensive Plan are to be applied to all land use decisions as criteria for approval, denial, or modification of a proposed request. Goals and policies are mandated; all land use decisions must conform to the applicable goals and policies of Volume II. “Proposals” specified in Volume II are not mandated, but are to be undertaken in relation to all applicable land use requests.

Amendments to the City’s adopted and acknowledged planning documents, including amendments to the Zoning Map, are also subject to certain Statewide Planning Goals and associated statutes and administrative rules.

Section 17.74.020. Comprehensive Plan Map Amendment and Zone Change - Review Criteria

An amendment to the official zoning map (and comprehensive plan map) may be authorized, provided that the proposal satisfies all relevant requirements of this ordinance, and also provided that the applicant demonstrates the following:

A. The proposed amendment is consistent with the goals and policies of the Comprehensive Plan;

APPLICANT’S RESPONSE: As required, the applicant has addressed applicable goals and policies of the Comprehensive Plan in the narrative provided in the application materials.

FINDING: SATISFIED. The applicant responded to all applicable Comprehensive Plan Goals and Policies. Staff found that the application and all applicant responses satisfied the goals and policies. A more detailed analysis of consistency with the goals and policies is included in the next section of this decision document.

B. The proposed amendment is orderly and timely, considering the pattern of development in the area, surrounding land uses, and any changes which may have occurred in the neighborhood or community to warrant the proposed amendment;

APPLICANT’S RESPONSE: The attached Preliminary Plans indicate that the subject site is located within the boundaries of the Three Mile Lane Area Plan (see Exhibit 3). The plan supports the redesignation of this site from Industrial to Medium-High Density Residential to support the development of low-rise garden apartments. Consistent with the area plan, the applicant is proposing to designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map.

The City of McMinnville’s current Housing Needs Analysis indicates that single-family and multi-family needs will be met through the development of 4,657 dwelling units during the 2021-2041 planning period. However, the existing residential land supply cannot meet the projected demand for housing units. It has

been determined that the City will have a projected deficiency of 1,926 dwelling units during the planning period even if all available residential land supply is developed. The attached Conceptual Plan indicates that the applicant is intending to develop 96 multi-family units on the site following the approval of the proposed map amendments (see Exhibit 3). Therefore, the proposed amendments are orderly and timely considering the Area Plan's recommendation for Medium, High-Density housing on the site, and the documented need for housing in the community.

FINDING: SATISFIED. The proposed zone change from M-1 to R-4 is orderly and timely. It is orderly because the subject property is located directly adjacent to R-4 zoning designation to the East, meaning that the proposed zone change is consistent with the pattern of allowed residential densities and housing types in the area. An existing manufactured home park is located directly adjacent to the property, and new residential developments are being constructed approximately 500 feet to the east of the subject property at Stratus Village (175 apartment dwelling units in four buildings) and Norton Landing (approximately 138 apartment dwelling units located in seven buildings).

The Comprehensive Plan encourages moderate and high density residential development to be located near services and multi-modal transportation options. The subject property is located in an area that is consistent with this vision, especially looking forward to the future that the Three Mile Lane Area Plan envisions. Housing choice and affordability are currently two of the biggest challenges facing community throughout Oregon. For this reason, the proposed zone change aligns with changing community needs.

When the proposed amendment concerns needed housing (as defined in the McMinnville Comprehensive Plan and state statute), criterion "B" shall not apply to the rezoning of land designated for residential use on the plan map.

In addition, the housing policies of the McMinnville Comprehensive Plan shall be given added emphasis and the other policies contained in the plan shall not be used to: (1) exclude needed housing; (2) unnecessarily decrease densities; or (3) allow special conditions to be attached which would have the effect of discouraging needed housing through unreasonable cost or delay.

FINDING: The applicant has indicated that residential development will be proposed at the subject property in the future. However, there is no development application proposal submitted at this time, so it cannot be confirmed that the proposed zone change will address needed housing. For this reason, staff responded to criterion "B", and found that the proposed zone change was satisfactory.

C. Utilities and services can be efficiently provided to serve the proposed uses or other potential uses in the proposed zoning district.

APPLICANT’S RESPONSE: As discussed above, the applicant is proposing to designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map. The proposed map amendments are consistent with the Three Mile Lane Area Plan, which recommends low-rise garden apartments for the site, and is a supporting document to the McMinnville Comprehensive Plan. As such, this land use application and the intended future development of the site addresses a documented public need for additional multi-family housing. Per the attached Property Deed and Conceptual Plan, the subject site currently has a 25-ft. wide access and utility easement through an adjacent parcel to SE Stratus Avenue, a Minor Collector street. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City’s Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system.

City maps indicate that public utilities are located in the vicinity of the subject parcels and can be extended when the site is developed. Public water and sanitary sewer services can be provided by connecting to the existing main lines within SE Stratus Avenue. Electrical and communication services can also be provided by connecting to existing lines within the right-of-way. To meet City standards, the applicant intends to direct stormwater from impervious surfaces to an on-site retention pond.

FINDING: SATISFIED, WITH CONDITIONS.

- **Water:** McMinnville Water & Light has a water system with a 10” water main serving SE Stratus Avenue.
- **Sewer:** The existing sanitary system serving this property has capacity constraints. Depending on the proposed density of future development, there may or may not be a capacity concern. Prior to any building permit issuance the applicant will be required to enter into a reimbursement agreement with the City for modeling the impacts of the proposed sanitary impacts. Depending on the results of this analysis the applicant may be responsible for associated costs for improvements to increase system capacity. *(Condition of Approval # 1)*
- **Stormwater:** Adequate stormwater infrastructure will be required by the City’s Engineering Division at the time of development. The Engineering Division has noted that on-site infiltration systems may have constraints in this area due to soil conditions, based on recent experiences with nearby development projects.
- **Power:** McMinnville Water & Light’s electric distribution system serving the Three Mile Lane corridor has capacity to supply power to a 96-unit residential apartment complex. However, future development would require additional electric infrastructure to be extended from the development site to MW&L’s distribution system. The cost and method of extension is unknown at this time

and will be determined after the developer submits an application for service and related development plans.

- **Access and Circulation:** The property has access through an easement to the North that connects the properties to SE Stratus Avenue, which is identified as a Minor Collector in the City’s Transportation System Plan. At the time of a development application, the applicant is required to clearly delineate on-site vehicular circulation to avoid conflicts between entry access to the site and the parking lot area. These details should be clearly shown on future site plan drawings submitted during the development permitting stage. *(Condition of Approval # 2)*
- **Transportation:** *Relevant policies included after Summary of Findings, for reference*

Summary of Findings

- Per OAR 660-012-0060, if an amendment to a comprehensive plan or zoning map significantly affects an existing or planned transportation facility, then the local government must put measures in place to account for the impacts.
- The City does not have a locally adopted threshold for a “significant effect” to require a Transportation Planning Rule Analysis, therefore, the City will implement the Oregon Department of Transportation’s threshold, which has not been met for this Comprehensive Plan Amendment/Zone Change application. However, the City reserves the right to require a development Traffic Impact Analysis (TIA) at the time of development if the proposal will result in an increase of 200 daily round trips or 20 daily peak hour trips to ensure that all impacted roadways and intersections will maintain conformance with performance standards outlined in the McMinnville Transportation System Plan (TSP).
- The City does not have a formally adopted threshold for a “significant effect” to require a Transportation Planning Rule Analysis, therefore, the City will implement the Oregon Department of Transportation’s threshold, which has not been met for this Comprehensive Plan Amendment/Zone Change application. However, the City reserves the right to require a development Traffic Impact Analysis (TIA) at the time of development if the proposal will result in an increase of 200 daily round trips or 20 daily peak hour trips. *(Condition of Approval # 3)*

City of McMinnville Comprehensive Plan Policies (applicable)

- The City of McMinnville shall use the McMinnville TSP as the legal basis and policy foundation for actions by decision-makers, advisory bodies, staff, and citizens in transportation issues. The goals, objectives, policies, implementation strategies, principles, maps, and recommended projects shall be considered in all decision-making processes that impact or are impacted by the transportation system. *(Comprehensive Plan Policy 132.62.00)*
- The City of McMinnville shall use the McMinnville TSP to require new development to provide adequate accessibility, as defined by the McMinnville Zoning Ordinance, for all travel modes within a development and in

coordination with existing and other proposed development. (*Comprehensive Plan Policy 132.62.05*)

- The City of McMinnville shall consider and apply the goals, policies, planning principles, recommended projects, implementation strategies, and maps contained in McMinnville TSP in the review of land use actions and development applications. (*Comprehensive Plan Policy 132.62.20*)

City of McMinnville Transportation System Plan (TSP)

- McMinnville initiated its Transportation System Plan (TSP) effort in 2005 to address statewide planning requirements. The purpose of the TSP is to identify a multi-modal plan that serves the City's long range land use plan for growth. The current TSP is for the 2003-2023 planning period. Considering the TSP has a planning horizon that has now passed, State law directs cities to review based on projections for a 15-year planning horizon from the date of the application (2039).
- Table 2-2 summarizes the OHP mobility standards for state highways and recommended standards for city intersections within the McMinnville UGB. The Mobility Standard for all local (city) intersections and streets shall be a volume/capacity ratio of .90.

State of Oregon Transportation Planning Rules (OAR 660-012-0060)

- (1) If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would *significantly affect* an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10) of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:
 - (c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.
 - (A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;
 - (B) Degrade the performance of an existing or planned transportation facility *such that it would not meet* the performance standards identified in the TSP or comprehensive plan; or
 - (C) Degrade the performance of an existing or planned transportation facility *that is otherwise projected to not meet* the performance standards identified in the TSP or comprehensive plan.
- (2) If a local government determines that there would be a significant effect, then the local government must ensure that allowed land uses are consistent with the performance standards of the facility measured or projected at the end of the planning period identified in the adopted TSP through one or a combination of the remedies listed in subsections (a) through (e) below,

unless the amendment meets the balancing test in subsection (e) or qualifies for partial mitigation in section (11) of this rule. A local government using subsection (e), section (3), section (10) or section (11) to approve an amendment recognizes that additional motor vehicle traffic congestion may result and that other facility providers would not be expected to provide additional capacity for motor vehicles in response to this congestion.

(a.) Adopting measures that demonstrate allowed land uses are consistent with the performance standards of the transportation facility.

(b.) Amending the TSP or comprehensive plan to provide transportation facilities, improvements, or services adequate to support the proposed land uses consistent with the requirements of this division. Such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

(c.) Amending the TSP to modify the performance standards of the transportation facility.

(d.) Providing other measures as a condition of development or through a development agreement or similar funding method, including, but not limited to, transportation system management measures or minor transportation improvements. Local governments shall, as part of the amendment, specify when measures or improvements provided pursuant to this subsection will be provided.

(e.) Providing improvements that would benefit modes other than the significantly affected mode, improvements to facilities other than the significantly affected facility, or improvements at other locations, if:

(A.) The provider of the significantly affected facility provides a written statement that the system-wide benefits are sufficient to balance the significant effect, even though the improvements would not result in consistency for all performance standards;

(B.) The providers of facilities being improved at other locations provide written statements of approval; and

(C.) The local jurisdictions where facilities are being improved provide written statements of approval.

Comprehensive Plan Volume II

The following Goals, Policies, and Proposals from Volume II of the Comprehensive Plan provide criteria applicable to this request:

The implementation of many of the goals, policies, and proposals as they apply to quasi-judicial land use applications are accomplished through the provisions, procedures, and standards in the city codes and master plans, which are sufficient to adequately address applicable goals, policies, and proposals as they apply certain applications, and are not addressed below.

The following findings are made relating to applicable Goals and Policies:

CHAPTER II. NATURAL RESOURCES

GOAL II 1: TO PRESERVE THE QUALITY OF THE AIR, WATER, AND LAND RESOURCES WITHIN THE PLANNING AREA.

APPLICANT'S RESPONSE: The applicant is proposing to change the site's current M-1 zoning to an R-4 designation. The attached Conceptual Plan demonstrates that the property contains a single-family dwelling/storage building within Tax Lot 604 (see Exhibit 3). City maps indicate that there are no designated natural resources within the subject properties. Since rezoning the site for residential development does not significantly impact or disrupt the preservation of air, water, or land resources within the planning area, the above goal is met.

FINDING: The proposed zone change from M-1 to R-4 should not have significant impacts to the quality of air, water, and land resources. Potential impacts will be mitigated or prevented through the enforcement of applicable standards at the time of development.

GOAL II 1: SATISFIED.

CHAPTER III: CULTURAL, HISTORICAL, AND EDUCATIONAL RESOURCES

Goal III 2: TO PRESERVE AND PROTECT SITES, STRUCTURES, AREAS, AND OBJECTS OF HISTORICAL, CULTURAL, ARCHITECTURAL, OR ARCHAEOLOGICAL SIGNIFICANCE TO THE CITY OF MCMINNVILLE

APPLICANT'S RESPONSE: The subject site does not contain historical, cultural, architectural, or archaeological sites, structures or objects of significance. Therefore, this chapter does not apply to the Comprehensive Plan Map Amendment and Zone Change applications.

FINDING: This property does not contain structures or resources subject to the city's local Historic Preservation requirements in Chapter 17.65. Developers and individuals proposing any ground disturbing work should become familiar with state laws on the protection of archaeological sites.

The Department of State Lands is responsible for protecting cultural resources. Cultural resources are a crucial part of the Department's natural resource and conservation planning. They provide meaning and connection for groups that have historically called

this land home. If these resources vanish, their story, a part of Oregon’s heritage, can never be told. DSL works side by side with the Tribal governments of Oregon, the State Historic Preservation Office, state and federal agencies, lessees, and the public to protect and manage these nonrenewable cultural resources. Impacts to cultural resources are avoided by reviewing proposed ground-disturbing activities on Oregon-owned lands and waterways and in the territorial sea. The excavation, destruction or alteration of any known archaeological site or collection of archaeological objects located on public or private land without the issuance of a state archaeological permit is prohibited (ORS 358.920 and ORS 390.235). Destruction or damage to any human burial site, human remains, or Native American sacred or special objects associated with those burial sites is also prohibited (ORS 97.745).

GOAL III 2: SATISFIED.

CHAPTER IV: ECONOMY OF MCMINNVILLE

GOAL IV 1: TO ENCOURAGE THE CONTINUED GROWTH AND DIVERSIFICATION OF MCMINNVILLE’S ECONOMY IN ORDER TO ENHANCE THE GENERAL WELL-BEING OF THE COMMUNITY AND PROVIDE EMPLOYMENT OPPORTUNITIES FOR ITS CITIZENS

APPLICANT’S RESPONSE: The attached Preliminary Development Plans indicate that the subject property is located within the UGB and city limits of McMinnville. The subject parcels are currently designated M-1 and Industrial on the City’s Zoning Map and Comprehensive Plan Map. The applicant is proposing to rezone the site to Medium, High-Density Residential. The proposed map amendments will allow the development of multi-family dwellings, providing additional housing opportunities for the McMinnville workforce. Residents that live in the proposed dwellings will also purchase local goods and services, helping to contribute to the local economy. In addition, the future residential use will provide additional property tax revenue for the City to provide public services.

The applicant is proposing to designate the site Residential on the Comprehensive Plan Map and R-4 on the Zoning Map. The proposed map amendments will allow the development of a multi-family dwellings, providing additional housing opportunities for the McMinnville workforce and their employers. Residents that live in the proposed dwellings will purchase local goods and services, helping to contribute to the local economy. In addition, the residential use will provide additional property tax revenue for the City to provide public services. Therefore, the proposed map amendments will help improve economic conditions in the community.

FINDING: In 2019, McMinnville adopted an Economic Development Strategic Plan (MAC Town 2032 – Economic Development Strategic Plan). The goals and strategies from this document were integrated into the Three Mile Lane Area Plan in a localized scope, including a detailed market analysis for the area. Although the property is current designated and zoned as Industrial (M-1), which is a land use that can produce employment opportunities, the Three Mile Lane Area Plan envisioned a more cohesive area for an employment center, centered around an “Innovation Campus”, that is located east of Norton Lane. In this way, the proposed amendment would better reflect the Preferred Land Use Alternative that has been adopted in the Area Plan.

GOAL IV 1: SATISFIED.

CHAPTER V. HOUSING AND RESIDENTIAL DEVELOPMENT

GOAL V 1: TO PROMOTE DEVELOPMENT OF AFFORDABLE, QUALITY HOUSING FOR ALL CITY RESIDENTS

GOAL V 2: TO PROMOTE A RESIDENTIAL DEVELOPMENT PATTERN THAT IS LAND INTENSIVE AND ENERGY-EFFICIENT, THAT PROVIDES FOR AN URBAN LEVEL OF PUBLIC AND PRIVATE SERVICES, AND THAT ALLOWS UNIQUE AND INNOVATIVE DEVELOPMENT TECHNIQUES TO BE EMPLOYED IN RESIDENTIAL DESIGNS.

58.00 City land development ordinances shall provide opportunities for development of a variety of housing types and densities.

59.00 Opportunities for multiple dwelling and mobile home developments shall be provided in McMinnville to encourage lower-cost renter and owner-occupied housing. Such housing shall be located and developed according to the residential policies in this plan and the land development regulations of the City.

61.00: The City of McMinnville shall monitor the conversion of lands to residential use to ensure that adequate opportunities for development of all housing types are assured. Annual reports on the housing development pattern, housing density and mix shall be prepared for city review.

APPLICANT'S RESPONSE: The City's current Housing Needs Analysis indicates that single-family and multi-family dwelling needs will be met through the development of 4,657 housing units during the 2021-2041 planning period. However, if all inventoried residential land supply is developed by 2041, the City will still maintain a deficiency of 1,926 dwelling units during the planning period. Therefore, rezoning of the subject site is essential when addressing the public need for additional housing. As demonstrated by the attached Conceptual Plan, the applicant is intending to develop 96 dwelling units on the site, consistent with the above goals and policies (see Exhibit 3).

68.00 The City of McMinnville shall encourage a compact form of urban development by directing residential growth close to the city center, to designated neighborhood activity centers, and to those areas where urban services are already available before committing alternate areas to residential use.

APPLICANT'S RESPONSE: Existing public and private services within SE Stratus Avenue currently have the capacity to serve the proposed multi-family use. Stratus Avenue is classified as a Minor Collector. Public water and sewer services can be provided by connecting to the existing main lines within the right-of-way. Similarly, electrical and communication services can be provided by connecting to existing lines along the road frontage. The attached concept plan indicates that the applicant is intending to manage stormwater from impervious surfaces on site by directing drainage to a retention pond in accordance with City standards. The subject property is located adjacent to a mobile home park that provides higher density housing. Therefore, the proposed map amendments will help encourage compact urban development in this neighborhood, consistent with recommendations in the Three Mile Lane Area Plan. As such, the above goals and policies are met.

71.00 The City of McMinnville shall designate specific lands inside the urban growth boundary as residential to meet future projected housing needs. Lands so designated may be developed for a variety of housing types. All residential zoning classifications shall be allowed in areas designated as residential on the Comprehensive Plan Map.

APPLICANT'S RESPONSE: The subject site is currently designated Industrial on the Comprehensive Plan Map and M-1 on the Zoning Map. However, the site is recommended to be designated Medium, High-Density Residential by the Three Mile Lane Area Plan, which is a supporting document to the Comprehensive Plan. The Area Plan has provided this recommendation since the site is well-suited for low-rise garden apartments, and a multi-family use will help address the public need for additional housing. The proposed Comprehensive Plan Map Amendment to Residential and Zone Change to R-4 are consistent with the Area Plan recommendation. Following approval of the map amendments, the applicant intends to develop an apartment complex on the site in conformance with the above policy.

71.05: The City of McMinnville shall encourage annexations and rezoning which are consistent with the policies of the Comprehensive Plan so as to achieve a continuous five-year supply of buildable land planned and zoned for all needed housing types.

APPLICANT'S RESPONSE: The current McMinnville Housing Needs Analysis indicates a projected deficiency of 1,926 dwelling units by 2041 within the community. This is due to available residential land becoming foreseeably exhausted within 12 to 20 years, based on development rates of available residential land and compliance with housing density standards. The proposed R-4 zoning for the site is consistent with the Three Mile Lane Area Plan. The Areas Plan recommends the development of Medium, High-Density housing on the site, and is a supporting document to the Comprehensive Plan. Since the proposed map amendments will address a documented public need and create additional residential land supply, they are consistent with the above policy.

71.09 Medium and Medium-High Density Residential (R-3 and R-4) - The majority of residential lands in McMinnville are planned to develop at medium density range (4 – 8 dwelling units per net acre). Medium density residential development uses include small lot single dwelling detached uses, single dwelling attached units, duplexes, triplexes, quadplexes, townhouses, and cottage clusters. High density residential development (8 – 30 dwelling units per net acre) uses typically include townhouses, condominiums, and apartments:

- 1. Areas that are not committed to low density development;*
- 2. Areas that have direct access from collector or arterial streets; or a local collector street within 600' of a collector or arterial street;*
- 3. Areas that are not subject to development limitations such as topography, flooding, or poor drainage;*
- 4. Areas where the existing facilities have the capacity for additional development;*
- 5. Areas within one-quarter mile of existing or planned public transportation.*

APPLICANT'S RESPONSE: The applicant is requesting approval of a Comprehensive Plan Map Amendment and Zone Change application to designate the site R-4 so that the site can be developed with low-rise garden apartments. The proposed zoning is consistent with the recommended Medium, High-Density Residential designation in the Three Mile Lane Area Plan. Per the attached Property Deed and Conceptual Plan, the subject site is accessible through a 125-ft. long access and utility easement that connects to SE Stratus Avenue, a Minor Collector street. City maps do not indicate that

steep topography, flooding, or poor drainage is associated with the site. Therefore, the proposed R-4 zoning is consistent with the above policies.

When discussing the attached Conceptual Plan with City staff, it was determined that public utilities have the capacity to serve a multi-family use on the site. Public water and sewer services can be provided by connecting to existing main lines within SE Stratus Avenue. Similarly, electrical and communication services can be provided by connecting to existing lines within the right-of-way. The attached Conceptual Plan indicates that the applicant is intending to manage stormwater from impervious surfaces by directing drainage to a retention pond (see Exhibit 3).

FINDING: The proposed zone change and comprehensive plan amendment would promote residential development in a land-intensive manner with urban level services. The R-4 zone allows a wide range of residential development types that allows for various unique or innovation development styles. The majority of the project site is recommended to be designated Medium, High-Density Residential by the Three Mile Lane Area Plan, with the remaining area designated as Mixed-Use.

1. This area is not committed to low-density development.
2. The property has access thorough an easement to the North that connects the properties to SE Stratus Avenue, which is identified as a Minor Collector in the City's Transportation System Plan.
3. The property is relatively flat. The South Yamhill River is located near the property, but the property is located outside of all regulatory floodway designations established by the Federal Emergency Management Agency's (FEMA) flood maps. The applicant will be required to manage stormwater for future development based on soil conditions that determine drainage.
4. Considering that this property is vacant and that the Three Mile Lane Area has historically been underdeveloped, it is anticipated that the facilities would need improvement or expansion to serve future development of properties in this area. Whether this property was developed as industrial or residentially zoned land, there would likely be system improvements necessary. The proposed Comprehensive Plan map and Zoning map amendments are consistent with the future anticipated development contemplated under the Three Mile Lane Area Plan and the system implications that are imagined with that Area Plan.
5. A Yamhill County bus stop is located approximately one-quarter mile to the East of the property on Norton Lane.

GOAL V 1 and V 2: SATISFIED.

CHAPTER VI TRANSPORTATION SYSTEM

GOAL VI 1: TO ENCOURAGE DEVELOPMENT OF A TRANSPORTATION SYSTEM THAT PROVIDES FOR THE COORDINATED MOVEMENT OF PEOPLE AND FREIGHT IN A SAFE AND EFFICIENT MANNER.

132.27.00 The provision of transportation facilities and services shall reflect and support the land use designations and development patterns identified in the McMinnville Comprehensive Plan. The design and implementation of transportation facilities and services shall be based on serving current and future travel demand—both short-term and long-term planned uses.

APPLICANT'S RESPONSE: As required, Transportation Planning Rule Analysis has been completed for the proposed zone change from M-1 to R-4. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone

designation is consistent with the City’s Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system (see Exhibit 5). Therefore, the above policy is met.

FINDING: The applicant completed a trip generation analysis as a part of the Transportation Planning Rule Analysis (Exhibit 5) in Table 2 that estimated an increase of 622 daily trips to the local transportation system. Table 2 identifies that a reasonable worst-case development in the proposed R-4 zone (162 apartments) generates 622 daily additional trips, 2 AM fewer trips, and 24 PM additional trips over development in the existing M-1 zone (101,060 square-foot general light industrial use).

TABLE 2 – DEVELOPMENT TRIP GENERATION ¹									
Reasonable Worst-Case Development Assumption	ITE Code	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Current M-1 Zone									
General Light Industrial ¹	110	101,060 SF	492	66	9	75	9	57	66
Proposed R-4 Zone									
Multifamily Housing (Low-Rise) ²	220	162 DUs	1,114	18	55	73	57	33	90
Change in Trip Generation with Zone Change			622	(48)	46	(2)	48	(24)	24

¹ Trip generation estimated using the Average Rate per recommended practice in the ITE Trip Generation Handbook, 3rd Edition.

² Trip generation estimated using the Fitted Curve per recommended practice in the ITE Trip Generation Handbook, 3rd Edition.

The City implements a policy that sets a threshold that developments and land use changes resulting in an increase of 200 daily trips or 20 peak hour trips should submit a development Traffic Impact Analysis in order to assess the potential impacts to the transportation network, especially nearby intersections of concern. In the case of this property, the City anticipates several intersections that will require further analysis:

- SE Stratus Avenue/Site Access
- SE Stratus Avenue/ SE Norton Lane
- SE Norton Lane/SE Stratus Avenue
- SE Norton Lane/HWY 18
- NE Pacific-Cumulus-Nehemiah/ Three Mile Lane
- SE First Street/Three Mile Lane

GOAL VI 1: SATISFIED, WITH CONDITIONS.

CHAPTER IX. URBANIZATION

GOAL IX 1: TO PROVIDE ADEQUATE LANDS TO SERVICE THE NEEDS OF THE PROJECTED POPULATION TO THE YEAR 2023, AND TO ENSURE THE CONVERSION OF THESE LANDS IN AN ORDERLY, TIMELY MANNER TO URBAN USES.

APPLICANT’S RESPONSE: The City has recently prepared a Housing Needs Analysis which projects housing needs during the 2021-2041 planning period. This analysis indicates that single-family and multi-family needs will be met through the development of 4,657 dwelling units during the planning period. However, the existing residential land supply will not meet the projected demand. Even if all of the available residential land supply is developed by 2041, the City will have a projected deficiency of 1,926 dwelling units during the planning period. Therefore, rezoning of the subject site to R-4 to allow for medium-high density residential development is essential when addressing the public need for additional housing.

FINDING: Although no development proposal has been submitted as this time, the applicant's response above contemplates the development of housing in the future. For this reason, it is worth noting that the City's recently updated Housing Needs Analysis, adopted under Ordinance 5141 on February 27, 2024 outlined McMinnville's housing needs over a 20-year period of 2021 to 2041. It is forecasted that McMinnville will need 4,657 new dwelling units by 2041. Rezoning properties to moderate and high density residential zoning (R-4/R-5) is one approach to reaching housing targets. Considering that the majority of the subject property is currently vacant, it provides a good opportunity to develop at a higher-density, compared to properties with existing structures that may have infill development limitations.

GOAL IX 1: SATISFIED.

GOAL IX 2: TO ESTABLISH A LAND USE PLANNING FRAMEWORK FOR APPLICATION OF THE GOALS, POLICIES, AND PROPOSALS OF THE McMINNVILLE COMPREHENSIVE PLAN.

GREAT NEIGHBORHOOD PRINCIPLES

187.30 The Great Neighborhood Principles shall be applied in all areas of the city to ensure equitable access to a livable, egalitarian, healthy, social, inclusive, safe, and vibrant neighborhood for all McMinnville citizens.

187.40 The Great Neighborhood Principles shall guide long range planning efforts including, but not limited to, master plans, small area plans, and annexation requests. The Great Neighborhood Principles shall also guide applicable current land use and development applications.

FINDING: The purpose of the Great Neighborhood Principles is to guide the land use patterns, design, and development of the places that McMinnville citizens live, work, and play. There are 13 principles, and each principle reflects a specific community value. The City of McMinnville's Great Neighborhood Principles identifies amenities and facilities that should be present in all residential areas, including a variety of housing types, pedestrian and bicycle connectivity, preservation of scenic views and natural features, access to open space. The Area Plan aims to support those Great Neighborhood Principles for residents in the study area by providing multi-modal connectivity, single-family and multifamily housing, provisions for open spaces, and commercial amenities, such as grocery stores, restaurants, and more. Future development of the subject property will be subject the Area Plan's policies to ensure that the Great Neighborhood Principles are implemented.

GOAL IX 2: SATISFIED.

CHAPTER X. CITIZEN INVOLVEMENT AND PLAN AMENDMENT

GOAL X 1: TO PROVIDE OPPORTUNITIES FOR CITIZEN INVOLVEMENT IN THE LAND USE DECISION MAKING PROCESS ESTABLISHED BY THE CITY OF McMINNVILLE.

GOAL X 3: TO PERIODICALLY REVIEW AND AMEND THE McMINNVILLE COMPREHENSIVE PLAN TO REFLECT CHANGES IN COMMUNITY CIRCUMSTANCES, IN CITIZEN DESIRES, AND IN THE STATEWIDE GOALS.

APPLICANT'S RESPONSE: The applicant is requesting approval of a Comprehensive Plan Map Amendment and Zone Change application. As required, citizens will have the

opportunity to comment on the proposed map amendments at public hearings before the Planning Commission and City Council prior to issuance of the land use decision.

FINDING: The applicant held a neighborhood meeting before submitting the Comprehensive Plan Map Amendment and Zone Change application. Properties within three hundred (300) feet of the subject property received notice of the application and the Planning Commission public hearing. Notice of the application and the Planning Commission public hearing was published in the News Register. The Planning Commission will hold a public hearing on the proposal.

GOALS X 1 and X 3: SATISFIED.

Statewide Planning Goals

Goal 2: Land Use Planning - “To establish a land use planning process and policy framework as a basis for all decisions and actions related to the use of land and to assure an adequate factual base for such decisions and actions.”

APPLICANT’S RESPONSE: The City’s current Housing Needs Analysis indicates that single-family and multi-family needs will be met through the development of 4,657 dwelling units during the 2021-2041 planning period. However, the existing residential land supply cannot meet the projected demand for housing units. It has been determined that the City will have a projected deficiency of 1,926 dwelling units during the planning period even if all available residential land supply is developed.

As discussed throughout this Applicant’s Statement, the subject site is included in McMinnville’s UGB and is currently designated as Industrial on the Comprehensive Plan Map. Consistent with the Medium, High-Density Residential recommendation in the Three Mile Lane Area Plan, a supporting document to the Comprehensive Plan, the applicant is proposing to redesignate the site Residential and rezone it to an R-4 designation. The attached Conceptual Plan indicates that the applicant is intending to develop 96 multi-family units on the site following the approval of the proposed map amendments. Therefore, the requested map amendments are orderly and timely considering the Area Plan’s recommendation for the site, and the need for housing in the community.

FINDING: SATISFIED. The City has adopted a Comprehensive Plan to serve as the framework for actions related to the use of land. Additionally, the City adopted the Three Mile Lane Area Plan to further define a land use framework for this portion of McMinnville. The proposed Comprehensive Plan Amendment and Zone Change application align with the community’s vision for the subject property, as determined through the Comprehensive Plan and Area Plan.

Goal 10: Housing – “To provide for the housing needs of citizens of the state.”

APPLICANT’S RESPONSE: The attached Conceptual Plan illustrates that following approval of the map amendments, the applicant intends to develop a 96-unit apartment complex on the site. The future development of an apartment complex helps to meet the need for a greater variety of residential units as identified in the 2003-2023 McMinnville Growth Management and Urbanization Plan. The City’s more recent Housing Needs Analysis indicates that the City is maintaining a deficient residential land

supply when addressing housings needs during the 2021-2041 planning period. As such, rezoning and development of the subject site is essential when addressing the public housing need.

FINDING: SATISFIED. Although no development proposal has been submitted as this time, the applicant's response above contemplates the development of housing in the future. For this reason, it is worth noting that the City's recently updated Housing Needs Analysis, adopted under Ordinance 5141 on February 27, 2024 outlined McMinnville's housing needs over a 20-year period of 2021 to 2041. It is forecasted that McMinnville will need 4,657 new dwelling units by 2041. Rezoning properties to moderate and high density residential zoning (R-4/R-5) is one approach to reaching housing targets. Considering that the majority of the subject property is currently vacant, it provides a good opportunity to develop at a higher-density, compared to properties with existing structures that may have infill development limitations.

Goal 11: Public Facilities – “To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.”

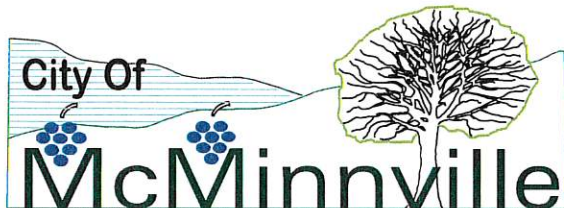
APPLICANT'S RESPONSE: City maps indicate that public utilities are located in the vicinity of the subject parcels and can be extended when the site is developed. Public water and sanitary sewer services can be provided by connecting to existing main lines within SE Stratus Avenue. Electrical and communication services can also be provided by connecting to existing lines within the right-of-way. To manage stormwater, the applicant is planning to develop a retention pond on the site. The subject parcels currently have access to City fire and police services. Therefore, the proposed map amendments comply with Goal 11.

FINDING: SATISFIED. The applicant will be required to provide adequate public facilities at the time of development.

Goal 12: Transportation – “To provide and encourage a safe, convenient and economic transportation system.”

APPLICANT'S RESPONSE: NE Stratus Avenue is currently improved with a curb and sidewalk along the frontage of Tax Lot 602, where shared access is provided with the subject site. Due to low traffic volumes and speeds, vehicles and bicycles share the travel lanes. As required, Transportation Planning Rule Analysis has been completed for the proposed zone change from M-1 to R-4. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City's Transportation System Plan (TSP) and will not create a significant effect to the safety or convenience of the surrounding transportation system (see Exhibit 5). Therefore, the above policy is met.

FINDING: SATISFIED, WITH CONDITIONS. The City does not have a formally adopted threshold for a “significant effect” to require a Transportation Planning Rule Analysis, therefore, the City will implement the Oregon Department of Transportation's threshold, which has not been met for this Comprehensive Plan Amendment/Zone Change application.



Planning Department

231 NE Fifth Street ◦ McMinnville, OR 97128
(503) 434-7311 Office ◦ (503) 474-4955 Fax
www.mcminnvilleoregon.gov

Office Use Only:	
File No.	CPA 1-24 / ZC 4-24
Date Received	10/4/2024
Fee	\$5,881.00 <small>Affordable Housing Reduction</small>
Receipt No.	210561
Received by	AW

569-24-000240-PLNG & 569-24-000241-PLNG

Comprehensive Plan Map Amendment/ Zone Change Application

Applicant Information

Applicant is: Property Owner Contract Buyer Option Holder Agent Other _____

Applicant Name Commonwealth Development Corporation Phone 608-824-2290

Contact Name Daniel DeFrancesco / Steve Kay Phone 503-804-1089
(If different than above)

Address 2501 Paramenter Street, Suite 300B

City, State, Zip Middleton, WI 53562

Contact Email d.difrancesco@commonwealthco.net
steve@cascadiapd.com

Property Owner Information

Property Owner Name Jodi L Devonshire, Andrea M Feero, and Jennifer L Feero Phone _____
(If different than above)

Contact Name _____ Phone _____

Address 701 S Riverside Drive

City, State, Zip St. Charles, MO 63302

Contact Email _____

Site Location and Description

(If metes and bounds description, indicate on separate sheet)

Property Address 2320 SE Stratus Avenue

Assessor Map No. R4 - 4 - 27 R4427 00600 & 00604 Total Site Area 5.43 acres

Subdivision _____ Block _____ Lot _____

Comprehensive Plan Designation Industrial Zoning Designation M-1

This request is for a:

Comprehensive Plan Amendment

Zone Change

1. What, in detail, are you asking for? State the reason(s) for the request and the intended use(s) of the property. _____

See attached Application Narrative

2. Show in detail, by citing specific goals and policies, how your request is consistent with applicable goals and policies of the McMinnville Comprehensive Plan (Vol. 2). _____

See attached Application Narrative

3. If your request is subject to the provisions of a planned development overlay, show, in detail, how the request conforms to the requirements of the overlay. _____

See attached Application Narrative

7. Document how the site can be efficiently provided with public utilities, including water, sewer, electricity, and natural gas, if needed, and that there is sufficient capacity to serve the proposed use.

See attached Application Narrative

8. Describe, in detail, how the proposed use will affect traffic in the area. What is the expected trip generation?

See attached Application Narrative

In addition to this completed application, the applicant must provide the following:

- A site plan (drawn to scale, with a north arrow, legible, and of a reproducible size), indicating existing and proposed features within and adjacent to the subject site, such as: access; lot and street lines with dimensions; distances from property lines to structures; improvements; and significant features (slope, vegetation, adjacent development, drainage, etc.). If of a larger size, provide five (5) copies in addition to **an electronic copy** with the submittal.
- A legal description of the parcel(s), preferably taken from the deed.
- Compliance of Neighborhood Meeting Requirements.
- Payment of the applicable review fee, which can be found on the Planning Department web page.

I certify the statements contained herein, along with the evidence submitted, are in all respects true and are correct to the best of my knowledge and belief.

Applicant's Signature

9/23/24
Date

DocuSigned by:
Jennifer Euro
Property Owner's Signature

9/23/2024 | 8:15 AM PDT
Date



PO Box 1920, Silverton, OR 97381
www.cascadiapd.com / 503-804-1089

**CITY OF MCMINNVILLE
APPLICATION FOR
LAND USE REVIEW**

**SE STRATUS AVENUE
MAP AMENDMENTS**

Location: 2320 SE Stratus Avenue
McMinnville, Oregon 97128
Tax Lots 600 & 604 of
Tax Map 4.4.27
Yamhill County, Oregon

Prepared by: Steve Kay, AICP
Mason McGonagall, Ph.D. Arch

Prepared for: Commonwealth Development
Corporation
Attn: Daniel DeFrancesco
2501 Parmenter Street, Ste 300B
Middleton, WI 53562

August 28, 2024

APPLICANT'S STATEMENT

PROJECT NAME: SE Stratus Avenue Map Amendments

REQUEST: Approval of a Comprehensive Plan Map Amendment to Change the Subject Parcels' Designation from Industrial to Residential and a Zoning Map Amendment Application to Change the Site's Designation from M-1 (Light Industrial) to R-4 (Medium, High-Density Residential)

ASSESSOR'S DESCRIPTION: Tax Lot 600 & 604 of Tax Map 4427
Yamhill County, Oregon

APPLICANT'S REPRESENTATIVE: Steve Kay, AICP
Cascadia Planning + Development Services
P.O. Box 1920
Silverton, OR 97381
503-804-1089
steve@cascadiapd.com

APPLICANT: Commonwealth Development Corporation
Attn: Daniel DiFrancesco
2501 Parmenter Street, Ste 300B
Middleton, WI 53562

PROPERTY OWNERS: Jodi L Devonshire, Andrea M Feero, and
Jennifer L Feero
701 S Riverside Drive
St. Charles, MO 63302

SITE AREA: Tax Lot 600 = 5.40 acres
Tax Lot 604 = 0.40 acres

SITE ADDRESS: 2320 SE Stratus Avenue
McMinnville, Oregon 97128
Yamhill County, Oregon

I. APPLICABLE REGULATIONS

A. MCMINNVILLE ZONING ORDINANCE

- Title 17: Zoning**
- Chapter 17.10: Area and Master Planning Process**
- Chapter 17.11: Residential Design Standards**
- Chapter 17.21: R-4 Medium, High Density, 5000 SF Lot Residential Zone**
- Chapter 17.72: Applications and Review Process**
- Section 17.72.080: Legislative or Quasi-Judicial Hearings**

B. MCMINNVILLE COMPREHENSIVE PLAN

- Section II: Natural Resources, Scenic and Historic Areas, and Open Spaces**
- Section IV: Areas Subject to Natural Disasters and Hazards**
- Section V: Public Facilities and Services**
- Section VI: Land Use**
- Section VIII: Housing**
- Section X: Parks and Recreation Plan**
- Section XII: Marion County Coordination**

C. OREGON STATEWIDE PLANNING GOALS

- Goal 1: Citizen Involvement**
- Goal 2: Land Use Planning**
- Goal 3: Agricultural Lands**
- Goal 4: Forest Lands**
- Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**
- Goal 6: Air, Water and Land Resource Quality**
- Goal 7: Natural Hazards**
- Goal 8: Recreational Needs**
- Goal 9: Economic Development**
- Goal 10: Housing**
- Goal 11: Public Facilities and Services**
- Goal 12: Transportation**
- Goal 13: Energy Conservation**
- Goal 14: Urbanization**

II. BACKGROUND:

The applicant, Commonwealth Development Corporation, is requesting concurrent land use approval of a Comprehensive Plan Map Amendment and Zone Change application for a 5.80 acre site located at 2320 SE Stratus Avenue. The site is identified by the Yamhill County Tax Assessor as Tax Lots 600 and 604 of Tax Map 4427. Tax Lot 600 is currently vacant and contains approximately 5.40 acres. Tax Lot 604 contains 0.40 acres and is developed with a dwelling/storage building. Both lots are currently served by an access and utility easement that crosses the Northwest Logging Supply parking lot, located at 2330 SE Stratus Avenue, and identified by the Assessor as Tax Lot 602.

The subject parcels are currently designated Industrial on the McMinnville Comprehensive Plan Map and are designated M-1 on the Zoning Map. In 2022, the Three Mile Lane Area Plan was adopted by the City of McMinnville. The plan supports the redesignation of this site from Industrial to Medium-High Density Residential to support the development of low-rise garden apartments. Consistent with the area plan, the applicant is proposing to designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map. When discussing the proposal with City Staff it was revealed that a Planned Development Overlay exists for the site. However, Staff determined that a Planned Development Amendment application is not required since approval of the Comprehensive Plan Map and Zone Change will replace the existing ordinance governing permitted land uses on the site.

The subject parcels are located within McMinnville's Urban Growth Boundary (UGB) and city limits. To the south and west of the site is a large EF-80 zoned parcel that is located outside of the UGB and is under Yamhill County jurisdiction. The parcel east of the site is zoned R-4 and is developed as a mobile home park. Properties to the north across SE Stratus Avenue and Highway 18/NE Three Mile Lane are within the city limits and are zoned General Commercial.

The 25-ft. wide access and utility easement that serves the site and crosses Tax Lot 602 connects to SE Stratus Avenue, a designated Minor Collector street under City jurisdiction. Highway 18/NE Three Mile Lane, a Major Arterial Street under ODOT jurisdiction, parallels Stratus Avenue directly to the north. Highway 18 provides an off-ramp to Stratus Avenue to the west of the site. A full movement signal controlled intersection to Highway 18 is provided from Stratus Avenue to the east of the site at the intersection of SE Norton Lane. This signaled highway crossing provides safe pedestrian and bicycle routes to commercial uses on the north side of the highway at the intersection of NE Norton Lane and NE Cumulus Avenue. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed map amendments is consistent with the City's Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system (see Exhibit 5).

City maps indicate that utilities are located in the vicinity of the subject parcels and can be extended when the site is developed. Public water and sewer services will be provided by connecting to the existing main lines within SE Stratus Avenue. Electrical and communication services can also be provided by connecting to existing lines within the right-of-way. The attached concept plan indicates that the applicant is intending to manage stormwater from impervious surfaces by directing drainage to a retention pond on the site, in accordance with City standards.

The submitted Conceptual Plan and narrative demonstrates that the intended multi-family use will align with the City adopted Three Mile Lane Area Plan and Great Neighborhood Principles. This narrative also addresses how the map amendments are consistent with applicable policies in the Comprehensive Plan and addresses the public need for additional housing. Under the proposed zoning, the site can accommodate the development of 96 apartments with a variety of one, two, and three-bedroom dwelling units. The Conceptual Plan illustrates that the intended development will also include a clubhouse, play structure, parking facilities and walkways, and landscaped common open space areas. As required, prior to the development of the site, the applicant will submit a Site and Design Review application to the City of McMinnville.

This Applicant's Statement addresses applicable provisions of the McMinnville City Municipal Code, McMinnville Comprehensive Plan, and Oregon Statewide Planning Goals. Copies of the signed Application Form, Property Deed, Conceptual Plan, Neighborhood Meeting Documentation, and Transportation Planning Rule Analysis have been attached to this narrative. The exhibits and narrative demonstrate that the submitted land use applications meet the criteria for approval.

III. **FINDINGS**

A. **MCMINNVILLE ZONING ORDINANCE**

Title 17: Zoning

Chapter 17.10: Area and Master Planning Process

Section 17.10.020: Applicability. The Area Plan and Master Plan processes apply to all lands that are designated as Urban Holding (UH) on the McMinnville Comprehensive Plan Map.

COMMENT:

The City's Comprehensive Plan Map indicates that Tax Lots 600 and 604 are located within the McMinnville UGB and city limits and are not designated as an Urban Holding area. The applicant is not requesting approval of a new Area Plan or Master Plan for the site. Therefore, the submitted Comprehensive Plan Map Amendment and Zone Change application is not subject to the above requirements.

Chapter 17.11: Residential Design and Development Standards

Section 17.11.010: Purpose. This chapter provides residential development and design standards for all housing types permitted in McMinnville's residential and commercial zones. The purpose of this chapter is to permit a wide variety of housing types while maintaining the character and values of McMinnville. These housing types provide greater options for the community and help implement the City's vision for housing, including the Great Neighborhood Principles. The proposed housing types range in size, affordability, and configurations, including attached and detached dwellings. The development standards for each housing type were calibrated specifically for McMinnville. This chapter is divided into individual housing types with their associated development standards and universal design standards that apply to all housing types.

COMMENT:

The applicant is proposing a Comprehensive Plan Map Amendment for the site from Industrial to Residential and a Zone Change from M-1 to R-4. General standards for apartment housing are addressed in the narrative below to demonstrate that it is feasible to develop multi-family units on the subject parcels. City staff will verify that all applicable standards are met when detailed plans are prepared and a Site and Design Review application is submitted.

Section 17.11.012: Introduction to Housing Types.

A. A housing type is not a use category. It describes a type of

development that can contain a residential use.

- B. A list of allowed, limited, and prohibited housing types in residential and commercial zones is provided in 17.11.013. Terms and abbreviations used are defined as follows:
 - 1. Yes, allowed (Y). Housing types that are allowed.
 - 2. Limited (L). Housing types that require a conditional use approval or are allowed subject to specific limitations.
 - 3. No, prohibited (N). Housing types that are not allowed under any circumstance.
- C. Housing types that are allowed or allowed on a limited basis are subject to the standards and provisions of the applicable development standards chapter, which is indicated in parentheses in the first column of the Housing Types Table in 17.11.013.

Section 17.11.013: Zoning Table of Allowed Housing Types. The table below depicts what housing type is allowed in each zone.

R-4: Apartments (All Apartment Types) (17.11.090) – Limited (L)
Limited: Housing types that require a conditional use approval or are allowed subject to specific limitations.

COMMENT:

The attached Conceptual Plan demonstrates that the site will support the development of 96 multi-family dwellings with a variety of one, two, and three-bedroom apartments. Per the Zoning Table, apartments are permitted in the R-4 zone. As shown on the plan, the site will also provide adequate space for a clubhouse structure, play structure, parking facilities and walkways, and landscaped areas (see Exhibit 3).

Section 17.11.090: Apartments. Apartments are a type of attached housing within single-story or multi-story buildings. Apartment dwelling units may share common walls, ceilings, or floors.

- A. Characteristics.
 - 1. Site Sizes: Single walk-ups, block apartments, and many courtyard apartments can fit on a 100 x 100-foot lot. Bigger developments with multiple walk-up buildings may be as large as 250,000 square feet, or 500 x 500-foot lots.
 - 2. Height Range: Apartment heights vary depending on

the type and the location.

- 3. Density Ranges: Apartment densities vary depending on building type and site design layout.**

COMMENT:

The subject parcels contain approximately 5.80 acres (252,648 sq. ft.) and the site is roughly 250-ft. wide x 950-ft. deep. Per the attached Conceptual Plan, the intended 2-story apartment buildings are approximately 35-ft. high. Based on the development of 96 dwelling units, the site will yield a residential density of 16.55 dwelling units/acre (see Exhibit 3).

B. Types of Apartments.

2. Walk-up Apartments.

- a. Description: Buildings are limited to three stories, and consist of about four to 12 units each, accessible from a single open-air stairwell. Dwelling units are typically constructed in Type V frame construction with fire sprinklers. Individual apartment buildings are arranged around common open space and shared parking areas.**
- b. Appropriate Context: Walk-up apartments are appropriate adjacent to or within a single dwelling neighborhood depending on site design, orientation to the street, location of parking, and the massing and scale of buildings.**
- d. Variations: May have an internal stair. Generally, in this case, the maximum number of units per floor are four. They can be designed with front and back windows for cross ventilation. Buildings can be separated to offer access to light and air on three sides.**
- e. Lot Sizes: Vary widely, from 10,000 to 250,000 square feet.**
- f. Density Range: 15 - 30 units per acre. (Note, maximum density will be governed by McMinnville's municipal code.)**
- g. Building Height: Usually 3 stories; can be 2 stories. (Note, maximum height will be governed by McMinnville's Municipal Code.)**

- h. Construction Type and Building Code Issues: Typically Type V frame construction. Sprinklers for fire suppression are required.**

COMMENT:

As mentioned above, the site contains approximately 5.80 acres (252,648 sq. ft.) and is roughly 250-ft. wide x 950-ft. deep. The attached Conceptual Plan indicates that the 6 intended multi-family buildings are approximately 35-ft. tall and will contain 16 dwelling units each (see Exhibit 3). The intended density of the site is 16.55 dwelling units/acre. As required, the apartment buildings will be arranged around parking and common open space areas, and sprinklers will be installed.

C. Development Standards.

Table 1. Multi-Dwelling Development Standards for Lots over 14,000 Square Feet, Without Alley.

COMMENT:

The applicant is not requesting Site and Design Review with this land use application. City staff will verify that specific development standards listed under Table 1 are met through a separate application process.

- D. Design Standards. The Apartment Design Standards for multi-dwelling housing are standards that apply to apartment housing types. These standards are related to site design and building frontage, parking, compatibility with neighboring homes, open space, and private space.**

COMMENT:

As mentioned above, the applicant is currently requesting approval of a Comprehensive Plan Map Amendment and Zone Change application. When a Site and Design Review application is submitted for the planned apartment complex, City staff will verify that the above design standards are met.

Section 17.11.110: Planned Development Residential Design and Development Standards. Chapter 17.51 of the McMinnville Municipal Code allows for planned development overlays in McMinnville as a means of providing greater flexibility and greater freedom of design in the development of land than may be possible under strict interpretation of the provisions of the zoning ordinance. McMinnville encourages residential planned developments as a means of achieving the City's adopted Great Neighborhood Principles.

COMMENT:

The applicant will be required to demonstrate compliance with the City's multi-family housing standards and Great Neighborhood Principles when a future Site and Design Review application is submitted.

Chapter 17.21: R-4 Medium, High Density, 5000 SF Lot Residential Zone

Section 17.21.010: Permitted Uses. In an R-4 zone, the following uses and their accessory uses are permitted:

C. Apartments; Multiple dwelling subject to the following:

- 1. Developments with five or more units.**
- 2. The property on which the use will be located has direct access from a major collector or minor arterial street, or a local collector street within 600' of a collector or arterial street; or**
- 3. The property is located within one-half mile of a planned or existing transit route; or**
- 4. The property is within one-quarter mile from a planned or existing neighborhood or commercial shopping area.**

COMMENT:

The subject parcels are currently designated Industrial on the Comprehensive Plan Map and are designated M-1 on the Zoning Map. In 2022, the Three Mile Lane Area Plan, which includes Tax Lots 600 and 604, was adopted by the City of McMinnville. The plan recommends the redesignation of this site from Industrial to Medium-High Density Residential to support the development of low-rise garden apartments. Consistent with the area plan, the applicant is proposing to designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map. The attached Conceptual Plan demonstrates that the applicant intends to develop two-story walk-up apartments following the approval of the map amendments. Per the attached Property Deed and Conceptual Plan, the subject site is currently served by a 125-ft. long access and utility easement that connects to SE Stratus Avenue, a designated Minor Collector street (see Exhibits 2 and 3).

Section 17.21.030: Lot Size. In an R-4 zone, the lot size shall not be less than five thousand square feet, except that the lot area for attached single dwelling lots shall average one thousand-five hundred square feet in area.

COMMENT:

The combined area of Tax Lot 600 and 604 is approximately 5.80 acres, exceeding the above minimum lot size standard.

Section 17.21.040: Yard Requirements. In an R-4 Zone, each lot shall have yards of the following size unless otherwise provided for in Section 17.54.050:

COMMENT:

The attached Conceptual Plan demonstrates that the required 15-ft. front, 10-ft. side, and 20-ft. rear setbacks can be provided with the future development of a multi-family use on the site (see Exhibit 3).

Section 17.21.050: Building Height. In an R-4 Zone, a building shall not exceed sixty feet in height.

COMMENT:

Following the approval of the proposed map amendments, the applicant intends to develop 2-story apartment units within structures that will be approximately 35-ft. high. Therefore, the maximum 60-ft. height standard will be met.

Section 17.21.060: Density Requirements. In an R-4 Zone, the maximum density for single attached dwelling may not exceed four dwelling units per 5,000 square feet. Density maximum may not apply to any other permitted housing types, including accessory dwelling units.

COMMENT:

The attached Conceptual Plan indicates that the applicant is intending to develop 96 multi-family units on the site (see Exhibit 3). Therefore, the above single-family attached density standard does not apply.

Chapter 17.72: Applications and Review Process

Section 17.72.080: Legislative or Quasi-Judicial Hearings. The applications listed in this Chapter are either legislative or quasi-judicial in nature and are subject to a public hearing before the Planning Commission or City Council.

- A. A requested amendment to the text of the zoning ordinance or comprehensive plan would call for a legislative-type hearing, the purpose of which is to obtain public input primarily on matters of policy. A legislative amendment may be initiated by the City Council, the Planning Commission or by the Citizens' Advisory Committee. Any other citizen may petition the City Council requesting them to initiate a text amendment.**

COMMENT:

The applicant is not proposing a zoning ordinance text or comprehensive plan text amendment; therefore, the above standards do not apply.

- B. An application that is site specific (such as a zone change or annexation request) would call for a quasi-judicial hearing. The decisions made as a result of such hearings must be based upon testimony submitted and supported by Findings of Fact. An amendment that is site specific may be initiated by the City Council, the Planning Commission, the Citizens' Advisory Committee or by application of the property owner.**

COMMENT:

The attached Application form indicates that the Comprehensive Plan Map Amendment and Zone Change request was initiated by the property owners. As required, the land use decision will be issued after public hearings are held before the Planning Commission and City Council.

Section 17.72.095: Neighborhood Meetings.

- A. A neighborhood meeting shall be required for:**
 - 1. All applications that require a public hearing as described in Section 17.72.120, except that neighborhood meetings are not required for the following applications:**
 - a. Comprehensive plan text amendment; or**
 - b. Zoning ordinance text amendment; or**
 - c. Appeal of a Planning Director's decision; or**
 - d. Application with Director's decision for which a public hearing is requested.**
 - 2. Tentative Subdivisions (up to 10 lots)**
 - 3. Short Term Rental**

COMMENT:

A neighborhood meeting for the submitted Zone Change and Map Amendment application was held on July 30, 2024. As required, the applicant has submitted the attached Neighborhood Meeting Documentation to demonstrate compliance with City standards (see Exhibit 4).

- B. Schedule of Meeting.**

1. The applicant is required to hold one neighborhood meeting prior to submitting a land use application for a specific site. Additional meetings may be held at the applicant's discretion.
2. Land use applications shall be submitted to the City within 180 calendar days of the neighborhood meeting. If an application is not submitted in this time frame, the applicant shall be required to hold a new neighborhood meeting.

C. Meeting Location and Time.

1. Neighborhood meetings shall be held at a location within the city limits of the City of McMinnville.
2. The meeting shall be held at a location that is open to the public and must be ADA accessible.
3. An 8 ½ x 11" sign shall be posted at the entry of the building before the meeting. The sign will announce the meeting, state that the meeting is open to the public and that interested persons are invited to attend.
4. The starting time for the meeting shall be limited to weekday evenings between the hours of 6 pm and 8 pm or Saturdays between the hours of 10 am and 4 pm. Neighborhood meetings shall not be held on national holidays. If no one arrives within 30 minutes after the scheduled starting time for the neighborhood meeting, the applicant may leave.

D. Mailed Notice.

1. The applicant shall mail written notice of the neighborhood meeting to surrounding property owners. The notices shall be mailed to property owners within certain distances of the exterior boundary of the subject property. The notification distances shall be the same as the distances used for the property owner notices for the specific land use application that will eventually be applied for, as described in Section 17.72.110 and Section 17.72.120.
2. Notice shall be mailed not fewer than 20 calendar days nor more than 30 calendar days prior to the

date of the neighborhood meeting.

3. An official list for the mailed notice may be obtained from the City of McMinnville for an applicable fee and within 5 business days. A mailing list may also be obtained from other sources such as a title company, provided that the list shall be based on the most recent tax assessment rolls of the Yamhill County Department of Assessment and Taxation. A mailing list is valid for use up to 45 calendar days from the date the mailing list was generated.
4. The mailed notice shall:
 - a. State the date, time and location of the neighborhood meeting and invite people for a conversation on the proposal.
 - b. Briefly describe the nature of the proposal (i.e., approximate number of lots or units, housing types, approximate building dimensions and heights, and proposed land use request).
 - c. Include a copy of the tax map or a GIS map that clearly identifies the location of the proposed development.
 - d. Include a conceptual site plan.
5. The City of McMinnville Planning Department shall be included as a recipient of the mailed notice of the neighborhood meeting.
6. Failure of a property owner to receive mailed notice shall not invalidate the neighborhood meeting proceedings.

E. Posted Notice.

1. The applicant shall also provide notice of the meeting by posting one 18 x 24" waterproof sign on each frontage of the subject property not fewer than 20 calendar days nor more than 30 calendar days prior to the date of the neighborhood meeting.
2. The sign(s) shall be posted within 20 feet of the adjacent right-of-way and must be easily viewable and readable from the right-of-way.

3. It is the applicant's responsibility to post the sign, to ensure that the sign remains posted until the meeting, and to remove it following the meeting.
4. If the posted sign is inadvertently removed (i.e., by weather, vandals, etc.), that shall not invalidate the neighborhood meeting proceedings.

F. Meeting Agenda.

1. The overall format of the neighborhood meeting shall be at the discretion of the applicant.
2. At a minimum, the applicant shall include the following components in the neighborhood meeting agenda:
 - a. An opportunity for attendees to view the conceptual site plan;
 - b. A description of the major elements of the proposal. Depending on the type and scale of the particular application, the applicant should be prepared to discuss proposed land uses and densities, proposed building size and height, proposed access and parking, and proposed landscaping, buffering, and/or protection of natural resources;
 - c. An opportunity for attendees to speak at the meeting and ask questions of the applicant. The applicant shall allow attendees to identify any issues that they believe should be addressed.

G. Evidence of Compliance. In order for a land use application that requires a neighborhood meeting to be deemed complete, the following evidence shall be submitted with the land use application:

1. A copy of the meeting notice mailed to surrounding property owners;
2. A copy of the mailing list used to send the meeting notices;
3. One photograph for each waterproof sign posted on the subject site, taken from the adjacent right-of-

way;

4. **One 8 ½ x 11” copy of the materials presented by the applicant at the neighborhood meeting; and**
5. **Notes of the meeting, which shall include:**
 - a. **Meeting date;**
 - b. **Meeting time and location;**
 - c. **The names and addresses of those attending;**
 - d. **A summary of oral and written comments received; and**
 - e. **A summary of any revisions made to the proposal based on comments received at the meeting.**

COMMENT:

As required, the attached Neighborhood Meeting Documentation meets the above standards (see Exhibit 4).

Section 17.72.120: Applications – Director’s Review with Notification. The following applications shall be submitted as stated above in Section 17.72.020 and shall be reviewed by the Planning Director or designee.

- **Annexation**
- **Appeal of a Planning Director’s Decision**
- **Application with Director’s decision for which a public hearing is requested**
- **Comprehensive Plan Map Amendment**
- **Comprehensive Plan Text Amendment**
- **Conditional Use Permit**
- **Demolition of National Register of Historic Places Structure (Public hearing held by the Historic Landmarks Committee)**
- **Planned Development**
- **Planned Development Amendment**
- **Tentative Subdivision (more than 10 lots)**
- **Urban Growth Boundary Amendment**
- **Variance**
- **Zone Change**
- **Zoning Ordinance Text Amendment**
- **Any application listed in Section 17.72.110 for which a public hearing is requested.**

The above applications are subject to the following submittal, notice, and hearing requirements:

- A. Applications must be filed not less than 35 (thirty-five) days prior to the date of the public hearing. Applications other than those involving text amendments or other legislative matters shall be reviewed for completeness as outlined above in Section 17.72.040.
- B. The Director shall send a copy of the proposal to any agency or City department identified by the Director as having interest in the proposal including those agencies and departments responsible for determining compliance with state and federal requirements. The notified agency may provide written comment regarding the proposal.
- C. An application to amend the comprehensive plan map, zoning ordinance text, comprehensive plan text or other application requiring notice to the Department of Land Conservation (DLC) and Development Commission as a “post acknowledgment plan amendment” shall be submitted to the Planning Department a minimum of 55 (fifty-five) days prior to the date of the public hearing so that notice of the application can be provided to the DLC.
- D. Notice of the public hearing shall be published in a newspaper of general circulation in the City, not less than five (5) days nor more than 15 (fifteen) days prior to the date of the public hearing.
- E. Written notice of a variance request shall be mailed to the applicant and all property owners within 100 feet of the exterior boundary of the subject property, and within 200 feet of the exterior boundary of the subject property for an application for a conditional use permit not fewer than 20 (twenty) nor more than 30 (thirty) days prior to the date of the public hearing.
- F. Written notice of a request for applications other than those involving text amendments or other legislative matters shall be mailed to the applicant and all property owners within 300 feet of the exterior boundary of the subject property, not fewer than 20 (twenty) nor more than 30 (thirty) days prior to the date of the public hearing.

COMMENT:

The applicant is submitting a concurrent Comprehensive Plan Map Amendment and Zone Change application, subject to a quasi-judicial hearing land-use process, with a Staff Report prepared by the Planning Director, and public hearings held before the Planning Commission and City Council. To meet the above standards, copies of the Application Form, Property Deed, Conceptual Plan, and Neighborhood Meeting Documentation have been attached to this narrative (see Exhibits 1-4).

Chapter 17.74: Review Criteria

Section 17.74.020: Comprehensive Plan Map Amendment and Zone Change - Review Criteria.

An amendment to the official zoning map may be authorized, provided that the proposal satisfies all relevant requirements of this ordinance, and also provided that the applicant demonstrates the following:

A. The proposed amendment is consistent with the goals and policies of the Comprehensive Plan;

COMMENT:

As required, the applicant has addressed applicable goals and policies of the Comprehensive Plan in the narrative provided below.

B. The proposed amendment is orderly and timely, considering the pattern of development in the area, surrounding land uses, and any changes which may have occurred in the neighborhood or community to warrant the proposed amendment;

COMMENT:

The attached Preliminary Plans indicate that the subject site is located within the boundaries of the Three Mile Lane Area Plan (see Exhibit 3). The plan supports the redesignation of this site from Industrial to Medium-High Density Residential to support the development of low-rise garden apartments. Consistent with the area plan, the applicant is proposing to designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map.

The City of McMinnville’s current Housing Needs Analysis indicates that single-family and multi-family needs will be met through the development of 4,657 dwelling units during the 2021-2041 planning period. However, the existing residential land supply cannot meet the projected demand for housing units. It has been determined that the City will have a projected deficiency of 1,926 dwelling units during the planning period even if all available residential land supply is developed. The attached Conceptual Plan indicates that the applicant is intending to develop 96 multi-family units on the site following the approval of the proposed map amendments (see Exhibit 3). Therefore, the proposed amendments are orderly and timely considering the Area Plan’s recommendation for Medium, High-Density housing on the site, and the documented need for housing in the community.

C. Utilities and services can be efficiently provided to serve the proposed uses or other potential uses in the proposed zoning district.

When the proposed amendment concerns needed housing (as defined in the McMinnville Comprehensive Plan and state statute), criterion "B" shall not apply to the rezoning of land designated for residential use on the plan map.

In addition, the housing policies of the McMinnville Comprehensive Plan shall be given added emphasis and the other policies contained in the plan shall not be used to: (1) exclude needed housing; (2) unnecessarily decrease densities; or (3) allow special conditions to be attached which would have the effect of discouraging needed housing through unreasonable cost or delay.

COMMENT:

As discussed above, the applicant is proposing to designate the property Residential on the Comprehensive Plan Map and R-4 (Medium, High-Density Residential) on the Zoning Map. The proposed map amendments are consistent with the Three Mile Lane Area Plan, which recommends low-rise garden apartments for the site, and is a supporting document to the McMinnville Comprehensive Plan. As such, this land use application and the intended future development of the site addresses a documented public need for additional multi-family housing. Per the attached Property Deed and Conceptual Plan, the subject site currently has a 25-ft. wide access and utility easement through an adjacent parcel to SE Stratus Avenue, a Minor Collector street. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City’s Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system.

City maps indicate that public utilities are located in the vicinity of the subject parcels and can be extended when the site is developed. Public water and sanitary sewer services can be provided by connecting to the existing main lines within SE Stratus Avenue. Electrical and communication services can also be provided by connecting to existing lines within the right-of-way. To meet City standards, the applicant intends to direct stormwater from impervious surfaces to an on-site retention pond.

Section 17.74.030: Authorization to Grant or Deny Conditional Use. A conditional use listed in this ordinance shall be permitted, altered or denied

in accordance with the standards and procedures of this chapter. In the case of a use existing prior to the effective date of this ordinance and classified in this ordinance as a conditional use, a change in the use or in lot area, or an alteration of any structure shall conform to the requirements for conditional uses. In judging whether or not a conditional use proposal shall be approved or denied, the Planning Commission shall weigh its appropriateness and desirability or the public convenience or necessity to be served against any adverse conditions that would result from authorizing the particular development at the location proposed and, to approve such use, shall find that the following criteria are either met, can be met by observance of conditions, or are not applicable:

COMMENT:

The applicant is not proposing to establish a conditional use on the subject site, therefore this section does not apply.

B. MCMINNVILLE COMPREHENSIVE PLAN

Chapter II: Natural Resources

Goal II 1: To Preserve the Quality of the Air, Water, and Land Resources Within the Planning Area.

COMMENT:

The applicant is proposing to change the site's current M-1 zoning to an R-4 designation. The attached Conceptual Plan demonstrates that the property contains a single-family dwelling/storage building within Tax Lot 604 (see Exhibit 3). City maps indicate that there are no designated natural resources within the subject properties. Since rezoning the site for residential development does not significantly impact or disrupt the preservation of air, water, or land resources within the planning area, the above goal is met.

Land Policies:

2.00: The City of McMinnville shall continue to enforce appropriate development controls on lands with identified building constraints, including, but not limited to, excessive slope, limiting soil characteristics, and natural hazards.

COMMENT:

No natural hazard areas are identified within the site. The applicant's Conceptual Plan demonstrates that future development of the site will include ample open space, landscaping, and stormwater drainage to mitigate potential environmental impacts.

Water Policies:

- 8.00: The City of McMinnville shall continue to seek the retention of high water quality standards as defined by federal, state, and local water quality codes, for all the water resources within the planning area.**

COMMENT:

Natural water resources are not identified within the planning area. However, to minimize stormwater drainage impacts to the area and environment, the submitted Conceptual Plan illustrates that stormwater retention ponds will be utilized to manage drainage withing the site (see Exhibit 3). As required, the proposed water, sewer, and stormwater facilities will comply with Public Works standards. Therefore, land and water policies are met.

Chapter III: Cultural, Historical, and Educational Resources

- Goal III 2: To Preserve and Protect Sites, Structures, Areas, and Objects of Historical, Cultural, Architectural, or Archaeological Significance to the City of McMinnville.**

COMMENT:

The subject site does not contain historical, cultural, architectural, or archaeological sites, structures or objects of significance. Therefore, this chapter does not apply to the Comprehensive Plan Map Amendment and Zone Change applications.

Chapter IV: Economy of McMinnville

- Goal IV 1: To Encourage the Continued Growth and Diversification of McMinnville’s Economy in Order to Enhance the General Well-being of the Community and Provide Employment Opportunities for its Citizens.**

COMMENT:

The attached Preliminary Development Plans indicate that the subject property is located within the UGB and city limits of McMinnville. The subject parcels are currently designated M-1 and Industrial on the City’s Zoning Map and Comprehensive Plan Map. The applicant is proposing to rezone the site to Medium, High-Density Residential. The proposed map amendments will allow the development of multi-family dwellings, providing additional housing opportunities for the McMinnville workforce. Residents that live in the proposed dwellings will also purchase local goods and services, helping to contribute to the local economy. In addition, the future residential use will provide additional property tax revenue for the City to provide public services.

Chapter V: Housing and Residential Development

Goal V 1: To Promote Development of Affordable, Quality Housing for All City Residents.

General Housing Policies:

58.00: City land development ordinances shall provide opportunities for development of a variety of housing types and densities.

61.00: The City of McMinnville shall monitor the conversion of lands to residential use to insure that adequate opportunities for development of all housing types are assured. Annual reports on the housing development pattern, housing density and mix shall be prepared for city review.

COMMENT:

The City's current Housing Needs Analysis indicates that single-family and multi-family dwelling needs will be met through the development of 4,657 housing units during the 2021-2041 planning period. However, if all inventoried residential land supply is developed by 2041, the City will still maintain a deficiency of 1,926 dwelling units during the planning period. Therefore, rezoning of the subject site is essential when addressing the public need for additional housing. As demonstrated by the attached Conceptual Plan, the applicant is intending to develop 96 dwelling units on the site, consistent with the above goals and policies (see Exhibit 3).

Goal V 2: To Promote a Residential Development Pattern that is Land Intensive and Energy Efficient, That Provides for an Urban Level of Public and Private Services, and that Allows Unique and Innovative Development Techniques to be Employed in Residential Designs.

Policies:

68.00: The City of McMinnville shall encourage a compact form of urban development by directing residential growth close to the city center and to those areas where urban services are already available before committing alternate areas to residential use.

COMMENT:

Existing public and private services within SE Stratus Avenue currently have the capacity to serve the proposed multi-family use. Stratus Avenue is classified as a Minor Collector. Public water and sewer services can be provided by connecting to the existing main lines within the right-of-way. Similarly, electrical and communication services can be provided by connecting to existing lines along the road frontage. The attached concept plan indicates that the applicant is intending to manage stormwater from impervious surfaces on site by directing drainage to a retention pond in accordance with City standards. The subject property is located adjacent to a mobile home park that provides higher density housing. Therefore, the proposed map amendments will help encourage compact urban development in this neighborhood, consistent with recommendations in the Three Mile Lane Area Plan. As such, the above goals and policies are met.

71.00: The City of McMinnville shall designate specific lands inside the urban growth boundary as residential to meet future projected housing needs. Lands so designated may be developed for a variety of housing types. All residential zoning classifications shall be allowed in areas designated as residential on the Comprehensive Plan Map.

COMMENT:

The subject site is currently designated Industrial on the Comprehensive Plan Map and M-1 on the Zoning Map. However, the site is recommended to be designated Medium, High-Density Residential by the Three Mile Lane Area Plan, which is a supporting document to the Comprehensive Plan. The Area Plan has provided this recommendation since the site is well-suited for low-rise garden apartments, and a multi-family use will help address the public need for additional housing. The proposed Comprehensive Plan Map Amendment to Residential and Zone Change to R-4 are consistent with the Area Plan recommendation. Following approval of the map amendments, the applicant intends to develop an apartment complex on the site in conformance with the above policy.

71.05: The City of McMinnville shall encourage annexations and rezoning which are consistent with the policies of the Comprehensive Plan so as to achieve a continuous five-year supply of buildable land planned and zoned for all needed housing types.

COMMENT:

The current McMinnville Housing Needs Analysis indicates a projected deficiency of 1,926 dwelling units by 2041 within the community. This is due to available residential land becoming foreseeably exhausted within 12 to 20 years, based on development rates of available residential land and compliance with housing density standards. The proposed R-4 zoning for the site is consistent with the Three Mile Lane Area Plan. The Areas Plan recommends the development of Medium, High-Density housing on the site, and is a supporting document to the Comprehensive Plan. Since the proposed map amendments will address a documented public need and create additional residential land supply, they are consistent with the above policy.

71.09: Medium and Medium-High Density Residential (R-3 and R-4) The majority of residential lands in McMinnville are planned to develop at medium density range (4 – 8 dwelling units per net acre). Medium density residential development uses include small lot single dwelling detached uses, single dwelling attached units, duplexes, triplexes, quadplexes, townhouses, and cottage clusters. High density residential development (8 – 30 dwelling units per net acre) uses typically include townhouses, condominiums, and apartments:

- 1. Areas that are not committed to low density development;**
- 2. Areas that have direct access from collector or arterial streets; or a local collector street within 600’ of a collector or arterial street;**
- 3. Areas that are not subject to development limitations such as**

topography, flooding, or poor drainage;

COMMENT:

The applicant is requesting approval of a Comprehensive Plan Map Amendment and Zone Change application to designate the site R-4 so that the site can be developed with low-rise garden apartments. The proposed zoning is consistent with the recommended Medium, High-Density Residential designation in the Three Mile Lane Area Plan. Per the attached Property Deed and Conceptual Plan, the subject site is accessible through a 125-ft. long access and utility easement that connects to SE Stratus Avenue, a Minor Collector street. City maps do not indicate that steep topography, flooding, or poor drainage is associated with the site. Therefore, the proposed R-4 zoning is consistent with the above policies.

4. Areas where the existing facilities have the capacity for additional development;

COMMENT:

When discussing the attached Conceptual Plan with City staff, it was determined that public utilities have the capacity to serve a multi-family use on the site. Public water and sewer services can be provided by connecting to existing main lines within SE Stratus Avenue. Similarly, electrical and communication services can be provided by connecting to existing lines within the right-of-way. The attached Conceptual Plan indicates that the applicant is intending to manage stormwater from impervious surfaces by directing drainage to a retention pond (see Exhibit 3). The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City's Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system (see Exhibit 5).

Urban Policies:

99.00: An adequate level of urban services shall be provided prior to or concurrent with all proposed residential development, as specified in the acknowledged Public Facilities Plan. Services shall include, but not be limited to:

- 1. Sanitary sewer collection and disposal lines. Adequate municipal waste treatment plant capacities must be available.**
- 2. Storm sewer and drainage facilities (as required).**
- 3. Streets within the development and providing access to the development, improved to city standards (as required).**
- 4. Municipal water distribution facilities and adequate water supplies (as determined by City Water and Light). (as amended by Ord. 4796, October 14, 2003)**

COMMENT:

As discussed above, existing public transportation and utility facilities have the capacity to serve the proposed R-4 zoning and future multi-family development. The attached Conceptual Plan indicates that stormwater will be managed on-site with a private retention facility (see Exhibit 3). Detailed plans regarding how services will be provided when a future Site and Design Review application is submitted.

Chapter VI: Transportation System

Goal VI 1:

To Encourage Development of a Transportation System that Provides for the Coordinated Movement of People and Freight in a Safe and Efficient Manner.

Streets Policies:

117.00: The City of McMinnville shall endeavor to insure that the roadway network provides safe and easy access to every parcel.

COMMENT:

The subject site is currently provided a 25-ft. wide access easement from SE Stratus Avenue. This accessway shares an existing driveway connection to SE Stratus Avenue for Tax Lot 602.

119.00: The City of McMinnville shall encourage utilization of existing transportation corridors, wherever possible, before committing new lands.

120.00: The City of McMinnville may require limited and/or shared access points along major and minor arterials, in order to facilitate safe access flows.

121.00: The City of McMinnville shall discourage the direct access of small-scale residential developments onto major or minor arterial streets and major collector streets.

COMMENT:

The attached Conceptual Plan illustrates that the subject site has access to SE Stratus Avenue, a Minor Collector Street (see Exhibit 3). This access is shared with Northwest Logging Supply to facilitate safe access flow along the roadway.

122.00: The City of McMinnville shall encourage the following provisions for each of the three functional road classifications:

2. Major, minor collectors.

–Designs should minimize impacts on existing neighborhoods.

- Sufficient street rights-of-way should be obtained prior to development of adjacent lands.
- On-street parking should be limited wherever necessary.
- Landscaping should be required along public rights-of-way.
- As far as is practical, residential collector streets should be no further than 1,800 feet apart in order to facilitate a grid pattern of collector streets in residential areas.

COMMENT:

The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City’s Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system (see Exhibit 5). The attached Conceptual Plan demonstrates that off-street parking can be provided on the site when it is developed with a multi-family use (see Exhibit 3). At the time of development, landscaping will be provided where required. Therefore, this policy is met.

Parking Policies:

- 126.00:** The City of McMinnville shall continue to require adequate off-street parking and loading facilities for future developments and land use changes.
- 127.00:** The City of McMinnville shall encourage the provision of off-street parking where possible, to better utilize existing and future roadways and rights-of-way as transportation routes.

COMMENT:

As mentioned above, the attached Conceptual Plan demonstrates that off-street parking for a multi-family use can be provided on the site (see Exhibit 3).

Bike Paths Policies:

- 130.00:** The City of McMinnville shall encourage implementation of the Bicycle System Plan that connects residential areas to activity areas such as the downtown core, areas of work, schools, community facilities, and recreation facilities.

COMMENT:

Due to the low traffic volume and travel speeds on SE Stratus Avenue, bicycles and vehicles currently share the roadway. Highway 18/NE Three Mile Lane, a Major Arterial Street under ODOT jurisdiction, parallels Stratus Avenue directly to the north. Highway 18 provides an off-ramp to Stratus Avenue to the west of the site. A full movement signal controlled intersection to Highway 18 is provided from Stratus Avenue to the east of the site at the intersection of SE Norton Lane. This signaled highway crossing provides safe pedestrian and bicycle routes to commercial uses on the north side of the highway at the intersection of NE Norton Lane and NE Cumulus Avenue.

Complete Streets:

132.24.00: The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable McMinnville residents – children, elderly, and persons with disabilities – can travel safely within the public right-of-way. Examples of how the Complete Streets policy is implemented:

- 1. Design and construct right-of-way improvements in compliance with ADA accessibility guidelines (see below).**
- 2. Incorporate features that create a pedestrian friendly environment, such as:**
 - a. Narrower traffic lanes;**
 - b. Median refuges and raised medians;**
 - c. Curb extensions (“bulb-outs”);**
 - d. Count-down and audible pedestrian signals;**
 - e. Wider sidewalks;**
 - f. Bicycle lanes; and**
 - g. Street furniture, street trees, and landscaping**

COMMENT:

As mentioned above, the subject site is accessed from SE Stratus Avenue through a 25-ft. wide access and utility easement on Tax Lot 602. The street frontage along SE Stratus Avenue is currently improved with a curb, gutter, and sidewalk. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City’s Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system (see Exhibit 5). City staff will verify that Public Works standards are met when a future Site and Design Review application is submitted for the apartment complex.

Connectivity and Circulation:

132.26.00: The vehicle, pedestrian, transit, and bicycle circulation systems shall be designed to connect major activity centers in the McMinnville planning area, increase the overall accessibility of downtown and other centers, as well as provide access to neighborhood residential, shopping, and industrial areas, and McMinnville’s parks and schools.

COMMENT:

The subject site currently has access to SE Stratus Avenue through a 25-ft. wide access easement which crosses Tax Lot 602. Stratus Avenue connects to Highway 18 to the west of the site, where a full movement signal controlled intersection is located. This signaled intersection provides safe pedestrian and bicycle routes to commercial uses on the north side of the highway, near the intersection of NE Norton Lane and NE Cumulus Avenue.

Supportive of General Land Use Plan Designations and Development Patterns:

132.27.00: The provision of transportation facilities and services shall reflect and support the land use designations and development patterns identified in the McMinnville Comprehensive Plan. The design and implementation of transportation facilities and services shall be based on serving current and future travel demand—both short-term and long-term planned uses.

COMMENT:

As required, Transportation Planning Rule Analysis has been completed for the proposed zone change from M-1 to R-4. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City's Transportation System Plan (TSP) and will not create a significant effect on the surrounding transportation system (see Exhibit 5). Therefore, the above policy is met.

Transportation Safety:

132.31.00: The City of McMinnville shall make the design, construction, and operation of a safe transportation system for all modes of travel a high priority.

COMMENT:

As mentioned above, existing improvements to SE Stratus Avenue are appropriate for the proposed rezone of the subject site to R-4. The attached Transportation Planning Rule Analysis indicates that SE Stratus Avenue, a Minor Collector, is able to support residential densities permitted under the proposed R-4 zone.

Public Safety:

132.32.00: The safe, rapid movement of fire, medical, and police vehicles shall be an integral part of the design and operation of the McMinnville transportation system.

COMMENT:

The attached Conceptual Plan demonstrates that a hammerhead turnaround meeting Fire Code standards can be accommodated in the southern portion of the apartment complex (see Exhibit 3). Therefore, the proposed map amendments are consistent with the above policy.

Livability:

132.35.00: Transportation facilities in the McMinnville planning area shall be, to the degree possible, designed and constructed to mitigate noise, energy consumption, and neighborhood disruption, and to encourage the use of public transit, bikeways, sidewalks, and walkways.

Health and Welfare:

132.36.00: Through implementation of its Complete Streets policy and the TSP by enhancing its pedestrian and bicycle systems, the City of McMinnville will help encourage greater physical activity and improved health and welfare of its residents.

COMMENT:

As mentioned above, due to low traffic volumes and speeds, SE Stratus Avenue currently provides shared vehicle and bicycle facilities. The existing SE Stratus Avenue frontage along Tax Lot 602 is also developed with a sidewalk. These improvements support all modes of travel, encouraging greater physical activity for area residents.

Transportation Sustainability:

132.37.00: Through implementation of the TSP and the Comprehensive Plan, the City of McMinnville will, to the extent possible, seek measures that simultaneously help reduce traffic congestion, pollution, crashes and consumer costs, while increasing mobility options for non-drivers, and encouraging a more efficient land use pattern.

COMMENT:

As indicated in the above narrative, the existing street network and frontage improvements along Tax Lot 602 support multi-modal transportation, safety goals, transportation sustainability, and connectivity to area businesses and neighborhoods.

132.40.15: Transportation SDCs – The City should update its transportation systems development charge (SDC) to address growth-related traffic impacts.

COMMENT:

When building permits are issued for the future apartment complex, transportation SDCs will be paid for anticipated traffic impacts.

Circulation:

132.41.00: Residential Street Network – A safe and convenient network of residential streets should serve neighborhoods. When assessing the adequacy of local traffic circulation, the following considerations are

of high priority:

- 1. Pedestrian circulation;**
- 2. Enhancement of emergency vehicle access;**
- 3. Reduction of emergency vehicle response times;**
- 4. Reduction of speeds in neighborhoods;, and**
- 5. Mitigation of other neighborhood concerns such as safety, noise, and aesthetics.**

COMMENT:

SE Stratus Avenue, a Minor Collector Street, currently serves a portion of the Three Mile Lane Area neighborhood. The subject site is currently provided with a 25-ft. wide access easement to this roadway through Tax Lot 602. Efficient pedestrian circulation and emergency response is currently provided by existing street frontage improvements along Tax Lot 602. Therefore, the proposed map amendments are consistent with the above policy.

132.41.30: Promote Street Connectivity – The City shall require street systems in subdivisions and development that promote street connectivity between neighborhoods.

COMMENT:

The attached Conceptual Plan indicates that shared access and connectivity will be provided between the subject parcels and Tax Lot 602, which has frontage on SE Stratus Avenue (see Exhibit 3). To the east of the site is an existing mobile home park with a private street system. West and south of the site is a large, farmed parcel that is located outside of the UGB and city limits of McMinnville. Based on these factors, the attached Conceptual Plan demonstrates that street connectivity will be provided to the extent possible with future development of the site(see Exhibit 3).

Neighborhood Traffic Management:

132.43.10: Limited Neighborhood Cut–Through Traffic – Local residential streets should be designed to prevent or discourage their use as shortcuts for through traffic. Local traffic control measures should be coordinated with the affected neighborhood.

COMMENT:

The submitted Conceptual Plan demonstrates that, with development of the site under the proposed map amendments, access through the site will not encourage through traffic (see Exhibit 3).

Chapter VII: Community Facilities and Services

Goal VII 1:

To Provide Necessary Public and Private Facilities and Utilities at Levels Commensurate with Urban Development, Extended in a Phased Manner, and Planned and Provided in Advance of or Concurrent with Development, In Order to Promote the Orderly Conversion of Urbanizable Lands to Urban Lands within the McMinnville Urban Growth Boundary.

Sanitary Sewer System Policies:

- 136.00: The City of McMinnville shall insure that urban developments are connected to the municipal sewage system pursuant to applicable city, state, and federal regulations.**
- 140.00: The City of McMinnville shall continue to limit sewer service extensions to the areas within the urban growth boundary, except where service is granted to comply with state or federal laws. Areas outside the city limits, but within the urban growth boundary, shall be granted sewer service hook-ups only under policies adopted by the City.**
- 141.00: The City of McMinnville shall continue to separate storm and sanitary sewers where they are connected to reduce the inflow of storm sewer waters to the sewage treatment plant. Ongoing maintenance and improvements of the existing system shall also be undertaken to reduce infiltration of rain water into the system.**

COMMENT:

Public utilities are located in the vicinity of the subject parcels and can be extended when the site is developed for a multi-family use. A connection to the sanitary sewer main can be provided from SE Stratus Avenue. As required, a separate stormwater system will be developed to direct drainage to retention ponds, in accordance with City standards.

Storm Drainage Policies:

- 142.00: The City of McMinnville shall insure that adequate storm water drainage is provided in urban developments through review and approval of storm drainage systems, and through requirements for connection to the municipal storm drainage system, or to natural drainage ways, where required.**
- 143.00: The City of McMinnville shall encourage the retention of natural drainage ways for storm water drainage.**

COMMENT:

As required, an on-site storm system will be designed to meet City standards. The attached Conceptual Plan illustrates that the applicant is intending to develop a retention pond to manage drainage on the parcels (see Exhibit 3).

Water System Policies:

144.00: The City of McMinnville, through McMinnville Water and Light, shall provide water services for development at urban densities within the McMinnville Urban Growth Boundary.

145.00: The City of McMinnville, recognizing McMinnville Water and Light as the agency responsible for water system services, shall extend water services within the framework outlined below:

1. Facilities are placed in locations and in such a manner as to insure compatibility with surrounding land uses.
2. Extensions promote the development patterns and phasing envisioned in the McMinnville Comprehensive Plan.
3. For urban level developments within McMinnville, sanitary sewers are extended or planned for extension at the proposed development densities by such time as the water services are to be utilized.
4. Applicable policies for extending water services, as developed by the City Water and Light Commission, are adhered to.

COMMENT:

Public water can be provided to the site by connecting to the existing main line within SE Stratus Avenue.

Water and Sewer – Land Development Criteria Policies:

151.00: The City of McMinnville shall evaluate major land use decisions, including but not limited to urban growth boundary, comprehensive plan amendment, zone changes, and subdivisions using the criteria outlined below:

1. Sufficient municipal water system supply, storage and distribution facilities, as determined by McMinnville Water and Light, are available or can be made available, to fulfill peak demands and insure fire flow requirements and to meet emergency situation needs.
2. Sufficient municipal sewage system facilities, as determined by

the City Public Works Department, are available, or can be made available, to collect, treat, and dispose of maximum flows of effluents.

3. Sufficient water and sewer system personnel and resources, as determined by McMinnville Water and Light and the City, respectively, are available, or can be made available, for the maintenance and operation of the water and sewer systems.
4. Federal, state, and local water and waste water quality standards can be adhered to.
5. Applicable policies of McMinnville Water and Light and the City relating to water and sewer systems, respectively, are adhered to.

COMMENT:

City staff has indicated that the existing public water line that is located within SE Stratus Avenue has the capacity to serve residential uses permitted the proposed R-4 zoning. As required, the developer will be responsible for the cost to extend public water and sanitary sewer service to the future multi-family buildings. Prior to development of the site, detailed plans will be submitted for Site and Design Review, demonstrating that federal, state, and local wastewater standards are met.

Police and Fire Protection Policies:

- 152.00:** The City of McMinnville shall encourage the provision of adequate police and fire facilities and personnel to meet the needs of the community as it expands.
- 155.00:** The ability of existing police and fire facilities and services to meet the needs of new service areas and populations shall be a criterion used in evaluating annexations, subdivision proposals, and other major land use decisions.

COMMENT:

It is anticipated that City of McMinnville police and fire services have the capacity to serve the proposed R-4 zoning and future apartment complex on the subject site. As demonstrated by the attached Conceptual Plan, a turnaround meeting Fire Code standards will be provided within the parking area.

Goal VII 3:

To Provide Parks and Recreation Facilities, Open Spaces, and Scenic Areas for the Use and Enjoyment of All Citizens of the Community.

- 159.00:** The City of McMinnville's Parks, Recreation, and Open Space Master Plan shall serve to identify future needs of the community, available resources, funding alternatives, and priority projects.

- 163.00:** The City of McMinnville shall continue to require land, or money in lieu of land, from new residential developments for the acquisition and/or development of parklands, natural areas, and open spaces.
- 168.00:** Distinctive natural features and areas shall be retained, wherever possible, in future urban developments.
- 169.00:** Drainage ways in the City shall be preserved, where possible, for natural areas and open spaces and to provide natural storm run-offs.
- 170.05:** For purposes of projecting future park and open space needs, the standards as contained in the adopted McMinnville Parks, Recreation, and Open Space Master Plan shall be used.

COMMENT:

The subject parcels are not identified for future parkland in the McMinnville Parks and Recreation Master Plan.

Chapter VII: Energy

Goal VIII 2:

To Conserve all Forms of Energy Through Utilization of Land Use Planning Tools.

Energy Supply Distribution Policies:

- 178.00:** The City of McMinnville shall encourage a compact urban development pattern to provide for conservation of all forms of energy.

COMMENT:

The submitted Conceptual Plan demonstrates that an apartment complex can be developed in a compact urban pattern under the proposed R-4 zoning (see Exhibit 4).

Chapter IX: Urbanization

Goal IX 1:

To Provide Adequate Lands to Service the Needs of the Projected Population to the Year 2023, and to Ensure the Conversion of these Lands in an Orderly, Timely Manner to Urban Uses.

COMMENT:

The City has recently prepared a Housing Needs Analysis which projects housing needs during the 2021-2041 planning period. This analysis indicates that single-family and multi-family needs will be met through the development of 4,657 dwelling units during the planning period. However, the existing residential land supply will not meet the projected demand. Even if all of the available residential land supply is developed by 2041, the City will have a projected deficiency of 1,926 dwelling units during the planning period. Therefore, rezoning of the subject site to R-4 to allow for medium-high density residential development is essential when addressing the public need for additional housing.

General Development Pattern Policies:

183.00: The City of McMinnville, with the cooperation of Yamhill County, shall establish three categories of lands within the Urban Growth Boundary. Future urbanizable lands are those lands outside the city limits, but inside the Urban Growth Boundary. These lands shall be retained in agricultural resource zones until converted to urbanizable lands by annexation to the City of McMinnville. Urbanizable lands are those lands within the city limits which are not yet developed at urban densities. Conversion of these lands to the urban classification shall involve fulfillment of the goals and policies of this plan, provision of urban services, and application of appropriate implementation ordinances and measures. Urban lands are those lands within the city limits developed at urban densities.

COMMENT:

Consistent with the Three Mile Lane Area Plan, the applicant is proposing to redesignate the subject parcels from Industrial to Residential, and rezone the parcels from M-1 to R-4. Since most of the site is vacant, and within the city limits and UGB, it is considered urbanizable. The attached Conceptual Plan demonstrates that the site can be developed at desired urban densities under the proposed R-4 zoning. As required, the applicant will submit a future Site and Design Review application to demonstrate that the apartment complex meets applicable development standards.

Great Neighborhood Principles Policies:

187.10: The City of McMinnville shall establish Great Neighborhood Principles to guide the land use patterns, design, and development of the places that McMinnville citizens live, work, and play. The Great Neighborhood Principles will ensure that all developed places include characteristics and elements that create a livable, egalitarian, healthy, social, inclusive, safe, and vibrant neighborhood with enduring value, whether that place is a completely new development or a redevelopment or infill project within an existing built area.

COMMENT:

When a future Site and Design Review application is submitted, the applicant will demonstrate that applicable Great Neighborhood Principles are met for the planned apartment complex.

Chapter X: Citizen Involvement and Plan Amendment

Goal X 1:

To Provide Opportunities for Citizen Involvement in the Land Use Decision Making Process Established by the City of McMinnville.

Goal X 2:

To Make Every Effort to Engage and Include a Broad Cross Section of the Community by Maintaining an Active and Open Citizen Involvement Program that is Accessible to all Members of the Community and Engages the Community During Development and Implementation of Land Use Policies and Codes.

COMMENT:

The applicant is requesting approval of a Comprehensive Plan Map Amendment and Zone Change application. As required, citizens will have the opportunity to comment on the proposed map amendments at public hearings before the Planning Commission and City Council prior to issuance of the land use decision.

C. OREGON STATEWIDE PLANNING GOALS

Goal 1: Citizen Involvement

Summary: Goal 1 calls for "the opportunity for citizens to be involved in all phases of the planning process." It requires each city and county to have a citizen involvement program containing six components specified in the goal. It also requires local governments to have a committee for citizen involvement (CCI) to monitor and encourage public participation in planning.

COMMENT:

The requested land use actions are to redesignate the site from Industrial to Residential, and rezone the parcels from M-1 to R-4. As required, citizens will have the opportunity to comment on the proposed map amendments at public hearings before the Planning Commission and City Council.

Goal 2: Land Use Planning

Summary: Goal 2 outlines the basic procedures of Oregon's statewide planning program. It says that land use decisions are to be made in accordance with a comprehensive plan, and that suitable "implementation ordinances" to put the plan's policies into effect must be adopted. It requires that plans be based on "factual information"; that local plans and ordinances be coordinated with those

of other jurisdictions and agencies; and that plans be reviewed periodically and amended as needed. Goal 2 also contains standards for taking exceptions to statewide goals. An exception may be taken when a statewide goal cannot or should not be applied to a particular area or situation.

COMMENT:

The City’s current Housing Needs Analysis indicates that single-family and multi-family needs will be met through the development of 4,657 dwelling units during the 2021-2041 planning period. However, the existing residential land supply cannot meet the projected demand for housing units. It has been determined that the City will have a projected deficiency of 1,926 dwelling units during the planning period even if all available residential land supply is developed.

As discussed throughout this Applicant’s Statement, the subject site is included in McMinnville’s UGB and is currently designated as Industrial on the Comprehensive Plan Map. Consistent with the Medium, High-Density Residential recommendation in the Three Mile Lane Area Plan, a supporting document to the Comprehensive Plan, the applicant is proposing to redesignate the site Residential and rezone it to an R-4 designation. The attached Conceptual Plan indicates that the applicant is intending to develop 96 multi-family units on the site following the approval of the proposed map amendments. Therefore, the requested map amendments are orderly and timely considering the Area Plan’s recommendation for the site, and the need for housing in the community.

Goal 3: Agricultural Lands

Summary: Goal 3 defines "agricultural lands." It then requires counties to inventory such lands and to "preserve and maintain" them through farm zoning. Details on the uses allowed in farm zones are found in ORS Chapter 215 and in Oregon Administrative Rules, Chapter 660, Division 33.

COMMENT:

The subject site is located within the city limits and UGB of McMinnville. Since the parcels are not defined as “agricultural lands”, this goal does not apply.

Goal 4: Forest Lands

Summary: This goal defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

COMMENT:

The subject property does not include designated forest lands. Therefore, Goal 4 is not applicable to the proposed map amendments.

Goal 5: Open Spaces, Scenic and Historic Areas and Natural Resources

Summary: Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated. If a resource or site is found to be significant, a local government has three policy choices: preserve the resource, allow proposed uses that conflict with it, or strike some sort of a balance between the resource and the uses that would conflict with it.

COMMENT:

The subject site does not contain any designated open spaces, scenic, or historic areas. Therefore, this goal does not apply to the submitted application.

Goal 6: Air, Water and Land Resources Quality

Summary: This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

COMMENT:

If the proposed Comprehensive Plan Map and Zoning Map designations are approved for Lots 600 and 604, more detailed plans will be prepared for a future Site and Design Review application. This future land use application and the building permitting process will ensure compliance with local, state, and federal air, water, and land resource quality standards.

Goal 7: Areas Subject To Natural Disasters and Hazards

Summary: Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

COMMENT:

The subject site is not located within mapped hazard areas. Therefore, the submitted Zoning Change and Map Amendment applications are consistent with Goal 7.

Goal 8: Recreation Needs

Summary: This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them. It also sets forth detailed standards for expedited siting of destination resorts.

COMMENT:

The McMinnville Parks and Recreation Plan does not identify park facilities on the subject site.

Goal 9: Economic Development

Summary: Goal 9 calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and plan and zone enough land to meet those needs.

COMMENT:

As discussed above, the applicant is proposing to designate the site Residential on the Comprehensive Plan Map and R-4 on the Zoning Map. The proposed map amendments will allow the development of a multi-family dwellings, providing additional housing opportunities for the McMinnville workforce and their employers. Residents that live in the proposed dwellings will purchase local goods and services, helping to contribute to the local economy. In addition, the residential use will provide additional property tax revenue for the City to provide public services. Therefore, the proposed map amendments will help improve economic conditions in the community.

Goal 10: Housing

Summary: This goal specifies that each city must plan for and accommodate needed housing types, such as multifamily and manufactured housing. It requires each city to inventory its buildable residential lands, project future needs for such lands, and plan and zone enough buildable land to meet those needs. It also prohibits local plans from discriminating against needed housing types.

COMMENT:

The attached Conceptual Plan illustrates that following approval of the map amendments, the applicant intends to develop a 96-unit apartment complex on the site. The future development of an apartment complex helps to meet the need for a greater variety of residential units as identified in the 2003-2023 McMinnville Growth Management and Urbanization Plan. The City's more recent Housing Needs Analysis indicates that the City is maintaining a deficient residential land supply when addressing housings needs during the 2021-2041 planning period. As such, rezoning and development of the subject site is essential when addressing the public housing need.

Goal 11: Public Facilities and Services

Summary: Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central concept is that public services should to be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs.

COMMENT:

City maps indicate that public utilities are located in the vicinity of the subject parcels and can be extended when the site is developed. Public water and sanitary sewer services can be provided by connecting to existing main lines within SE Stratus Avenue. Electrical and communication services can also be provided by connecting to existing lines within the right-of-way. To manage stormwater, the applicant is planning to develop a retention pond on the site. The subject parcels currently have access to City fire and police services. Therefore, the proposed map amendments comply with Goal 11.

Goal 12: Transportation

Summary: The goal aims to provide "a safe, convenient and economic transportation system." It asks for communities to address the needs of the "transportation disadvantaged."

COMMENT:

NE Stratus Avenue is currently improved with a curb and sidewalk along the frontage of Tax Lot 602, where shared access is provided with the subject site. Due to low traffic volumes and speeds, vehicles and bicycles share the travel lanes. As required, Transportation Planning Rule Analysis has been completed for the proposed zone change from M-1 to R-4. The attached Transportation Planning Rule Analysis indicates that traffic associated with the proposed zone designation is consistent with the City's Transportation System Plan (TSP) and will not create a significant effect to the safety or convenience of the surrounding transportation system (see Exhibit 5). Therefore, the above policy is met.

Goal 13: Energy

Summary: Goal 13 declares that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."

COMMENT:

This proposed map amendments do not significantly affect Goal 13.

Goal 14: Urbanization

Summary: This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs. It calls for each city to establish an "urban growth boundary" (UGB) to "identify and separate urbanizable land from rural land." It specifies seven factors that must be considered in drawing up a UGB. It also lists four criteria to be applied when undeveloped land within a UGB is converted to an urban use.

Land Need

Establishment and change of urban growth boundaries shall be based on the following:

- (1) Demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments; and**

COMMENT:

The City's current Housing Needs Analysis indicates that single-family and multi-family needs will be met through the development of 4,657 dwelling units during the 2021-2041 planning period. However, even if all available residential land supply is developed by 2041, the City will have a projected deficiency of 1,926 dwelling units during the planning period. Therefore, rezoning of the subject site from M-1 to R-4 is essential when addressing the public need for additional housing. As demonstrated by the attached Conceptual Plan, the site can accommodate the development of approximately 96 additional multi-family dwelling units for the community (see Exhibit 3).

- (2) Demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories in this subsection (2).**

COMMENT:

The subject property is currently designated Industrial on the City of McMinnville Comprehensive Plan Map and M-1 (light industrial) on the Zoning Map. As discussed above, there is a documented need to develop additional housing to meet the needs of the projected population. Approval of the proposed zone change allows for future apartment development within the site, which helps to satisfy that need. The proposed map amendments are also consistent with recommendations in the Three Mile Lane Area Plan's, which designates Medium, High-Density Residential for the site.

Boundary Location

The location of the urban growth boundary and changes to the boundary shall be determined by evaluating alternative boundary locations consistent with ORS 197.298 and with consideration of the following factors:

- (1) Efficient accommodation of identified land needs;**

COMMENT:

The applicant is not proposing changes to the existing urban growth boundary. Therefore, these factors do not apply.

IV. SUMMARY AND CONCLUSIONS

Based on the above findings, the applicant has demonstrated compliance with applicable sections of the City of McMinnville Municipal City Code, McMinnville Comprehensive Plan, and Oregon Statewide Planning Goals. Therefore, the applicant requests that the concurrent Zoning Change and Map Amendment applications be approved.

V. EXHIBITS

- 1. Application Form**
- 2. Property Deed and Legal Description**
- 3. Conceptual Plan**
- 4. Neighborhood Meeting Documentation**
- 5. Transportation Planning Rule Analysis**

APPLICATION FORM

EXHIBIT 1

PROPERTY DEED AND LEGAL DECISION

EXHIBIT 2

AFTER RECORDING, RETURN TO:

Don G. Johnson
Johnson & Taylor, LLC
1193 Liberty Street, SE
Salem, OR 97302

SEND TAX STATEMENTS TO:

Nancy Feero
7941 Barrancas Avenue
Bokeelia, FL 33922

OFFICIAL YAMHILL COUNTY RECORDS
KERI HINTON, COUNTY CLERK

202306381



\$86.00

00657075202300063810020025

07/12/2023 11:46:12 AM

DMR-DDMR Cnt=1 Stn=1036 DAVISM
\$10.00 \$5.00 \$11.00 \$60.00

PERSONAL REPRESENTATIVE'S DEED

I, **Nancy Feero**, as Personal Representative of the **Estate of Kurt Raymond Feero, Yamhill County Case Number 22PB07125** ("Grantor"), does hereby convey and transfer to **Jennifer Lynn Feero, Andrea Marie Feero and Jodi Lynne Devonshire**, as tenants in common, the following described real property (the "Property"), except as specifically set forth herein:

Real Property located at 2320 SE Stratus Avenue, McMinnville, OR 97128, and described more particularly as follows:

Parcel 2 of Partition Plat 2008-02 recorded January 7, 2008 as Instrument No. 200800276, Official Records of Yamhill County, Oregon.

The true consideration for this conveyance is: Zero Dollars (\$0.00); Inheritance.

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND

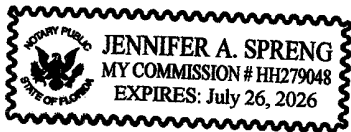
SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, AND SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

DATED this 1st day of JULY, 2023.

Nancy Feero
Nancy Feero, Personal Representative of
the Estate of Kurt Raymond Feero

STATE OF FLORIDA)
) ss.
County of Lee)

The foregoing instrument was acknowledged before me on this 1st day of JULY, 2023, by **Nancy Feero, Personal Representative of the Estate of Kurt Raymond Feero**, who acknowledged such instrument to be his free and voluntary act and deed, and on oath stated that she was duly authorized to execute such instrument.



Jennifer A. Spreng
Notary Public for the State of Florida

AFTER RECORDING, RETURN TO:
Don G. Johnson
Johnson & Taylor, LLC
1193 Liberty Street, SE
Salem, OR 97302

OFFICIAL YAMHILL COUNTY RECORDS
KERI HINTON, COUNTY CLERK

202307430

SEND TAX STATEMENTS TO:
Nancy Feero
7941 Barrancas Avenue
Bokeelia, FL 33922



\$91.00

08/10/2023 12:27:55 PM

DMR-DDMR Cnt=1 Stn=3 SUTTONS
\$15.00 \$5.00 \$11.00 \$60.00

PERSONAL REPRESENTATIVE'S DEED

I, **Nancy Feero**, as Personal Representative of the Estate of **Kurt Raymond Feero**, Yamhill County Case Number **22PB07125** ("Grantor"), does hereby convey and transfer to **Jennifer Lynn Feero, Andrea Marie Feero and Jodi Lynne Devonshire**, as tenants in common, the following described real property (the "Property"), except as specifically set forth herein:

5.4 acre parcel legally described in vested deed 2007-20877 in Exhibit C attached.

The true consideration for this conveyance is: Zero Dollars (\$0.00); Inheritance.

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND

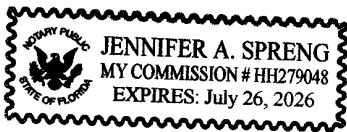
SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, AND SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

DATED this 31 day of July, 2023.

Nancy Feero
Nancy Feero, Personal Representative of
the Estate of Kurt Raymond Feero

STATE OF FLORIDA)
) ss.
County of Lee)

The foregoing instrument was acknowledged before me on this 31st day of July, 2023, by **Nancy Feero, Personal Representative of the Estate of Kurt Raymond Feero**, who acknowledged such instrument to be his free and voluntary act and deed, and on oath stated that she was duly authorized to execute such instrument.



[Signature]
Notary Public for the State of Florida

EXHIBIT C
Legal Description of "C" (5.4 Ac.)

A tract of land in Section 27, Township 4 South, Range 4 West, City of McMinnville, Yamhill County, Oregon, being more particularly described as follows:

Beginning at the southwest corner of that tract of land described in deed from CHARLES J. McELMURRAY, SHIRLEY McELMURRAY and R. WALDO FARNHAM to KURT R. FEERO and RHONDA A. FEERO and recorded in Film Volume 264 Page 1243, Yamhill County Deed Records; thence North $00^{\circ}28'00''$ West 969.20 feet along the west line of said FEERO tract to an iron rod; thence North $89^{\circ}32'00''$ East 237.00 feet to an iron rod on the east line of said tract; thence South $00^{\circ}28'00''$ East 297.06 feet along said east line; thence North $89^{\circ}44'00''$ East 8.00 feet along said east line; thence South $00^{\circ}28'00''$ East 672.75 feet along said east line to the southeast corner of said FEERO tract; thence South $89^{\circ}40'58''$ West 245.00 feet along the south line of said tract to the point of beginning.

TOGETHER WITH A 25 foot wide access and utilities easement the centerline of which is more particularly described as follows: Beginning on the south margin of SE Stratus Avenue at a point that is South $89^{\circ}46'16''$ West 20.61 feet from the east line of that tract of land described in deed from CHARLES J. McELMURRAY, SHIRLEY McELMURRAY and R. WALDO FARNHAM to KURT R. FEERO and

RHONDA A. FEERO and recorded in Film Volume 264 Page 1243, Yamhill County Deed Records; thence South $00^{\circ}02'04''$ West 31.63 feet; thence South $26^{\circ}29'15''$ West 74.54 feet; thence continuing South $26^{\circ}29'15''$ West 39.34 feet; thence South $00^{\circ}28'00''$ East 35.90 feet to the beginning of a curve concave to the west having a radius of 37.50 feet; thence southerly 24.95 feet along said curve (chord=South $18^{\circ}35'45''$ West 24.49 feet) to the beginning of a curve concave to the east having a radius of 37.50 feet; thence southerly 24.95 feet along said curve (chord=South $18^{\circ}35'45''$ West 24.49 feet); thence South $00^{\circ}28'00''$ East 34.58 feet to the end of said centerline.

EXHIBIT C
PAGE 1 of 1

7/8

CONCEPTUAL PLAN

EXHIBIT 3



SITE INFORMATION:

PROPERTY AREA:	AREA = (5.4 ACRES)
EXISTING ZONING:	M1
PROPOSED USE:	R4
NUMBER OF UNITS:	12 - 2 BED 43 - 2 BED 36 - 3 BED 95 UNITS TOTAL
SETBACKS:	BUILDING: FRONT = 15' SIDE = 10' REAR = 20'
BUILDING HEIGHT:	35'-0" APPROXIMATE
BUILDING AREA:	BUILDING #1 (CH): 2,544 GROSS SF BUILDING #2: 17,542 GROSS SF BUILDING #3: 16,084 GROSS SF BUILDING #4: 16,084 GROSS SF BUILDING #5: 17,542 GROSS SF BUILDING #6: 16,084 GROSS SF BUILDING #7: 17,542 GROSS SF TOTAL: 103,422 GROSS SF
PARKING PROVIDED:	180 EXTERIOR SPACES (13 H.C. ACCESSIBLE)

PRELIMINARY SITE PLAN
SCALE: 1" = 50'-0"

PRELIMINARY SHEET DATES:

M+A DESIGN, INC.

24 SOUTH BROOKE STREET
FOND DU LAC, WISCONSIN 54937
lpettie@madesigninc.net (920) 922-8170

COMMONWEALTH COMPANIES

24 S. BROOKE STREET
FOND DU LAC, WISCONSIN 54935
(920) 922-8170 FAX: (920) 922-8171

MULTI-FAMILY HOUSING

SE STRATUS AVE
MCMINNVILLE, OR

JOB NUMBER:
2023.47

SHEET
C1.0

NEIGHBORHOOD MEETING DOCUMENTATION

EXHIBIT 4

July 30, 2024

Re: Neighborhood Meeting for Proposed Comprehensive Plan Map and Zone Change

Dear Resident and/or Property Owner:

Cascadia Planning + Development Services is representing the applicant for a proposed Comprehensive Plan Map Amendment from Industrial to Residential, with a concurrent request to change the Zoning Map designation from M-1 to R-4. The 5.80-acre subject site is addressed as 2320 SE Stratus Avenue and is identified by the Yamhill County Assessor as Tax Lots 600 and 604 of Tax Map 4.4.27. The proposed map amendments to a residential designation are consistent with the City of McMinnville's Three Mile Lane Area Plan.

The purpose of this meeting is to provide a forum for the applicant and surrounding property owners/residents to review the proposal and to identify issues so that they may be considered before a land use application is submitted to the City. This meeting gives you the opportunity to share any special information you know about the property involved. We will attempt to answer questions which may be relevant to McMinnville Zoning Ordinance standards.

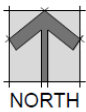
You are invited to attend a neighborhood meeting regarding this proposal:

on: Tuesday, July 30th, 2024 at 6:00 pm
Baker Creek Community Church
325 NW Baker Creek Road, McMinnville, OR 97128

Please note that this will be an informal meeting based on preliminary development plans. We look forward to discussing this proposal with you. Feel free to contact me at 503-804-1089 or steve@cascadiapd.com if you have any questions.

Sincerely,

Steve Kay, AICP
Cascadia Planning + Development Services

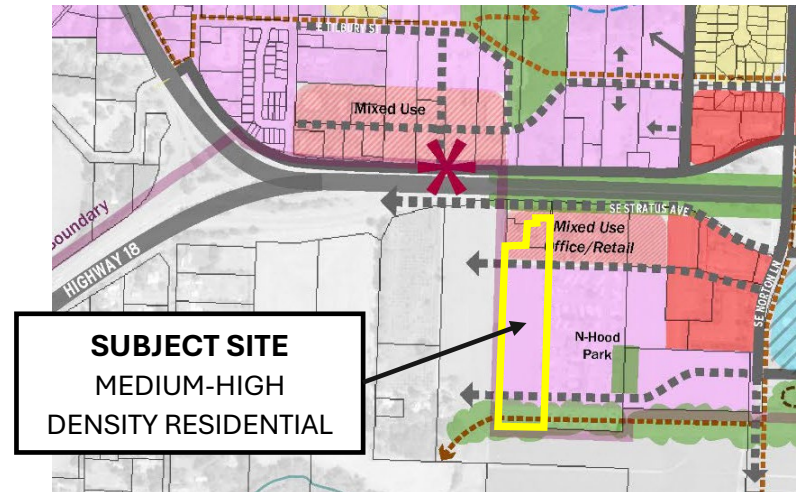


PRELIMINARY SITE PLAN

SCALE: 1" = 50'-0"

SITE INFORMATION:

PROPERTY AREA:	AREA = (5.4 ACRES)
EXISTING ZONING:	M1
PROPOSED USE:	R4
NUMBER OF UNITS:	12 - 2 BED 48 - 2 BED 36 - 3 BED 96 UNITS TOTAL
SETBACKS:	BUILDING: FRONT = 15' SIDE = 10' REAR = 20'
BUILDING HEIGHT:	35'-0" APPROXIMATE
BUILDING AREA:	BUILDING #1 (CH): 2,544 GROSS SF BUILDING #2: 17,542 GROSS SF BUILDING #3: 16,084 GROSS SF BUILDING #4: 16,084 GROSS SF BUILDING #5: 17,542 GROSS SF BUILDING #6: 16,084 GROSS SF BUILDING #7: 17,542 GROSS SF TOTAL: 103,422 GROSS SF
PARKING PROVIDED:	180 EXTERIOR SPACES (13 H.C. ACCESSIBLE)



SUBJECT SITE
MEDIUM-HIGH
DENSITY RESIDENTIAL

THREE MILE LANE
PREFERRED ALTERNATIVE

**Stratus Avenue Holdings LLC
2400 SE Stratus Ave Unit 38
McMinnville OR 97128**

**Aab Properties LLC
2300 SE Stratus Ave
McMinnville OR 97128**

**Aab Properties LLC
2330 SE Stratus Ave
McMinnville OR 97128**

**Stratus Avenue Holdings LLC
McMinnville OR 97128**

**Morrison Cheryl E (1/2)
405 SE Martin Ln
McMinnville OR 97128**

**Michael Bernards
McMinnville OR 97128**

**Luis Rojas
2400 SE Stratus Ave Unit 54
McMinnville OR 97128**

**Kelli Alfredson
2400 SE Stratus Ave Unit 72
McMinnville OR 97128**

**Maria Ortigoza-Reyes
2400 SE Stratus Ave Unit 31
McMinnville OR 97128**

**Elvia Gonzalez-Lopez
2400 SE Stratus Ave Unit 3
McMinnville OR 97128**

**Cinthia Julio-Saucedo
2400 SE Stratus Ave Unit 7
McMinnville OR 97128**

**Maryann Bidwell
2400 SE Stratus Ave Unit 19
McMinnville OR 97128**

**Denise Manley
2400 SE Stratus Ave Unit No 44
McMinnville OR 97128**

**Miguel Olayo-Aguilar
2400 SE Stratus Ave Unit 5
McMinnville OR 97128**

**Verenise Cervantes-Ramos
2400 SE Stratus Ave Unit 23
McMinnville OR 97128**

**Mayra Cornejo
McMinnville OR 97128**

**Tiffany Kazunas
2400 SE Stratus Ave Unit 24
McMinnville OR 97128**

**Joed Asay
2400 SE Stratus Ave Unit 49
McMinnville OR 97128**

**Robert Boyd
2400 SE Stratus Ave Unit 37
McMinnville OR 97128**

**Adelina Valencia
2400 SE Stratus Ave Unit 16
McMinnville OR 97128**

**Solis Sanchez
2400 SE Stratus Ave Unit 32
McMinnville OR 97128**

**Jose Juarez
2400 SE Stratus Ave Unit 14
McMinnville OR 97128**

**Maria Luna-Arciga
2400 SE Stratus Ave Unit 40
McMinnville OR 97128**

**Evelyn Arredondo
2400 SE Stratus Ave Unit No 42
McMinnville OR 97128**

**Gabriel Bravo
2400 SE Stratus Ave Unit 53
McMinnville OR 97128**

**Luis Jimenez-Vazquez
2400 SE Stratus Ave Unit 20
McMinnville OR 97128**

**Delgado Torres
2400 SE Stratus Ave Unit 11
McMinnville OR 97128**

**Maria Alvarez
2400 SE Stratus Ave Unit 4
McMinnville OR 97128**

**Darcy Romero
2400 SE Stratus Ave Unit 36
McMinnville OR 97128**

**Stefany Verduzco
2400 SE Stratus Ave Unit 33
McMinnville OR 97128**

Emily Kelbell
2400 SE Stratus Ave Unit 59
McMinnville OR 97128

Charles Simpson
2400 SE Stratus Ave Unit 27
McMinnville OR 97128

Renee Self
2400 SE Stratus Ave Unit 57
McMinnville OR 97128

Maricruz Flores
2400 SE Stratus Ave Unit 55
McMinnville OR 97128

Coral Mendoza-Silva
2400 SE Stratus Ave Unit 29
McMinnville OR 97128

Tracey Blomquist
2400 SE Stratus Ave Unit 48
McMinnville OR 97128

Fernanda Barajas
2400 SE Stratus Ave Unit 25
McMinnville OR 97128

Karen Llanes
2400 SE Stratus Ave Unit 60
McMinnville OR 97128

Lopez Martinez
2400 SE Stratus Ave Unit 28
McMinnville OR 97128

Aristeo Ruiz-Hernandez
2400 SE Stratus Ave Unit 45
McMinnville OR 97128

Judith Martin
2400 SE Stratus Ave Unit 101
McMinnville OR 97128

Vickie Grove
2400 SE Stratus Ave Unit 35
McMinnville OR 97128

Patrick Owens
2400 SE Stratus Ave Unit 58
McMinnville OR 97128

Sergio Mendoza
2400 SE Stratus Ave Unit 38
McMinnville OR 97128

McKenzie Hunt
2400 SE Stratus Ave Unit 68
McMinnville OR 97128

Arely Mota-Armenta
2400 SE Stratus Ave Unit 6
McMinnville OR 97128

Gloria Urquilla
2400 SE Stratus Ave Unit 26
McMinnville OR 97128

Alan King
2400 SE Stratus Ave Unit 81
McMinnville OR 97128

Acevedo Espinoza
2400 SE Stratus Ave Unit 9
McMinnville OR 97128

Miguel Alonso-Leyva
2400 SE Stratus Ave Unit 69
McMinnville OR 97128

Jesse Brown
2400 SE Stratus Ave Unit 83
McMinnville OR 97128

Esther Kokoruda
McMinnville OR 97128

Geoffrey Messervy
2400 SE Stratus Ave Unit 88
McMinnville OR 97128

Eric Ruch
2400 SE Stratus Ave Unit 78
McMinnville OR 97128

Francisco Baltazar
2400 SE Stratus Ave Unit 79
McMinnville OR 97128

Trinidad Ortigoza-Reyes
2400 SE Stratus Ave Unit 41
McMinnville OR 97128

Ramona Thomas
2400 SE Stratus Ave Unit 84
McMinnville OR 97128

Reyes Orrtiz
2400 SE Stratus Ave Unit 80
McMinnville OR 97128

Kris Simkins
2400 SE Stratus Ave Unit 74
McMinnville OR 97128

Levi Wall
2400 SE Stratus Ave Unit 52
McMinnville OR 97128

Robert Huddleson III
2400 SE Stratus Ave Unit 73
McMinnville OR 97128

Robert Terry
2400 SE Stratus Ave Unit 105
McMinnville OR 97128

Betty Pritchard
2400 SE Stratus Ave Unit 1
McMinnville OR 97128

Clarence Zimmerman
2400 SE Stratus Ave Unit 2
McMinnville OR 97128

Socorro Serna
2400 SE Stratus Ave Unit 107
McMinnville OR 97128

Lolita Moreland
2400 SE Stratus Ave Unit 77
McMinnville OR 97128

Dennis Woods
2400 SE Stratus Ave Unit 104
McMinnville OR 97128

Dale Simkins
2400 SE Stratus Ave Unit 106
McMinnville OR 97128

Victoria Cruz-Martinez
2400 SE Stratus Ave Unit 22
McMinnville OR 97128

Armando Orozco
2400 SE Stratus Ave Unit 91
McMinnville OR 97128

Travis Carmon
2400 SE Stratus Ave Unit 90
McMinnville OR 97128

Richard Donaldson
2400 SE Stratus Ave Unit 100
McMinnville OR 97128

Jose Espinoza
2400 SE Stratus Ave Unit 99
McMinnville OR 97128

Marvin Parnell
2400 SE Stratus Ave Unit 86
McMinnville OR 97128

Laurie Elliott
2400 SE Stratus Ave Unit 85
McMinnville OR 97128

Salinas Santiago
2400 SE Stratus Ave Unit 87
McMinnville OR 97128

Teodolo Elias
2400 SE Stratus Ave Unit 93
McMinnville OR 97128

Cipriano Magana
2400 SE Stratus Ave Unit 95
McMinnville OR 97128

Deana Holt
2400 SE Stratus Ave Unit 97
McMinnville OR 97128

Maria Acevedo-Lemus
2400 SE Stratus Ave Unit 98
McMinnville OR 97128

Trujillo Perez
2400 SE Stratus Ave Unit 50
McMinnville OR 97128

Mary Harper
2400 SE Stratus Ave Unit 46
McMinnville OR 97128

Yeith Duran
McMinnville OR 97128

Daniel Stearns
2400 SE Stratus Ave Unit 96
McMinnville OR 97128

Arteaga Contreras
McMinnville OR 97128

Carole Robertson
2400 SE Stratus Ave Unit 66
McMinnville OR 97128

Burt Asay
2400 SE Stratus Ave Unit 56
McMinnville OR 97128

Dominguez Escobar
2400 SE Stratus Ave Unit 92
McMinnville OR 97128

Moises Salinas
2400 SE Stratus Ave Unit 75
McMinnville OR 97128

Maria Zaragonza
2400 SE Stratus Ave Unit 108
McMinnville OR 97128

Araceli Sanchez-Gregorio
2400 SE Stratus Ave Unit 82
McMinnville OR 97128

Haleigh Morales
2400 SE Stratus Ave Unit 43
McMinnville OR 97128

Jamie Dasher
2400 SE Stratus Ave Unit 89
McMinnville OR 97128

Richard Hernandez
2400 SE Stratus Ave Unit 30
McMinnville OR 97128

Jennifer Feero
2320 SE Stratus Ave
McMinnville OR 97128

Lorena Ferreyra
2400 SE Stratus Ave Unit 103
McMinnville OR 97128

Walter Thompson
2400 SE Stratus Ave Unit 34
McMinnville OR 97128

Troy Trexler
2400 SE Stratus Ave Unit 51
McMinnville OR 97128

Moyer Phyllis Trustee For
2270 SE Three Mile Ln
McMinnville OR 97128

Posted Site Photo: Dated July 10, 2024



SIGN-IN SHEET

Stratus Avenue Annexation and Zone Change Neighborhood Meeting

Tuesday July 30, 2024 at 6:00 pm

Baker Creek Community Church, 325 NW Baker Creek Road, McMinnville

Name	Address	Phone	Email
STEVE KAY	PO BOX 1920, SILVERTON, OR 97381	503-804-1089	steve@cascadiapower.com
Dan DiFrancesco	3965 S. Cowditch Rd New Berlin, WI 53151	608-216-4535	d.difrancesco@commwealth.net
Andrea & Alex Botten	1725 NW 5th Ct, McMinnville, OR 97128	503-560-0842	abotten1@frontier.com
Mike Morris	935 NW 19th St Mac	971-241-3847	Mike & Miller Consulting Group.net
Nick & Summer Holsten	2320 SE Stratus ave	267-726-956	Nick13@gmail.com
Andrea Feero		503-474-7865	olinsmum@gaia.com
Jen Feero	2050 NW P; nehurst Dr, McMinnville	503-708-2658	jenfeero@bauerstreetrealestate.com
Rick Donaldson	2400 SE STRATUS AVE #100 McMinnville	971-241-4557	
Rigoberto Ubaldo	2400 Se Stratus Ave #31 McMinnville	971-241-6100	
TEJIBAD ORTIGAZA	2400 se stratus AVE #41 McMinnville	971-237-8890	
Anahi Ortigazan	2400 se stratus AV #5 McMinnville	503-437-2807	

Cascadia Planning + Development Services

P.O. Box 1920
Silverton, OR 97381
(503) 804-1089
steve@cascadiapd.com



MEMO

DATE: August 6, 2024

TO: City of McMinnville Planning Department

FROM: Steve Kay
Cascadia Planning + Development Services

RE: Neighborhood Meeting Summary
SE Stratus Avenue Map Amendments
Tax Lots 600 and 604 of Tax Map 4.4.27

In accordance with McMinnville Zoning Ordinance Section 17.72.095 standards, a neighborhood meeting was held for a proposed Comprehensive Plan Map Amendment from Industrial to Residential with a concurrent Zone Change from M-1 to R-4. The subject site is addressed as 2320 SE Stratus Avenue and identified by the Assessor’s Office as Tax Lots 600 and 604 of Tax Map 4.4.27. The meeting allowed the applicant to identify potential neighbor concerns, and if possible, address those issues with the submitted application. To notice the meeting, the applicant used mailing labels provided by a title company and invited all property owners within 300-ft. of the subject site. The meeting was held on July 30, 2022 at the Baker Creek Community Church and was facilitated by Steve Kay, Cascadia Planning + Development Services and Daniel DiFrancesco of Commonwealth Development Corporation. Approximately 20 neighbors attended the meeting and a sign-in sheet has been attached.

Mr. Kay welcomed the attendees at 6:00 pm and began by describing the purpose of the meeting. He referred to a conceptual plan to describe the proposed map amendments and future apartments project. Mr. Kay provided an overview of the development plans, showing how access will be provided, and where the buildings and parking lot will be located. Mr. DiFrancesco provided some additional details about the project, including what amenities would be provided within the apartment complex.

After completing the presentation, Mr. Kay encouraged meeting attendees to ask questions and provide feedback regarding the development. The attendees asked if the project was a “sure thing”. Mr. Kay and Mr. DiFrancesco explained that only the map amendments for the site are proposed at this time and that the project will need to undergo the City’s land use review process.

Several neighbors raised the concern that existing and future residents don’t have access to commercial uses in this area. Mr. Kay and Mr. DiFrancesco responded that the Three Mile Lane Area Plan determined where commercial, industrial, and residential land use will be located and the proposed multi-family use is consistent with the plan. While no commercial uses are directly adjacent to the development, it was explained that the apartment complex will include recreational amenities so provide more self-sufficiency for the residents.

Some attendees stated the concern that existing mobile home residents cross Highway 18 outside of the designated pedestrian crossing area and new apartment residents might also do that to reach commercial areas to the north of the site. Mr. Kay indicated that this is a valid concern and the neighbor’s comments will be provided to the City to help determine an appropriate solution. Mr. Kay also explained that Highway 18 is under ODOT jurisdiction, therefore they will make the final decision regarding any changes to the roadway.

An attendee asked how many parking spaces would be provided for the future development. Mr. DiFrancesco stated that detailed plans for the site will not be determined until the map amendments are approved. He said that the conceptual plan shows that approximately 180 parking spaces can be accommodated on the site for 96 apartment units.

Neighbors asked if plans for the site can change and more apartment units could be developed. Mr. DiFrancesco indicated that there isn’t much more room for parking so it is not anticipated that the project will have a higher unit count. He also added that the location of the buildings, parking areas, and storm facility might change when detailed plans are prepared.

Several of the adjacent mobile home park residents asked if their homes will be removed for the proposed project. Mr. Kay explained that the proposed map amendment and future apartment complex is located to the west of the mobile home park. He clarified that no changes to their property are proposed.

The neighbors asked about the next steps in the land use application process. Mr. Kay explained that an application would be submitted to the City of McMinnville sometime in the next month. After City staff reviewed the proposal, the neighbors would be invited to provide written comments. He also indicated that the site would be posted with a sign and community members would be encouraged to provide input at public hearings before the Planning Commission and City Council.

The owner of Northwest Logging Supply asked if the existing easement crossing his property is located in a good location for the proposed development and operation of his business. Mr. DiFrancesco responded that the current plans are to remove the existing building in the northern portion of the site and to extend an access drive from the parking lot. He also stated that he is interested in continuing a conversation with the property owner to determine if relocating the easement would better serve both parties.

Mr. Kay concluded the discussion by encouraging the attendees to contact him with any additional questions or concerns. After thanking neighbors for their questions and feedback, the meeting was ended at approximately 7:30 pm.

TRANSPORTATION PLANNING RULE ANALYSIS



September 20, 2024

City of McMinnville
Community Development Department
Attention: Tom Schauer
231 NE Fifth Street
McMinnville, Oregon 97128

Sent via email to: Tom.Schauer@mcminnvilleoregon.gov

Re: SE Stratus Avenue Comprehensive Plan Amendment and Zone Change – McMinnville, Oregon
Traffic Impact Analysis (TIA)

C&A Project Number 20240602.00

Dear Mr. Schauer,

This Transportation Impact Analysis (TIA) supports the proposed Commonwealth Stratus Avenue residential development at 2300 and 2320 SE Stratus Avenue, McMinnville, Oregon. The following items are addressed:

1. Property Description and Proposed Land Use Actions
2. Study Parameters
3. Agency transportation Plan review
4. Existing Conditions
5. Site Development
6. Transportation Analysis
7. Site Access
8. Summary

1. PROPERTY DESCRIPTION AND PROPOSED LAND USE ACTIONS

The subject properties are at 2300 and 2320 SE Stratus Avenue in McMinnville, Oregon. The properties are identified as tax lots 600 and 604 on Yamhill County Assessor’s map 4-4-27 and total approximately 5.8 acres. The site area is illustrated in the attached Figure 1.

Proposed land use actions include a Comprehensive Plan amendment with a plan designation change from Industrial to Residential and a corresponding zone change from Light Industrial (M-1) to Medium, High-Density, 5000 SF Lot Residential (R-4). A specific subdivision or development plan is not contemplated as part of this land use action; therefore, reasonable worst-case development scenarios are assumed in the current and proposed zone designations for analysis purposes.

While not part of these land use actions, future property development is anticipated to include a 96-unit residential affordable housing development consisting of six, two-story apartment buildings. It is also anticipated that future transportation analysis will be necessary to support these land use actions.

2. STUDY PARAMETERS

In support of the proposed land use actions, a transportation impact analysis (TIA) is necessary to address the following criteria:

- Transportation Planning Rule (TPR) criteria outlined in Oregon Administrative Rule (OAR) 660-012-0060
- Oregon Highway Plan criteria
- McMinnville Zoning Ordinance criteria

Evaluation of these criteria is presented in the *Transportation Analysis* section of this document.

3. AGENCY TRANSPORTATION PLAN REVIEW

McMinnville Transportation System Plan (TSP)

The 2010 McMinnville Transportation System Plan (2010 TSP) defers to the Oregon Highway 18 Corridor Refinement Plan for detailed transportation planning in the project area. Noting that the adopted TSP is 14 years old, many identified projects and funding sources are outdated. Regardless, the TSP does not identify any financially constrained projects in the applicant's project area, but it notes that there are missing sidewalks on Stratus Avenue.

Oregon Highway 18 (McMinnville) Corridor Refinement Plan

The OR 18 Corridor Refinement Plan was completed in 1996 and was mutually approved by ODOT, the city of McMinnville, and Yamhill County. This plan includes a series of traffic control and frontage road improvements north and south of OR 18, including the closing of the existing Norton Lane intersection, construction of a new interchange near the Evergreen Air Museum, and redesign of the current East McMinnville (Three Mile Lane) interchange for full, directional access.

McMinnville Three Mile Lane Area Plan

The 2022 McMinnville Three Mile Lane Area Plan preferred land use alternative includes rezoning project area properties to support commercial (mixed-use) and medium-high-density residential uses. More specifically, the plan recommends the applicant's property be rezoned from Light Industrial (M-1) to Medium, High-Density Residential (R-4) – consistent with this subject land use action.

Key transportation system improvements are necessary to support the preferred land use alternative and the OR 18 facility design, further noting that the 2010 TSP needs to be updated to include these improvements. The *Complete Street* design requires changes to City street standards in the TSP and the Zoning Ordinance. These changes include increased sidewalk and planter strip widths along residential streets. To enhance cyclists' comfort, the revised standards also require buffered bike lanes (or cycle tracks) on collector streets and sharrow markings for shared lanes on local residential streets.

ODOT Statewide Transportation Improvement Program (STIP)

A review of the ODOT Active 2024-2027 Statewide Transportation Improvement Program (STIP) finds that there are two projects in the area:

- Key 22554 – OR99W/OR18 Curb Ramps (McMinnville) that is described as “Construct curb ramps to meet compliance with the Americans with Disabilities Act (ADA) standards.”, which is funded through construction that is anticipated to start in 2025, and
- Key 22792 – OR18: S McMinnville Interchange – E McMinnville Interchange that is described as “Complete design to repave the road to repair deterioration, improve smoothness and reduce maintenance costs.”, which is partially funded (i.e., it is funded through the relocation of utilities) that is anticipated to start in 2027.

4. EXISTING CONDITIONS

Tax lot 600 is currently undeveloped and used for agricultural purposes. Tax lot 604 is developed with a single-family residence and an associated industrial use. These properties currently have access to SE Stratus Avenue to the north via a shared access easement across tax lot 602 which has roadway frontage.

Roadway Facilities

The following table summarizes existing roadway classifications and characteristics within the study area.

TABLE 1 – EXISTING ROADWAY CHARACTERISTICS							
Roadway	Functional Classification	Lanes	Speed Limit (MPH)	Sidewalks	Bicycle Lanes	On-Street Parking	
SE Stratus Avenue	Minor Collector	2	35	No	No	No	
Norton Lane	Minor Collector	2	35	Yes	No	No	
OR 18	Statewide Highway and OHP Freight Route (ODOT) Major Arterial (City)	4/5	45	No	No	No	

Safety Analysis

When evaluating roadway and intersection safety, consideration is given to the number and types of crashes occurring, and the number of vehicles traveling on a roadway segment or entering the intersection. This leads to the concept known as the “crash rate.” Specific to intersections, it is typically expressed in terms of the number of crashes occurring per one million vehicles entering the intersection (CMEV). A critical crash rate analysis is then performed by comparing the subject intersection to the published statewide 90th percentile intersection crash rates at comparable/reference intersections. Crash rates close to or exceeding 1.0 CMEV or the 90th percentile rates require further analysis.

Study area crash data were obtained from the Oregon Department of Transportation (ODOT) for five years from January 1, 2018 through December 31, 2022. The following table presents the study intersection crash rates and critical crash analysis. Crash data and crash rate calculations are attached for reference.

TABLE 2 – INTERSECTION CRASH RATES										
Intersection	2018	2019	2020	2021	2022	Total	Crash Rate (CMEV)	Reference Population ¹	90 th percentile Crash Rate	Over or under Crash Rate?
OR 18 / Norton Lane	3	4	8	7	6	28	0.628	Urban 4SG	0.860	Under
SE Stratus Avenue / SE Norton Lane	0	0	0	0	0	0	0.000	Urban 4ST	0.408	Under

¹ 4SG is a four-leg signalized intersection and 4ST is a four-leg minor stop-control intersection.

The study intersection observed crash rates are less than the 1.0 CMEV threshold and the 90th percentile crash rate of the reference population, indicating the intersections are considered relatively safe, and further safety analysis is not warranted.

The (most recent) 2022 ODOT Safety Priority Index System (SPIS) data for OR 18 in the project area was also obtained. The SPIS is a systemic scoring method that identifies potential safety problems based on three years of crash data considering frequency, rate, and severity. A roadway segment becomes a SPIS site if a location has three or more crashes or one or more fatal crashes over three years. It evaluates overlapping road segments, so an individual location may be reported in multiple segments. ODOT screens these segments annually to identify and prioritize sites. Those with a SPIS score in the top 15% of sites within the state merit further investigation to identify potential safety improvements. SPIS data is attached for reference.

Data for the OR 18 segment at the Norton Lane intersection finds SPIS scores ranging from 50.71 to 50.87 which are in the top 15% of sites in the state. It is further noted that most of OR 18 from milepost 46 to milepost 50 (the Norton Lane intersection is at milepost 46.69) has SPIS scores in the top 15%.

The following table summarizes the crashes associated with the OR 18/Norton Lane intersection.

TABLE 3 – INTERSECTION CRASH TYPES AND SEVERITY							
Intersection	Crash Type						Total
	Rear End	Turn/ Angle	Fixed Object	Side swipe	Ped/ Bike	Other	
OR 18 / Norton Lane	18	4	2	4	0	0	28
Intersection	Crash Severity ¹						Total
	PDO	C	B	A	Fatal	Unknown	
OR 18 / Norton Lane	14	10	3	1	0	0	28

¹ PDO – Property Damage Only; Injury C – Possible Injury/Complaint of Pain; Injury B – Non-Incapacitating Injury; Injury A – Incapacitating Injury/Bleeding, Broken Bones; Fatal Injury – Fatality

Based on a detailed review of the crash data, “rear-end” crashes are the predominant type and these are common at signalized intersections. There do not appear to be easily correctable safety deficiencies, and the intersection crash rate does not exceed the 90th percentile crash rate. As such, crash-related mitigation is not recommended or necessary as part of this land use action.

5. SITE DEVELOPMENT

Development Assumptions

The proposed land use actions do not contemplate a specific development application. As such, this transportation analysis evaluates impacts resulting from reasonable worst-case development scenarios in the current Light Industrial (M-1) zone and the Medium, High-Density, 5000 SF Lot Residential (R-4) zone.

The following development assumptions are made for each zone based on the McMinnville Zoning Ordinance:

Current M-1 Zone Assumptions

- The zone provides appropriate locations for light industrial activities and buffers these activities from adjacent commercial and residential development through the application of site development and environmental standards. The zone is suitable for businesses operating within wholly enclosed buildings (outside storage of materials permitted if properly screened), and which are engaged in the manufacturing, processing, assembly, packaging, or treatment of finished or semi-finished products from previously prepared or processed materials. Warehousing, wholesaling, and limited commercial use shall also be permitted; residential uses are prohibited.
- Yard requirements include ≥ 40 feet from residential zones, ≥ 15 feet from commercial zones/uses, and ≥ 15 feet from public roadways.
- Building height shall not exceed 80 feet and outside storage height shall not exceed 10 feet.
- The gross site area of tax lots 600 and 604 is 5.8 acres (252,650 square feet).
- Reasonable worst-case development is assumed to be a general light industrial use with a floor area ratio (FAR) of 0.4. The resulting building gross floor area is 101,060 square feet (252,650 x 0.4).

Proposed R-4 Zone Assumptions

- The zone allows for the development of medium-high density residential uses with a minimum 5,000-square-foot lot size.
- The zone does not have a maximum density and is only limited by the applicable development standards.
- Based on information provided by the city of McMinnville, recent multi-dwelling residential developments in the project area have densities ranging from 25 to 28 units per acre.
- The gross site area of tax lots 600 and 604 is 5.8 acres.
- Reasonable worst-case development is assumed to be multi-family housing at a density of 28 units per acre. The resulting development has 162 dwelling units (28 x 5.8).

Development Trip Generation

Using the above-identified development assumptions, trip generation in the current and proposed zones is estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition, and practices from the ITE *Trip Generation Handbook*, 3rd Edition. Trip generation is as follows:

TABLE 2 – DEVELOPMENT TRIP GENERATION ¹									
Reasonable Worst-Case Development Assumption	ITE Code	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Current M-1 Zone									
General Light Industrial ¹	110	101,060 SF	492	66	9	75	9	57	66
Proposed R-4 Zone									
Multifamily Housing (Low-Rise) ²	220	162 DUs	1,114	18	55	73	57	33	90
Change in Trip Generation with Zone Change			622	(48)	46	(2)	48	(24)	24

¹ Trip generation estimated using the *Average Rate* per recommended practice in the ITE *Trip Generation Handbook*, 3rd Edition.

² Trip generation estimated using the *Fitted Curve* per recommended practice in the ITE *Trip Generation Handbook*, 3rd Edition.

As the table above identifies, reasonable worst-case development in the proposed R-4 zone (162 apartments) generates 622 daily additional trips, 2 AM fewer trips, and 24 PM additional trips over development in the existing M-1 zone (101,060 square-foot general light industrial use).

6. TRANSPORTATION ANALYSIS

Transportation Planning Rule (TPR) Criteria

OAR 660-012-0060 (1) states, “If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10) of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:

(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);

(b) Change standards implementing a functional classification system; or

(c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.

(A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;

(B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or

(C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.”

ORAR 660-012-0060 (9) states, “Notwithstanding section (1) of this rule, a local government may find that an amendment to a zoning map does not significantly affect an existing or planned transportation facility if all of the following requirements are met.

(a) The proposed zoning is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map;

(b) The local government has an acknowledged TSP, and the proposed zoning is consistent with the TSP; and

(c) The area subject to the zoning map amendment was not exempted from this rule at the time of an urban growth boundary amendment as permitted in ORAR 660-024-0020(1)(d), or the area was exempted from this rule, but the local government has a subsequently acknowledged TSP amendment that accounted for urbanization of the area.”

Oregon Highway Plan Considerations

Oregon Highway Plan Action 1F.5, states “For purposes of evaluating amendments to transportation system plans, acknowledged comprehensive plans, and land use regulations subject to ORAR 660-12-0060, in situations where the volume-to-capacity ratio or alternative mobility target for a highway segment, intersection, or interchange is currently above the mobility targets in Table 6 or Table 7 or those otherwise approved by the Oregon Transportation Commission, or is projected to be above the mobility targets at the planning horizon, and transportation improvements are not planned within the planning horizon to bring performance to the established target, the mobility target is to avoid further degradation. If an amendment subject to ORAR 660-012-0060 increases the volume-to-capacity ratio further or degrades the performance of a facility so that it does not meet an adopted mobility target at the planning horizon, it will significantly affect the facility unless it falls within the thresholds listed below for a small increase in traffic.

In addition to the capacity-increasing improvements that may be required to mitigate impacts, other performance-improving actions to consider include, but are not limited to:

- *System connectivity improvements for vehicles, bicycles, and pedestrians.*
- *Transportation demand management (TDM) methods to reduce the need for additional capacity.*
- *Multi-modal (bicycle, pedestrian, transit) opportunities to reduce vehicle demand.*
- *Operational improvements to maximize the use of the existing system.*
- *Land use techniques such as trip caps/budgets to manage trip generation.*

In applying “avoid further degradation” for state highway facilities already operating above the mobility targets in Table 6 or Table 7 or those otherwise approved by the Oregon Transportation Commission, or facilities projected to be above the mobility targets at the planning horizon, a small increase in traffic does not cause “further degradation” of the facility.

The threshold for a small increase in traffic between the existing plan and the proposed amendment is defined in terms of the increase in total average daily trip volumes as follows:

- *Any proposed amendment that does not increase the average daily trips by more than 400.*
- *Any proposed amendment that increases the average daily trips by more than 400 but less than 1,001 for state facilities where:*
 - *The annual average daily traffic is less than 5,000 for a two-lane highway.*
 - *The annual average daily traffic is less than 15,000 for a three-lane highway.*
 - *The annual average daily traffic is less than 10,000 for a four-lane highway.*
 - *The annual average daily traffic is less than 25,000 for a five-lane highway.*
- *If the increase in traffic between the existing plan and the proposed amendment is more than 1,000 average daily trips, then it is not considered a small increase in traffic and the amendment causes further degradation of the facility and would be subject to existing processes for resolution.*

In applying OHP mobility targets to analyze mitigation, ODOT recognizes that there are many variables and levels of uncertainty in calculating volume-to-capacity ratios, particularly over a specified planning horizon. After negotiating reasonable levels of mitigation for actions required under OAR 660-012-0060, ODOT considers calculated values for v/c ratios that are within 0.03 of the adopted targets in the OHP to be considered in compliance with the target. The adopted mobility target still applies for determining significant affect under OAR 660-012-0060.

Considering the OHP, the reference ODOT facility is OR 18, a five-lane highway with approximately 24,500 AADT at the Norton Lane intersection. Correspondingly, the threshold for a “small increase” in traffic between the existing plan and the proposed amendment is an increase of less than 1,001 average daily trips on five-lane state facilities with less than 25,000 AADT. Reasonable worst-case development in the proposed R-4 zone has a potential trip generation increase of 622 average daily trips – but only 24 PM peak hour trips because there are different trip-making characteristics between the current M-1 and proposed R-4 zone land use types. As such, potential R-4 zone trip generation is considered a “small increase” and a TPR analysis is not required. City staff has further indicated that the City will use the ODOT/DLCD thresholds as a basis for TPR analysis on City facilities.

Overall, the proposed Comprehensive Plan amendment and zone change results in a small increase in traffic and will not significantly affect an existing or planned transportation facility. As such, it can be found that the TPR criteria outlined in OAR 660-012-0060 are satisfied without the need for additional transportation analysis.

The proposed land use actions do not include a specific development application. Therefore, additional transportation analysis may be necessary to address McMinnville Zoning Ordinance requirements at the time of development (as part of a future, specific development land use application).

7. SITE ACCESS

The properties currently have access to SE Stratus Avenue to the north via a shared access easement. It is anticipated that future development on the property will also have direct access to SW Nash Avenue.

While not part of this land use action, it is recommended that all future access(es) be constructed consistent with McMinnville Zoning Ordinance requirements and McMinnville Engineering standards.

8. SUMMARY

The following conclusions and recommendations are made based on materials contained in this analysis:

1. The subject properties are at 2300 and 2320 SE Stratus Avenue in McMinnville, Oregon. The properties are identified as tax lots 600 and 604 on Yamhill County Assessor's map 4-4-27 and total approximately 5.8 acres. These properties currently have access to SE Stratus Avenue to the north via a shared access easement across tax lot 602 which has roadway frontage.
2. Proposed land use actions include a Comprehensive Plan amendment with a plan designation change from Industrial to Residential and a corresponding zone change from Light Industrial (M-1) to Medium, High-Density, 5000 SF Lot Residential (R-4). A specific subdivision or development plan is not contemplated as part of this land use action; therefore, reasonable worst-case development scenarios are assumed in the current and proposed zone designations for analysis purposes.
3. The 2010 McMinnville Transportation System Plan defers to the Oregon 18 Corridor Refinement Plan for detailed transportation planning in the project area. It is noted that the adopted TSP is 14 years old, and many identified projects and funding sources are outdated. Regardless, the TSP does not identify any financially constrained projects in the project area but notes there are missing sidewalks on Stratus Avenue.
4. The OR 18 Corridor Refinement Plan includes a series of traffic control and frontage road improvements north and south of OR 18; however, funding has not been identified for these improvements.
5. The 2022 McMinnville Three Mile Lane Area Plan's preferred land use alternative includes rezoning project area properties to support commercial (mixed-use) and medium-high-density residential uses. More specifically, the plan recommends the applicant's property be rezoned from Light Industrial (M-1) to Medium, High-Density Residential (R-4) – consistent with this subject land use action.
6. Key transportation system improvements are necessary to support the preferred land use alternative and the OR 18 facility design, further noting that the 2010 TSP needs to be updated to include these improvements. The *Complete Street* design requires changes to City street standards in the TSP and the Zoning Ordinance.
7. The ODOT Active 2024-2027 Statewide Transportation Improvement Program (STIP) finds that there are two projects in the area, including:
 - a. Key 22554 – OR99W/OR18 Curb Ramps (McMinnville) which is funded through construction and is anticipated to start in 2025, and
 - b. Key 22792 – OR18: S McMinnville Interchange – E McMinnville Interchange which is funded through the relocation of utilities and is anticipated to start in 2027.
8. All study intersection observed crash rates are less than the 1.0 CMEV threshold and the 90th percentile crash rate of the reference population, indicating the intersections are considered relatively safe, and further safety analysis is not warranted.

9. ODOT Safety Priority Index System (SPIS) data for the OR 18 segment at the Norton Lane intersection finds SPIS scores ranging from 50.71 to 50.87 which are in the top 15% of sites in the state. Based on a detailed review of the crash data, “rear-end” crashes are the predominant type and these are common at signalized intersections. There do not appear to be easily correctable safety deficiencies, and the intersection crash rate does not exceed the 90th percentile crash rate. As such, crash-related mitigation is not recommended or necessary as part of this land use action.
10. Reasonable worst-case development in the proposed R-4 zone (162 apartments) generates 622 daily additional trips, 2 AM fewer trips, and 24 PM additional trips over development in the existing M-1 zone (101,060 square-foot general light industrial use).
11. The proposed Comprehensive Plan amendment and zone change results in a *small increase* in traffic and will not significantly affect an existing or planned transportation facility. As such, it can be found that the TPR criteria outlined in OAR 660-012-0060 are satisfied without the need for additional transportation analysis.
12. The proposed land use actions do not include a specific development application. Therefore, additional transportation analysis may be necessary to address McMinnville Zoning Ordinance requirements at the time of development (as part of a future, specific development land use application).
13. While not part of this land use action, it is recommended that all future access(es) be constructed consistent with McMinnville Zoning Ordinance requirements and McMinnville Engineering standards.

Sincerely,

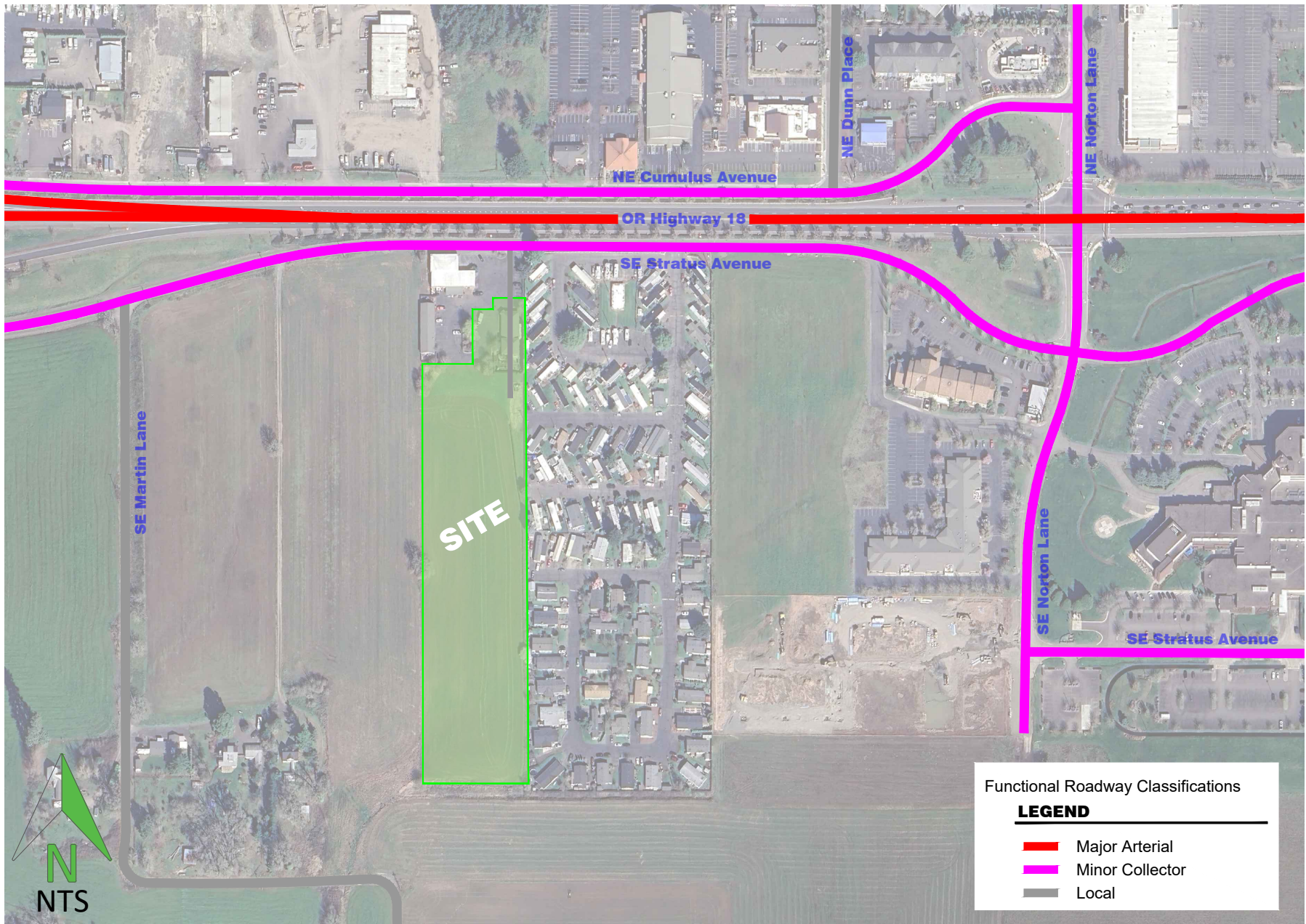


Christopher M. Clemow, PE, PTOE
Transportation Engineer

Attachments: Figure 1
Crash Data



RENEWS 31 DECEMBER 2025



2237 NW Torrey Pines Drive
 Bend, Oregon 97703
 541-579-8315
 cclemow@clemow-associates.com

SITE AREA

Commonwealth Stratus Avenue Comprehensive Plan Amendment and Zone Change - McMinnville, Oregon

C&A Project No. 202240602.00

FIGURE

1

January 1, 2018 through December 31, 2022

INTERSECTION CRASH RATES														
Intersection	Crashes						PM Entering Volume	ADT (10xPM)	AADT (365xADT)	Annual Crashes	Crash Rate (crashes/MEV)	Reference Population	90th%ile Crash Rate	Over or Under Crash
	2018	2019	2020	2021	2022	Total								
OR 18 / Norton Lane	3	4	8	7	6	28	24,417	8,912,205	5.60	0.628	Urban 4SG	0.860	Under	
Norton Lane / SE Stratus Avenue	0	0	0	0	0	0	3,030	1,105,950	0.00	0.000	Urban 4ST	0.408	Under	



MP	
OR 18 / Norton Lane intersection	46.69
+250 FT	46.74
-250 FT	46.64

Intersection crash rates also need to be compared to the published statewide 90th percentile intersection crash rates in Exhibit 4-1. Any rates close to or over the 90th percentile rates need to be flagged for further analysis. The intersection crash rate is calculated by the following formula:

$$\text{Intersection Crash Rate per MEV} = \frac{\text{Annual Number of Crashes} \times 10^6}{(\text{AADT}) \times (365 \text{ days/year})}$$

The values shown in Exhibit 4-1 represent the 90th percentile crash rates from a study of 500 intersections in Oregon. The crash rates are grouped by rural/urban, signalized/unsignalized, and three-leg/four-leg intersections. Intersections with crash rates that exceed the 90th percentile values shown in the table should be flagged for further analysis. For more information on crash rates and using this table, see Section 4.3.4 Critical Crash Rate.

Exhibit 4-1: Intersection Crash Rates per MEV by Land Type and Traffic Control

	Rural				Urban			
	3SG	3ST	4SG	4ST	3SG	3ST	4SG	4ST
No. of Intersections	7	115	20	60	55	77	106	60
Mean Crash Rate	0.226	0.196	0.324	0.434	0.275	0.131	0.477	0.198
Median Crash Rate	0.163	0.092	0.320	0.267	0.252	0.105	0.420	0.145
Standard Deviation	0.185	0.314	0.223	0.534	0.155	0.121	0.273	0.176
Coefficient of Variation	0.819	1.602	0.688	1.230	0.564	0.924	0.572	0.889
90th Percentile Rate	0.464	0.475	0.579	1.080	0.509	0.293	0.860	0.408

Source: Assessment of Statewide Intersection Safety Performance, FHWA-OR-RD-18, Portland State University and Oregon State University, June 2011, Table 4.1, p. 47.

Note: Traffic control types include
 3SG (three-leg signalized),
 3ST (three-leg minor stop-control),
 4SG (four-leg signalized),
 4ST (four-leg minor stop-control).

For intersections other than the configurations shown in Exhibit 4-1, there are usually too few locations with that intersection configuration to provide statewide statistics. There are some stop controlled intersection configurations that could be approximated as indicated in Exhibit 4-2 and Exhibit 4-3 below. Any other intersection configurations not in Exhibit 4-1, Exhibit 4-2, or Exhibit 4-3 should by default be flagged for further analysis, since the unusual configuration is likely to warrant a closer look at the crashes.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

039: SALMON RIVER

Highway 039 ALL ROAD TYPES, MP 46.64 to 46.74 01/01/2018 to 12/31/2022, Both Add and Non-Add mileage

26 - 28 of 28 Crash records shown.

SER#	P	R	J	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	SPCL USE	TRLR	QTY	MOVE	A	S	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE						
INVEST	E	A	U	I	C	O	DAY	COMPNT	FIRST STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	OWNER	FROM	PRTC	INJ	SVR	TY	RES	LOC	ERROR	ACT	EVENT	CAUSE					
RD DPT	E	L	G	N	H	R	TIME	MLG	TYP	SECOND STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	SVR	TY	RES	LOC	ERROR	ACT	EVENT	CAUSE				
UNLOC?	D	C	S	V	L	K	LAT	MILEPNT	LRS			(#LANES)	CONTL	DRVWY	LIGHT	SVR	V#	TYPE	TO	P#	TYPE	SVR	TY	RES	LOC	ERROR	ACT	EVENT	CAUSE			
00546	Y	Y	Y	N	N	N	07/29/2020	1	14		STRGHT	Y		N	CLR	S-1STOP	01	NONE	STRGHT								013	01,29,10				
CITY							WE	MN	0	SALMON RIVER HY	E	(NONE)	TRF SIGNAL	N	DRY	REAR	PRVTE	E -W								000	00					
N							5P	46.72		NE NORTON LN	05			N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	33	M	OR-Y		026	000	01,29,10				
N							45 12 3.39	-123 9 57.57		003900100S00		(04)																				
																	02	NONE	STOP													
																	PRVTE	E -W										011	013	00		
																	PSNGR CAR		01	DRVR	NONE	60	M	OTH-Y			000	000	00			
																	03	NONE	STOP													
																	PRVTE	E -W											011	013	00	
																	PSNGR CAR		01	DRVR	INJC	21	M	OR-Y			000	000	00			
																	04	NONE	STOP													
																	PRVTE	E -W												011	00	
																	PSNGR CAR		01	DRVR	NONE	26	F	OR-Y			000	000	00			
00372	N	N	N	N	N	N	04/24/2019	1	14		STRGHT	N		N	CLR	O-STRGHT	01	NONE	STRGHT											05,15,33		
CITY							WE	MN	0	NE NORTON LN	E	(NONE)	UNKNOWN	N	DRY	SS-M	PRVTE	E -W										000	00			
Y							6A	46.73		SALMON RIVER HY	04			N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	44	M	SUSP			044,051,080	017	05,15,33			
N							45 12 3.34	-123 9 56.78		003900100S00		(04)																				
																	02	NONE	STRGHT													
																	PRVTE	W -E												000	00	
																	PSNGR CAR		01	DRVR	INJB	44	M	OR-Y			000	000	00			
																	03	NONE	STRGHT													
																	PRVTE	W -E												000	00	
																	PSNGR CAR		01	DRVR	INJC	29	M	OR-Y			000	000	00			
00403	N	N	N	N	N	N	05/07/2022	1	19 1		STRGHT	N		Y	CLD	FIX OBJ	01	NONE	9	STRGHT									040,054	27		
CITY							SA	CN	0	NE NORTON LN	S	(NONE)	NONE	N	DRY	FIX	N/A	S -N										000	00			
Y							12P	46.72		SALMON RIVER HY	01			N	DAY	PDO	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK			000	000	00			
N							45 12 1.28	-123 9 59.76		0039AN100S00		(02)																				

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

CITY OF MCMINNVILLE, YAMHILL COUNTY

NORTON LN at STRATUS RD, City of McMinnville, Yamhill County, 01/01/2018 to 12/31/2022

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	MOVE	A	S	RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
------	---	---	---	---	---	------	-------	-------------	----------	----------	------	---	---	--------	---	---	---	---	---	---	------	------	---------------	--------	------	-------	-------	------	------	-------	------	------	-----	---	---	-------	-----	--------	---	---	---	---	---	---	-----	------	-----	-------	----------	-------	-------	-------	-------	----	------	----	----	------	-------	---	---	-----	-----	-------	-----	-------	-------

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.



2022 - On-State, Top 15% SPIS Sites - By Hwy, MP

Statewide

Rte	Rdwy	BMP	EMP	ADT	Crash	Fatal	A	B	C	City	County	Connection	Percent	SPIS
039 Salmon River														
OR-18	1	30.61	30.70	7,087	5	0	1	1	3		Yamhill	SW HARMONY RD.	85	38.24
OR-18	1	30.62	30.71	7,113	5	0	1	1	3		Yamhill	SW HARMONY RD.	85	38.22
OR-18	1	30.63	30.72	7,140	5	0	1	1	3		Yamhill		85	38.21
OR-18	1	31.58	31.67	7,233	8	0	1	3	4		Yamhill	SW RED PRAIRIE RD.	90	47.67
OR-18	1	31.59	31.68	7,326	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	50.52
OR-18	1	31.60	31.70	7,419	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	50.44
OR-18	1	31.61	31.71	7,512	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	50.36
OR-18	1	31.62	31.72	7,605	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	50.28
OR-18	1	31.63	31.73	7,698	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	50.21
OR-18	1	31.64	31.74	7,791	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	50.13
OR-18	1	31.65	31.75	7,884	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	50.06
OR-18	1	31.66	31.76	7,978	9	0	1	3	5		Yamhill	SW RED PRAIRIE RD.	90	49.99
OR-18	1	33.32	33.42	7,760	5	0	1	2	2		Yamhill	SW SCHATZ RD.	85	37.82
OR-18	1	33.34	33.43	7,861	5	0	1	2	2		Yamhill	SW SCHATZ RD.	85	37.77
OR-18	1	38.25	38.35	13,170	6	0	1	1	4		Yamhill	SW OLDSVILLE RD.	85	38.88
OR-18	1	46.60	46.69	15,828	9	0	1	1	7	McMinnville	Yamhill		90	46.50
OR-18	1	46.61	46.70	16,565	9	0	1	1	7	McMinnville	Yamhill		90	46.32
OR-18	1	46.62	46.71	17,302	9	0	1	1	7	McMinnville	Yamhill		90	46.15
OR-18	1	46.63	46.72	18,039	10	0	1	1	8	McMinnville	Yamhill		90	48.54
OR-18	1	46.64	46.73	18,776	11	0	1	2	8	McMinnville	Yamhill		90	50.87
OR-18	1	46.65	46.74	19,513	11	0	1	2	8	McMinnville	Yamhill		90	50.71
OR-18	1	46.66	46.75	20,250	10	0	1	2	7	McMinnville	Yamhill		90	48.09
OR-18	1	46.67	46.76	20,987	8	0	1	2	5	McMinnville	Yamhill		85	42.87
OR-18	1	46.68	46.77	21,724	7	0	1	2	4	McMinnville	Yamhill		85	40.13
OR-18	1	46.69	46.78	22,462	7	0	1	2	4	McMinnville	Yamhill		85	40.04
OR-18	1	48.50	48.59	20,425	25	2	4	7	12	McMinnville	Yamhill	SE LOOP RD.	95	75.26
OR-18	1	48.51	48.60	19,974	25	2	4	7	12	McMinnville	Yamhill	SE LOOP RD.	95	75.40
OR-18	1	48.52	48.61	19,524	25	2	4	7	12	McMinnville	Yamhill	SE LOOP RD.	95	75.54
OR-18	1	48.53	48.62	19,073	25	2	4	7	12		Yamhill	SE LOOP RD.	95	75.70
OR-18	1	48.54	48.63	18,623	24	2	4	7	11		Yamhill	LEG (TO SE CRUICKSHANK RD.)	95	75.39
OR-18	1	48.55	48.64	18,173	24	2	4	7	11		Yamhill	LEG (TO SE CRUICKSHANK RD.)	95	75.55
OR-18	1	48.56	48.65	17,723	24	2	4	7	11		Yamhill	LEG (TO SE CRUICKSHANK RD.)	95	75.72
OR-18	1	48.57	48.66	17,272	24	2	4	7	11		Yamhill	LEG (TO SE CRUICKSHANK RD.)	95	75.89
OR-18	1	48.58	48.67	16,822	24	2	4	7	11		Yamhill	SE CRUICKSHANK RD.	95	76.07
OR-18	1	48.59	48.68	16,372	24	2	4	7	11		Yamhill	SE CRUICKSHANK RD.	95	76.26
OR-18	1	49.84	49.91	16,322	18	0	3	10	5		Yamhill		95	73.05

OR18/Norton Lane intersection at MP 46.69. Influence area is +/- 250FT (MP 46.64 - 46.74)

Statewide top 15% SPIS score cut-off at 37.75. Therefore, roadway section in top 15%.



City of McMinnville
Community Development Department
231 NE Fifth Street
McMinnville, OR 97128
(503) 434-7311
www.mcminnvilleoregon.gov

EXHIBIT 6 - STAFF REPORT

DATE: January 16, 2025
TO: Planning Commission Members
FROM: Tom Schauer, Senior Planner
SUBJECT: G 7-24: Water System Master Plan and Addendum

STRATEGIC PRIORITY & GOAL:



GROWTH & DEVELOPMENT CHARACTER

Guide growth & development strategically, responsibly & responsibly to enhance our unique character.

OBJECTIVE/S: Strategically plan for short and long-term growth and development that will create enduring value for the community



HOUSING OPPORTUNITIES (ACROSS THE INCOME SPECTRUM)

Create diverse housing opportunities that support great neighborhoods.

OBJECTIVE/S: Collaborate to improve the financial feasibility of diverse housing development opportunities

Report in Brief:

This proceeding is a legislative public hearing to consider the adoption of the 2011 Water System Plan and the 2024 Addendum/Update as part of the Water System Element of Public Facilities Plan, which is a supporting document to the McMinnville Comprehensive Plan. The proposal also amends provisions of the Comprehensive Plan for consistency with the updated Water System Master Plan.

In addition to other laws governing water system planning, state land use law requires certain components of public facility plans to be adopted as part of the Comprehensive Plan.

Legislative amendments to the Comprehensive Plan require a recommendation by the Planning Commission and adoption by City Council. The Planning Commission will make a recommendation to City Council. Staff recommends approval of the proposed amendments.

Background:

In 2011, McMinnville Water and Light (MW&L) developed a Water System Master Plan (Plan) addressing water rights, water supply, and water distribution infrastructure including a 20-year capital improvement plan.

In 2020, the City adopted Ordinance 5098 and the County adopted Ordinance 912, which included expansion of McMinnville’s Growth Boundary. The amendments were acknowledged by DLCD on April 9, 2021.

Following the City’s UGB amendment, MW&L contracted with Jacobs Engineering to develop an addendum to the 2011 Water Master Plan to address updates to the capital improvement plan to align with the expanded service area.

The Planning Commission held a work session on November 21, 2024 regarding the October 1, 2024 Draft Addendum.

Following the work session, some additional revisions were discussed, which are to be incorporated into the final document. These are summarized below in the “Recommendation” section of this staff report.

The 2011 Master Plan was previously adopted locally, but the plan, or portions thereof, were not previously adopted as part of the Comprehensive Plan through the Post-Acknowledgment Plan Amendment (PAPA) process as specified in OAR 660-011, Public Facilities Planning. Therefore, the proposed Comprehensive Plan amendment includes both the 2011 Water Master Plan and the 2024 Addendum.

Discussion:

Under state land use law, public facility planning is subject to Statewide Planning Goal 11 “Public Facilities and Services” and the administrative rules which implement Goal 11: OAR 660 Division 11, “Public Facilities Planning.”

In short, these provisions are generally intended to ensure adequate provision of urban public facilities and services needed to support urban levels of development within a UGB and consistency between plans. Key provisions are excerpted below.

Goal 11: Public Facilities and Services

Key provisions of Goal 11 include the following:

- “To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.”
- “A provision for key facilities shall be included in each plan.”
- “Cities or counties shall develop and adopt a public facility plan for areas within an urban growth boundary containing a population of greater than 2,500 persons.”
- “A public facility plan is a support document or documents to a comprehensive plan. The facility plan describes the water, sewer, and transportation facilities which are to support the land uses designated in the appropriate acknowledged comprehensive plan or plans within an urban growth boundary containing a population greater than 2,500.”

OAR 660 Division 11: Public Facilities Planning

Key provisions of OAR 660 Division 11 include OAR 660-011-0000 – 660-011-0050. OAR 660-011-0060 and OAR 660-011-0065 pertain to sewer service and water service to rural land, which are not applicable to McMinnville’s Comprehensive Plan. **See Attachment 5 for OAR 660 Division 11.**

Proposed Amendments

The Water Master Plan and Addendum address provision of municipal water to land and development within McMinnville's Urban Growth Boundary as well as other areas. The following apply to the adoption of portions of the Water Mater Plan and Addendum as part of McMinnville's Comprehensive Plan:

- As specified in OAR 660-011-0010(3):
 - Where all or part of an acknowledged comprehensive plan, facility master plan either of the local jurisdiction or appropriate special district, capital improvement program, regional functional plan, similar plan or any combination of such plans meets all or some of the requirements of this division, those plans, or programs may be incorporated by reference into the public facility plan required by this division.
 - Only those referenced portions of such documents shall be considered to be a part of the public facility plan and shall be subject to the administrative procedures of this division and ORS Chapter 197.
- Provisions of the plan which address provision of water to other areas outside of McMinnville's Urban Growth Boundary are not adopted as part of McMinnville's Public Facility Plan or Comprehensive Plan.
- The Water Master Plan includes the items required by OAR 660-011-0010(1) and the requirements specified in OAR 660-011-0015 through -0035 for the water portion of the public facility plan.
- As provided in OAR 660-011-0025(3), anticipated timing provisions for public facilities are not considered land use decisions as specified in ORS 197.712(2)(E), and, therefore, cannot be the basis of appeal under ORS 197.610(1) and (2) or 197.835(4).
- As discussed in 660-011-0045(2), (3), and (4), for those portions of the 2011 Water Master Plan and 2024 Addendum which are adopted as part of the Comprehensive Plan, this adoption does not create or intend to create a stricter procedural requirement as to modifications or amendments that would be considered land use amendments.
- *2) Certain public facility project descriptions, location or service area designations will necessarily change as a result of subsequent design studies, capital improvement programs, environmental impact studies, and changes in potential sources of funding. It is not the intent of this division to:*
 - *Either prohibit projects not included in the public facility plans for which unanticipated funding has been obtained;*
 - *Preclude project specification and location decisions made according to the National Environmental Policy Act; or*
 - *Subject administrative and technical changes to the facility plan to ORS 197.610(1) and (2) or 197.835(4).*
- *(3) The public facility plan may allow for the following modifications to projects without amendment to the public facility plan:*
 - *Administrative changes are those modifications to a public facility project which are minor in nature and do not significantly impact the project's general description, location, sizing, capacity, or other general characteristic of the project;*

- *Technical and environmental changes are those modifications to a public facility project which are made pursuant to “final engineering” on a project or those that result from the findings of an Environmental Assessment or Environmental Impact Statement conducted under regulations implementing the procedural provisions of the National Environmental Policy Act of 1969 (40 CFR Parts 1500–1508) or any federal or State of Oregon agency project development regulations consistent with that Act and its regulations.*
 - *Public facility project changes made pursuant to subsection (3)(b) of this rule are subject to the administrative procedures and review and appeal provisions of the regulations controlling the study (40 CFR Parts 1500–1508 or similar regulations) and are not subject to the administrative procedures or review or appeal provisions of ORS Chapter 197, or OAR chapter 660 division 18.*
- *(4) Land use amendments are those modifications or amendments to the list, location or provider of, public facility projects, which significantly impact a public facility project identified in the comprehensive plan and which do not qualify under subsection (3)(a) or (b) of this rule. Amendments made pursuant to this subsection are subject to the administrative procedures and review and appeal provisions accorded “land use decisions” in ORS Chapter 197 and those set forth in OAR chapter 660 division 18.*

Attachments:

A. Decision Document and Attachments:

1. Proposed Amendments to Water System Element of Public Facility Plan
 - a. Introduction
 - b. 2011 Water System Master Plan
 - c. 2024 Master Plan Addendum
 - d. New Appendix F Added to 2024 Addendum with Description of Funding Sources
2. Proposed Amendments to Volume I of the Comprehensive Plan
3. Proposed Amendments to Volume II of the Comprehensive Plan
4. Current UGB Management Agreement

Recommendation:

Planning Commission Alternatives:

MMC 17.72.130 specifies that for legislative hearings, within 45 days following the public hearing on a comprehensive plan text amendment or other legislative matter, unless a continuance is announced, the Planning Commission shall render a decision which shall recommend either that the amendment be approved, denied, or modified.

Staff Recommendation:

Staff recommends the Planning Commission recommend approval of the proposed amendments to City Council, subject to the following additional revisions and additional information:

- 1) The 2024 addendum will be updated to reflect that, per Oregon Health Authority (OHA) comment, the next full Water System Plan update will be completed by 2031 and will address state seismic resiliency and risk analysis requirements.

- 2) Consistent with MW&L guidance, the following projects in the Table in Section 8,2 of the 2024 Addendum will be revised in the capital project list for the Finished Water (FW) Transmission Pipeline Phases.
 - a. FW-007 & 008 Phase 3 – revised length = 4,400’ with revised cost of \$9.5 million
 - b. FW-007 & 008 Phase 4 – revised length – 8,750’ with revised cost of \$23.6 million
 - c. FW-007 & 008 Phase 5 – revised length 4,750’ with revised cost of \$12.8 million
 - d. FW-007 & 008 Phase 6 - revised length 5,850’ with revised cost of \$15.8 million
 - e. FW-007 & 008 Phase 7 - revised length 14,100’ with revised cost of \$27 million
 - f. FW-007 & 008 Phase 8 - revised length 3,100 with revised cost of \$6 million

- 3) Consistent with the requirements of OAR 660-011-0010(1)(g), an appendix will be added to the 2024 Addendum which provides “a discussion of the provider’s existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each facility project or system.” This Appendix will be the “McMinnville Water & Light Water Cost of Service Study and Financial Projection Report” (Utility Financial Solutions, LLC, October 2024). The study identifies the following funding sources:
 - a. Rates based on water consumption and commodity service by class
 - b. Rates based on water consumption metering and connection size
 - c. Rates based on fire lines and hydrants
 - d. Bulk fill station rates
 - e. Wholesale customer rates
 - f. Access charges
 - g. Timber sale revenue

The discussion of funding sources will be incorporated into the Water System Element of the Public Facility Plan by reference, but the rates discussed are not part of the Public Facility Plan. In addition, per OAR 660-011-0035(2), anticipated financing provisions are not considered land use decisions as specified in ORS 197.712(2)(e), and therefore, cannot be the basis of appeal under ORS 197.610(1) and (2) or 197.835(4).

Suggested Motion:

“I MOVE THAT THE PLANNING COMMISSION RECOMMEND THAT THE CITY COUNCIL ADOPT THE PROPOSED AMENDMENTS TO THE MCMINNVILLE COMPREHENSIVE PLAN FOR DOCKET G 7-24 ATTACHED AS ATTACHMENTS 1, 2, AND 3 TO THE DECISION DOCUMENT, WITH THE ADDITIONAL REVISIONS PRESENTED BY STAFF IN THE STAFF REPORT”



DECISION, FINDINGS OF FACT AND CONCLUSIONARY FINDINGS FOR THE APPROVAL OF LEGISLATIVE AMENDMENTS TO THE MCMINNVILLE COMPREHENSIVE PLAN, DOCKET G 7-24, RELATING TO THE WATER SYSTEM ELEMENT OF THE PUBLIC FACILITY PLAN

DOCKET: G 7-24: Comprehensive Plan Amendment - Water System Element of Public Facility Plan)

REQUEST: The City of McMinnville is proposing amendments to the McMinnville Comprehensive Plan to:

- (1) adopt portions of the 2011 Water Master Plan as amended by the 2024 Water Master Plan Addendum as part of the Public Facility Plan, a supporting document to the McMinnville Comprehensive Plan;
- (2) amend Volume I of the Comprehensive Plan to update data consistent with the updated Water System element of the Public Facility Plan; and
- (3) amend Volume II of the Comprehensive Plan to update policies consistent with the updated Water System element of the Public Facility Plan.

LOCATION: N/A. The proposal is a legislative text amendment.

ZONING: N/A. The proposal is a legislative text amendment.

APPLICANT: City of McMinnville

STAFF: Tom Schauer, Senior Planner

HEARINGS BODY: McMinnville Planning Commission

DATE & TIME: January 16, 2025, 6:30pm Meeting
Hybrid In-Person and Zoom Online Meeting:

In Person: Kent Taylor Civic Hall, 200 NE 2nd Street, McMinnville

Zoom Meeting:

<https://mcminnvilleoregon.zoom.us/j/84796099428?pwd=71dyH6JvnKtol3AgRX6K7Pobbicn9C.1>

Zoom Meeting ID: 847 9609 9428

Zoom Passcode: 103076

Or you can call in and listen via zoom: 1-253-215-8782
ID: 847 9609 9428

DECISION-MAKING

BODY: McMinnville City Council

DATE & TIME: TBD

PROCEDURE: The application is subject to the legislative land use procedures specified in Sections 17.72.120 - 17.72.160 of the McMinnville Municipal Code.

CRITERIA: Amendments to the McMinnville Comprehensive Plan must be consistent with the Comprehensive Plan, including the Goals and Policies in Volume II of the Comprehensive Plan.

Amendments to the Public Facility Plan must be consistent with state law, including Statewide Planning Goal 11: Public Facility and Services (OAR 660-015-0000(11), and OAR 660 Division 11: Public Facilities Planning.

APPEAL: The Planning Commission will make a recommendation to the City Council. The City Council’s decision on a legislative amendment may be appealed to the Oregon Land Use Board of Appeals (LUBA) within 21 days of the date written notice of the City Council’s decision is mailed to parties who participated in the local proceedings and entitled to notice and as provided in ORS 197.620 and ORS 197.830, and Section 17.72.190 of the McMinnville Municipal Code.

DECISION

Based on the findings and conclusions, the McMinnville Planning Commission recommends **APPROVAL** of the Comprehensive Plan legislative amendments (G 7-24) to the McMinnville City Council, subject to the additional revisions presented in the staff report.

////////////////////////////////////
RECOMMENDATION: APPROVAL WITH REVISIONS
////////////////////////////////////

Planning Commission: _____
Sidonie Wlnfield, Chair of the McMinnville Planning Commission

Date: _____

Planning Department: _____
Heather Richards, Planning Director

Date: _____

I. APPLICATION SUMMARY

The application is a proposed amendment to the McMinnville Comprehensive Plan to:

- (1) adopt portions of the 2011 Water Master Plan as amended by the 2024 Water Master Plan Addendum as part of the Water System Element of the Public Facility Plan, a supporting document to the McMinnville Comprehensive Plan;
- (2) amend Volume I of the Comprehensive Plan to update data consistent with the updated Water System Element of the Public Facility Plan; and
- (3) amend Volume II of the Comprehensive Plan to update policies consistent with the updated Water System element of the Public Facility Plan.

In 2011, McMinnville Water and Light (MW&L) developed a Water System Master Plan (Plan) addressing water rights, water supply, and water distribution infrastructure including a 20-year capital improvement plan.

In 2020, the City adopted Ordinance 5098 and the County adopted Ordinance 912, which included expansion of McMinnville's Growth Boundary. The amendments were acknowledged by DLCD on April 9, 2021.

Following the City's UGB amendment, MW&L contracted with Jacobs Engineering to develop an addendum to the 2011 Water Master Plan to address updates to the capital improvement plan to align with the expanded service area.

The 2011 Master Plan was previously adopted locally, but the plan, or portions thereof, were not previously adopted as part of the Comprehensive Plan through the Post-Acknowledgment Plan Amendment (PAPA) process as specified in OAR 660-011, Public Facilities Planning. Therefore, the proposed Comprehensive Plan amendment includes both the 2011 Water Master Plan and the 2024 Addendum.

As required by OAR 660-011-0010, the Water System Element of the Public Facility Plan includes the required items to support the service area and land uses designated in the City's acknowledged Comprehensive Plan.

Depending on actual conditions over time, the need for certain public improvements may be faster or slower than identified in the plan, and the timing will be reviewed and adjusted as necessary over time.

As provided in OAR 660-011-0025(3), anticipated timing provisions for public facilities are not considered land use decisions as specified in ORS 197.712(2)(E), and, therefore, cannot be the basis of appeal under ORS 197.610(1) and (2) or 197.835(4).

II. ATTACHMENTS:

- Attachment 1: Proposed Amendments to Water System Element of Public Facility Plan
 - 1a. Introduction
 - 1b. 2011 Water System Master Plan
 - 1c. 2024 Master Plan Addendum
 - 1d. Additional Appendix F to 2024 Master Plan Addendum with Description of Funding
- Attachment 2: Proposed Amendments to Volume I of the Comprehensive Plan

- Attachment 3: Proposed Amendments to Volume II of the Comprehensive Plan
- Attachment 4: Copy of Current UGB Management Agreement

III. COMMENTS:

- McMinnville Building Division
No building code concerns directly. Limited water for fire flow can affect building design but there are often options in addition to water supply, like less combustible construction types. In other words, water supply is usually necessary for larger buildings but there are other options if a full flow of water were not available.

IV. FINDINGS OF FACT - PROCEDURAL FINDINGS

1. On December 11, 2024, notice of the application and the January 16, 2025 Planning Commission public hearing was provided to DLCD.
2. On December 23, 2024, notice of the application and the January 16, 2025 Planning Commission public hearing was provided to agencies and service providers.
3. On January 10, 2025, notice of the application and the January 16, 2025 Planning Commission public hearing was published in the News Register in accordance with Section 17.72.120 of the Zoning Ordinance.
4. On January 16, 2025, the Planning Commission held a duly noticed public hearing to consider the request.

V. FINDINGS OF FACT – GENERAL FINDINGS:

1. In 2011, McMinnville Water and Light (MW&L) developed a Water System Master Plan (Plan) addressing water rights, water supply, and water distribution infrastructure including a 20-year capital improvement plan.
2. In 2020, the City adopted Ordinance 5098 and the County adopted Ordinance 912, which included adoption of the McMinnville Growth Management and Urbanization Plan (MGMUP), including expansion of McMinnville's Growth Boundary with Comprehensive Plan Designations and a Framework Plan. The amendments were acknowledged by DLCD on April 9, 2021.
3. Consistent with Statewide Planning Goal 11 and OAR 660 Division 11 regarding public facility planning, following the adoption of the MGMUP and UGB amendment, the City coordinated with McMinnville Water & Light (MW&L), and MW&L contracted with Jacobs Engineering to develop an addendum to the 2011 Water Master Plan to address updates to the capital improvement plan to align with the expanded service area.
4. The proposal will amend the Water System Element of the Public Facility Plan, a supporting document to the Comprehensive Plan. The proposal will adopt portions of the 2011 Water Master Plan and 2024 Addendum by reference as authorized by OAR 660-011-0010. The proposed amendment will only adopt those portions of the 2011 Plan and 2024 Addendum as part of the Water System Element of the Public Facility Plan which address provision of municipal water to serve areas within McMinnville's UGB, and only those provisions in the plans which are required to be part of the Public Facility Plan by Statewide Planning Goal 11 and OAR 660 Division 11.

5. The 2011 Master Plan was previously adopted locally, but the plan, or portions thereof, were not previously adopted as part of the Comprehensive Plan through the Post-Acknowledgment Plan Amendment (PAPA) process as specified in OAR 660-011, Public Facilities Planning. Therefore, the current proposed Comprehensive Plan amendment updates the Water System Element of the Public Facility Plan to include portions of the 2011 Water Master Plan as updated by the 2024 Addendum.
6. The Planning Commission held a work session on November 21, 2024 regarding the October 1, 2024 Draft Addendum.
7. Following the Planning Commission work session, additional work progressed with the Oregon Health Authority and McMinnville Water and Light, which is discussed in the staff report. Staff recommends the Planning Commission recommend approval to City Council, subject to the additional revisions listed in the staff report.

VI. CONCLUSIONARY FINDINGS:

The Conclusionary Findings are the findings regarding consistency with the applicable criteria for the application.

LOCAL LAW

McMinnville Comprehensive Plan

As described in the Comprehensive Plan, the Goals and Policies of the Comprehensive Plan serve as criteria for land use decisions. The following Goals and Policies from Volume II of the McMinnville Comprehensive Plan are applicable to this request:

CHAPTER VII. COMMUNITY FACILITIES AND SERVICES

GOAL VII.1: TO PROVIDE NECESSARY PUBLIC AND PRIVATE FACILITIES AND UTILITIES AT LEVELS COMMENSURATE WITH URBAN DEVELOPMENT, EXTENDED IN A PHASED MANNER, AND PLANNED AND PROVIDED IN ADVANCE OF OR CONCURRENT WITH DEVELOPMENT, IN ORDER TO PROMOTE THE ORDERLY CONVERSION OF URBANIZABLE AND FUTURE URBANIZABLE LANDS TO URBAN LANDS WITHIN THE McMINNVILLE URBAN GROWTH BOUNDARY

WATER SYSTEM

Policies:

144.00 The City of McMinnville, through McMinnville Water and Light, shall provide water services for development at urban densities within the McMinnville Urban Growth Boundary.

145.00 The City of McMinnville, recognizing McMinnville Water and Light as the agency responsible for water system services, shall extend water services within the framework outlined below:

- 1. Facilities are placed in locations and in such a manner as to insure compatibility with surrounding land uses.*

2. Extensions promote the development patterns and phasing envisioned in the McMinnville Comprehensive Plan.

3. For urban level developments within McMinnville, sanitary sewers are extended or planned for extension at the proposed development densities by such time as the water services are to be utilized.

4. Applicable policies for extending water services, as developed by the City Water and Light Commission, are adhered to.

146.00 The City of McMinnville shall continue to support the long-range planning efforts of McMinnville Water and Light to provide water system facilities and services commensurate with the projected population in the Comprehensive Plan.

147.00 The City of McMinnville shall continue to support coordination between city departments, other public and private agencies and utilities, and McMinnville Water and Light to insure the coordinated provision of utilities to developing areas. The City shall also continue to coordinate with McMinnville Water and Light in making land use decisions.

148.00 The City of McMinnville shall encourage McMinnville Water and Light to continue management practices in the municipal watershed which insure highest quality water.

149.00 The City of McMinnville shall carefully consider the environmental impact of the location and design of water system facilities to minimize adverse effects on residential, farm, and natural areas.

150.00 The City of McMinnville and McMinnville Water and Light shall cooperate with Yamhill County, the Bureau of Land Management, and private parties owning or regulating lands around the municipal water supply impoundments to restrict land uses around these sites to those which would be compatible with and protect water quality and quantity.

Proposals:

23.00 The City of McMinnville should require certain water system facilities such as reservoirs to be compatible with surrounding uses either through landscaping or other screening.

24.00 The City of McMinnville should encourage McMinnville Water and Light to evaluate whether or not to update its water master plan every five years, and following any major UGB amendment. The City shall supply McMinnville Water and Light consultants with necessary information to facilitate coordination of water system and land use plans.

25.00 The City of McMinnville should support McMinnville Water and Light in its effort to develop an additional water supply impoundment in the Walker Creek drainage area to meet the needs of the projected population in the Comprehensive Plan.

FINDING (CHAPTER VII): SATISFIED. The proposed amendments to the Water System Element of the Public Facility Plan are consistent with the applicable Goals, Policies, and Proposals of Chapter VII. The proposal updates the plan to support the land uses designated in the acknowledged Comprehensive Plan for development at urban densities consistent with the McMinnville Growth Management and Urbanization Plan (MGMUP). With the proposal, the City of McMinnville and

McMinnville Water & Light worked together to facilitate coordination of water system planning and the land use plan.

The proposed amendments would also revise Proposal 25.00 as follows:

25.00 The City of McMinnville should support McMinnville Water and Light in its effort to develop an additional water supply impoundment in the Walker Creek drainage area. ~~to meet the needs of the projected population in the Comprehensive Plan.~~

This more general language supports McMinnville Water and Light's overall water system planning.

CHAPTER X. CITIZEN INVOLVEMENT AND PLAN AMENDMENT

GOAL X 1 TO PROVIDE OPPORTUNITIES FOR CITIZEN INVOLVEMENT IN THE LAND USE DECISION MAKING PROCESS ESTABLISHED BY THE CITY OF McMINNVILLE.

FINDING (CHAPTER X): SATISFIED. The proposal is consistent with this applicable Goal of Chapter X of the Comprehensive Plan. The proposed amendment supports the land uses designated in the acknowledged comprehensive plan, adopted through an extensive public process. The proposed amendments were discussed at a Planning Commission work session and are reviewed through a legislative public hearing process specified in the Zoning Ordinance.

STATE LAW

Statewide Planning Goal 11: Public Facilities and Services (OAR 660-015-0000(11))

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

Urban and rural development shall be guided and supported by types and levels of urban and rural public facilities and services appropriate for, but limited to, the needs and requirements of the urban, urbanizable, and rural areas to be served. A provision for key facilities shall be included in each plan. Cities or counties shall develop and adopt a public facility plan for areas within an urban growth boundary containing a population greater than 2,500 persons. To meet current and long-range needs, a provision for solid waste disposal sites, including sites for inert waste, shall be included in each plan.

Counties shall develop and adopt community public facility plans regulating facilities and services for certain unincorporated communities outside urban growth boundaries as specified by Commission rules.

Local Governments shall not allow the establishment or extension of sewer systems outside urban growth boundaries or unincorporated community boundaries, or allow extensions of sewer lines from within urban growth boundaries or unincorporated community boundaries to serve land outside those boundaries, except where the new or extended system is the only practicable alternative to mitigate a public health hazard and will not adversely affect farm or forest land.

Local governments may allow residential uses located on certain rural residential lots or parcels inside existing sewer district or sanitary authority boundaries to connect to an existing sewer line under the terms and conditions specified by Commission rules.

Local governments shall not rely upon the presence, establishment, or extension of a water or sewer system to allow residential development of land outside urban growth boundaries or unincorporated community boundaries at a density higher than authorized without service from such a system.

In accordance with ORS 197.180 and Goal 2, state agencies that provide funding for transportation, water supply, sewage and solid waste facilities shall identify in their coordination programs how they will coordinate that funding with other state agencies and with the public facility plans of cities and counties

FINDING: SATISFIED. Goal 11 requires a Public Facility Plan for McMinnville’s UGB, which has a population exceeding 2,500 persons. This proposal is an amendment to the Water System Element of the Public Facility Plan. This proposal updates the Water System Element to be consistent with the land uses and service area designated in the City’s acknowledged Comprehensive Plan, following the adoption of the McMinnville Growth Management and Urbanization Plan and UGB amendment in 2020. The proposed amendments are consistent with OAR 660 Divion 11 which implements Statewide Planning Goal 11, as addressed in the findings below.

OAR 660 Division 11: Public Facilities Planning

660-011-0000. Purpose

The purpose of this division is to aid in achieving the requirements of Goal 11, Public Facilities and Services, OAR 660-015-0000(11), interpret Goal 11 requirements regarding public facilities and services on rural lands, and implement ORS 197.712(2)(e), which requires that a city or county shall develop and adopt a public facility plan for areas within an urban growth boundary containing a population greater than 2,500 persons. The purpose of the plan is to help assure that urban development in such urban growth boundaries is guided and supported by types and levels of urban facilities and services appropriate for the needs and requirements of the urban areas to be serviced, and that those facilities and services are provided in a timely, orderly and efficient arrangement, as required by Goal 11. The division contains definitions relating to a public facility plan, procedures and standards for developing, adopting, and amending such a plan, the date for submittal of the plan to the Commission and standards for Department review of the plan.

FINDING: SATISFIED/NOT APPLICABLE. This section doesn’t provide separate approval criteria. Through consistency with the provisions of this Division, the proposed amendments are consistent with this purpose.

660-011-0005. Definitions

...

FINDING: SATISFIED/NOT APPLICABLE. Definitions are not review criteria.

660-011-0010. The Public Facility Plan

(1) The public facility plan shall contain the following items:

- (a) An inventory and general assessment of the condition of all the significant public facility systems which support the land uses designated in the acknowledged comprehensive plan;*
- (b) A list of the significant public facility projects which are to support the land uses designated in the acknowledged comprehensive plan. Public facility project descriptions or specifications of these projects as necessary;*
- (c) Rough cost estimates of each public facility project;*
- (d) A map or written description of each public facility project's general location or service area;*
- (e) Policy statement(s) or urban growth management agreement identifying the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated;*
- (f) An estimate of when each facility project will be needed; and*
- (g) A discussion of the provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each public facility project or system.*

(2) Those public facilities to be addressed in the plan shall include, but need not be limited to those specified in OAR 660-011-0005(5). Facilities included in the public facility plan other than those included in OAR 660-011-0005(5) will not be reviewed for compliance with this rule.

(3) It is not the purpose of this division to cause duplication of or to supplant existing applicable facility plans and programs. Where all or part of an acknowledged comprehensive plan, facility master plan either of the local jurisdiction or appropriate special district, capital improvement program, regional functional plan, similar plan or any combination of such plans meets all or some of the requirements of this division, those plans, or programs may be incorporated by reference into the public facility plan required by this division. Only those referenced portions of such documents shall be considered to be a part of the public facility plan and shall be subject to the administrative procedures of this division and ORS Chapter 197.

FINDING: SATISFIED.

(1). The following items are provided as part of the Water System Element to the Public Facility Plan consistent with Section 0010.

- (a) This is provided in Section 2 of the 2011 plan, as updated by Section 2 and Appendix D of the 2024 Addendum
- (b) This is provided in Section 8.2 of the 2024 Addendum
- (c) This is provided in Section 8.2 of the 2024 Addendum
- (d) This is provided in Appendices A and E of the 2024 Addendum
- (e) This is provided in existing Policy 144.00 of the Comprehensive Plan.
- (f) This is provided in Section 8.2 of the 2024 Addendum
- (g) This is provided in the additional Appendix F added to the 2024 Addendum

(2). The proposed amendments apply to the water system portion of the Public Facility Plan, one of the types of public facilities required to be addressed in the Public Facility Plan per 660-011-0005(5).

(3). Consistent with Subsection (3), only those portions of the Water System Element of the Public Facility Plan which must be adopted into the public facility plan as required by this division are adopted as part of the public facility plan. This is discussed in greater detail in Section V “General Findings” of this decision document. The provisions are adopted by reference.

660-011-0015. Responsibility for Public Facility Plan Preparation

(1) Responsibility for the preparation, adoption and amendment of the public facility plan shall be specified within the urban growth management agreement. If the urban growth management agreement does not make provision for this responsibility, the agreement shall be amended to do so prior to the preparation of the public facility plan. In the case where an unincorporated area exists within the Portland Metropolitan Urban Growth Boundary which is not contained within the boundary of an approved urban planning area agreement with the County, the County shall be the responsible agency for preparation of the facility plan for that unincorporated area. The urban growth management agreement shall be submitted with the public facility plan as specified in OAR 660-011-0040.

(2) The jurisdiction responsible for the preparation of the public facility plan shall provide for the coordination of such preparation with the city, county, special districts and, as necessary, state and federal agencies and private providers of public facilities. The Metropolitan Service District is responsible for public facility plans coordination within the District consistent with ORS 197.190 and 268.390.

(3) Special districts, including port districts, shall assist in the development of the public facility plan for those facilities they provide. Special districts may object to that portion of the facilities plan adopted as part of the comprehensive plan during review by the Commission only if they have completed a special district agreement as specified under ORS 197.185 and 197.254(3) and (4) and participated in the development of such portion of the public facility plan.

(4) Those state agencies providing funding for or making expenditures on public facility systems shall participate in the development of the public facility plan in accordance with their state agency coordination agreement under ORS 197.180 and 197.712(2)(f).

FINDING: SATISFIED. The Goals, Policies, and Proposals in Volume II of the Comprehensive Plan apply to the Urban Growth Boundary through operation of the UGB Management Agreement. A copy of the UGB Management Agreement is attached.

Existing Comprehensive Plan Policy 144.00 provides, “The City of McMinnville, through McMinnville Water and Light, shall provide water services for development at urban densities within the McMinnville Urban Growth Boundary.” The Comprehensive Plan is incorporated into the UGB Management Agreement by reference, subject to coordination procedures for amendments.”

Existing Comprehensive Plan Proposal 24.00 provides, “The City of McMinnville should encourage McMinnville Water and Light to evaluate whether or not to update its water master plan every five years, and following any major UGB amendment. The City shall supply McMinnville Water and Light consultants with necessary information to facilitate coordination of water system and land use plans.”

While OAR 660-011-0015(1) states that responsibility for the preparation, adoption and amendment of the public facility plan shall be specified within the urban growth management agreement, OAR 660-011-0045(1)(c) provides, “The governing body of the city or county responsible for the development of the public facility plan shall adopt the plan as a supporting document to the jurisdiction’s comprehensive plan and shall also adopt as part of the comprehensive plan...the policy(ies) *or* urban growth management agreement designating the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated.” The above policies apply to the UGB through operation of the UGB Management Agreement.

The City of McMinnville and McMinnville Water & Light coordinated regarding the preparation of the proposed amendments. The City of McMinnville followed the referral provisions of the UGB management agreement, with referral to Yamhill County. McMinnville Water & Light coordinated with affected state and federal agencies in preparation of the amendments. There are no other municipal water system providers within the UGB, and there are no affected special districts.

Coordination with affected agencies, and participation of state agencies as specified in this section, have been accomplished as required by this section, including the following items:

- 1) Plan review and initial presentation to the MW&L Commission (complete, August 20, 2024)
- 2) Submit plan and addendum to Oregon Health Authority (OHA) for review and comment (complete, October 4, 2024); OHA commented and elected to defer formal review until the next full master plan update by 2031 including deferring requirements for seismic resiliency risk analysis until 2031.
- 3) Plan review and initial presentation to the City Planning Commission (work session) related to Comprehensive Plan amendments (complete, November 21, 2024)
- 4) Notification to the Oregon Department of Land Conservation and Development (December 11, 2024).
- 5) Planning Commission Public Hearing #1 on Comprehensive Plan amendment and Water System elements of the Public Facility Plan (January 16, 2025)
- 6) Planning Commission Public Hearing #2 on Comprehensive Plan amendment and Water System elements of the Public Facility Plan (if needed, February 2025)
- 7) MW&L Commission - Plan Adoption (anticipated in March 2025)
- 8) City Council Meeting to Consider Comprehensive Plan Amendment/Ordinance Adoption (anticipated March 2025)
- 9) Ordinance in Effect (30 days after adoption)

660-011-0020. Public Facility Inventory and Determination of Future Facility Projects

(1) The public facility plan shall include an inventory of significant public facility systems. Where the acknowledged comprehensive plan, background document or one or more of

the plans or programs listed in OAR 660-011-0010(3) contains such an inventory, that inventory may be incorporated by reference. The inventory shall include:

- (a) Mapped location of the facility or service area;*
- (b) Facility capacity or size; and*
- (c) General assessment of condition of the facility (e.g., very good, good, fair, poor, very poor).*

(2) The public facility plan shall identify significant public facility projects which are to support the land uses designated in the acknowledged comprehensive plan. The public facility plan shall list the title of the project and describe each public facility project in terms of the type of facility, service area, and facility capacity.

(3) Project descriptions within the facility plan may require modifications based on subsequent environmental impact studies, design studies, facility master plans, capital improvement programs, or site availability. The public facility plan should anticipate these changes as specified in OAR 660-011-0045.

FINDING: SATISFIED. Consistent with this section, adopted by reference are the inventory and the identification of significant public facility projects which are to support the land uses designated in the acknowledged comprehensive plan.

These are provided in Section 2 of the 2011 Plan as updated by Section 2 and Appendix D of the 2024 Addendum, Appendices A and E of the 2024 Addendum, and Section 8.2 of the 2024 Addendum.

660-011-0025. Timing of Required Public Facilities

(1) The public facilities plan shall include a general estimate of the timing for the planned public facility projects. This timing component of the public facilities plan can be met in several ways depending on whether the project is anticipated in the short term or long term. The timing of projects may be related directly to population growth, e.g., the expansion or new construction of water treatment facilities. Other facility projects can be related to a measure of the facility's service level being met or exceeded, e.g., a major arterial or intersection reaching a maximum vehicle-per-day standard. Development of other projects may be more long term and tied neither to specific population levels nor measures of service levels, e.g., sewer projects to correct infiltration and inflow problems. These projects can take place over a long period of time and may be tied to the availability of long-term funding. The timing of projects may also be tied to specific years.

(2) Given the different methods used to estimate the timing of public facilities, the public facility plan shall identify projects as occurring in either the short term or long term, based on those factors which are related to project development. For those projects designated for development in the short term, the public facility plan shall identify an approximate year for development. For those projects designated for development over the long term, the public facility plan shall provide a general estimate as to when the need for project development would exist, e.g., population level, service level standards, etc. Timing provisions for public facility projects shall be consistent with the acknowledged comprehensive plan's projected growth estimates. The public facility plan shall consider the relationships between facilities in providing for development.

(3) Anticipated timing provisions for public facilities are not considered land use decisions as specified in ORS 197.712(2)(e), and, therefore, cannot be the basis of appeal under ORS 197.610(1) and (2) or 197.835(4).

FINDING: SATISFIED. Consistent with this section, adopted by reference is Section 8.2 of the 2024 Addendum, which addresses timing of required public facilities. The plan is designed to accommodate the land uses designated in the acknowledged comprehensive plan. The timing of some projects will be dependent on need and may be adjusted accordingly. As specified in Subsection (3), anticipated timing provisions are not considered land use decisions and cannot be the basis of appeal.

660-011-0030. Location of Public Facility Projects

(1) The public facility plan shall identify the general location of the public facility project in specificity appropriate for the facility. Locations of projects anticipated to be carried out in the short term can be specified more precisely than the locations of projects anticipated for development in the long term.

(2) Anticipated locations for public facilities may require modifications based on subsequent environmental impact studies, design studies, facility master plans, capital improvement programs, or land availability. The public facility plan should anticipate those changes as specified in OAR 660-011-0045.

FINDING: SATISFIED. The proposed amendments include the information required by this Section in Section 8.2 and in Appendices D and E of the 2024 Addendum.

660-011-0035. Determination of Rough Cost Estimates for Public Facility Projects and Local Review of Funding Mechanisms for Public Facility Systems

(1) The public facility plan shall include rough cost estimates for those sewer, water, and transportation public facility projects identified in the facility plan. The intent of these rough cost estimates is to:

- (a) Provide an estimate of the fiscal requirements to support the land use designations in the acknowledged comprehensive plan; and*
- (b) For use by the facility provider in reviewing the provider's existing funding mechanisms (e.g., general funds, general obligation and revenue bonds, local improvement district, system development charges, etc.) and possible alternative funding mechanisms. In addition to including rough cost estimates for each project, the facility plan shall include a discussion of the provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each public facility project or system. These funding mechanisms may also be described in terms of general guidelines or local policies.*

(2) Anticipated financing provisions are not considered land use decisions as specified in ORS 197.712(2)(e) and, therefore, cannot be the basis of appeal under ORS 197.610(1) and (2) or 197.835(4).

FINDING: SATISFIED. Updated cost estimates are provided in Section 8.2 of the 2024 Addendum, which is incorporated by reference. As specified in Subsection (2), anticipated financing provisions are not considered land use decisions and cannot be the basis of appeal.

660-011-0040. Date of Submittal of Public Facility Plans

The public facility plan shall be completed, adopted, and submitted by the time of the responsible jurisdiction's periodic review. The public facility plan shall be reviewed under OAR chapter 660, division 25, "Periodic Review" with the jurisdiction's comprehensive plan and land use regulations. Portions of public facility plans adopted as part of comprehensive plans prior to the responsible jurisdiction's periodic review will be reviewed pursuant to OAR chapter 660, division 18, "Post Acknowledgment Procedures."

FINDING: SATISFIED. The proposed amendments to the Water System Element of the Public Facility Plan are being completed and adopted following the City's last periodic review, and there is no anticipated future periodic review date. The proposed amendments are updated to address needs associated with the designated land uses in the City's acknowledged Comprehensive Plan following the UGB amendment and growth management plan that was adopted in 2020 and acknowledged in 2021. Consistent with this section, the proposed amendments are submitted pursuant to the Post-Acknowledgement Plan Amendment procedures.

660-011-0045. Adoption and Amendment Procedures for Public Facility Plans

(1) The governing body of the city or county responsible for development of the public facility plan shall adopt the plan as a supporting document to the jurisdiction's comprehensive plan and shall also adopt as part of the comprehensive plan:

- (a) The list of public facility project titles, excluding (if the jurisdiction so chooses) the descriptions or specifications of those projects;*
- (b) A map or written description of the public facility projects' locations or service areas as specified in sections (2) and (3) of this rule; and*
- (c) The policy(ies) or urban growth management agreement designating the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated.*

(2) Certain public facility project descriptions, location or service area designations will necessarily change as a result of subsequent design studies, capital improvement programs, environmental impact studies, and changes in potential sources of funding. It is not the intent of this division to:

- (a) Either prohibit projects not included in the public facility plans for which unanticipated funding has been obtained;*
- (b) Preclude project specification and location decisions made according to the National Environmental Policy Act; or*
- (c) Subject administrative and technical changes to the facility plan to ORS 197.610(1) and (2) or 197.835(4).*

(3) The public facility plan may allow for the following modifications to projects without amendment to the public facility plan:

- (a) Administrative changes are those modifications to a public facility project which are minor in nature and do not significantly impact the project's general description, location, sizing, capacity, or other general characteristic of the project;*

(b) Technical and environmental changes are those modifications to a public facility project which are made pursuant to “final engineering” on a project or those that result from the findings of an Environmental Assessment or Environmental Impact Statement conducted under regulations implementing the procedural provisions of the National Environmental Policy Act of 1969 (40 CFR Parts 1500–1508) or any federal or State of Oregon agency project development regulations consistent with that Act and its regulations.

(c) Public facility project changes made pursuant to subsection (3)(b) of this rule are subject to the administrative procedures and review and appeal provisions of the regulations controlling the study (40 CFR Parts 1500–1508 or similar regulations) and are not subject to the administrative procedures or review or appeal provisions of ORS Chapter 197, or OAR chapter 660 division 18.

(4) Land use amendments are those modifications or amendments to the list, location or provider of, public facility projects, which significantly impact a public facility project identified in the comprehensive plan and which do not qualify under subsection (3)(a) or (b) of this rule. Amendments made pursuant to this subsection are subject to the administrative procedures and review and appeal provisions accorded “land use decisions” in ORS Chapter 197 and those set forth in OAR chapter 660 division 18.

FINDING: SATISFIED. The City of McMinnville has coordinated with McMinnville Water & Light. With the proposed amendments to the Water System Element of the Public Facility Plan, the City of McMinnville is adopting those portions of the 2011 Water System Master Plan and the 2024 Addendum prepared by McMinnville Water and Light which are required by OAR 660-011-0010(1)(a) for those portions which are applicable to provision of municipal water service within the McMinnville UGB.

The adoption includes the items required by this section for the water system, including the list or public facility projects, the map and descriptions of project locations, and the service area. There is not more than one municipal water system provider to serve lands within the McMinnville UGB.

The Comprehensive Plan already includes existing Policy 144.00 which specifies that the City of McMinnville, through McMinnville Water and Light shall provide water services for development at urban densities within the McMinnville UGB.

660-011-0050. Standards for Review by the Department

The Department of Land Conservation and Development shall evaluate the following, as further defined in this division, when reviewing public facility plans submitted under this division:

- (1) Those items as specified in OAR 660-011-0010(1);*
- (2) Whether the plan contains a copy of all agreements required under OAR 660-011-0010 and 660-011-0015; and*
- (3) Whether the public facility plan is consistent with the acknowledged comprehensive plan.*

FINDING: SATISFIED. As addressed in the findings above, the items specified in OAR 660-011-0010(1) are provided as part of the proposed amendments to the Water System Element of the Public Facility Plan consistent with Subsection (1).

A copy of the current UGB Management Agreement is re-submitted consistent with Subsection (2). As addressed in the above findings, no other agreements are required for the current proposal because there are no related special districts or other municipal water providers for the service area. Through the UGB Management Agreement, the Goals, Policies, and Proposals of the Comprehensive Plan apply to the UGB, including Policy 144.00 and Proposal 24.00 addressed above.

Consistent with Subsection (3), as addressed in these findings, the proposal is consistent with the acknowledged comprehensive plan and the land uses designated in the acknowledged comprehensive plan.

660-011-0060. Sewer Services to Rural Lands

...

FINDING: SATISFIED/NOT APPLICABLE. The proposed amendments don't apply to sewer service in general or sewer service to rural lands.

660-011-0065. Water Service to Rural Lands

...

FINDING: SATISFIED/NOT APPLICABLE. Those portions of the 2011 Water Master Plan and the 2024 Addendum adopted as part of the Water System Element of McMinnville's Public Facility Plan do not include provision of water service to rural lands.

ATTACHMENT 1A TO DECISION DOCUMENT

City of McMinnville Public Facility Plan: Water System

This Water System element of McMinnville's Public Facility Plan is adopted as a supporting document to McMinnville's Comprehensive Plan in compliance with Statewide Planning Goal 11: Public Facilities and Services and OAR 660 Division 11: Public Facilities Planning.

Attached are the 2011 Water System Master Plan (**Attachment A**) and the 2024 Addendum to the Water System Master Plan (**Attachment B**).

The following portions of the 2011 Water Master Plan, as amended by the 2024 Addendum, are adopted as the Water System section of McMinnville's Public Facility Plan, a supporting document to the McMinnville Comprehensive Plan.

Water Master Plan - Geographic Extent

- The Water Master Plan and the Addendum ("Plan") address provision of municipal water to serve areas within McMinnville's Urban Growth Boundary as well as other areas.
- Only those portions of the Plan which address provision of water to serve areas within McMinnville's Urban Growth Boundary are adopted as part of McMinnville's Public Facility Plan.
- Portions of the Plan which address provision of water to serve areas outside McMinnville's Urban Growth Boundary are not adopted as part of McMinnville's Public Facility Plan or Comprehensive Plan.

Water Master Plan – Referenced Sections Which Are Considered Part of the Public Facility Plan

- As specified in OAR 660-011-0010(3):
 - Where all or part of an acknowledged comprehensive plan, facility master plan either of the local jurisdiction or appropriate special district, capital improvement program, regional functional plan, similar plan or any combination of such plans meets all or some of the requirements of this division, those plans, or programs may be incorporated by reference into the public facility plan required by this division.
 - Only those referenced portions of such documents shall be considered to be a part of the public facility plan and shall be subject to the administrative procedures of this division and ORS Chapter 197.
- Only the following portions of the Plan, which are those required by OAR 660-011-0010(1)(a), are referenced herein and shall be considered to be part of the Water System element of the Public Facility Plan per OAR 660-011-0010(3):

- (a) An inventory and general assessment of the condition of all the significant public facility systems which support the land uses designated in the acknowledged comprehensive plan;
- 2011 Plan: Section 2, as updated by 2024 Addendum Section 2 and Appendix D
- (b) A list of the significant public facility projects which are to support the land uses designated in the acknowledged comprehensive plan. Public facility project descriptions or specifications of these projects as necessary;
- 2024 Addendum: Section 8.2: Updated Capital Projects Table/List
- (c) Rough cost estimates of each public facility project;
- 2024 Addendum: Section 8.2: Updated Capital Projects Table/List
- (d) A map or written description of each public facility project's general location or service area;
- 2024 Addendum: Appendix A: Updated UGB/Service Area
 - 2024 Addendum: Appendix E: Map of Project Locations
- (e) Policy statement(s) or urban growth management agreement identifying the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated;
- (Existing Policy 144.00: The City of McMinnville, through McMinnville Water and Light, shall provide water services for development at urban densities within the McMinnville Urban Growth Boundary).
- (f) An estimate of when each facility project will be needed; and
- 2024 Addendum: Section 8.2: Updated Capital Projects Table/List
- (g) A discussion of the provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each public facility project or system.
- 2024 Addendum: Appendix F. Funding mechanisms are predominantly utility ratepayer revenue and timber revenue. Specific rates listed in Appendix F are not required to be part of the Public Facility Plan, and are not incorporated as part of the Comprehensive Plan, and revisions are not land use decisions.

Water Master Plan - Modifications to Projects Without Amendment to the Public Facility Plan

- As authorized by OAR 660-011-0045(3), the following amendments to projects are authorized without modification to the Public Facility Plan:
 - (a) Administrative changes, which are those modifications to a public facility project which are minor in nature and do not significantly impact the project's general description, location, sizing, capacity, or other general characteristic of the project;
 - (b) Technical and environmental changes, which are those modifications to a public facility project which are made pursuant to "final engineering" on a project or those that result from the findings of an Environmental Assessment or Environmental Impact Statement conducted under regulations implementing the procedural provisions of the National Environmental Policy Act of 1969 (40 CFR Parts 1500–1508) or any federal or State of Oregon agency project development regulations consistent with that Act and its regulations.
 - (c) Public facility project changes made pursuant to subsection (b) are subject to the administrative procedures and review and appeal provisions of the regulations controlling the study (40 CFR Parts 1500–1508 or similar regulations) and are not subject to the administrative procedures or review or appeal provisions of ORS Chapter 197, or OAR chapter 660 division 18.

Water Master Plan – Land Use Amendments

- Land use amendments would only apply to those modifications or amendments required by OAR 660-011-0054(4). As required by OAR 660-011-0045(4), land use amendments are those modifications or amendments to the list, location or provider of, public facility projects, which significantly impact a public facility project identified in the comprehensive plan and which do not qualify under subsection (3)(a) or (b) of the rule. Amendments made pursuant to that subsection are subject to the administrative procedures and review and appeal provisions accorded "land use decisions" in ORS Chapter 197 and those set forth in OAR chapter 660 division 18.

OAR 660-011-0045(1)

The sections referenced above include the following items specified in OAR 660-011-0045(1), which must be adopted as part of the Comprehensive Plan.

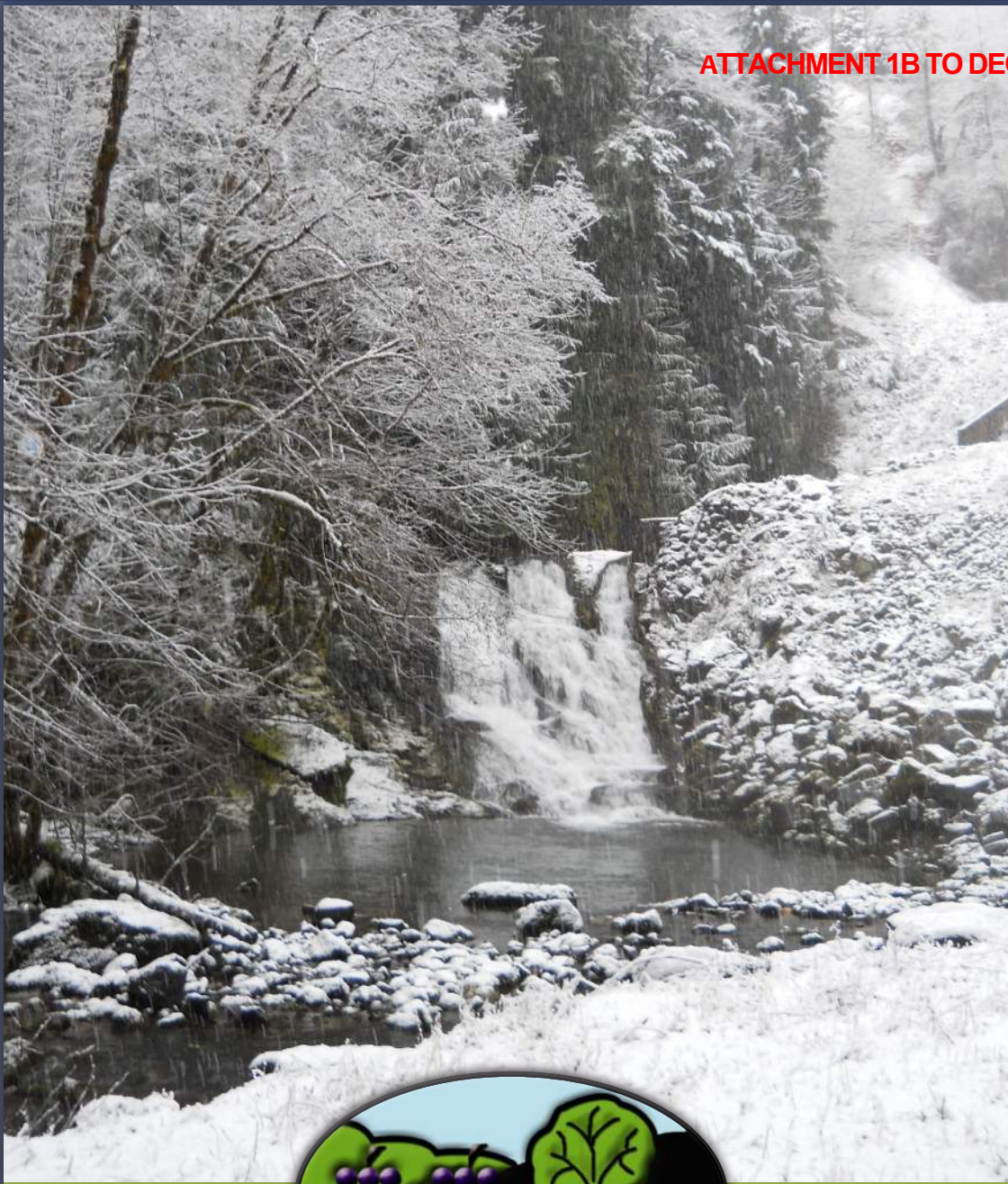
- (a) The list of public facility project titles, excluding (if the jurisdiction so chooses) the descriptions or specifications of those projects;
 - 2024 Addendum: Section 8.2: Updated Capital Projects Table/List

(b) A map or written description of the public facility projects' locations or service areas as specified in sections (2) and (3) of this rule; and

- 2024 Addendum: Appendix A: Updated UGB/Service Area
- 2024 Addendum: Appendix E: Map of Project Locations

(c) The policy(ies) or urban growth management agreement designating the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated.

- (Existing Policy 144.00: The City of McMinnville, through McMinnville Water and Light, shall provide water services for development at urban densities within the McMinnville Urban Growth Boundary).



McMinnville Water & Light Water Master Plan

Prepared by

CH2MHILL

November 2011

Final Report

Water System Master Plan

Prepared for
McMinnville Water & Light

November 2011

CH2MHILL



**Printed on
Recycled and
Recyclable
Paper**

Contents

Section

Executive Summary	ES-1
Introduction.....	ES-1
Summary of Large Capital Projects	ES-1
System Description.....	ES-3
Service Population.....	ES-3
Water Supply and Facilities	ES-3
Water Requirements.....	ES-7
Regulatory Requirements.....	ES-8
Water Supply and Regionalization.....	ES-8
Water Treatment Plant.....	ES-8
Raw Water Transmission	ES-8
Finished Water Transmission	ES-9
Storage.....	ES-9
Distribution System.....	ES-10
Supervisory Control and Data Acquisition	ES-11
Capital Improvements Plan	ES-11
1 Introduction	1-1
1.1 Acknowledgements.....	1-1
2 System Description	2-1
2.1 Service Area, Population, and Demands	2-1
2.2 Water Supply	2-1
2.3 Water Rights.....	2-5
2.4 Water Treatment Plant.....	2-5
2.5 Raw Water Transmission	2-5
2.6 Finished Water Transmission	2-6
2.7 Distribution System.....	2-6
2.7.1 Service Zones	2-6
2.7.2 Storage.....	2-6
2.7.3 Pump Station.....	2-7
2.7.4 Distribution Pipe and Connections.....	2-7
3 Water Requirements	3-1
3.1 Definition of Terms	3-1
3.2 Production Meter History	3-2
3.3 Average and Maximum Demands.....	3-2
3.3.1 Average Summer and Winter Demands.....	3-6
3.3.2 Peaking Factors.....	3-7
3.4 Per Capita Demands	3-9
3.5 Unaccounted for Water	3-9
3.6 Water Audit.....	3-10

Section

3.7 Projected Water Demands3-12
 3.7.1 Projection Criteria and Maximum Day Demand Allowances.....3-12
 3.7.2 System-Wide Projections3-13

4 Regulatory Overview and Compliance4-1
 4.1 Water Treatment Regulations4-1
 4.1.1 Maximum Contaminant Levels for Organics and Inorganics4-2
 4.1.2 Interim Enhanced Surface Water Treatment Rule4-2
 4.1.3 Long-Term 2 Enhanced Surface Water Treatment Rule.....4-2
 4.1.4 Filter Backwash Rule4-3
 4.2 Water Distribution Regulations4-3
 4.2.1 Oregon’s Distribution Regulations.....4-3
 4.2.2 Federal Distribution Regulations.....4-4
 4.2.3 Surface Water Treatment Rules4-4
 4.2.4 Interim Enhanced Surface Water Treatment Rule4-4
 4.2.5 Long-Term 2 Enhanced Surface Water Treatment Rule.....4-4
 4.2.6 Total Coliform Rule4-4
 4.2.7 Lead and Copper Rule4-5
 4.2.8 Stage 2 Disinfectant and Disinfection By-Product Rule4-5
 4.2.9 Other4-7
 4.3 Possible Future Regulations of Interest4-7

5 Design and Operating Criteria.....5-1

6 Water Supply and Water Rights6-1
 6.1 Introduction6-1
 6.2 Water Rights Capacity.....6-2
 6.2.1 Yamhill River Watershed (Haskins Creek) Water Rights6-2
 6.2.2 Nestucca River Watershed Water Rights6-2
 6.3 Evaluation of Water Rights/Supply6-5
 6.4 Walker Creek6-5
 6.5 Regionalization and Willamette River Supply6-6

7 Raw Water Transmission Pipeline7-1
 7.1 Existing Raw Water Pipeline from Haskins Reservoir to the Scott WTP.....7-1
 7.1.1 Timing for Improvements.....7-1
 7.1.2 Design Criteria7-2
 7.2 Raw Water Diversion Pipelines7-3
 7.3 Summary, Recommendations, and Cost Estimates7-3
 7.3.1 Haskins Reservoir Raw Water Transmission Pipeline7-4
 7.3.2 Haskins and Idlewild Creeks Diversion Pipelines.....7-4

8 Finished Water Transmission Pipeline8-1
 8.1 Description of Existing Pipelines.....8-1
 8.2 Capacity Analysis for Existing Pipelines.....8-4

Section

8.2.1	Capacity Need.....	8-4
8.2.2	Physical Measurement of Capacity.....	8-4
8.2.3	Model Approach to Determining Capacity	8-4
8.2.4	Model Findings for Capacity Analysis.....	8-5
8.3	Flow Control	8-5
8.3.1	Direct Service to Zone 2.....	8-7
8.4	Redundancy Concern	8-8
8.5	Evaluation of Expansion Alternatives	8-9
8.5.1	Material Selection	8-9
8.5.2	Alignment and Size.....	8-9
8.5.3	Phasing.....	8-10
8.6	Proposed Improvements	8-12
8.6.1	Tunnel	8-12
8.6.2	Panther Creek to Service Reservoirs.....	8-14
8.6.3	Downstream Flow Control	8-14
9	Finished Water Storage.....	9-1
9.1	Description of Existing Storage Tanks.....	9-1
9.2	Capacity Analysis.....	9-1
9.2.1	Criteria	9-1
9.3	Proposed Capacity Improvements	9-2
9.4	Reservoir Security Evaluation	9-3
10	Distribution System	10-1
10.1	Overview	10-1
10.2	Analysis Approach.....	10-1
10.2.1	Design Criteria.....	10-1
10.2.2	Fire Flow Criteria.....	10-2
10.2.3	Hydraulic Modeling Files and Software	10-2
10.2.4	Demand Allocation	10-5
10.2.5	Calibration.....	10-9
10.2.6	Hydraulic Analysis	10-17
10.2.7	Existing System Analysis	10-17
10.2.8	Recommended Improvements	10-43
11	Supervisory Control and Data Acquisition	11-1
11.1	Introduction.....	11-1
11.1.1	Existing System.....	11-1
11.1.2	Modified System.....	11-2
11.2	Recommendations by Facility.....	11-3
11.2.1	Scott WTP	11-3
11.2.2	Fox Ridge Service Reservoirs.....	11-4
11.2.3	Panther Creek.....	11-4
11.2.4	Haskins Creek.....	11-4

Section

11.2.5	McGuire Dam.....	11-5
12	Capital Improvements Plan.....	12-1
12.1	Capital Improvements Plan.....	12-1
12.2	Major Projects.....	12-2
12.2.1	Finished Water Transmission.....	12-2
12.2.2	Raw Water Transmission.....	12-2
12.2.3	Scott WTP Expansion.....	12-3
12.2.4	Zones 1 and 2 Storage.....	12-3
12.2.5	Distribution System.....	12-3
12.3	Project Cost Background.....	12-4

Exhibits

ES-1	Capital Improvements Plan Cash Flow Projections
ES-2	MW&L Water Service Area
ES-3	Water Supply System Schematic
ES-4	Projected ADD, MDD, and MDD plus Allowances, 2010 to 2050
ES-5	Capital Improvements Plan Summary by Project Category
2-1	MW&L Water Service Area
2-2	McMinnville Water Sources
2-3	Water Supply System Schematic
2-4	Distribution Reservoirs
2-5	Distribution System Pipeline Materials
2-6	Number of Connections by Meter Size
3-1	Historical ADD, MMD, 3-day MDD, and MMD for MW&L's Water System
3-2	Historic ADD Values and Linear Trend, 1995-2010
3-3	Historic MDD and 3-day MDD Values and Linear Trends, 1995-2011
3-4	Historic Monthly Demand, 2000-2010
3-5	Historic MMD, 2000-2011
3-6	Historic Peaking Factors
3-7	Historic MDD to ADD Peaking Factor, 1995-2010
3-8	Historic Per Capita Demands, gallons per capita per day
3-9	Annual Unaccounted for Water, 2000-2010
3-10	Components of the IWA/ AWWA Water Balance, million gallons per year
3-11	Demand Projection Criteria for MW&L Water System Service Area
3-12	Projected Service Population, ADD, MDD, and MDD plus 1-mgd Allowance, 2010 to 2050
3-13	Projected ADD, MDD, and MDD plus 1-mgd Allowance, 2010 to 2050
3-14	Projected Monthly Average Daily Demand by Month, 2010, 2025, 2050

Section

- 4-1 Additional *Cryptosporidium* Treatment Requirements for Filtered Systems
- 4-2 Disinfection Byproduct Data and Location Running Annual Average at Four Distribution System Locations
- 5-1 Design and Operating Criteria
- 6-1 Schematic of MW&L Reservoir and Diversion System
- 6-2 MW&L Domestic and Municipal Water Permits and Certificates
- 7-1 Timing for Raw Water Supply Improvements
- 8-1 Schematic of Existing Finished Water Transmission Pipelines
- 8-2 Map Showing Existing and Proposed Finished Water Pipelines
- 8-3 Finished Water Transmission Pipeline Profile (from Scott WTP to Service Reservoirs, following existing 24-inch pipe)
- 8-4 Pipe Class and Test Pressure for Existing 24-inch Pipeline
- 8-5 Downstream Flow Control Pressures in Existing 24-Inch Pipeline Compared to Pipe Class
- 8-6 Hydraulic Grade Line for Average Day Demand and Downstream Flow Control
- 8-7 Proposed Phasing for Finished Water Transmission Improvements
- 8-8 Timing for Finished Water Transmission Improvements
- 9-1 Finished Water Storage Reservoirs
- 9-2 Existing Storage and Projected Storage Requirements
- 9-3 Recommended Reservoir Security Improvements
- 10-1 Water System Evaluation Criteria for Domestic Demands
- 10-2 Water System Evaluation Criteria for Domestic + Fire Flow Analysis
- 10-3 Water System Fire Flow Criteria by Land-Use Category
- 10-4 Pipeline Length in feet by Pipe Diameter and Material
- 10-5 Derived Unit Demands by Land Use
- 10-6 Overall System Demands by Scenario
- 10-7 Land Use and Demand Projections
- 10-8 Static Pressure Hydraulic Model Calibration
- 10-9 Hazen-Williams C Factors by Pipe Material
- 10-10 Fire Flow Hydraulic Model Calibration
- 10-11 Existing System Hydraulic Model Pressure Results
- 10-12 2010 ADD Hydraulic Model Results
- 10-13 2010 MDD Hydraulic Model Results
- 10-14 2010 PHD Hydraulic Model Results
- 10-15 Existing System Maximum Day Demand plus Fire Flow Results
- 10-16 2010 MDD + Fire Flow Hydraulic Model Results
- 10-17 Future System Hydraulic Model Pressure Results
- 10-18 2032 ADD Hydraulic Model Results

Section

- 10-19 2032 MDD Hydraulic Model Results
- 10-20 2032 PHD Hydraulic Model Results
- 10-21 Future System Maximum Day Demand plus Fire Flow Results
- 10-22 2032 MDD + Fire Flow Hydraulic Model Results
- 10-23 Distribution System Recommended Improvements

- 11-1 Expanded Communication Network - Radio Communications Option

- 12-1 Capital Improvements Plan Cash Flow
- 12-2 Capital Improvements Planning Cash Flow for Distribution System Pipeline Improvements
- 12-3 Project Cost Estimates for Distribution Pipelines
- 12-4 Capital Improvements Plan (CIP) Table

Executive Summary

Introduction

This *Water System Master Plan* updates McMinnville Water and Light's (MW&L's) last master plan prepared in 1996. The current plan includes analyses of MW&L's transmission piping, storage, distribution system, and other components of MW&L's water system, and provides a capital improvements plan (CIP) to guide MW&L's investment for the next 20 years. Although the plan presents specific projects and proposed dates for implementation, the projects and their implementation schedules will be adjusted annually to ensure that the system is managed efficiently to meet customer needs.

Summary of Large Capital Projects

MW&L's water system is in sound condition. It complies with all state and federal drinking water regulations. Its water source capacity is sufficient to meet projected customer needs through the 20-year planning period, although development of a second supply to meet long-term demands and to provide redundancy is recommended. The Scott Water Treatment Plant (WTP) was recently expanded to 22 million gallons per day (mgd). It was designed to allow for a cost-effective future expansion to 30 mgd, which will not be needed for 20 years according to the demand projections presented in this study. The storage and piping for the distribution system reliably meet customer demands and in nearly all areas, provide fire flows meeting the highest standards. Additionally, 95% of MW&L's distribution piping – representing one of the largest system investments – is constructed of high quality material and is therefore expected to provide a long service life.

Nevertheless, the CIP developed in this project outlines significant investments in the coming years. The following projects will improve reliability, expand capacity, and address other system needs. All costs that are presented are conceptual level estimates and do not account for escalation to the date of project implementation. Actual costs will vary depending on the final project scope, the date of construction, market conditions, and other variable factors.

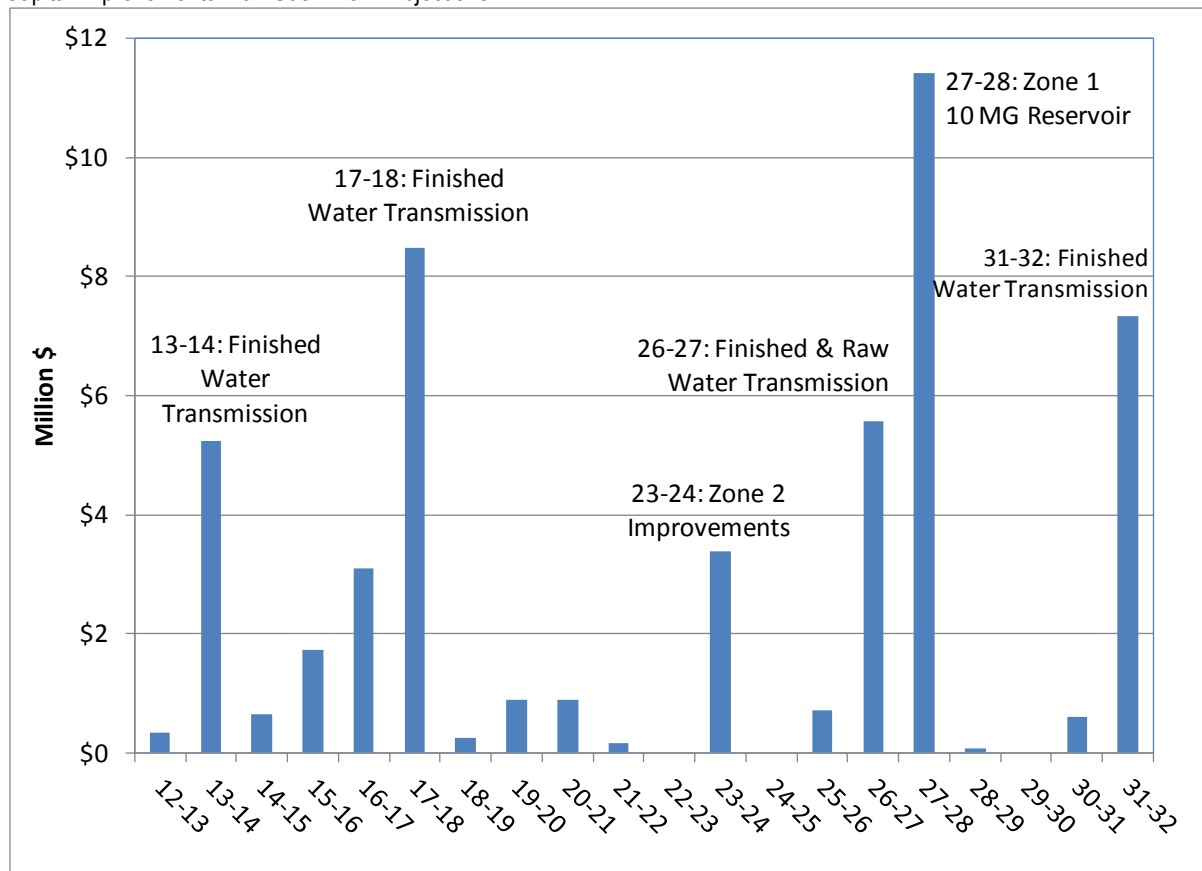
- Install a new 36-inch diameter finished water transmission pipeline from the Scott WTP to the Panther Creek valve station, including a section tunneled through the hillside. The engineering for this project is scheduled to begin in fiscal year (FY) 2012-2013 and the construction in FY 2013-2014. The total project estimate is \$4,740,000.
- Implement long-planned supervisory control and data acquisition (SCADA) improvements at the Panther Creek valve station to coordinate with the finished water transmission improvements. Design is scheduled for FY 2012-2013 and construction in FY 2013-2014. The cost estimate is \$180,000.
- Install a large diameter pipeline in the southeast area of the distribution system to enable MW&L to supply Dayton and other regional partners. The concept is for the regional

partners to pay the equivalent cost of a 12-inch pipeline, sufficient to obtain water supply from MW&L, and for MW&L to pay for the upsizing to 24-inch to allow MW&L to obtain water from a future, possible Willamette River supply. MW&L's share of this FY 2015-2016 project is estimated to total \$835,000.

- Implement security and painting improvements for the distribution storage tanks (Service Reservoirs) and for the Scott WTP steel backwash tanks, from FY 2015-2016 to FY 2016-2017. The estimate for these projects totals \$316,000.
- Perform legal services to secure easements and then design and install Phase 2 of the finished water transmission pipeline improvements to increase capacity. The easement and engineering tasks are scheduled to begin in FY 2016-2017 and pipeline construction is scheduled for FY 2017-2018. An allowance of \$200,000 was included in the CIP for obtaining the easements although the actual cost may vary considerably. The engineering and construction of the 20,300 feet of 30-inch diameter pipeline is estimated to total \$8,040,000.
- A series of pipeline additions along the eastern edge of the distribution system, termed the Eastside Feeder, are proposed for installation in FY 2016-2017 to improve fire flows. The total project estimate is \$2,077,000.
- In addition to these specific projects, the CIP describes a number of distribution pipeline projects that will improve fire flows and replace sections of existing pipelines that are in poor condition. The annual cost estimate for these improvements ranges from \$300,000 to \$700,000 per year for the first five years of the plan, from FY 2012-2013 to FY 2016-2017.

Exhibit ES-1 provides the projected cash flow to accomplish these and other projects listed in the CIP. Additional large projects to expand system capacity are scheduled for the second ten years of the twenty-year planning period. These projects include a second raw water transmission pipeline, additional finished water transmission pipeline replacement, new Zone 1 and 2 storage reservoirs, and expansion of the Scott WTP to its buildout capacity of 30 mgd. The expansion of the Scott WTP will be needed by 2033, according to the demand projections developed in this project. This is one year beyond the 20-year planning horizon. However, since design and some construction may need to begin within the 20-year planning period, the cost for this project has been included in the CIP.

EXHIBIT ES-1
Capital Improvements Plan Cash Flow Projections



System Description

Service Population

MW&L supplies drinking water to approximately 33,000 people through 11,000 service connections. Water service is provided to residential, commercial, industrial, and city (parks, public buildings, etc) customers.

The MW&L service boundary includes all land within the City of McMinnville's city limits, as shown in **Exhibit ES-2**. Areas within the city's UGB are automatically added to the MW&L service area when they are annexed to the city. Approximately 100 people, outside the city limits along the transmission pipeline from the Norman R. Scott Water Treatment Plant (Scott WTP) to the city, are provided water by MW&L's system.

Water Supply and Facilities

MW&L's water supply comes from streams and two reservoirs located in the Coast Mountain Range northwest of the City of McMinnville. Water from the Yamhill River Basin is impounded in the Haskins Reservoir, and water from the Upper Nestucca River is impounded in the McGuire Reservoir. Water from both reservoirs is treated at the Scott

WTP. **Exhibit ES-3** provides a schematic of the supply system as well as treatment, transmission, and storage facilities.

MW&L holds water rights on Haskins Creek that allow impoundment and use of stored water, as well as direct diversion from the creek for domestic and municipal use. Additionally, MW&L holds water rights for storage and use of water for municipal purposes from the Nestucca River and Walker Creek. MW&L has sufficient water rights to take full advantage of the estimated 30 million gallons per day (mgd) reliable yield of its watersheds.

The Scott WTP was originally built in 1976 with a capacity of 13.3 mgd. The expansion project completed in 2010 increased capacity to 22 mgd, with provisions for a final expansion to 30 mgd. The plant uses conventional multi-media filtration technology. The treatment process consists of coagulant chemical addition and mixing followed by flocculation, sedimentation, filtration, and disinfection.

EXHIBIT ES-2
MW&L Water Service Area

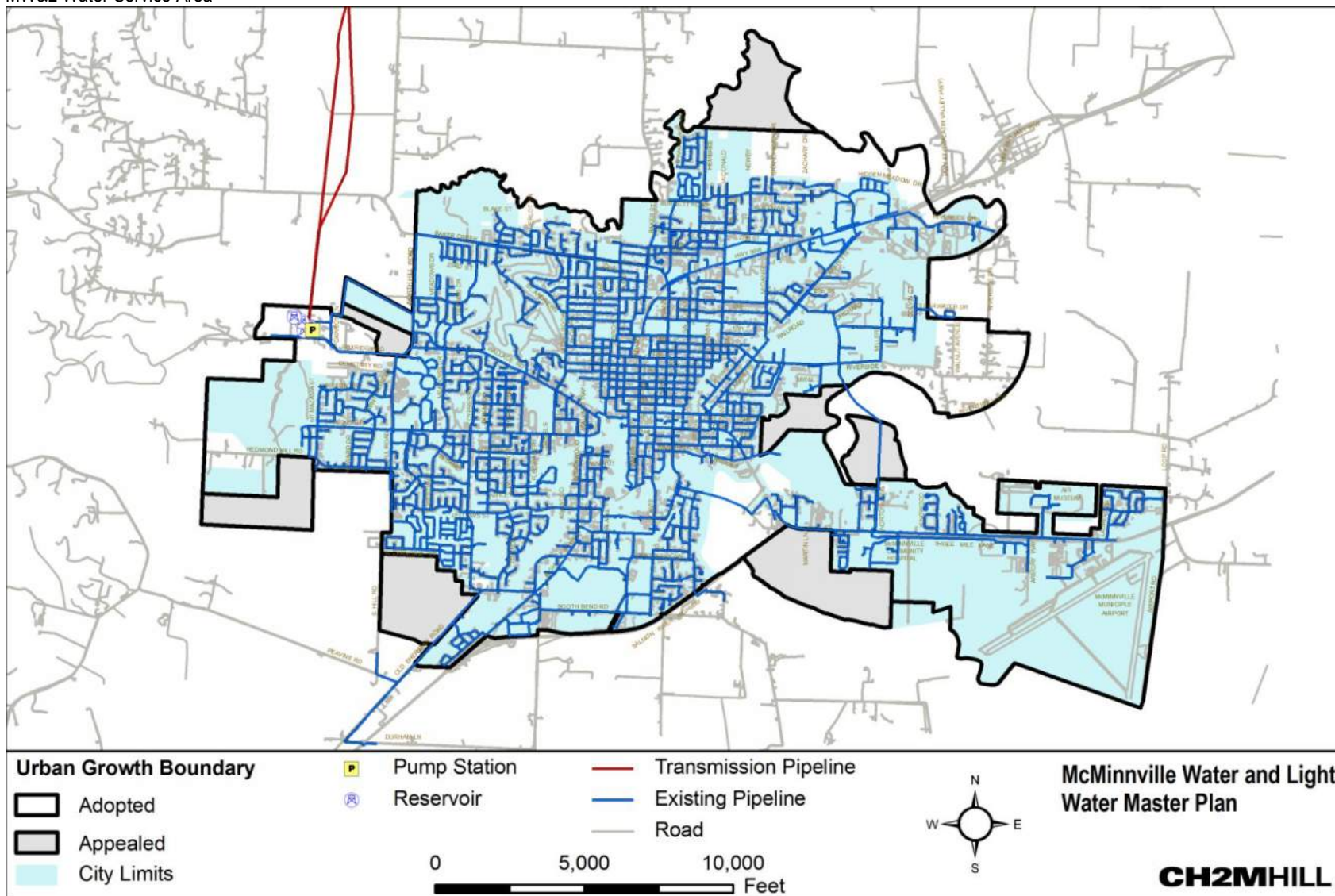
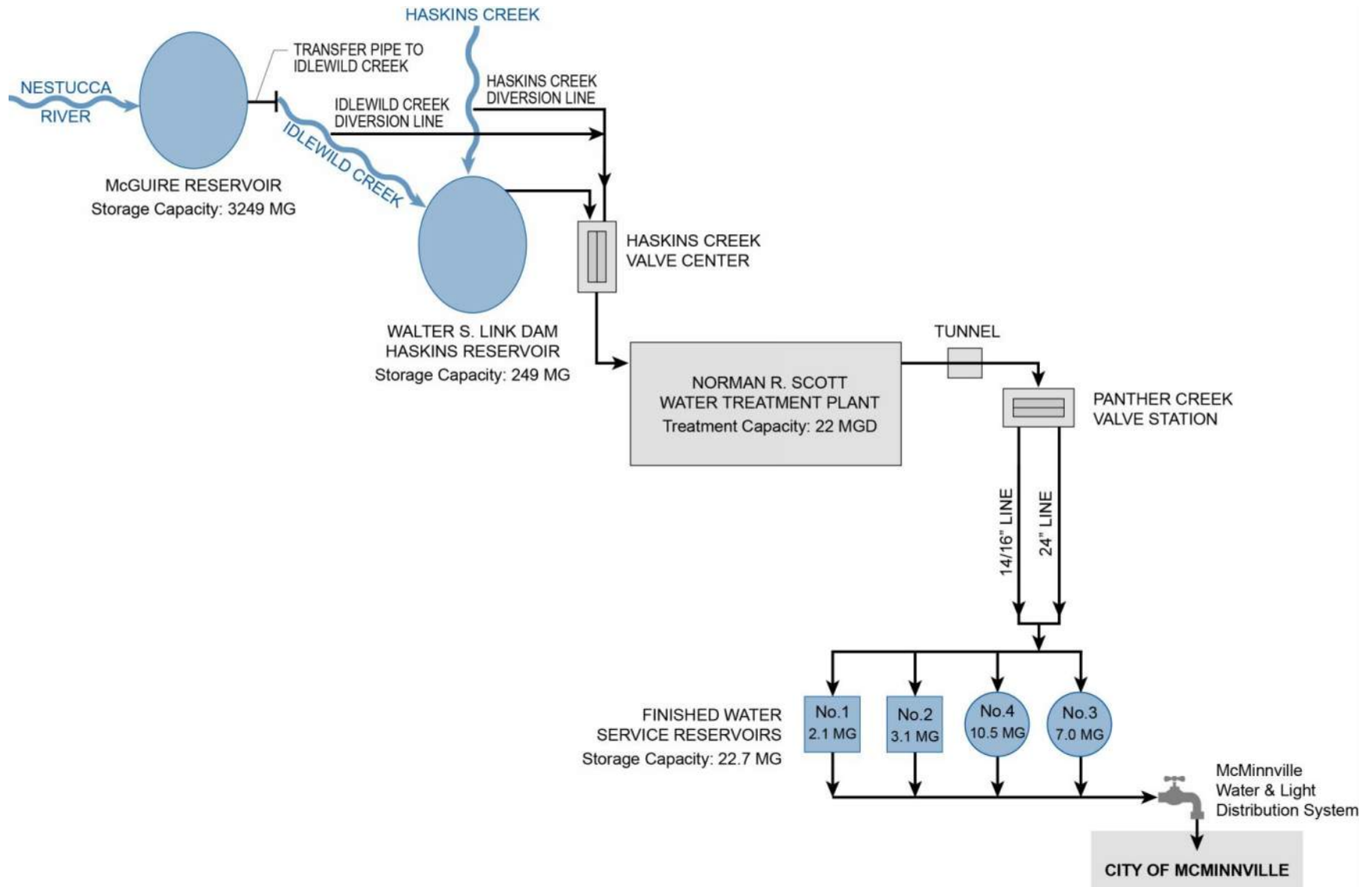


EXHIBIT ES-3
Water Supply System Schematic



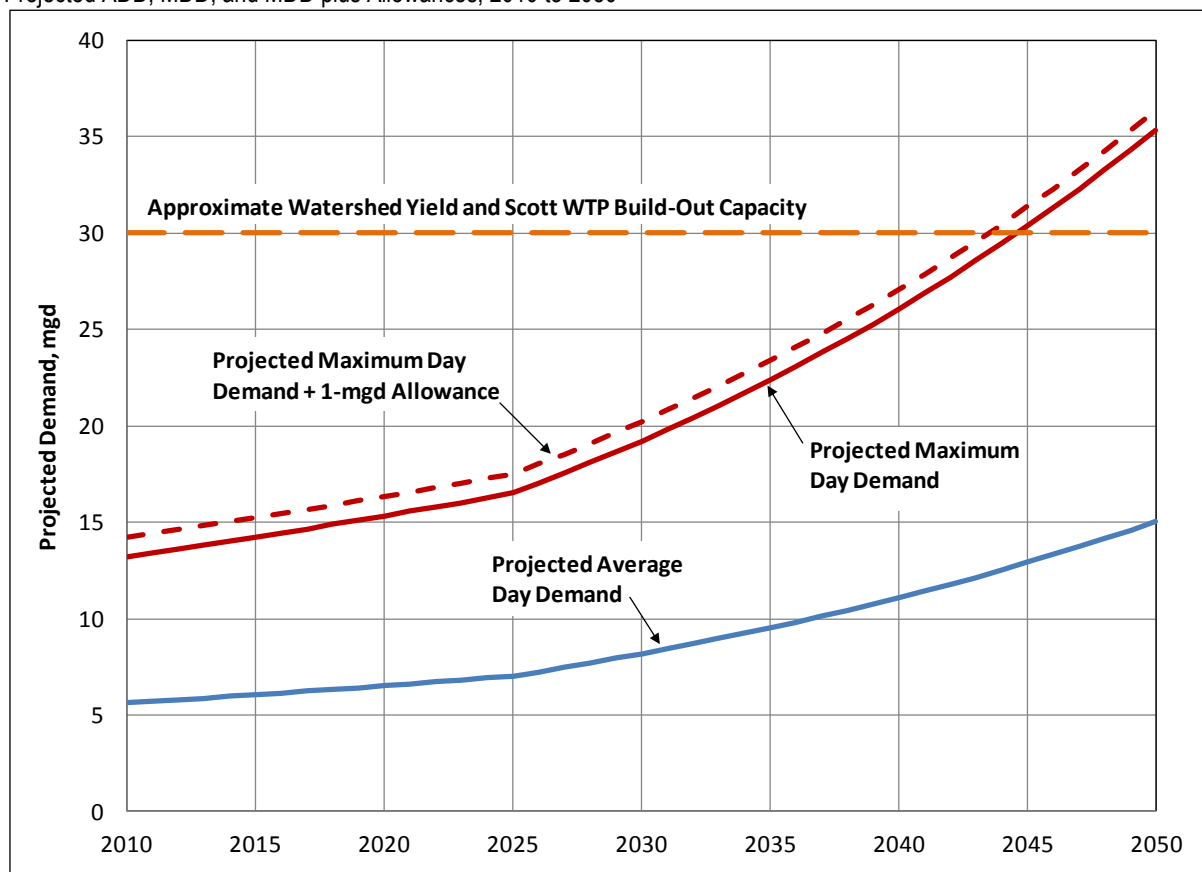
Water Requirements

Future demands on the MW&L water system were projected by applying recent per capita water use values to Yamhill County population projections. An annual population growth rate of 1.5 percent was applied to the period 2011 through 2025, and an annual growth rate of 3.1 percent was applied to the period 2026 through 2050. An increased growth rate reflects expected expansion of the city's urban growth boundary.

Exhibit ES-4 shows demand projections for average and maximum day demands. If growth occurs at the projected rate, the watershed yield and buildout capacity of the Scott WTP (both equal to 30 mgd) will be exceeded about 2044. There is a great deal of uncertainty in the projections, especially considering the dramatic shift from the high growth rates of the early 2000's to the much slower growth/near stagnation in the 2009-2011 recession. MW&L should carefully track average and maximum day demands and regularly adjust the projection curves and project implementation dates accordingly.

EXHIBIT ES-4

Projected ADD, MDD, and MDD plus Allowances, 2010 to 2050



Regulatory Requirements

MW&L's water system is in compliance with all current state and federal standards. New rules have been proposed for adoption in the coming years. It is anticipated that MW&L will comply with these new regulations without significant capital or operational changes.

Water Supply and Regionalization

The reliable watershed yield was evaluated in the *Integrated Engineering Study* (1997) and the *Norman R. Scott Water Treatment Plant Facility Plan* (July 2007). These evaluations determined the reliable summer yield to be 30 mgd for the existing Haskins and McGuire Reservoirs and diversion systems. The actual watershed yield varies depending on rainfall levels and the amount of storage carried over from one year to the next. The 30 mgd estimate is based on a summertime drought yield of 15 mgd combined with a normal rainfall year carryover of 15 mgd from storage in McGuire Reservoir. Walker Creek capacity was not included in the analysis because it is not yet developed. MW&L should periodically review the reliable watershed yield estimate in light of possible global climate change impacts.

MW&L's water right permits and certificates appear to be sufficient in priority date seniority and amount to allow for full use of the 30 mgd watershed yield. MW&L has additional water rights for a yet to be developed Walker Reservoir.

MW&L was in the process of taking early steps to develop a regional water supply with neighboring communities as this master plan was being prepared. A regional supply, using water from the Willamette River, would provide needed capacity to meet long-term needs and would add redundancy to MW&L's system.

Water Treatment Plant

The recently completed improvements to the Scott Water Treatment Plant (WTP) increased the capacity from 13.3 mgd to 22 mgd, and included accommodations for a future expansion to 30 mgd. This master plan did not evaluate the Scott WTP since a thorough evaluation was provided in the *Norman R. Scott Water Treatment Plant Facility Plan* (July 2007). It is anticipated that the plant will be expanded by 2033 although this expansion could be delayed depending on the progress in developing a second, regional supply.

Raw Water Transmission

Raw water is supplied to the Scott WTP through a 32-inch diameter steel pipe that was installed in the 1940's. The pipe has a calculated flow capacity of approximately 20 mgd. There is a flow restriction at the inlet to the Scott WTP that restricts the capacity to approximately 18.5 mgd.

The CIP includes the installation of a second raw water pipeline and expansion of the plant inlet facilities to achieve a capacity of 30 mgd, which is the full buildout for the plant. Since the existing pipeline is steel and long-term corrosion is a concern, the second line will be sized to deliver the full 30 mgd flow. The fittings are in place for this pipeline and the

property is available, so there appear to be no major obstacles to its implementation. Its timing is primarily growth-driven. The single pipeline does not provide redundancy; however, it is accessible and can be readily repaired as needed.

Finished Water Transmission

The Scott WTP delivers water by gravity to the City of McMinnville through two parallel pipelines that are 10 miles in length. Their combined capacity is approximately 14.7 mgd. According to the demand projections presented earlier, the maximum day demand (when the variability allowance is included) may exceed the finished water transmission capacity in the summer of 2013. It is noted that the maximum summer use was lower in 2009 and 2010 than in previous years, which may reflect improvements in production metering, weather conditions, the recession, or a combination of all three. Therefore, there is significant uncertainty in comparing future demands with the transmission capacity.

A significant task in the master plan was to examine options and phasing for expanding the finished water transmission system to eventually achieve a 30 mgd capacity to match the reliable watershed yield and the buildout capacity of the Scott WTP. The recommended plan is to replace the smaller of the two existing transmission pipelines, which is comprised of 14-inch asbestos cement and 16-inch steel, with a 30-inch ductile iron pipeline. The condition of the 14/16-inch pipeline is questionable and its capacity is limited to 3.5 mgd. The plan is to install the new pipeline in the same easement as the existing 24-inch ductile iron pipeline.

The finished water transmission improvements were divided into four phases to distribute the large capital cost over time. The highest priority phase is to install a parallel pipeline for the top section, where there is only a single pipeline. This will provide a capacity increase but more importantly, provide redundancy. A portion of this line passes through a hillside in a tunnel. The tunneled line is not accessible for repairs should it fail. The second line will also be installed through the hillside to allow for gravity flow from the plant to the city. The remaining three phases have been distributed over the twenty-year planning period.

Storage

Four reservoir tanks, located on the same property west of the city, provide potable water storage for the MW&L. They are fed by gravity through the transmission pipelines. Water flows by gravity from the tanks into the city. The tanks, built from 1915 through 1995, hold a total of 22.7 million gallons, or about twice the volume used in a peak demand day.

The CIP recommends the addition of two tanks, both of which may be needed within the 20-year planning horizon depending on the rate of growth and where the growth occurs. One is a fifth tank with a volume of 10 million gallons to be co-located with the other four. The other is a smaller tank that will be located at a higher elevation site to supply water to the future Zone 2. The Zone 2 tank will be needed as that area grows. In addition to these improvements, the master plan identifies security and painting improvements for the reservoirs.

Distribution System

The city's network of over 153 miles of distribution system pipelines were analyzed using a computerized hydraulic model to determine deficiencies and to evaluate options for improving the system. The modeling simulated both the existing system and the system that will be used to meet demands projected twenty years into the future.

The system deficiencies and proposed improvements were as follows:

1. System pressures exceed the 100 pounds per square inch (psi) at a number of locations in the system. The City of McMinnville requires individual pressure reducing valves at each service address to maintain pressure below 80 psi. The individual PRVs are owned and maintained by the customer.
2. Low pressures occur during all demand scenarios in Zone 1 on the western side of the city (north of Mt Hood Drive and east of Hillcrest Street). Some customers maintain individual booster pumps to increase pressure. In the future, Zone 2 will be improved and expanded. The services in this area of low pressure in Zone 1 will be incorporated into Zone 2.
3. Zone 2 improvements, which will be implemented as houses are constructed in this area, will include new pipeline mains, hydrants, pressure reducing valves (at the interconnections between Zone 2 and 1), a storage reservoir, and pumping improvements.
4. Low pressures occur during peak demands in the northeast area of the city near the Steel Mill (Riverside Drive). Additionally fire flow is lower than desired for many of the commercial and industrial customers. The low pressures and inadequate fire flows occur as a result of high demand, limited capacity, and limited looping. Parallel piping and looped piping capital improvements are planned to increase pressure and fire flow. The primary improvement to address these needs is termed the Eastside feeder, which consists of 16- and 20-inch pipelines on Riverside Drive and a 12-inch pipeline replacement on Colvin Court.
5. Fire flow is limited in the commercial and industrial area in the southeast area of the city near the airport. The lower-than-desired fire flow occurs as a result of limited capacity and looping. The 24-inch pipeline on Three Mile Lane will be extended to improve fire flows and to provide the potential for delivering wholesale water to nearby communities. This project is termed the Regionalization pipeline.
6. A number of localized fire flow deficiencies exist throughout the water system. These are typically the result of dead-end or under-sized pipelines. Looped piping improvements are identified for many of these deficiencies unless the piping is privately owned. Additionally, pipeline improvements have been identified where needed to replace aging and failing pipelines.

Supervisory Control and Data Acquisition

Instrumentation and control (I&C) and supervisory control and data acquisition (SCADA) systems at MW&L's source, transmission, and distribution facilities were evaluated to identify improvements to maintain systems, provide redundancy, and to achieve better coordination and functionality. The facilities are located at the Haskins Creek and McGuire Dams, Panther Creek valve station, and Fox Ridge Service Reservoirs. Systems located at these remote facilities provide operational data including valve position, flow rates, water levels, and alarm and other status conditions.

Recommendations for improvements to the SCADA system were developed to standardize and streamline system maintenance, and to provide better operability. The master plan presents detailed recommendations plus an overview schematic of an improved SCADA system.

Capital Improvements Plan

The detailed capital improvements plan is included as a table in Section 12. The CIP table includes project descriptions, year of construction, cost estimates, and the driver for the project, whether because of growth, condition, regionalization, or to improve fire flows. A summary of the CIP by project category is provided in **Exhibit ES-5**.

EXHIBIT ES-5

Capital Improvements Plan Summary by Project Category

Project Category	Cost Estimate
Finished Water transmission pipeline additions	\$24,400,000
Raw water transmission pipeline and diversion pipelines	\$1,300,000
Regionalization pipelines	\$840,000
Eastside feeder pipelines	\$2,080,000
Zone 2 improvements	\$7,800,000
Scott WTP expansion	\$8,000,000
SCADA Improvements	\$280,000
Zone 1 storage addition	\$11,200,000
Reservoir security improvements	\$130,000
Reservoir repainting projects	\$190,000
Zone 1 development pipelines	\$15,600,000
Zone 1 condition and fire flow pipeline improvements	\$7,200,000
Total (rounded)	\$79,000,000

Introduction

This *Water System Master Plan* updates McMinnville Water and Light's (MW&L's) last master plan, prepared in 1996 as part of the *Integrated Engineering Study*. The present update includes thorough analyses of the transmission piping, storage, distribution system, and other components of MW&L's water system. It did not focus on the water treatment plant, because the upgrade and expansion of the plant were finished the year before this project was initiated and included planning considerations prior to commencement of the design.

The capital improvements plan (CIP) will guide MW&L's investment over the coming 20 years. Although the plan presents specific projects and proposed dates for implementation, the projects and their implementation schedules will be adjusted periodically to ensure that the system is managed efficiently to meet customer needs.

1.1 Acknowledgements

Preparation of this plan was a joint effort between MW&L and CH2M HILL. CH2M HILL expresses its gratitude to the MW&L staff for their valuable input and positive cooperation during the preparation of The Water System Master Plan. The following individuals provided major contributions:

MW&L Staff

Steve Wendell, Project Manager
Paul Elias, General Manager
Robert Klein, Water Superintendent
John Dietz, Engineering and Operations Manager
Marci Humlie, Resource Specialist
Kathleen Chirgwin, Civil Engineering Intern

MW&L Commissioners

Rick Olson, City of McMinnville Mayor
Tom Tankersley, Chairman
Ed Gormley, Commissioner
Mike Keyes, Commissioner
Patrick Fuchs, Commissioner

CH2M HILL

- Paul Berg, Project Manager
- Josh Koch, Operations and Transmission
- Shad Roundy, Lead Hydraulic Modeler
- Jennifer Kassa, Senior Reviewer
- John Simonds, Project Engineer

- Martha Pagel of Schwabe, Williamson & Wyatt (subconsultant), Water Rights & Regionalization
- Daniel Morse, Hydraulic Modeler
- Sheryl Stuart, Project Engineer

System Description

McMinnville Water and Light operates a community water system that serves the residents of the City of McMinnville, and a small number of customers located outside city limits. MW&L's water system has been assigned the state and federal Public Water System Identification Number OR 4100497. This section provides an overview of the system by describing the customer base, recent water use history, water rights, and the facilities that make up the system.

2.1 Service Area, Population, and Demands

Exhibit 2-1 shows the City of McMinnville's current Urban Growth Boundary (UGB). Because buildout is expected to occur within the 20-year planning period, expansion of the UGB to accommodate future growth was assumed.

MW&L supplies drinking water to approximately 33,000 people through 9,800 residential and 1,200 commercial, industrial, and city (parks, public buildings, etc) service connections. The MW&L service boundary includes all land within the City of McMinnville's city limits. Areas within the city's UGB are automatically added to the MW&L service area when they are annexed to the city. Approximately 100 people, outside the city limits along the transmission pipeline from the Norman R. Scott Water Treatment Plant (Scott WTP) to the city, also are served.

In recent years, the system has supplied over 12 million gallons per day (mgd) during a peak summer period. Annual average water use supplied by the system is approximately 5 mgd.

2.2 Water Supply

MW&L's water supply comes from streams and two reservoirs located in the Coast Mountain Range northwest of the City of McMinnville. Water from the Yamhill River Basin is impounded on Haskins Creek behind Walter S. Link (Haskins) Dam forming the Haskins Reservoir. Water from the Upper Nestucca River is impounded behind McGuire Dam forming the McGuire Reservoir. Water from the McGuire Reservoir is diverted through a pipeline into Idlewild Creek, which flows into Haskins Reservoir.

Exhibit 2-2 is a map showing rivers, reservoirs, transmission pipelines and distribution reservoirs. **Exhibit 2-3** provides a schematic showing the supply system as well as treatment, transmission, and storage facilities. The MW&L system is able to withdraw raw water for the WTP from Haskins Reservoir, or from either Haskins Creek or Idlewild Creek above the Haskins Reservoir. The reliable yield of the MW&L supply sources was estimated at 30 mgd in the Scott WTP Facility Plan (July 2007).

EXHIBIT 2-1
MW&L Water Service Area

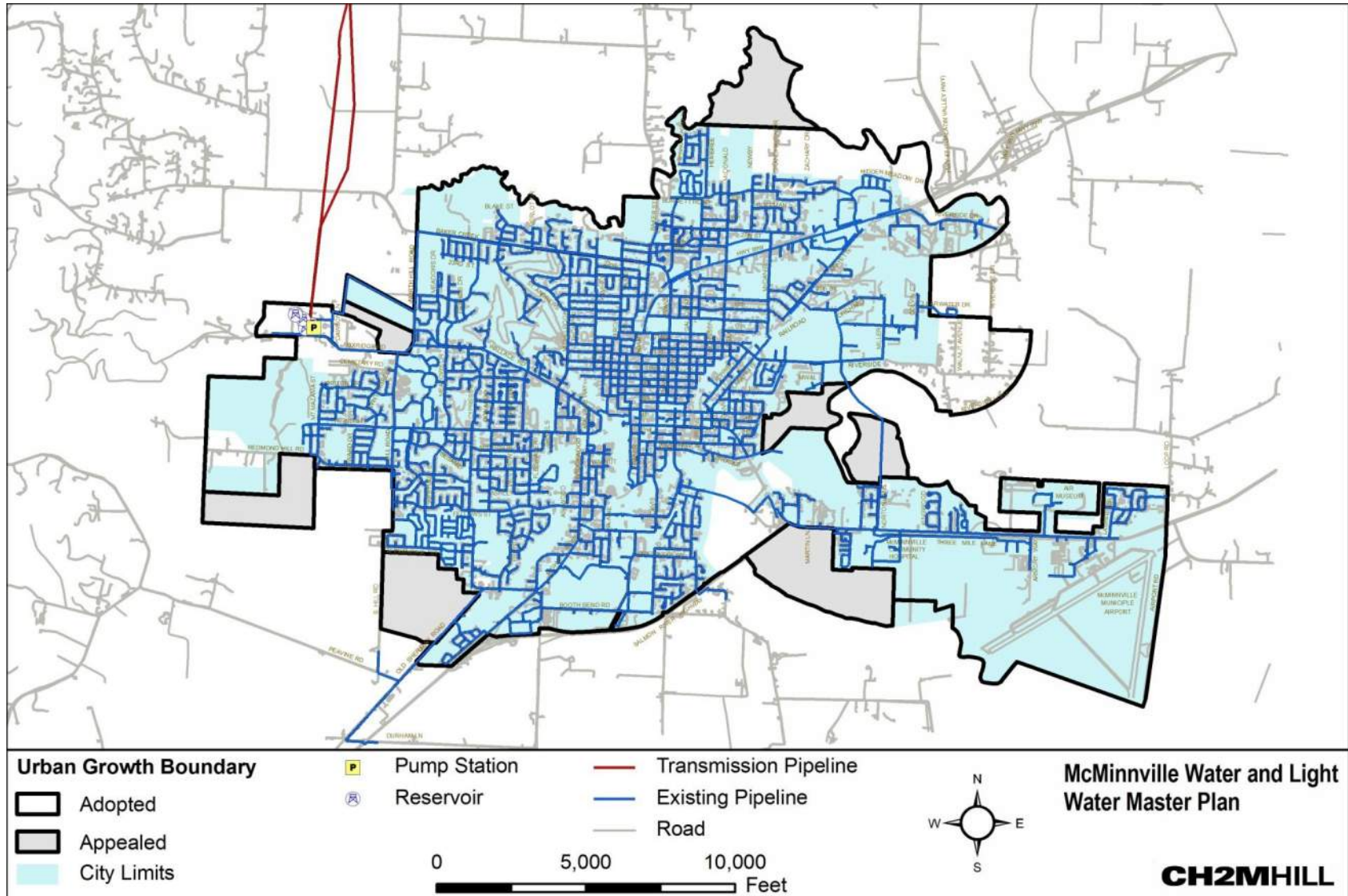


EXHIBIT 2-2
McMinnville Water Sources

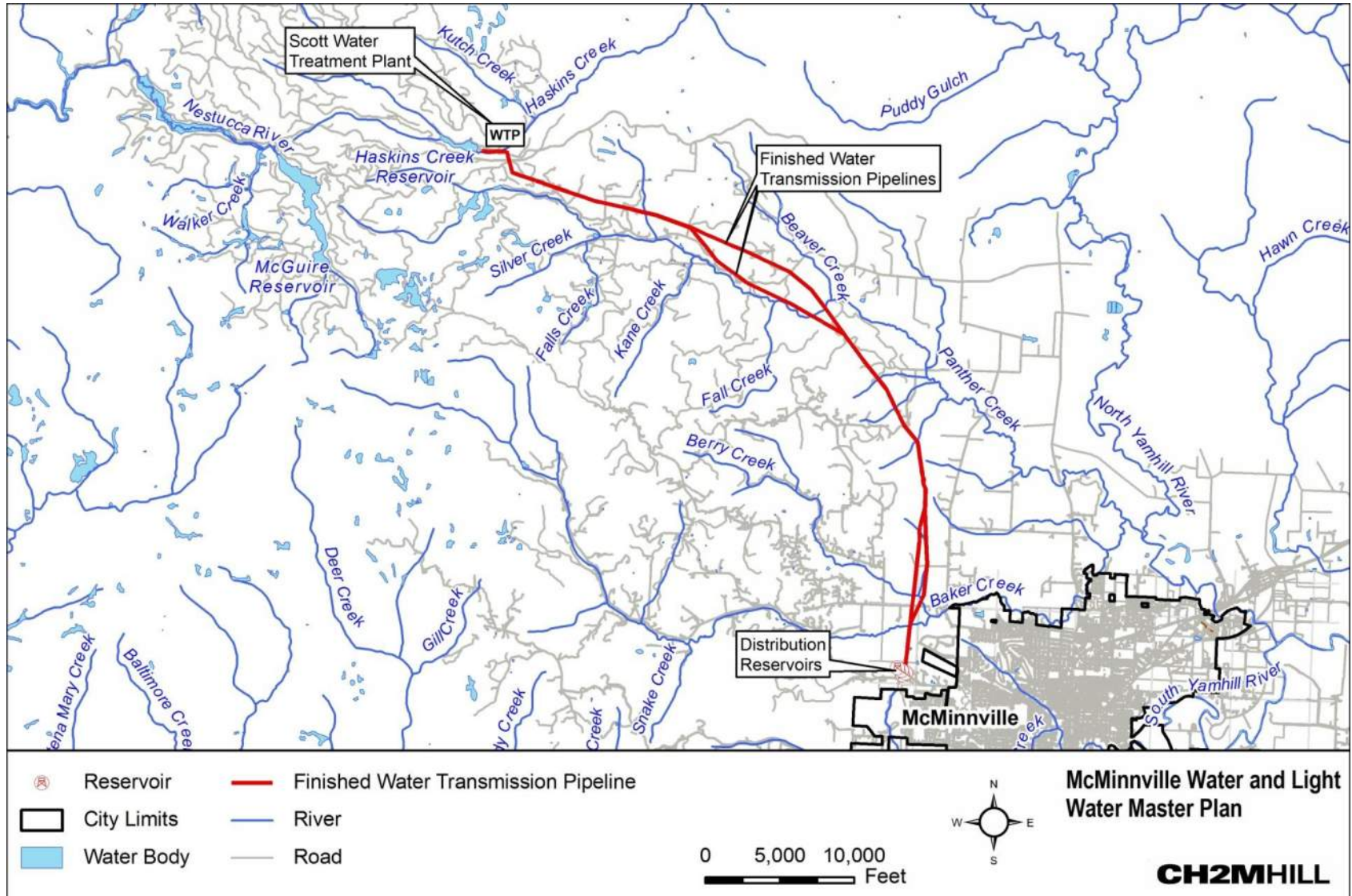
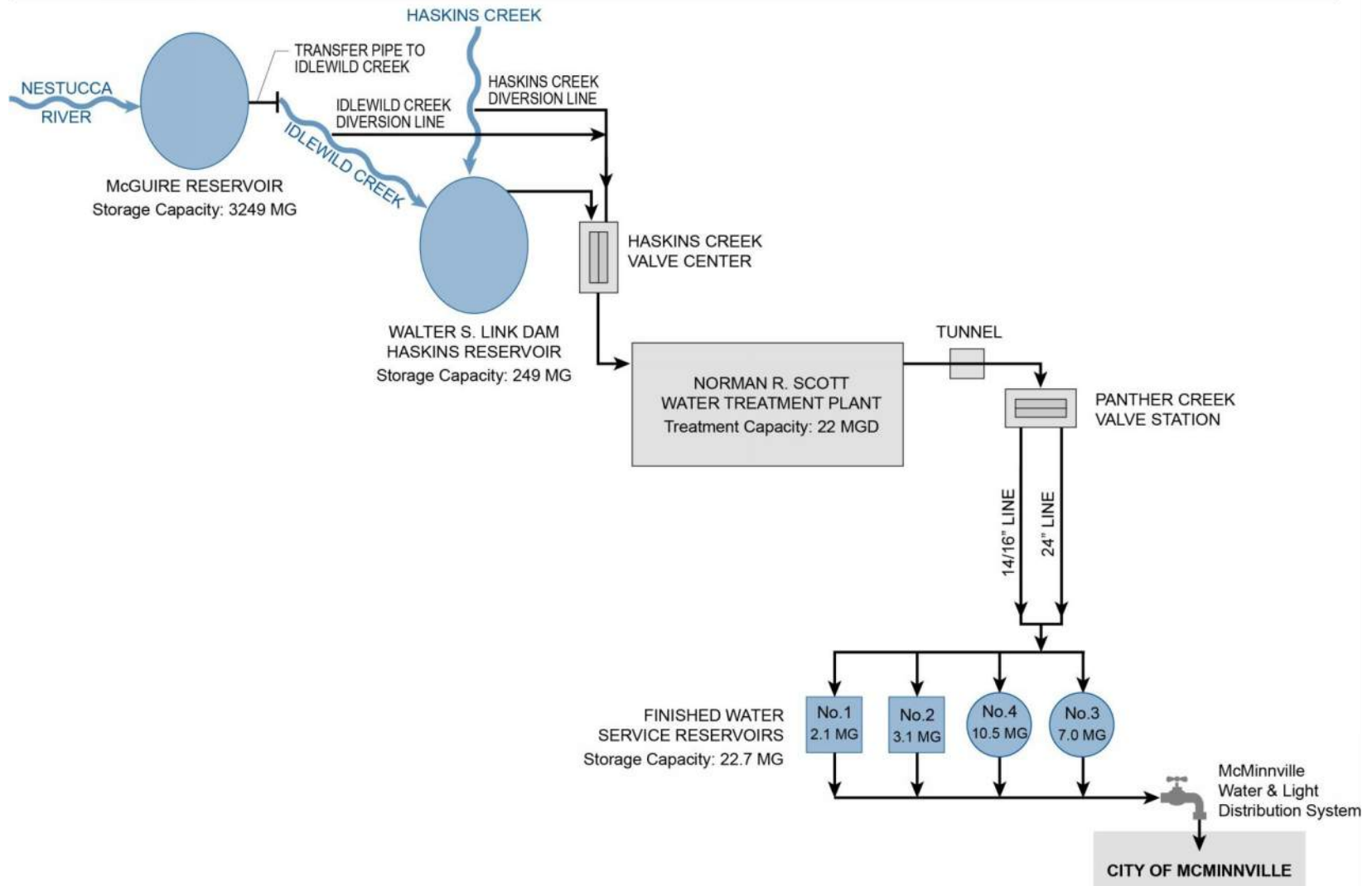


EXHIBIT 2-3
Water Supply System Schematic



2.3 Water Rights

MW&L holds six water rights on Haskins Creek that allow impoundment and use of stored waters, as well as direct diversion from the creek for domestic and municipal use. Combined, the water rights allow for a total storage of 249 million gallons (765 acre-feet) and withdrawal of 12.6 mgd (19.5 cfs) plus withdrawal of 249 million gallons (765 acre-feet) with no maximum rate.

MW&L holds seven water rights for storage and use of waters for municipal purposes from the Nestucca River and Walker Creek. In total, these rights allow for storage of 4,660 million gallons (14,300 acre-feet) (in McGuire Reservoir and a future Walker Reservoir) and withdrawal of 10.3 mgd (16.0 cfs) plus withdrawal of 2,037 million gallons (6,250 acre-feet) with no maximum rate. The McGuire Reservoir holds 3,249 million gallons (9,970 acre-feet). MW&L does not have plans for constructing Walker Reservoir at this time.

2.4 Water Treatment Plant

MW&L's original water treatment plant was built in 1976, and consisted of a contact basin, and four multi-media filters with a total treated water capacity of 13.3 million gallons per day (mgd). The plant was later renamed the Norman R. Scott WTP. An upgrade and expansion project, completed in 2010, upgraded existing facilities, added new facilities, and expanded the WTP capacity to 22 mgd. All facilities were sized to allow for a cost-effective future expansion to 30 mgd.

The Scott WTP is a conventional multi-media filtration plant. The treatment process consists of coagulant chemical addition and mixing followed by flocculation, sedimentation, filtration, and disinfection. Flocculation occurs in a series of three basins in which the water is gently mixed to cause precipitated particles to collide and form larger and larger "floc" particles. Parallel stainless steel plates in the sedimentation basin intercept and remove the majority of the floc that is formed. Remaining particles are removed during filtration. The filtered water is disinfected by the addition of sodium hypochlorite. The Scott WTP has two flocculation and sedimentation treatment trains, and six multi-media filters. A new 600,000-gallon clearwell provides on-site water storage for operational flexibility.

The Scott WTP is a zero waste flow discharge facility. This means that all water used to backwash the filters, and that drains from the sludge in the sludge drying beds is recycled to the raw water pipeline prior to the point of coagulant addition and rapid mixing. An equalization basin allows regulation of recycled waste flows.

2.5 Raw Water Transmission

Raw water is supplied to the Scott WTP through a 32-inch diameter pipe that was installed in the 1940's. The pipe length is approximately 1700 feet from the vault near the base of Haskins Dam to the treatment plant. The capacity of the raw water transmission pipeline is limited by the raw water meter and control valve to approximately 18.5 mgd. With a larger meter and valve, the pipe diameter limits the capacity to approximately 20 mgd.

The water supply system includes diversion pipelines, as shown in the system schematic in Exhibit 2-3. The Idlewild diversion allows for direct supply to the plant from Idlewild Creek (which is fed by McGuire Reservoir) and the Haskins Creek diversion pipeline allows for direct supply to the plant from Haskins Creek, above Haskins Creek Reservoir. These provide flexibility so that the plant operators can select the best quality water.

2.6 Finished Water Transmission

Water from the Scott WTP flows by gravity through approximately 10 miles of transmission pipelines to the system's storage reservoirs west of the city. The transmission lines consist of single sections of 24-, 30-, and 36-inch diameter pipe, and parallel sections of 14/16-inch and 24-inch pipelines. The 24-inch pipeline travels through a 1,100 foot tunnel. The existing capacity of the transmission pipelines is 14.7 mgd: 3.5 mgd in the smaller pipeline and 11.2 mgd in the larger pipeline.

2.7 Distribution System

2.7.1 Service Zones

For many years, the City of McMinnville had a single service zone that was often referred to as the "base zone." For the purposes of this master plan, the base service level will be referred to as Zone 1. A few customers are now served in a second service level in the hills west of the city. The city expects significant residential growth within the second service level in the coming years. Planning groups are pushing for expansion in the second zone (or possibly, also a third zone or higher) lands to reduce development on prime valley farmland. The second service level will be referred to as Zone 2 in this master plan.

2.7.2 Storage

Exhibit 2-4 provides a summary of MW&L's four distribution Service Reservoirs, which are located on Fox Ridge Road, just west of the McMinnville city limits. The combined volume of the four tanks is 22.7 million gallons. Water from these four tanks flows by gravity to MW&L's customers.

EXHIBIT 2-4
Distribution Reservoirs

Reservoir No.	Volume (MG) ¹	Construction Year	Description
1	2.1	Early 1900's	Concrete rectangular, hopper bottom
2	3.1	Early 1900's	Concrete rectangular, hopper bottom
3	7.0	1964	Circular prestressed concrete, partially buried, upgraded to then current seismic criteria in 1990s
4	10.5	1995	Circular prestressed concrete
Total	22.7		

¹ Overflow elevation of reservoirs is 371.7 feet.

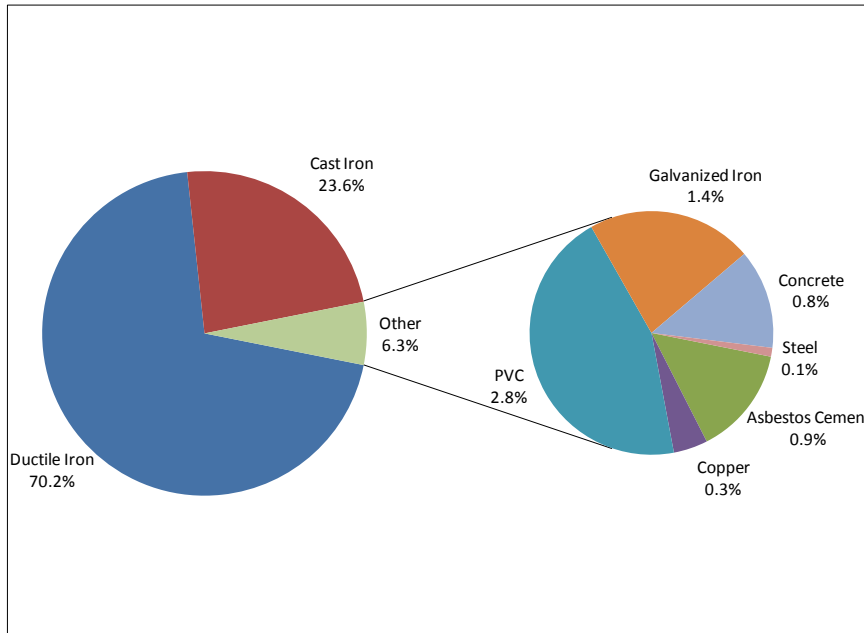
2.7.3 Pump Station

A small number of existing customers are served by a small pump station located by the Service Reservoirs. A new pump station will be added as Zone 2 expands.

2.7.4 Distribution Pipe and Connections

The distribution system consists of approximately 153 miles of pipelines, from 1 to 36 inches in diameter. MW&L’s current practice is to size all new lines at least 8-inches in diameter to provide sufficient fire flows, except for dead-end lines installed in cul-de-sacs, which are sized at 6-inches. **Exhibit 2-5** shows the proportion of pipeline materials within the system. Pipelines are predominantly ductile iron (70 percent) and cast iron (24 percent), both of which provide long service life. MW&L uses ductile iron for all new pipelines. MW&L currently has a program for replacing the small number of asbestos cement (AC) and galvanized iron pipes because of concerns about their failures (breaks and leaks).

EXHIBIT 2-5
Distribution System Pipeline Materials



The system currently has approximately 10,996 connections. **Exhibit 2-6** summarizes the connections by meter size.

EXHIBIT 2-6
Number of Connections by Meter Size

Size	Number
5/8	6,846
3/4	2,348
1	1,212
1 1/2	203
2	299
3	47
4	30
6	10
8	1
10	0
Total	10,996

Note: There are no 10-inch meters in the system; meter count data current as of September 2011

Water Requirements

This section describes the water use history for MW&L's water system, and presents projected future water needs based on recent water use trends. Average and maximum demands, per capita demands, and unaccounted for water are documented.

3.1 Definition of Terms

Demand refers to total water use, the sum of metered consumption (residential, commercial, governmental and industrial), unmetered uses (for example, fire fighting or hydrant flushing), and water lost to leakage or storage reservoir overflows.

When discussing daily or annual water use, the terms *demand* and *production* are used synonymously in this report. Both refer to all water used in the system, the sum of metered and unmetered use. Demand equals production because both terms refer to all water that is delivered from the water treatment plant to the distribution system.

The terms *demand* and *production* are not synonymous with respect to hourly demands. Water is produced at the WTP at a relatively steady rate throughout the day. Hourly water demands fluctuate in response to water use patterns by residential, commercial, and industrial customers. For example, hourly demands typically exceed the production rate during morning and afternoon/early evening peaks. Hourly demands will be less than the production rate during nighttime hours. Hourly demands will be estimated and used for the distribution system modeling.

Metered use or *consumption* refers to the portion of water use that is recorded by customer meters.

Connection refers to a metered connection to a customer of MW&L.

Unaccounted for water refers to the difference between production and consumption. Unaccounted for water includes unmetered hydrant use, other unmetered uses such as hydrant flushing, or sewer flushing, reservoir overflow, and leakage. Meter inaccuracies (both production and customer) also contribute to unaccounted for water.

Specific *demand* terms include

- Average day demand (ADD) equals the total annual production divided by 365 days.
- Maximum day demand (MDD) equals the highest system demand that occurs on any single day during a calendar year. It is also called the one-day MDD.
- The three-day maximum day demand (3-d MDD) equals the average of the daily demands that occurred on the day before, the day of, and the day after the MDD.
- Monthly demand equals the total volume of water produced in a month divided by the number of days in the month.

- Maximum monthly demand (MMD) equals the highest demand in one of the 12 months of a calendar year.
- Peak hour Demand (PHD) equals the highest hourly demand
- Peaking factors are the ratios of one demand value to another. The most common and important peaking factor is the ratio of the MDD to the ADD.

MDD is an important value for water system planning. The supply facilities (combination of intake, treatment plant, and transmission pipelines) must be capable of meeting the MDD. If the MDD exceeds the combined supply capacity on any given day, storage levels will be reduced. Consecutive days at or near the MDD will result in a water shortage.

The most common units for expressing demands are million gallons per day (mgd). One mgd is equivalent to 695 gallons per minute (gpm) or 1.55 cubic feet per second (cfs). Units of million gallons (MG) are also used.

3.2 Production Meter History

Production is typically measured using a flow meter located downstream of treatment. A meter at this location does not record water used within the treatment process. Historically, MW&L used two meters upstream of treatment to estimate water production. The Remote Meter, located near the Walter S. Link Dam was read monthly, and provided a record of monthly flow of raw water to the treatment plant. The Local Meter, located in the WTP pipe gallery, was read daily, and measured raw water flow plus recycle flow from the plant. The Local Meter was not considered reliable, and was replaced in July 2001. A bucket flow test indicated that the meter installed in 2001 read approximately 20 percent low at a plant flow of 3 mgd. Because of the uncertainty associated with the Local Meter, Remote Meter data were adjusted for in plant water use, and recycle, and were used to estimate monthly and annual production. Local Meter data were used to estimate maximum day, and 3-day maximum day production.

As part of the Scott WTP Upgrade and Expansion Project, a new production meter was installed on the effluent from the new clearwell in April 2010. The Local Meter was removed, and production measurement with the new meter commenced in May 2010.

3.3 Average and Maximum Demands

Exhibit 3-1 summarizes demand records including MDD, 3-day MDD, and MMD, for the period 1995 through 2011, and ADD through 2010. (ADD for 2011 cannot be calculated until January 2012.)

EXHIBIT 3-1
Historical ADD, MMD, 3-day MDD, and MMD for MW&L's Water System

Year	ADD (mgd)	1-day MDD (mgd)	3-d MDD (mgd)	MMD (mgd)
1995	4.9	10.5	9.9	8.1
1996	5.2	11.4	11.3	8.8
1997	5.2	10.7	10.3	8.6
1998	5.4	11.6	10.8	9.2
1999	5.4	10.6	10.3	8.8
2000	5.1	11.0	10.5	8.9
2001	5.1	12.0	11.7	9.1
2002	5.2	12.6	12.2	9.4
2003 ¹	5.3	13.7	12.9	9.6
2004	5.4	12.8	12.5	9.8
2005	5.2	12.7	12.1	10.2
2006	5.6	13.1	12.9	9.8
2007 ¹	5.3	14.3	13.4	9.2
2008 ¹	5.3	14.9	12.1	9.8
2009	5.0	13.4	13.0	9.4
2010	4.7	10.2	10.2	8.7
2011 ²	---	9.6	9.2	8.6
Minimum	4.7	9.6	9.2	8.1
Maximum	5.6	14.9	13.4	10.2
Average	5.2	12.1	11.5	9.2

¹ MDD estimates for 2003, 2007, and 2008 are greater than the reported plant capacity of 13.3 mgd, and likely are a result of uncertainty associated with the Local Meter data. For example, the Scott WTP operators have estimated that the MDD for 2008 was 12.7 mgd rather than 14.9 mgd as indicated through meter data (personnel correspondence).

² ADD for 2011 not available until calendar year ends.

Exhibit 3-2 displays historical data and the linear trend for system ADDs. Between 1995 and 2010, the ADD ranged from 4.7 to 5.6 mgd, and averaged 5.2 mgd. The linear trend for the period is nearly flat, indicating that the ADD remained relatively constant over the period. While the service area population grew approximately 23 percent between 2000 and 2010, changes in commercial and industrial water use, along with conservation programs and leak detection and repair efforts have contributed to the relative stability in annual demand.

Exhibit 3-3 shows historical data and linear trends for MDD and 3-d MDD for the period 1995 to 2011.

EXHIBIT 3-2
 Historic ADD Values and Linear Trend, 1995-2010

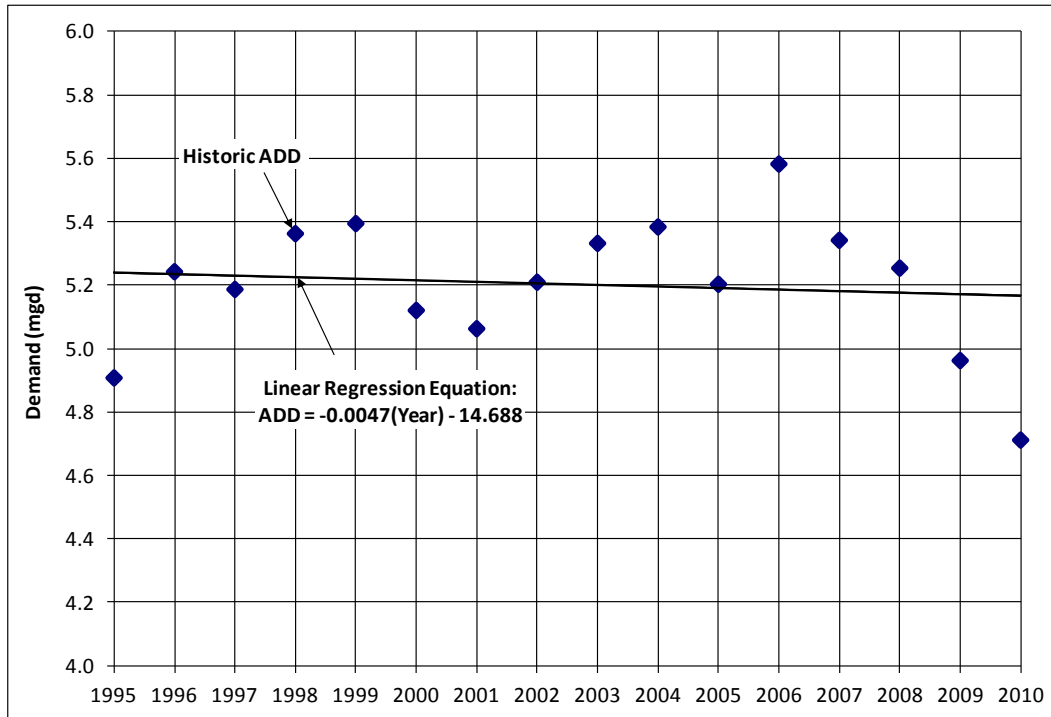
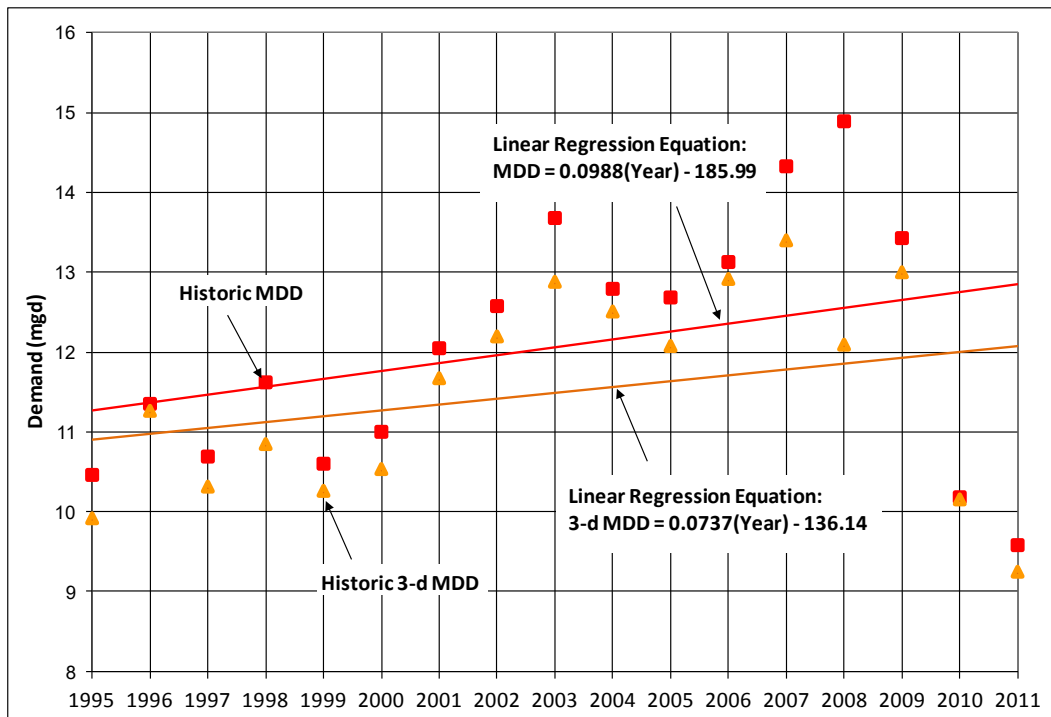


EXHIBIT 3-3
 Historic MDD and 3-day MDD Values and Linear Trends, 1995-2011



In spite of reduced values in 2010 and 2011, the general trend for the period 1995 to 2011 was for both MDD and 3-day MDD values to increase. The MDD increased at a rate of approximately 0.10 mgd per year, and the 3-day MDD increased at a rate of approximately 0.07 mgd per year. However, both demand values deviated considerably above and below the linear trend line. The reported MDD values for years 2003, 2007, and 2008 exceeded the reported WTP capacity, probably because of faulty meter data as described earlier in this section.

Municipal MDDs are generally more variable from year to year than are ADDs because MDDs are sensitive to weather patterns such as the following:

- Maximum temperatures
- The number of consecutive days at high temperatures
- When the high temperatures occur during the summer (early while residents are more consistent in their outdoor irrigation, or later when they are less so)
- Overall rainfall levels during the summer
- Consecutive days without rainfall

Economic conditions also may have a greater effect on maximum day demands than average day demands. During a recession, residential and commercial customers may limit discretionary irrigation to save money, and industrial water demands may be lower because of reduced demand for manufactured goods. The reported MDD has fallen within approximately plus or minus 2 mgd of the trend line for all years except 2010 and 2011. The MDD for 2010 and 2011, recorded at the newly installed production meter, were approximately 3 mgd below the demand predicted by the trend line. Because the reduction in MDD in these years was accompanied by a reduction in water sales (metered consumption), and less drawdown of the water level in McGuire Reservoir, the lower demand cannot solely be attributed to the new production meter providing more accurate daily data.

After examining possible reasons for the significantly lower MDDs in 2010 and 2011, the project team concluded that a combination of the following factors was responsible:

- Cooler and wetter summers in 2010 and 2011 as compared to recent years
- Recessionary economic conditions
- Decreased commercial and industrial use
- Impacts on customer behavior because of conservation programs by MW&L
- Changes in production metering

When demand exceeds production capacity for a single day, water utilities rely on finished water storage to meet the deficit. However, a water shortage results if demands exceed the production capacity for longer periods. For this reason, planning consideration is also given to a 3-day maximum demand. The 3-day value gives an indication of the duration of periods of maximum demand. Since 1995, the 3-day MDD has averaged approximately 97 percent of MDD. This means that if the MDD equals 13 mgd, MW&L's system is expected to experience 3 consecutive days averaging a demand of 12.6 mgd each day.

When planning for source development, including an allowance of 1 mgd from the trend line value is recommended to account for weather conditions, and accommodation of a new industrial customer with a high water demand or a surge in residential development.

3.3.1 Average Summer and Winter Demands

Monthly demand records from January 2000 to December 2010 are displayed in **Exhibit 3-4**. Outdoor irrigation contributes to higher demands in the summer months. For the period shown, the average winter monthly demand (November through February) was 3.6 mgd (108 MG/month), while the average summer monthly demand (June through September) was 7.9 mgd (241 MG/month), or 2.2 times the average for the winter months.

EXHIBIT 3-4
Historic Monthly Demand, 2000-2010

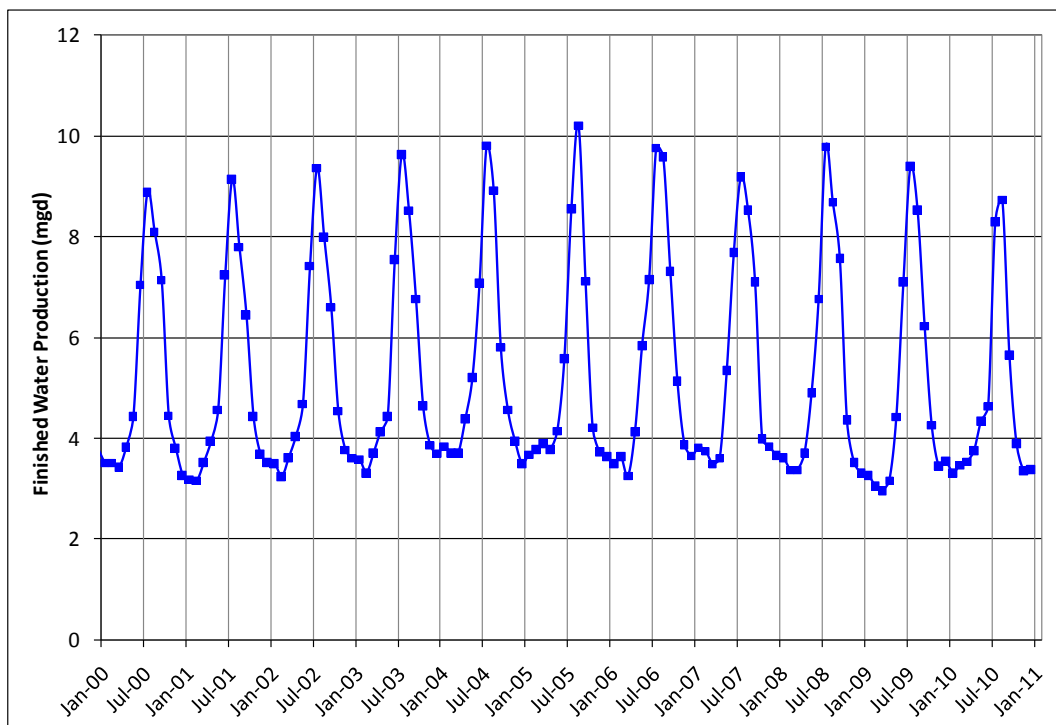
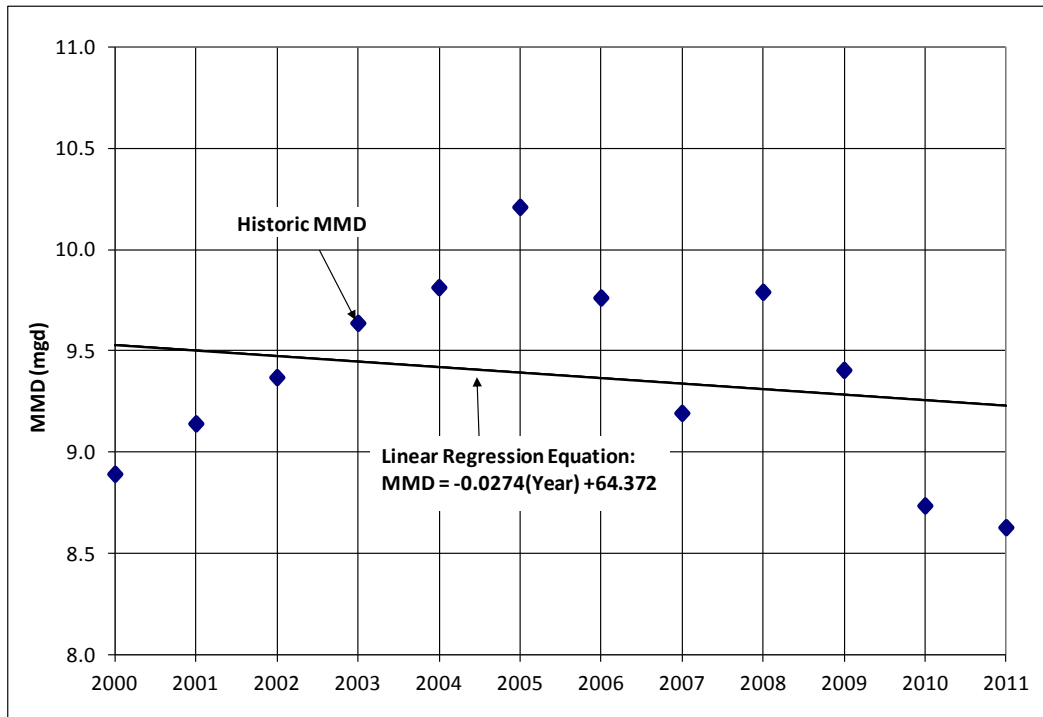


Exhibit 3-5 shows the MMD from 2000 to 2011. The MMD has occurred in July in nine of the twelve years, and in August three years. The MMDs have ranged from 8.1 to 10.2 mgd (251 to 316 MG/month) and averaged 9.2 mgd (285 MG/month).

EXHIBIT 3-5
Historic MMD, 2000-2011



3.3.2 Peaking Factors

Peaking factors, the ratios of MDD:ADD, MMD:ADD, and MMD:MDD are useful for hydraulic modeling of the system and for demand forecasting. **Exhibit 3-6** summarizes the peaking factors for 1995-2010. The MDD:ADD has averaged 2.3, the three-day MDD:ADD has averaged 2.2, the MMD:ADD has averaged 1.8, and the MMD:MDD has averaged 0.8. The MDD:ADD peaking factors for 1995-2010 are displayed in **Exhibit 3-7**.

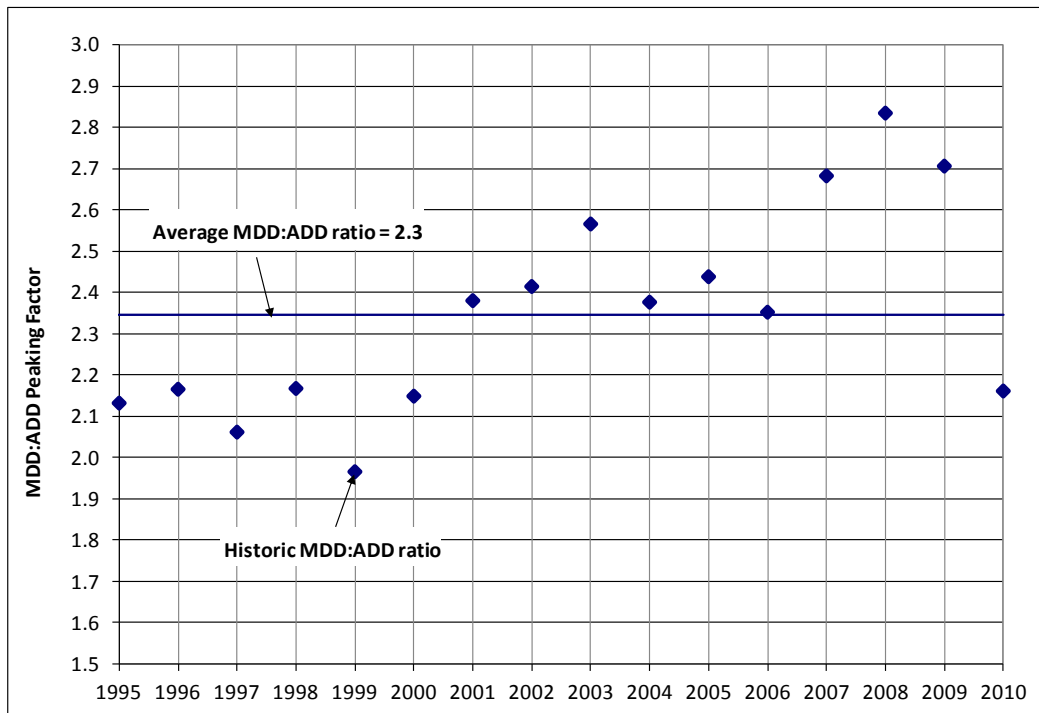
EXHIBIT 3-6
Historic Peaking Factors

Year	MDD to ADD ratio	3-d MDD to ADD ratio	MMD to ADD ratio	MMD to MDD ratio
1995	2.1	2.0	1.6	0.8
1996	2.2	2.1	1.7	0.8
1997	2.1	2.0	1.7	0.8
1998	2.2	2.0	1.7	0.8
1999	2.0	1.9	1.6	0.8
2000	2.1	2.1	1.7	0.8
2001	2.4	2.3	1.8	0.8
2002	2.4	2.3	1.8	0.7
2003	2.6	2.4	1.8	0.7

EXHIBIT 3-6
Historic Peaking Factors

Year	MDD to ADD ratio	3-d MDD to ADD ratio	MMD to ADD ratio	MMD to MDD ratio
2004	2.4	2.3	1.8	0.8
2005	2.4	2.3	2.0	0.8
2006	2.4	2.3	1.7	0.7
2007	2.7	2.5	1.7	0.6
2008	2.8	2.3	1.9	0.7
2009	2.7	2.6	1.9	0.7
2010	2.2	2.2	1.9	0.9
Minimum	2.0	1.9	1.6	0.6
Maximum	2.8	2.6	2.0	0.9
Average	2.3	2.2	1.8	0.8

EXHIBIT 3-7
Historic MDD to ADD Peaking Factor, 1995-2010



3.4 Per Capita Demands

MW&L serves the City of McMinnville plus a population of approximately 100 people living along the transmission pipelines from the WTP to the city. Population estimates for the City of McMinnville published by Portland State University's Population Research Center, were adjusted by adding the 100 people outside city limits, and were used to estimate historic water service populations.

Exhibit 3-8 summarizes service population and per capita demands for 2000 to 2010, and an estimated service population for 2011. These per capita values represent the total system demand divided by the service population. Therefore, they include commercial, industrial, and governmental demands as well as residential demands.

EXHIBIT 3-8

Historic Per Capita Demands, gallons per capita per day

Year	Service Population	Per Capita ADD	Per Capita MDD	Per Capita 3-day MDD
2000	26,860	191	410	392
2001	27,600	183	437	423
2002	28,300	184	444	431
2003	28,990	184	472	444
2004	29,300	184	437	427
2005	30,120	173	421	401
2006	31,050	180	423	416
2007	31,765	168	451	422
2008	32,500	162	458	372
2009	32,860	151	409	396
2010	33,030	143	308	307
2011 ¹	33,195	---	289	279
Average		173	413	392

¹ Population for 2011 estimated based on 0.5% growth rate from 2010 population.

3.5 Unaccounted for Water

A comparison of the demand data with the consumption data provides a value for the unaccounted for water, which is the difference between production and metered use. The percentage of unaccounted for water equals the production minus the metered use, divided by the production. The causes of unaccounted for water include such things as meter inaccuracies, reservoir overflows, unmetered hydrant use, and leakage.

Exhibit 3-9 summarizes the annual unaccounted for water percentage for 2000 through 2010. The unaccounted for water rate averaged 5 percent for the period. All water systems

have unavoidable water losses. An unaccounted for water rate of 5 percent is quite low compared to most water utilities.

EXHIBIT 3-9

Annual Unaccounted for Water, 2000-2010

Year	Total Estimated Demand (MG)	Total Metered Consumption (MG)	Annual UAW (%)
2000	1,874	1,654	11.7%
2001	1,848	1,698	8.1%
2002	1,901	1,834	3.5%
2003	1,946	1,895	2.6%
2004	1,970	1,846	6.3%
2005	1,899	1,824	4.0%
2006	2,037	1,935	5.0%
2007	1,950	1,855	4.9%
2008	1,923	1,859	3.3%
2009	1,811	1,752	3.2%
2010	1,720	1,601	6.9%
Average	1,898	1,796	5%

3.6 Water Audit

The International Water Association (IWA) and the American Water Works Association (AWWA) have published and promoted a water audit method that has been widely recognized and adopted throughout the water industry.¹ This method provides the definitions and classifications for annual water production and consumption shown in **Exhibit 3-10**. Determining the magnitude of each category can help a utility estimate the financial impact of production, billing, and leak detection practices. A water audit conforming to the IWA/AWWA approach was not included in the scope of this project. Its description has been included to acquaint MW&L with an approach that can be applied in the future to further improve the utility's water management.

System input, shown in Column A of Exhibit 3-10, refers to the total quantity of water delivered to a distribution system from all sources: for example water treatment plants, wells, or wholesale purchases from neighboring systems. The quantity of this water is generally measured using large master meters located at key entry points into the distribution system. For MW&L, production values come from the master meter downstream of the clearwell at the Scott WTP. System input also is known as "production" and "demand." By definition the system input volume must equal the sum of the

¹ AWWA. Manual of Water Supply Practices M36. *Water Audits and Loss Control Programs, Third Edition*, 2009.

authorized consumption and water losses that occur in the system (Column B of Exhibit 2-1).

Authorized consumption is divided into billed and unbilled categories. Billed authorized consumption is equal to revenue water. Unbilled authorized consumption contributes to a system's nonrevenue water. Authorized consumption may be either metered or unmetered. Unmetered volumes must be estimated based on estimated flow rates and durations of flow. Examples of authorized billed consumption include metered consumption for residential and non-residential water customers. Authorized unbilled consumption may include public uses for fire fighting, or hydrant flushing.

Water losses include both apparent losses, and real losses. Apparent losses result from meter inaccuracies, error introduced by data entry or manipulation, and unauthorized consumption (illegal connection to the system or the unauthorized use of a fire hydrant). Real losses result when water is lost to leakage, Service Reservoir overflow, and evaporation. All water systems have some degree of real losses. The Oregon Water Resources Department's (OWRD) goal for municipal systems is to have "system leakage" (real losses) equal to or less than 15 percent of total system input or demand, and if feasible less than 10 percent.

EXHIBIT 3-10

Components of the IWA/AWWA Water Balance, million gallons per year²

A	B	C	D	E
System Input Volume = Production = System Demand (measured at Master Meters)	Authorized Consumption	Billed Authorized Consumption	Billed metered consumption (including water exported to another system). Billed unmetered consumption.	Revenue Water
		Unbilled Authorized Consumption	Unbilled metered consumption. Unbilled unmetered consumption.	
	Water Losses	Apparent Losses	Unauthorized consumption. Metering inaccuracies Data handling error	Nonrevenue Water
		Real Losses	Leakage on transmission and/or distribution Mains. Leakage and overflows at storage tanks. Leakage on service connections up to point of customer metering.	

As defined in this plan, the percentage of unaccounted for water is equal to water losses (apparent and real) divided by the system input volume, and represents that portion of non-revenue water that is unauthorized.

² *Ibid.*

3.7 Projected Water Demands

The per capita demand approach was used for projecting demands within MW&L’s water system. Per capita demand values were multiplied by service area population projections to estimate future demands. The average per capita ADD value for the period 2000 to 2010 was approximately 170 gpcd. Multiplying the per capita ADD by an average MDD to ADD peaking factor for the period of 2.3 yields an average per capita MDD of approximately 400 gpcd. A per capita value of 400 gpcd, while representative for the past ten years, is significantly higher than the values of 308 and 289 gpcd for 2010 and 2011. Reasons for the lower per capita values in 2010 and 2011 have been presented earlier in this chapter. The drop from earlier years suggests that it will be important for MW&L to carefully track water use and service population in the coming years, and to adjust the timing for capital projects accordingly.

Population growth rates from Scenario 3 from the April 7, 2008, *Yamhill County Water Supply Analysis* were used to project service area population growth. In Scenario 3, the City of McMinnville urban growth boundary (UGB) is expanded during the planning period. Prior to UGB expansion, constraints of the UGB reduce the population growth rate, for the period 2015 through 2025, to half of the rate derived from unconstrained, historical population growth between 1990 and 2000 (U.S Census).

The recent economic downturn has reduced the rate of development and population growth below Scenario 3 projections for the period 2010 through 2015. Therefore, for the purposes of this master plan, the reduced growth rate originally anticipated to begin in 2015, was applied beginning in 2011. By 2025, improvements in the economy and UGB expansion are expected to allow the growth rate to return to the pre-2000 historical value.

MW&L expects much of their residential development and population growth to occur in the hills west of the city, in areas to be served by a second level service zone. The UGB is expected to be expanded in this direction, rather than uniformly, to preserve the relatively flat, valley land for agriculture.

3.7.1 Projection Criteria and Maximum Day Demand Allowances

Exhibit 3-11 summarizes the criteria used for projecting future demands. Because the MDD fluctuates from year to year, primarily related to summer weather conditions but also in response to economic conditions and other factors, an allowance of 1 mgd above the projected MDD is shown. This allowance provides a reminder of the variability that can be expected in water demands, particularly summer peak demands.

EXHIBIT 3-11
Demand Projection Criteria for MW&L Water System Service Area

Criterion	Value
2010 city population	32,930
2010 out of city population	100
2010 service population	33,030
Buildout population	Not Determined

EXHIBIT 3-11
Demand Projection Criteria for MW&L Water System Service Area

Criterion	Value
Per capita ADD	170 gpcd
Per capita MDD	400 gpcd
Rate of population growth 2011 to 2025	1.5 percent
Rate of population growth 2026 to 2050	3.1 percent
MDD allowance	1.0 mgd

3.7.2 System-Wide Projections

Exhibit 3-12 provides tabular and **Exhibit 3-13** provides graphic demand projections, through 2050. According to the projections, MDD could approach 30 mgd by 2044. The 30 mgd value represents the approximate watershed yield and the build out capacity of the Scott WTP. By 2050, the projected ADD is 15.0 mgd, and the projected MDD is 35.4 mgd. Demand projections represent a “best guess” of future conditions. Periodic review, and revision of projections as necessary, is recommended.

EXHIBIT 3-12
Projected Service Population, ADD, MDD, and MDD plus 1-mgd Allowance, 2010 to 2050

Year	Service Area Population	ADD Projections	MDD Projections	MDD + 1-mgd Allowance
2010	33,030	5.6	13.2	14.2
2011	33,524	5.7	13.4	14.4
2012	34,025	5.8	13.6	14.6
2013	34,534	5.9	13.8	14.8
2014	35,051	6.0	14.0	15.0
2015	35,575	6.0	14.2	15.2
2016	36,107	6.1	14.4	15.4
2017	36,647	6.2	14.7	15.7
2018	37,195	6.3	14.9	15.9
2019	37,752	6.4	15.1	16.1
2020	38,317	6.5	15.3	16.3
2021	38,890	6.6	15.6	16.6
2022	39,472	6.7	15.8	16.8
2023	40,062	6.8	16.0	17.0

EXHIBIT 3-12

Projected Service Population, ADD, MDD, and MDD plus 1-mgd Allowance,
2010 to 2050

Year	Service Area Population	ADD Projections	MDD Projections	MDD + 1-mgd Allowance
2024	40,662	6.9	16.3	17.3
2025	41,270	7.0	16.5	17.5
2026	42,546	7.2	17.0	18.0
2027	43,862	7.5	17.5	18.5
2028	45,219	7.7	18.1	19.1
2029	46,618	7.9	18.6	19.6
2030	48,060	8.2	19.2	20.2
2031	49,546	8.4	19.8	20.8
2032	51,079	8.7	20.4	21.4
2033	52,660	9.0	21.1	22.1
2034	54,289	9.2	21.7	22.7
2035	55,969	9.5	22.4	23.4
2036	57,701	9.8	23.1	24.1
2037	59,486	10.1	23.8	24.8
2038	61,327	10.4	24.5	25.5
2039	63,225	10.7	25.3	26.3
2040	65,182	11.1	26.1	27.1
2041	67,200	11.4	26.9	27.9
2042	69,280	11.8	27.7	28.7
2043	71,424	12.1	28.6	29.6
2044	73,635	12.5	29.5	30.5
2045	75,915	12.9	30.4	31.4
2046	78,265	13.3	31.3	32.3
2047	80,688	13.7	32.3	33.3
2048	83,187	14.1	33.3	34.3
2049	85,762	14.6	34.3	35.3
2050	88,418	15.0	35.4	36.4

EXHIBIT 3-13
 Projected ADD, MDD, and MDD plus 1-mgd Allowance, 2010 to 2050

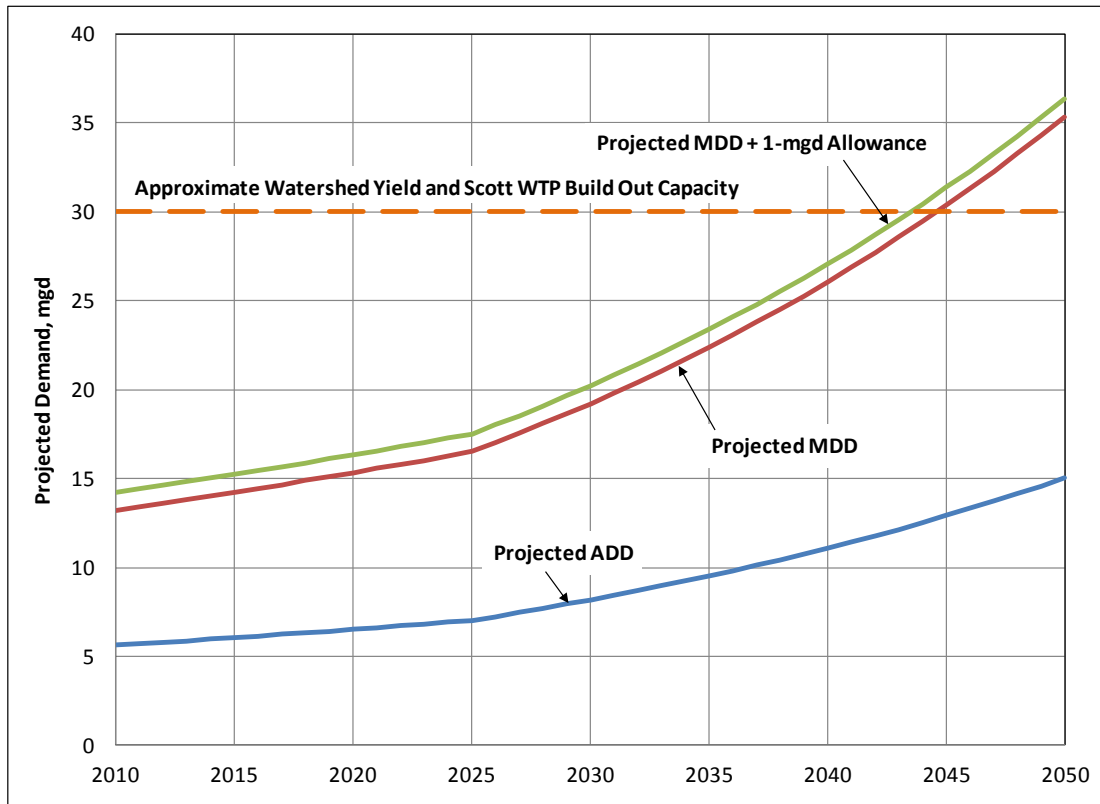
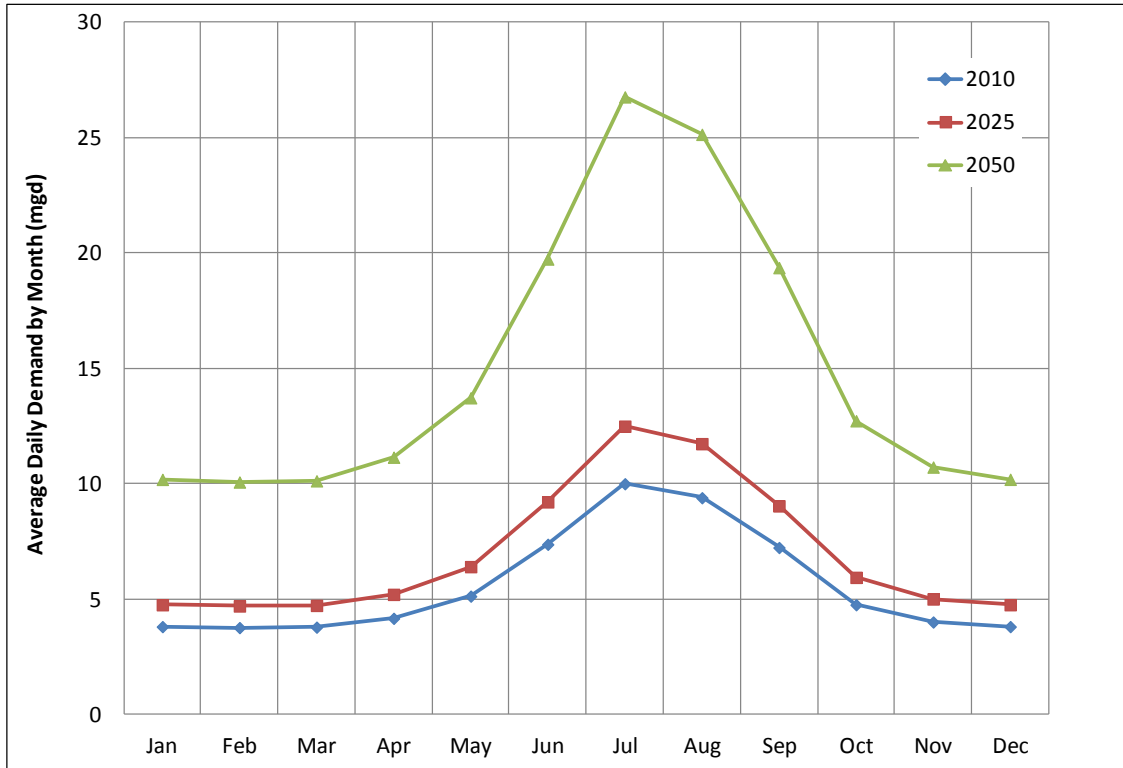


Exhibit 3-14 shows projected monthly demands for the years 2010, 2025, and 2050. These projections were obtained by multiplying average monthly production as a percentage of annual production for the period 2000 to 2010 by the ADD projections shown in Exhibits 3-12 and 3-13.

EXHIBIT 3-14
 Projected Monthly Average Daily Demand by Month, 2010, 2025, 2050



Regulatory Overview and Compliance

Community water systems are governed by rules developed by the Environmental Protection Agency (EPA) for implementation of the Safe Drinking Water Act Amendments. Oregon, as a primacy state, is required to implement water quality standards at least as stringent as those required by EPA rules. For the most part, Oregon has adopted identical regulations to those at the federal level (OAR, Chapter 333, Division 61). Most of Oregon's additional regulations relate to construction standards.

MW&L's water system is in compliance with all current state and federal standards. New rules have been proposed for adoption in the coming years. It is anticipated that MW&L will comply with these new regulations without significant capital or operational changes.

MW&L's system was listed as an "outstanding performer" following a water system survey conducted by staff from the Oregon Drinking Water Program in November 2009. A water system survey is an on-site review of a system's sources, treatment, storage facilities, distribution system, operation and maintenance procedures, monitoring, and management, for the purpose of evaluating the system's capability of providing safe water to the public.

The criteria for outstanding performance are as follows:

1. No Maximum Contaminant Level (MCL) Action Level, or Treatment Technique violations in the last 5 years;
2. No more than one Monitoring and Reporting violation in the last 3 years, and a single violation, if it occurs, must be resolved satisfactorily;
3. No significant deficiencies or rule violations identified during the current water system survey;
4. Has not had a waterborne disease outbreak attributable to the water system in the last 5 years.

4.1 Water Treatment Regulations

Maximum contaminant levels (MCLs) have been established by the EPA for more than a hundred individual drinking water contaminants. These include microbiological, inorganic, organic, and radiological contaminants. MW&L's water is in compliance with each of these standards.

In addition, water treatment is regulated by the following federal Safe Drinking Water Act rules.

- **Interim Enhanced Surface Water Treatment Rule** (IESWTR, promulgated December 1998; final revisions published January 2001).
- **Filter Backwash Recycling Rule** (promulgated June 2001).

- **Long-Term 1 Enhanced Surface Water Treatment Rule** (LT1ESWTR, promulgated January 2002).
- **Microbial and Disinfection Byproducts Rules (MDBP), consisting of the Long-Term 2 Enhanced Surface Water Treatment Rule** (LT2ESWTR, signed December 2005, and promulgated January 2006), **and the Stage 2 Disinfectants and Disinfection Byproducts Rule** (Stage 2 DBR, signed December 15, 2005, and promulgated January 2006; this is discussed in the distribution rules section of this chapter).

4.1.1 Maximum Contaminant Levels for Organics and Inorganics

MW&L's treated water has consistently complied with all standards for volatile organic, synthetic organic, and inorganic contaminants. Monitoring requirements for the Phase II compounds are quarterly for 1 year for SOCs that are considered volatile and quarterly once every 3 years for SOCs that are considered to be pesticides.

4.1.2 Interim Enhanced Surface Water Treatment Rule

In addition to meeting requirements for MCLs, MW&L must also meet certain performance requirements under the IESWTR. The IESWTR applies to public water systems, such as MW&L's, that use surface water and serve at least 10,000 people.

Treatment plants such as MW&L's that use conventional filtration (consisting of coagulation, sedimentation, and filtration) meet the requirements of the IESWTR if the system's combined filter effluent turbidity is less than 0.3 nephelometric turbidity units (NTU) in at least 95 percent of samples taken each month, and is at no time greater than 1 NTU. MW&L continuously monitors the turbidity from each filter to comply with these requirements.

4.1.3 Long-Term 2 Enhanced Surface Water Treatment Rule

The purpose of the LT2ESWTR is to build on the provisions contained in the IESWTR for protection of public health against risks posed by *Cryptosporidium* and other microbial pathogens. The LT2ESWTR applies to all public water systems that use surface water. This rule requires source water monitoring of *Cryptosporidium* for systems such as MW&L that serve more than 10,000 people. The LT2ESWTR was signed by the EPA on December 15, 2005, with promulgation of the final rule in January 2006.

Exhibit 4-1 lists the bin classifications according to *Cryptosporidium* concentrations in the source water. MW&L completed LT2ESWTR monitoring in March 2011 and submitted the required documentation in June 2011. MW&L's LT2ESWTR bin classification is 1 which determines no additional treatment is required.

EXHIBIT 4-1Additional *Cryptosporidium* Treatment Requirements for Filtered Systems

Mean <i>Cryptosporidium</i> Source Water Concentrations	Bin Classification	Required Additional Log Reduction for Conventional Filtration WTPs
<i>Crypto</i> < 0.075/L	Bin 1	No Additional Treatment
0.075/L <= <i>Crypto</i> < 1.0/L	Bin 2	1
1.0/L <= <i>Crypto</i> < 3.0/L	Bin 3	2
<i>Crypto</i> => 3.0/L	Bin 4	2.5

1. Treatment in addition to filtration.
2. For 1 additional log removal/inactivation, systems may use any technology or a combination of technologies.
3. For additional 2 or greater log removal/inactivation, systems must achieve at least 1 log of the required treatment using ozone, chlorine dioxide, UV, membranes, bag/cartridge filters, or bank filtration.

A federally approved watershed protection program consisting of identifying potential and actual sources of *Cryptosporidium* and implementing control measures to reduce *Cryptosporidium* levels could provide MW&L with a 0.5 log reduction credit. This type of program requires ongoing assessment activities. Because of MW&L's bin 1 classification, and because MW&L has performed a Source Water Assessment, MW&L has decided not to pursue the requirements of a watershed protection (control) program.

4.1.4 Filter Backwash Rule

The Filter Backwash Rule is a regulation for filtered surface water supplies that recycle part or the entire filter backwash into the plant. The proposed rule published in June 2001 requires that all recycle flows are returned to the process stream prior to the point of the primary coagulant addition. The Scott WTP is a zero discharge facility. Therefore, all filter backwash is flow-equalized and is returned to the head of the WTP at a point prior to coagulant addition in compliance with the rule.

4.2 Water Distribution Regulations

MW&L complies with current distribution regulations and appears to be capable of complying with future regulations without significant operational changes. Monitoring changes required for the DBP rule may reveal new information, but current levels of total trihalomethanes (TTHMs) and regulated haloacetic acids (HAA5) are below current and anticipated regulatory limits.

4.2.1 Oregon's Distribution Regulations

Oregon's rules for public water systems (OAR Chapter 333) contain a limited number of rules that apply to distribution systems that are not included in the federal standards. These relate to backflow prevention, operator certification, product acceptability, disinfection criteria, storage criteria, and piping criteria. These rules are described in Section 5, which presents recommended design and operating criteria.

4.2.2 Federal Distribution Regulations

Water quality within MW&L's distribution system is regulated by the following federal Safe Drinking Water Act rules:

1. Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR; promulgated January 2006)
2. Total Coliform Rule (TCR)
3. Lead and Copper Rule
4. Stage 2 Disinfection Byproducts Rule

MW&L's experience with these rules are briefly summarized in sections that follow.

4.2.3 Surface Water Treatment Rules

The original SWTR was promulgated in June 1989. It consists of filtration requirements, primary and secondary disinfection requirements, and monitoring requirements. The secondary disinfection requirements are the one aspect that relates to distribution water quality. It requires that the residual disinfectant concentration in the water entering the distribution system not be less than 0.2-mg/L for more than 4 hours and that the residual disinfectant concentration in the distribution system cannot be undetectable in more than 5 percent of the samples each month for two consecutive months. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500 colonies/mL is deemed to have a detectable disinfectant residual.

MW&L currently adds chlorine to achieve a free chlorine residual of 0.7 – 1.0 mg/L for water leaving the Service Reservoirs and entering the distribution system. Generally, the lowest free chlorine residual at the extremities of the system is 0.4 mg/L.

4.2.4 Interim Enhanced Surface Water Treatment Rule

This rule primarily affected MW&L's water treatment plant operations rather than operation of the city's distribution system. The rule does include a requirement that certain utilities perform disinfection profiling, but MW&L's DBP levels were low enough that this requirement did not apply. The rule also requires that all new finished water reservoirs constructed after February 16, 1999, have a cover. Again, this does not impact MW&L because it has long been the practice of MW&L to cover all new finished water reservoirs.

4.2.5 Long-Term 2 Enhanced Surface Water Treatment Rule

This rule has only minor implications for distribution water quality. It does expand the disinfection benchmarking requirement to additional systems, but these requirements are not expected to apply to MW&L.

4.2.6 Total Coliform Rule

The TCR was promulgated in June 1989 with the primary goal of maintaining microbial quality in finished and distributed drinking water supplies. Total coliforms include both fecal coliforms and *E. coli*. The MCLG for total coliforms was set to zero. Compliance with the MCL is based on the presence or absence of total coliforms in a sample (as opposed to

coliform density as in previous rules). Beginning in January 2010, MW&L is required to collect a minimum of 40 samples per month, based on its service population.

4.2.7 Lead and Copper Rule

The Lead and Copper Rule was promulgated in June 1991 and went into effect in December 1992, with minor revisions released in April 2000. The rule applies to all community water systems. The rule developed MCLGs and action levels for both lead and copper in drinking water. The major difference between this regulation and other distribution regulations is that the water must be monitored at the customer's tap, not at sampling stations. Lead and copper must be monitored at the customer's taps every 6 months and twice each calendar year at the highest-risk locations, which are defined as:

- Piping with lead solder installed after 1982
- Lead water service lines
- Lead interior piping

For compliance, the samples at the customer's tap must not exceed the following action levels:

- Lead concentration of 0.015-mg/L detected in the 90th percentile of all samples
- Copper concentration of 1.3 mg/L detected in the 90th percentile of all samples

MW&L has been on a three year monitoring schedule since 1996. In the most recent round of testing, conducted in June 2011, the 90th percentile result for lead was 0 mg/L and for copper was 0.185 mg/L.

4.2.8 Stage 2 Disinfectant and Disinfection By-Product Rule

The Stage 2 Disinfection By-Product Rule (Stage 2 DBPR) was signed by EPA on December 15, 2005 and promulgated in January 2006.

To comply with the Stage 2 DBPR, MW&L completed an Initial Distribution System Evaluation in November 2009 that identified sites for future monitoring of disinfection byproducts, and established a monitoring schedule.

The purpose of the rule is to reduce peak DBP concentrations in the distribution system and eliminate areas where customers receive excessive levels of DBPs. Levels of DBPs, which fluctuate based on raw water quality changes, treatment changes, chlorine levels, and water age, have been found to vary geographically in distribution systems. The original rules governing DBPs determined compliance based on an average for samples collected throughout the distribution system. This averaging meant that some geographic locations could occasionally or even regularly exceed the MCLs for DBPs, and yet the overall system remained in compliance.

The Stage 2 DBPR eliminates this possibility by requiring compliance at all geographic locations using a location running annual average (LRAA) for each sampling site. Compliance is in two stages. Stage 2A allows for relaxed MCLs at each location. Stage 2B, which begins in 2012, will require compliance with the current MCLs of 0.080 mg/L for TTHMs and 0.060 mg/L for HAA5s at all locations. An initial distribution system evaluation (IDSE) was used to identify the four sample locations within the system that represent the worst-case scenario for water age and possibility of disinfection byproducts.

Exhibit 4-2 lists disinfection byproduct data and LRAA values, for the period following the Scott WTP upgrade and expansion, determined at the four worst case locations identified by the IDSE. These results show that MW&L met all requirements of the Stage 2 DBPR.

EXHIBIT 4-2

Disinfection Byproduct Data and Location Running Annual Average at Four Distribution System Locations

Sample	Location	TTHM mg/L	Location Running Annual Average TTHM (mg/L)	HAA5 mg/L	Location Running Annual Average HAA5 (mg/L)
4/26/2011	3975 Cirrus	0.0178	0.0283	0.0139	0.0211
1/27/2011	3975 Cirrus	0.0190	0.0291	0.0133	0.0216
10/19/2010	3975 Cirrus	0.0468	0.0337	0.0236	0.0269
8/10/2010	3975 Cirrus	0.0294		0.0336	
4/29/2010	3975 Cirrus	0.0213		0.0158	
1/11/2010	3975 Cirrus	0.0374		0.0347	
4/26/2011	Agree & Sandalw	0.0079	0.0167	0.0106	0.0223
1/27/2011	Agree & Sandalw	0.0114	0.0173	0.0113	0.0230
10/19/2010	Agree & Sandalw	0.0269	0.0206	0.0371	0.0296
8/10/2010	Agree & Sandalw	0.0208		0.0300	
4/29/2010	Agree & Sandalw	0.0100		0.0135	
1/11/2010	Agree & Sandalw	0.0248		0.0379	
4/26/2011	5 th & Lafayette Ave	0.0079	0.0146	0.0103	0.0170
1/27/2011	5 th & Lafayette Ave	0.0106	0.0180	0.0106	0.0218
1/27/2011	5 th & Lafayette Ave	0.0106	0.0180	0.0106	0.0226
10/19/2010	5 th & Lafayette Ave.	0.0293		0.0366	
8/10/2010	5 th & Lafayette Ave	0.0215		0.0292	
4/29/2010	5 th & Lafayette Ave	0.0105		0.0139	
1/11/2010	5 th & Lafayette Ave	0.0273		0.0362	
4/26/2011	27 th & McDonald	0.0078	0.0167	0.0100	0.0227
1/27/2011	27 th & McDonald	0.0096	0.0173	0.0114	0.0235
10/19/2010	27 th & McDonald	0.0288	0.0210	0.0379	0.0297
8/10/2010	27 th & McDonald	0.0207		0.0313	
4/29/2010	27 th & McDonald	0.0100		0.0133	
1/11/2010	27 th & McDonald	0.0244		0.0364	

TTHM standard (MCL) = 0.080 mg/L; HAA5 standard (MCL) = 0.060 mg/L

4.2.9 Other

Fluoride

On January 7, 2011, following the lead of the Environmental Protection Agency, the Oregon Department of Health and Human Services proposed a draft recommendation to change the optimized fluoride range from 0.7 mg/L to 1.2 mg/L to a single numerical value of 0.7 mg/L. MW&L has adopted the recommended 0.7 mg/L dosage as its target.

Iron and Manganese

Iron and manganese are not regulated as a primary contaminants; however, they have secondary treatment goals of 0.3 mg/L for iron and 0.05 mg/L manganese. To prevent long term aesthetic and operational problems from occurring, treatment experts have recommended levels of 0.1 to 0.2 mg/L for iron and 0.01 to 0.05 mg/L for manganese.

There are no known health effects associated with consumption of iron and manganese. The known concerns for iron and manganese are aesthetic and operational in nature. Aesthetic problems can be quite serious. If not removed, iron and manganese will precipitate, given enough time in the distribution system. The most commonly reported aesthetic problems with iron are red water, reddish brown stains on plumbing fixtures, and peculiar tastes caused by reactions with tannic acids in coffees and teas. The most commonly reported aesthetic problems with manganese are black or gray stains on plumbing fixtures and laundry.

MW&L experiences seasonal increases in iron and manganese concentrations in the raw water because of seasonal changes in the conditions in the reservoirs. Chlorination of the raw water both prior to coagulation, and prior to filtration effectively removes the iron and manganese to non-detectable concentrations. If disinfection byproduct formation becomes an issue in the future, MW&L may need to reexamine prechlorination practices, and perhaps eliminate chlorination prior to coagulation.

4.3 Possible Future Regulations of Interest

Many new drinking water standards have been adopted at the state and federal levels in the past 30 years and more are anticipated in the coming years. According to the 2010 Year-End Regulatory Update provided by Alan Roberson, American Water Works Association Director of Federal Relations, the drinking water industry expects the following regulatory trends:

- Adoption of standards for emerging contaminants: pharmaceuticals, endocrine disruptors, and personal care products
- Adoption of standards for groups of contaminants, with three groups being considered in the near-term: carcinogenic volatile organic chemicals, nitrosamines, and disinfection by-products (in addition to trihalomethanes and haloacetic acids that are already regulated)
- Greater focus on distribution system water quality, including revisions to the Total Coliform and Lead and Copper Rules

New standards for emerging contaminants are not expected to impact MW&L because these contaminants primarily enter river systems through wastewater flows and MW&L's sources are above all wastewater point sources. However, they will be important considerations for MW&L's investigation into using the Willamette River as a supplemental source. The same is true for the groups of contaminants being considered. They are not expected to be problematic for MW&L's current supply and treatment system, but may have a great impact if the Willamette River is used.

With respect to possible new distribution system regulations, their impact is more difficult to predict. There is no reason to expect that MW&L will have difficulty complying with more stringent distribution water quality regulations, although they may necessitate operational changes, such as more regular system flushing.

An additional trend that is anticipated is an increase in on-line monitoring in distribution systems to provide real-time data for managing water quality and for detection of accidental or intentional contamination events. Leaders in this field are Scan Liquid Monitoring Systems (Messtechnik Company of Vienna, Austria), ZAPS Technologies, Inc. (LiquID system, Corvallis, OR), and Hach Company (Hach GuardianBlue Event Monitor system). These companies make on-line, real-time instruments using optical and other types of sensors. The instruments can detect low probability/high impact events. They use a broad spectrum approach to identify changes in water quality and provide alarm signals based on the degree of change and the rate of change in water quality. MW&L does not currently use these types of monitoring systems in the distribution system. Users of these instruments generally enter into service contracts with the suppliers rather than providing verification testing through in-house labs.

Design and Operating Criteria

Oregon administrative rules for master plans require water utilities to describe their criteria for operating pressures, capacity needs related to water use and fire flows, and similar design and operating aspects (OAR 333-061-0060). **Exhibit 5-1** summarizes MW&L's design and operating criteria. A number of the design criteria, such as fire flows, storage requirements and pipe sizing were used as the basis for determining capital improvements for MW&L's system in this master plan. Other criteria are not critical for developing a master plan, but provide guidance for MW&L for evaluating detailed designs of improvements. These include criteria for hydrant spacing, valve spacing, pipe materials, and emergency power connections for pump stations. Operating criteria relate to maintaining and using existing facilities and include such items as valve exercising, record keeping, and flushing.

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
1	Fire flows for single-family residential areas	1,500 gpm for 2 hours, storage of 180,000 gallons	ISO: 1000 gpm for 2 hrs National Fire Protection Agency: Sliding scale for single family residential 0-3600 sf: 1000 gpm/2 hrs 3601-4800 sf: 1750 gpm/2 hrs 4801-6200 sf: 2000 gpm/2 hrs 6001-7700 sf: 2250 gpm/2 hrs	Minimum of 1,000 gpm for 2 hours (120,000 gallons), at a minimum residual pressure of 20 psi, superimposed over maximum day demands	International Standards Organization (ISO), the nation's leading source for ranking fire suppression effectiveness, downgrades a community's insurance rating unless at least 1,000 gpm is available for 2 hours for houses situated such that the spacing between houses is 11 to 30 feet.	<i>Recommended Standards for Water Works</i> ("Ten States Standards") indicates that fire flows shall meet ISO standards. California Administrative Code requires 750 gpm minimum for residential one story, single family dwellings on average sized lots, and 2,000 gpm for more densely built areas, apartments, and light commercial. Oregon has no flow requirements, but does require 20 psi at all times. ISO standards also call for residual pressure of 20 psi. McMinnville previously targeted 3000 gpm for 3 hours for residential, but reduced the target during the 2011 master plan.
2	Fire flows for schools and other habitational buildings	4500 gpm for 4 hours, storage of 1,080,000 gallons	ISO: 3500 gpm for 3 hours (630,000 gallons)	Minimum of 3500 gpm for 3 hours (630,000 gallons)	ISO downgrades a community's insurance rating unless at least 3,500 gpm is available for 3 hours for habitational buildings such as schools. This category also includes care centers and light commercial. McMinnville Fire Department follows ISO standards.	See discussion for residential fire flows. No Oregon requirements.
3	Fire flows for multi-family residential areas	3,000 gpm for 3 hours, storage of 540,000 gallons		3,000 gpm for 3 hours, 540,000 gallons	McMinnville Fire Department follows ISO standards.	See discussion for residential fire flows. No Oregon requirements.
4	Fire flows for commercial and industrial areas	4500 gpm for 4 hours, storage of 1,080,000 gallons	ISO: 4,000 gpm for 4 hours (960,000 gallons)	4,000 gpm for 4 hours, 960,000 gallons	ISO sets commercial and industrial fire flow requirements based on building material type and other variable factors, and may require up to 12,000 gpm for full insurance credit. MW&L could consider fire flows up to 4,000 gpm, and for buildings needing more than this amount, to require sprinklers. McMinnville Fire Department follows ISO standards.	No guidance from other states or Ten States Standards for commercial/industrial areas.
5	Minimum pressure during fire flows	20 psi	OAR Chapter 333	20 psi		
6	Hydrant spacing	500 feet between hydrants		600 feet maximum spacing between hydrants so that distance to a house is <=300 ft. This is needed to meet ISO credit for 1500 gpm residential fire flows	ISO credits hydrants for up to 1,000 gpm if located within 300 feet of structure, for 670 gpm if located 301 to 600 feet from structure, and for 250 gpm if located from 601 to 1000 feet from structure. A spacing of 1,000 feet maximum would ensure at least 1,000 gpm is available to each house.	
7	Hydrant type	Include Storz adaptors are on all new hydrants. All to include two 2-1/2" hose ports + one 4-1/2" steamer port		Provide at least one large pumper outlet (typically a 4-inch port)	ISO downgrades fire hydrants that do not have at least one large pumper outlet.	
8	Residential piping sizes and looping	6-inch minimum; follow recommended values		12" diameter outer loops (for <= 1-mile sq) 8" diameter internal grid 6" diameter in cul-de-sacs (for <250 ft length). Limit velocities to approximately <=6 fps for peak hour demands. (Higher velocities are acceptable for meeting fire flow demands.)	Follows Washington Administrative Code. Meets OARs (minimize dead ends) and Ten States Standards (minimum of 6-inch diameter mains)	Several states require a minimum of 6-inch diameter mains, and indicate that dead end lines shall be minimized. Proliferation of cul-de-sacs means that the criterion of allowing 6-inch diameter dead end mains up to 250 feet in length may result in a system that is not well-looped. Therefore, it is critical to confirm acceptability of dead end lines using hydraulic model.

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
9	Transmission main sizing	Follow recommended values		Evaluate on a case-by-case basis, based on allowable head loss. Velocities up to 8-10 fps are acceptable for peak hour demands.	Peak hour demands are uncommon, and sizing a transmission main for velocities of 8-10 fps will result in lower velocities a large percentage of the time.	No guidance from other states or Ten States Standards.
10	Operating pressures	Target peak hour pressures of 40-80 psi per plumbing code	OAR Chapter 333	Normal (any time except during fire flows): 40 - 100 psi. Pressures measured at service connection (meter).	Oregon requires a minimum of 20 psi at all times, as do most states. The 40-100 psi normal range is a reasonable target, recognizing that it may be acceptable in some cases for the minimum to drop below 40 psi and still provide acceptable service.	Oregon is silent on pressure except for the 20 psi minimum. Washington requires 30-110 psi, California 25-125 psi, Texas >35 psi, and Pennsylvania 25-125 psi. Ten States Standards indicates that normal working pressures should be 60-80 psi, and not less than 35 psi.
11	Pressure reducing valves on customer services	Pressure reducing valves required for static pressures exceeding 80 psi	Pressure reducing valves (by utility or customer) required for pressures exceeding 80 psi, according to Oregon Plumbing Specialty Code. Pressures measured at service connection (meter).	Customers to provide their own PRVs when pressures > 80 psi. City provides if system change results in pressures > 80 psi. Customer responsible for O&M and MW&L has no liability.	Typical for water utilities	
12	Equalization storage volumes: residential only	20% of MDD		20% of maximum day demand	A range of 20-25% is typical for water utilities; MW&L could consider 25% of MDD for proposed 2nd level in absence of specific diurnal demand data	Only general guidance is provided by states, indicating that equalization storage should account for daily use patterns.
13	Equalization storage volumes: residential plus schools/ commercial	20% of MDD		20% of maximum day demand	Generally, diurnal peaks are lower from commercial customers and schools than from residential areas.	Only general guidance is provided by states, indicating that equalization storage should consider daily use patterns.
14	Emergency storage volumes	1 x MDD		1 x MDD	Assumes that failure of system occurs on a maximum day demand, and that customers continue water use at MDD rate for 12 hours, then reduce use to ADD rate for 24 hours, and that emergency condition is fixed in 36 hours.	Washington regulations indicate that emergency storage may be reduced when there is a second independent supply. Oregon rules do not include discussion of emergency storage.
15	Total storage	Sum of fire, equalization, and emergency storage volumes. (There is currently no water quality consideration in this equation.)		Sum of fire, equalization, and emergency storage volumes --or-- equalization plus fire or plus emergency, whichever is larger	Need to balance distribution storage between meeting storage needs and water quality considerations; not a significant concern for MW&L for the main service level, since all water passes through tanks (i.e., tanks are not located on dead end lines and do not float on system)	Washington codes allow a system to provide the total of the equalization storage plus the larger of the emergency or fire volumes. This approach assumes that a fire will not occur concurrently with an emergency failure.
16	Valve exercising	Exercise all valves and fire hydrants once a year. Flush all mains once a year.		Exercise all valves at least once every 4 years. Consider more frequent exercising for older valves and large diameter (>= 12")	Annual valve exercising is commonly recommended for all valves, however, this is probably not practical. Some systems exercise older valves (gate valves with expanding seats) annually and resilient seat valves at least once every 4 years.	States do not provide guidance on valve exercising.
17	Water age/chlorine residual/Heterotrophic Plate Count (HPC)	Chlorine residuals taken weekly at coliform sample sites. Target free chlorine residuals of 0.7 - 1.0 mg/L. HPC goal < 1 cfu/mL.		At all distribution system locations: measurable free chlorine residual; HPC < 1 colony forming units (cfu)/mL	The critical water age is system-specific. EPA has a value for HPC as a non-regulated surrogate of 500 cfu/mL. A value of 100 cfu/mL is conservative in protecting water quality. Together with maintaining a measurable chlorine residual, these are the best available practices for ensuring safe drinking water in the distribution system.	One further criterion that may be considered is to limit the maximum water age in the system, particularly if a long water age can be associated with low chlorine residuals or high HPC concentrations. May need separate summer and winter management policies.
18	Pump station sizing	(No criteria as system currently includes no pump stations)		Provide maximum day demand over 24 hours, with largest pump out of service	A typical approach for pump station sizing.	

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
19	Number of pumps in booster pump stations	(No criteria as system currently includes no pump stations)		Two or more; 4 for isolated, closed-end systems	A typical approach for pump stations	
20	Pipe materials	Ductile iron, HDPE, other materials where appropriate		Use ductile iron pipe as standard. Consider HDPE or steel for large transmission lines.	Ductile iron pipe is less prone to leaks than other pipe materials, and is the industry standard.	
21	Backflow prevention standards	MW&L has detailed policy; generally aligns with Oregon rules	OAR Chapter 333	Fulfill Oregon's rules	Oregon's backflow rules are comprehensive and defensible	
22	Water quality monitoring in distribution system	Fulfill Oregon rules	OAR Chapter 333	Monitor for chlorine residual using on-line instruments at locations prone to low residuals or high water age. Consider also additional instruments for flows out of reservoirs.	More comprehensive sampling in distribution system helps to ensure that high quality water is delivered to all customers. In addition, it provides value from a water system security standpoint.	Selection of sites can be evaluated using hydraulic model and by reviewing system maps
23	Water use record keeping	Track average and maximum day demands, and unaccounted for water. Track and report annual water use to OWRD. Maintain water quality monitoring and other operational records according to Oregon rules.	OAR Chapter 333	Track average day, maximum day, and monthly total demands and record annually. Track within individual service levels to extent possible. Develop monthly and annual numbers for unaccounted water (water losses).	These data are very helpful for planning purposes, and are time-consuming or impossible to generate if not recorded on a regular basis.	
24	Main Flushing	Mains are flushed at least once a year. Dead ends are flushed more frequently.		Every 6 months for dead end and problem areas; goal for entire system is once every 4 years	Typical water system practice	
25	Reservoir inspection/cleaning	Comply with recommended values		Inspections every 5 years using divers; cleaned only as inspection shows need		
26	Reservoir turnover	7-10 days in winter; 3-5 days in summer.		Depends on water quality. Many systems do not experience problems even though the water age is longer than AWWA recommendations	AWWA recommends complete turnover every 3-5 days	
27	Use of closed-end pumping systems in place of reservoir storage	Use closed-end system until residences exceed approximately 15 houses		15 or fewer homes preferred on a dead end, 30 homes max on a dead end	Although it is ideal to serve all customers with gravity storage, it may be an unacceptable cost to serve small groups of homes with a reservoir and may lead to water quality problems	
28	Isolation valving	Target is recommended value; currently, 90% of system complies with this		Maximum of 4 valves to close in order to isolate segment	Typical water system practice	
29	Number of services on an isolation segment	Not more than two blocks.		Not more than 30 homes max	Typical water system practice	
30	Installation of flush ends on dead end mains in cul-de-sacs.	All dead ends shall have blow-offs		Install flushing ends for all dead end mains	Typical water system practice	

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
31	Provision of emergency generators for pump stations	Currently not applicable; no MW&L criteria		Provide for all closed-end systems		
32	Pump stations backup power connections	Currently not applicable; no MW&L criteria		Standard for all distribution pump stations		
33	Reservoir design inlet/outlet piping	Separate inlet / outlet piping	Oregon rules: "When a single inlet/outlet pipe is installed and the reservoir floats on the system, provisions shall be made to insure an adequate exchange of water to prevent degradation of the water quality..." (OAR 333-061-0050 (7))	Provide separate inlet/outlet piping for all new reservoirs; consider inlet riser pipe to improve mixing	Follows Oregon regulations	
34	Master plan update schedule	According to recommended schedule		Annual minor updates; more significant review every 5 years; comprehensive review every 10 years		
35	5-Year capital improvements plans (CIPs)	Review annually		Proposed: Annual updates; ensure that 5-year plans follow general guidelines of the master plan. Plan shall be within financial guidelines of water division, and shall be balanced and prioritized so that rate increases are justified		
36	Annual capital budgeting	Review annually		Shall reflect 5-year CIP. Modifications shall be justified and documented.		

Notes: OAR = Oregon Administrative Rules; OWRD = Oregon Water Resources Department

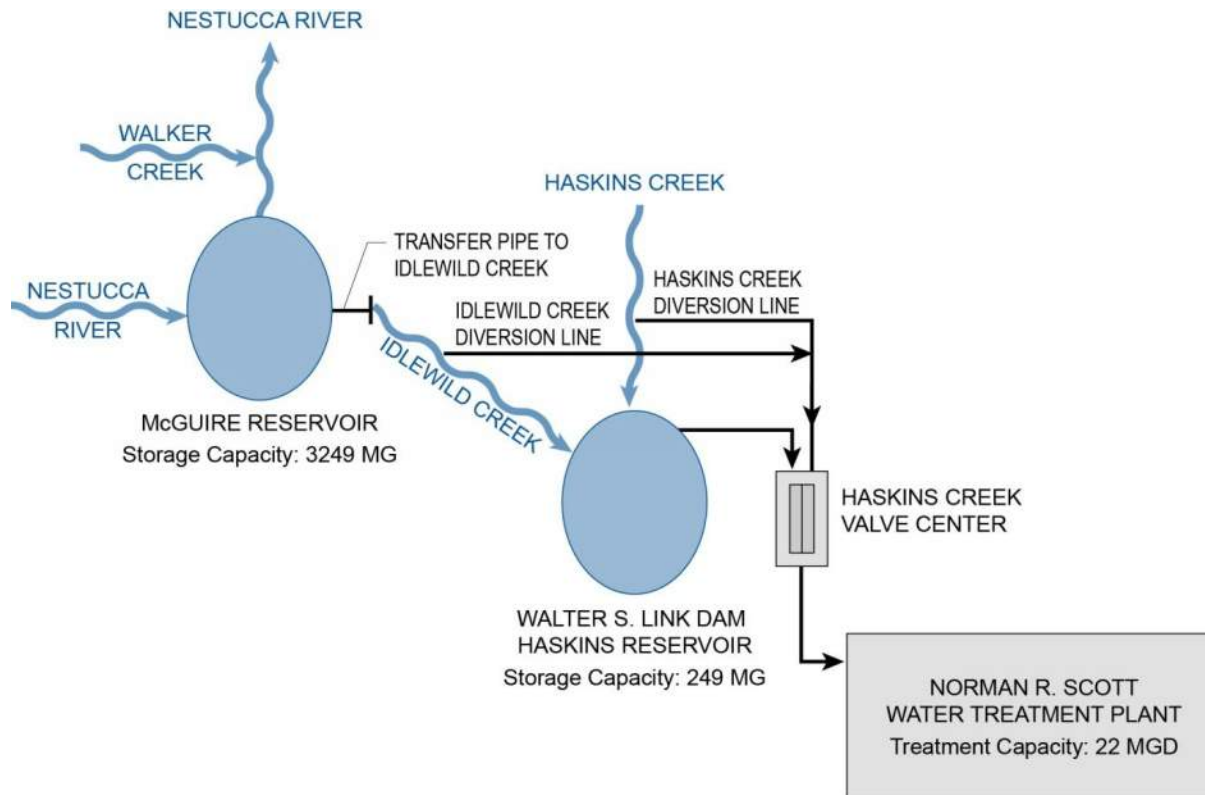
Water Supply and Water Rights

6.1 Introduction

This section contains a summary of MW&L's water rights, a discussion of possible development of Walker Creek rights, and MW&L's efforts to obtain a redundant water supply through participation in a regional water supply system based on acquisition and use of Willamette River water rights.

Exhibit 6-1 is a schematic of MW&L's supply reservoirs and diversion infrastructure. As described in Section 2, System Description, MW&L holds water rights in the Yamhill River Watershed east of the Coast Range divide, and the Nestucca River Watershed west of the coast range divide. The Nestucca River Watershed rights include river and storage rights on the Nestucca River and on Walker Creek, a tributary of the Nestucca River, downstream of McGuire Reservoir. MW&L has taken steps to secure water rights on Haskins Creek and the Nestucca River, but because of resource issues, Walker Creek water rights currently have not been extensively developed.

EXHIBIT 6-1
Schematic of MW&L Reservoir and Diversion System



6.2 Water Rights Capacity

6.2.1 Yamhill River Watershed (Haskins Creek) Water Rights

As shown in **Exhibit 6-2**, MW&L holds six water rights on Haskins Creek that allow impoundment of water behind the Walter S. Link Dam in Haskins Reservoir and use of this stored water, as well as direct diversion from the creek for domestic and municipal use. Combined, the water rights allow for a total storage of 249 million gallons (765 acre-feet) and withdrawal of 12.6 mgd (19.5 cfs) plus withdrawal of 249 million gallons (765 acre-feet) with no maximum rate. Haskins Reservoir's capacity is 249 million gallons.

Five of the rights are certificated, and one water right, permit S-14837, is in the permit phase with an extension until October 1, 2050. A progress report on this right was filed with the Oregon Department of Water Resources on March 18, 2010.

6.2.2 Nestucca River Watershed Water Rights

MW&L holds six water rights on the Nestucca River that allow impoundment in McGuire Reservoir and use of stored water, as well as direct diversion from the river for municipal use. One of the water rights, permit S-27520, allows for use of stored water from McGuire Reservoir and direct diversion from the Nestucca River, as well as use of stored water and direct diversion from an additional source, Walker Creek, which is further described below. Permit S-27520 applies to both water bodies and is listed twice in Exhibit 6-2.

The water rights on the Nestucca River allow for storage of 3,194 million gallons (9,800 acre-feet) and withdrawal of 4.1 mgd (6.4 cfs) plus withdrawal of 2,036 million gallons (6,250 acre-feet) with no maximum rate. McGuire Reservoir's capacity is 3,249 million gallons.

Four of the rights are fully certificated. The portion of permit S-27520 on the Nestucca River is certificated (a partial perfection) and permit S-54038 is in the permit phase with an extension until October 1, 2042. The final order on the permit extension for permit S-54038 authorizes diversion of up to 222 million gallons of 1,968 million gallons (680 acre feet of 6040 acre feet), and requires a Water Management and Conservation Plan update be submitted by March 11, 2014. Diversion of any water beyond 680 acre feet requires that the Water Management and Conservation Plan update be approved prior to use. According to the final order approving MW&L's May 2008 Water Management and Conservation Plan, a plan update is due October 1, 2019, and a progress report is due October 1, 2013.

MW&L's permit R-13942 requires that water flow released from the McGuire Reservoir to the Nestucca River be maintained at 1.3 cfs from May 1 to October 31, and at 0.5 cfs from November 1 through April 30.

MW&L holds two water rights on Walker Creek, both in the permit extension process. One right, permit R-2653 (priority date 1958), allows impoundment of 1,466 million gallons (4,500 acre-feet) in Walker Reservoir. The second right, Permit S-27520, allows for use of stored water and direct diversion from Walker Creek (as well as use of stored water and direct diversion from the Nestucca River, as noted above). Because of limitations described below, Walker Reservoir has not yet been constructed.

EXHIBIT 6-2
MW&L Domestic and Municipal Water Permits and Certificates

Application No.	Permit No.	Certificate No.	Priority Date	Allowed Beneficial Use	Description	Allowable River Withdrawal/ Use of Stored Water		Allowable Storage		Allowable Use of Storage		Maximum Amount of Use to Date	Status	Notes
						cfs	mgd	Acre-feet	Million Gallons	Acre-feet	Million Gallons			
Haskins Creek														
S-5029	S-3002	3367	7/8/1916	Domestic Supply	Haskins Creek	4.5	2.9					4.5 cfs	Certificate issued	
R-11338	R-612	82887	2/19/1927	Storage for Domestic Use (Municipal)	Storage in Haskins Reservoir			410	134			410 AF	Certificate issued	
S-11484	S-8881	82886	5/18/1927	Municipal	Use of stored water from Haskins Reservoir					410	134	410 AF	Certificate issued	
S-19124	S-14837		1/10/1941	Domestic (Municipal)	River right on Haskins Creek and use of stored water from Haskins Reservoir	15	9.7					5.4 cfs	In permit status	Extension to 10/1/2050. Progress Report due 10-1-14.
R-63054	R-8885	63659	11/23/1981	Storage for Municipal Use	Storage in Haskins Reservoir			355	116			355 AF	Certificate issued	
S-63117	S-47779	63660	12/15/1981	Municipal	Use of stored water from Haskins Reservoir					355	116	355 AF	Certificate issued	
TOTALS						19.5	12.6	765	249	765	249			
Nestucca River														
R-32824	R-2652	86408	12/24/1958	Storage for Municipal	Storage in McGuire Reservoir			3,550	1,157			3,550 AF	Certificate issued	
S-32770	S-27520	86410	11/19/1958	Municipal	River right on Nestucca River and use of stored water from McGuire Reservoir	6.4	4.1					6.4 cfs	Certificate issued (Partial Perfection)	
R-46563	R-5561	86409	12/2/1969	Storage for Municipal	Storage in McGuire Reservoir			210	68			210 AF	Certificate issued	
S-46564	S-34803	86820	12/2/1969	Municipal	Use of stored water from McGuire Reservoir					210	68	210 AF	Certificate issued	
R-69772	R-13942	86306	12/7/1988	Storage for Municipal	Storage in McGuire Reservoir			6,040	1,968			6,040 AF	Certificate issued	
S-69773	S-54038		12/7/1988	Municipal	Use of stored water from McGuire Reservoir					6,040	1,968	680 AF	In permit status	Extension to 10/1/2042. WMCP update due by 3/11/14. Use beyond 680 AF requires submission of a WMCP update prior to use.
TOTALS						6.4	4.1	9,800	3,194	6,250	2,037			
Walker Creek														
R-32825	R-2653		12/24/1958	Storage for Municipal	Storage in Walker Reservoir			4,500	1,466			0 AF	Permit extension requested, 10/1/97	In extension queue at OWRD
S-32770	S-27520		11/19/1958	Municipal	River right on Walker creek and use of stored water from Walker Reservoir	9.6	6.2					1.3 cfs	Permit extension requested, 10/1/97	Walker Reservoir is not constructed. In extension queue at OWRD.
TOTALS						9.6	6.2	4,500	1,466	0	0			
Summary														
GRAND TOTAL						35.5	22.9	15,065	4,909	7,015	2,286			
Total volume that can be used without a specified maximum rate										7,015	2,286	(Does not include Walker Reservoir)		
Grand total for summer withdrawal, assuming a 120-day peak period							41							

6.3 Evaluation of Water Rights/Supply

MW&L's water right permits and certificates appear sufficient in priority date seniority and amount to provide a reliable supply.

Based on OWRD's web-based water rights information system, MW&L's permits in the Nestucca watershed with priority-dates of 1958 and 1969 are senior in priority to many rights on the system, and junior to only a relatively few, small downstream uses. These permits are also senior to instream water rights with 1973 priority dates on the Nestucca River (from its mouth to approximately rivermile 38 – about 3 miles downstream of McGuire Reservoir). However, MW&L's 1988 permits to store and use water from enlargements to McGuire Reservoir are junior to these instream rights. According to the state watermaster, there have been no calls to restrict use of McGuire Reservoir to satisfy these instream rights.

MW&L's water rights pre-dating 1941 authorizing construction and use of Haskins Reservoir are among the most senior in the stream system. Based on OWRD's web-based water rights information system, the later, 1981 rights involving Haskins Reservoir are junior to several dozen rights, including a 1964 instream water right. However, the 1964 instream right is set at a relatively low level and is some 30 miles downstream of Haskins Reservoir. The state watermaster indicates there is no record of MW&L's rights ever having been restricted to meet the needs of senior users.

While MW&L has secured an abundance of water rights, hydrologic limitations may preclude use of the total water supply allowed under these rights. The reliable watershed yield was evaluated in the *Integrated Engineering Study* (1997) and the *Norman R. Scott Water Treatment Plant Facility Plan* (July 2007). These evaluations determined the reliable summer yield to be 30 mgd for the existing Haskins and McGuire Reservoirs and diversion systems. The actual watershed yield varies depending on rainfall levels and the amount of storage carried over from one year to the next. The 30 mgd estimate is based on a summertime drought yield of 15 mgd combined with a normal rainfall year carryover of 15 mgd from storage in McGuire Reservoir. Walker Creek capacity was not included in the analysis because it is not yet developed. MW&L should periodically review the reliable watershed yield estimate in light of possible long-term variations in rainfall.

6.4 Walker Creek

If developed, water supply from Walker Creek could increase the estimated reliable supply. However, a number of challenges exist for beneficially using the Walker Creek water rights. In addition to land ownership issues, development of an impoundment on Walker Creek is complicated by its status as a State Scenic Waterway and as a study river under the National Wild and Scenic Rivers Act, and its proximity to an Area of Critical Environmental Concern under the management of the Bureau of Land Management. Nelson's checkermallow, a perennial forb listed as threatened under the federal Endangered Species Act and by the state of Oregon, occurs along Walker Creek.

Although developing the Walker Creek water right will be challenging, MW&L still views this water right as an important supply source that could provide emergency or

supplemental supply as needed. One opportunity for MW&L to benefit from the live flow water right on Walker Creek may be as a supplemental source for filling McGuire Reservoir during low flow years. To accomplish this, the withdrawal location could be moved downstream from Walker Creek to the Nestucca River to avoid the obstacles for using Walker Creek. Downstream water right transfers are generally approvable by the Oregon Water Resources Department because of the benefits of keeping the water in the stream system for a longer distance. The project could proceed according to the following steps:

- Approval of a permit amendment to change the point of diversion for Permit S-27520 to a downstream location along the Nestucca River
- Approval of a permit amendment for Permit R-2653 to allow storage of water from Walker Creek in McGuire Reservoir
- Installation of a remote pump station near the base of the McGuire Dam to pump water into McGuire Reservoir

Based on a river elevation below the dam of 1780 feet, and a full reservoir level in McGuire Reservoir of 1895 feet, the static lift of a pump station would be at least 115 feet, depending on where a suitable intake location could be placed on the Nestucca River. Assuming a dynamic head of 20 feet, the total head required would be at least 140 feet. If the pump station contained two pumps, each sized for half of the 6.2 mgd water right (2150 gpm per pump), the required motor draw would be at least 100 horsepower per pump. Motors of this size require three-phase power, which is not available near the potential location of the pump station. It would entail a large cost to extend three-phase power to the site and is probably not feasible in the near term.

The required changes to Permit S-27520 and R-2653 are expected to be relatively easy to accomplish. However, because of the remote location and lack of a nearby power supply, construction of a pump station is not currently feasible.

6.5 Regionalization and Willamette River Supply

Based on demand projections presented in Section 3 Water Requirements, MW&L has water rights and water supply sufficient to meet water demand through approximately 2043. However, MW&L does not have a redundant water supply. All water currently is treated at a single location, the Scott WTP, and flows through ten miles of transmission pipeline(s) with potential vulnerabilities. Failure of either the Scott WTP or key sections of the transmission system would stop water supply. Furthermore, a catastrophic event in the watersheds feeding the Haskins and McGuire Reservoirs could severely limit supply. As a result, it is prudent for MW&L to pursue opportunities to obtain access to a redundant water supply that will also meet its long-term needs. MW&L's neighboring communities, the Cities of Carlton, Dayton, and Lafayette, also need redundant and additional water supplies. These communities have experienced shortages of available water supply from their water supply sources.

MW&L and the neighboring cities, and other water suppliers in Yamhill County, participated in the Yamhill County Water Supply Analysis (April 2008), which compared each community's projected water demands through 2050 with its existing reliable water

supply under various demand projection scenarios. Relying on published per capita demand factors and population projections provided by the municipalities, the Yamhill County Water Supply Analysis concluded that by 2050, all of the communities' maximum day demands would exceed their reliable source capacities under at least two of the three growth scenarios considered.

In an effort to pursue a regional water supply system, MW&L, Carlton, Dayton, and Lafayette have entered into intergovernmental agreements to jointly develop a water right application to appropriate water from the Willamette River. The water right would authorize the use of water from the Willamette River for municipal purposes within the service areas of MW&L, Carlton, Dayton, and Lafayette.

In the near term, this regional water supply system would provide the additional water supply needed by Carlton, Dayton, and Lafayette, and would give MW&L the security of having a redundant water supply system. In the longer term, the regional water supply system would provide MW&L with additional water supply needed to meet future demands beyond 30 mgd. Once the water use permit is secured, additional engineering studies will be needed to design the new system components and interties.

Raw Water Transmission Pipeline

7.1 Existing Raw Water Pipeline from Haskins Reservoir to the Scott WTP

Raw water is generally supplied to the Scott WTP through a nominal 32-inch diameter, heavy-walled steel pipe from Haskins Reservoir. The Scott WTP can also be supplied by diversions on Haskins and Idlewild Creeks, as illustrated in Exhibit 6-1.

The Haskins Reservoir raw water pipeline was installed in the 1940's. The pipe length is approximately 1,700 feet from the vault near the base of the Walter S. Link Dam to the treatment plant site. Water flows by gravity from Haskins Reservoir to the Scott WTP through this pipeline.

The pipe has a calculated flow capacity of approximately 20 mgd, based on the lowest normal operating elevation of 793 feet in Haskins Reservoir and current operation of the inlet valves at the Scott WTP flocculation/sedimentation basins. Typically, the plant operators partially-close these basin inlet valves to increase the raw water pressure for feeding the pilot filters and sample lines, which are connected to the inlet piping near the meter and flow control valve.

Even though the existing raw water pipeline is 60+ years-old, MW&L staff report that it is in good condition. Since it is steel and long-term corrosion is a concern, the second parallel pipeline shall be capable of providing the full 30-mgd buildout flow. This will allow the older steel pipeline to eventually be removed from service. Both pipelines will be used in parallel for as long as the older pipeline retains its integrity.

The timing for adding a second raw water pipeline is primarily growth-driven. The single pipeline does not provide redundancy; however, it is accessible and can be readily repaired as needed. Adding a second line to obtain redundancy will be beneficial to improve system reliability, but it does not have the urgency as the tunnel section of the finished water transmission system as described in Section 8.

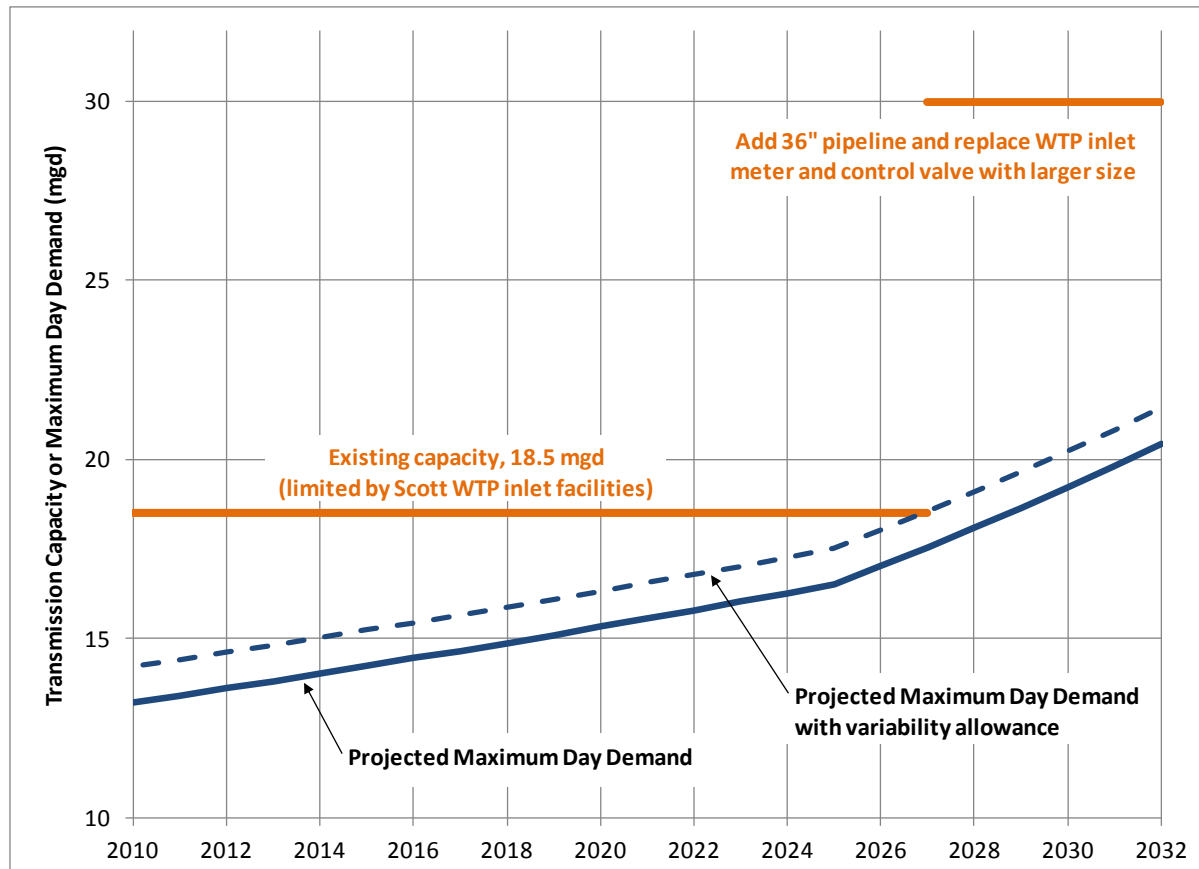
7.1.1 Timing for Improvements

The estimated capacity of the existing raw water transmission pipeline is 20 mgd, based on hydraulic analyses. However, the capacity of the inlet (or raw water) control valve and meter for the Scott WTP is approximately 18.5 mgd, according to design analyses that were performed when the plant was expanded in 2008-2010. (Refer to the design definition memo for the raw water inlet facilities, prepared in June 2007.)

The suggested plan is for MW&L to expand the capacity of the Scott WTP inlet valve and meter, and to add a second raw water transmission pipeline from Haskins Dam to the plant at the same time, when the maximum day demand approaches 18.5 mgd. This need will occur in approximately 2027, according to the maximum day demand projections. The

project is scheduled for construction in fiscal year 2026-2027 in the capital improvements plan. **Exhibit 7-1** illustrates the proposed timing. MW&L would have the option of splitting the projects; upsizing the inlet control valve and meter in 2026-2027 and delaying the raw water transmission pipeline for a few additional years.

EXHIBIT 7-1
Timing for Raw Water Supply Improvements



7.1.2 Design Criteria

A new raw water pipeline can be connected directly to the upstream vault near the base of Haskins Dam. The valves and connections in the vault were designed to allow for this future connection. The new pipeline should be capable of carrying 30 mgd to the plant inlet with the Haskins Reservoir elevation at 793 feet, which is the low operating level in the reservoir. As noted previously, the plant operators have found it beneficial to operate with partially closed valves at the inlets to the flocculation/sedimentation basins. A head loss allowance was included for this continued practice although the need for operating in this manner and the necessary additional head loss should be examined during the preliminary design for the new raw water transmission pipeline. The operators may be able to reduce the headloss at the inlet valves to the basins, or other adjustments may be possible to reduce the pressure needed for feeding the pilot filters and sample lines.

The maximum pressure experienced in the raw water pipeline occurs when the Idlewild Creek diversion is used. It has an inlet elevation of 855 feet. The full level of Haskins

Reservoir is lower, at elevation 815 feet. The proposed routing for the new raw water pipeline can roughly parallel the existing pipeline, following the road from the dam to the plant. It will have a low elevation of approximately 700 feet. The elevation difference between Idlewild Creek diversion at 855 feet and the low pipe elevation of 700 feet is 155 feet, resulting in a maximum pressure of 67 psi. The pipeline should be designed for at least 1.5 times this pressure or at least 100 psi. For cement-lined ductile iron pipe, either Pressure Class 150 or 200 may be considered for this application, depending on pressure surge analyses, corrosion allowance, and cost. The use of high density polyethylene (HDPE) pipe material could be considered as an alternative to ductile iron pipe. The operating conditions, route, design pressure, potential for surge, material selection, and other design criteria should be reexamined during a preliminary design phase.

7.2 Raw Water Diversion Pipelines

MW&L operates surface water diversions on Haskins and Idlewild Creeks to supplement the water supply to the Scott WTP from Haskins Reservoir, as illustrated in Exhibit 6-1. These diversions provide water supply to the Scott WTP while bypassing Haskins Reservoir. They are used by the operators when water quality is more favorable in McGuire Reservoir (through the Idlewild Creek diversion) or Haskins Creek than in Haskins Reservoir, or when MW&L wishes to drain Haskins Reservoir for cleaning or maintenance.

The Idlewild Creek diversion is carried through 1156 feet of 20-inch pipe to a junction with the Haskins Creek diversion pipeline. The Haskins Creek diversion is carried by 1356 feet of 32-inch pipeline to this junction. An additional 4400 feet of pipeline, with sections of 12-, 18-, 20-, 26-, and 32-inch diameter lines, carries water from the junction to the Haskins Reservoir valve vault, located below the Walter S. Link Dam. An additional supply of water from the Rhone Creek diversion (through a 12-inch pipeline) joins this common line from Haskins and Idlewild Creeks. Flow from all of the diversions is by gravity to the valve vault and then to the Scott WTP.

The CIP includes an ongoing, annual investment by MW&L to replace aging sections of the diversion pipelines. Using its own crews, MW&L has in recent years begun replacing a portion of this pipeline each year. The plan is to continue with this project through completion in approximately fiscal year 2028-2029.

7.3 Summary, Recommendations, and Cost Estimates

The water supply system provides gravity flow to the Scott WTP from Haskins Reservoir through a 32-inch diameter pipeline. This is the normal supply for the treatment plant, although Haskins Reservoir can be bypassed and the Scott WTP can be fed directly from diversions on Haskins and Idlewild Creeks and a small diversion on Rhone Creek. Conditions, needs, and recommendations for capital upgrades to the raw water supply system are described below.

7.3.1 Haskins Reservoir Raw Water Transmission Pipeline

- The existing Haskins Reservoir 32-inch diameter raw water pipeline has been reported by MW&L staff to be in good condition and, therefore, its replacement can be dictated by flow capacity needs.
- A new raw water pipeline should be added when the plant production reaches approximately 20 mgd. There is some flexibility in this value as the plant operators induce headloss at the entrance to the flocculation/sedimentation basins and there may be flexibility to reduce this added headloss and thereby, increase the flow capacity of the existing pipeline.
- The new raw water pipeline should be designed to supply the entire buildout flow capacity of 30 mgd to the plant because the useful life of the existing pipeline will eventually be exceeded.
- A 36-inch diameter, Pressure Class 200 cement-lined ductile iron pipeline of 1,700 feet in length is the preliminary selection. The cost estimate provided in the CIP is based on this selection and assumes installation of the pipeline along the existing road alignment.
- The 20-inch meter and control valve section of pipeline at the plant inlet will need to be expanded to 24 inches when the plant capacity reaches approximately 18.5 mgd; the new raw water transmission pipeline could be added at this time (as presented in the master plan CIP) or it could be delayed until the maximum day demand reaches 20 mgd.
- A detailed hydraulic analysis is necessary during design to guide decisions for the pipe material, pressure rating, diameter, and alignment.
- The planning-level estimate for construction of the new raw water pipeline is \$740,000. The estimate for the plant inlet control valve and meter improvements is \$110,000. The actual costs will vary from these planning-level estimates depending on final designs, market conditions, and other variable conditions. These estimates do not include engineering services for surveying, design, and construction. Allowances for these additional project costs have been included in the CIP.

7.3.2 Haskins and Idlewild Creeks Diversion Pipelines

MW&L should continue with the annual replacement program for the diversion pipelines for Haskins and Idlewild Creeks to improve their reliability. This is budgeted at approximately \$25,000 per year through fiscal year 2028-2029.

Finished Water Transmission Pipeline

8.1 Description of Existing Pipelines

Water flows by gravity from the Scott WTP through the finished water (FW) transmission pipelines to the Service Reservoirs. The total transmission length is approximately 10 miles (52,000 feet).

Of this total, the upper 4,000 feet is a single pipeline, which is comprised of sections of 24-, 32-, and 36-inch diameter pipe. To maintain gravity flow from the WTP to the city, approximately 1,100 feet of the 24-inch pipeline were installed through a tunnel. The tunnel elevation is approximately 705 feet and the ground surface above the tunnel rises to approximately 850 feet.

The single pipeline is connected to two pipelines at the Panther Creek valve station. The two pipelines parallel one another the remaining distance of 48,000 feet to the reservoirs. They are located in contiguous easements for approximately 27,200 feet. Of the remaining length, there are two sections where the pipes follow separate alignments and are up to 1950 feet apart. The older of the two pipelines is comprised of 14-inch diameter asbestos cement (AC) and 16-inch diameter welded steel that was installed in 1940-1941. The newer line was installed in 1967 through 1970 and was constructed using 24-inch cement-lined ductile iron for the entire distance. The pipe alignments result in variable profiles and pressures along the length of the pipelines. The pipe materials for each line were selected to correspond to the profile, so that heavier-walled pipe was used in lower elevation, higher pressure sections.

Exhibits 8-1 (a schematic) and **8-2** (a map) provide an overview of the existing pipelines. All of MW&L's water is delivered through these lines. **Exhibit 8-3** displays the pipeline profile for the upper 4,000 feet of single pipeline and continuing to the Service Reservoirs for the 24-inch pipeline. **Exhibit 8-4** displays the pipe class for the 24-inch pipe, and the test pressure that was used at the conclusion of construction.

EXHIBIT 8-1

Schematic of Existing Finished Water Transmission Pipelines

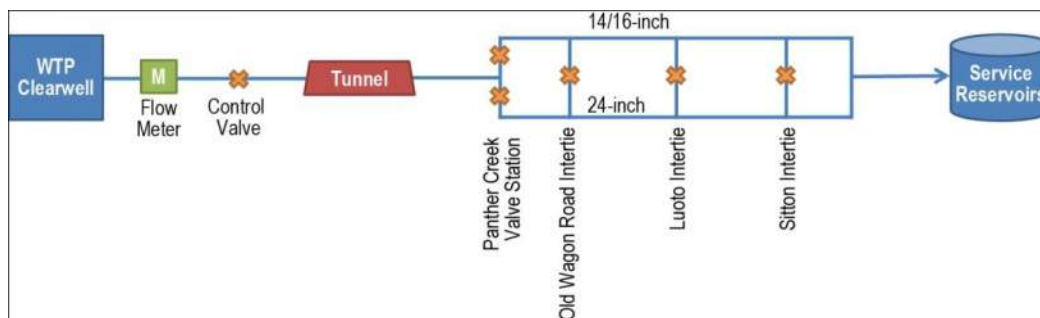


EXHIBIT 8-2

Map Showing Existing and Proposed Finished Water Pipelines

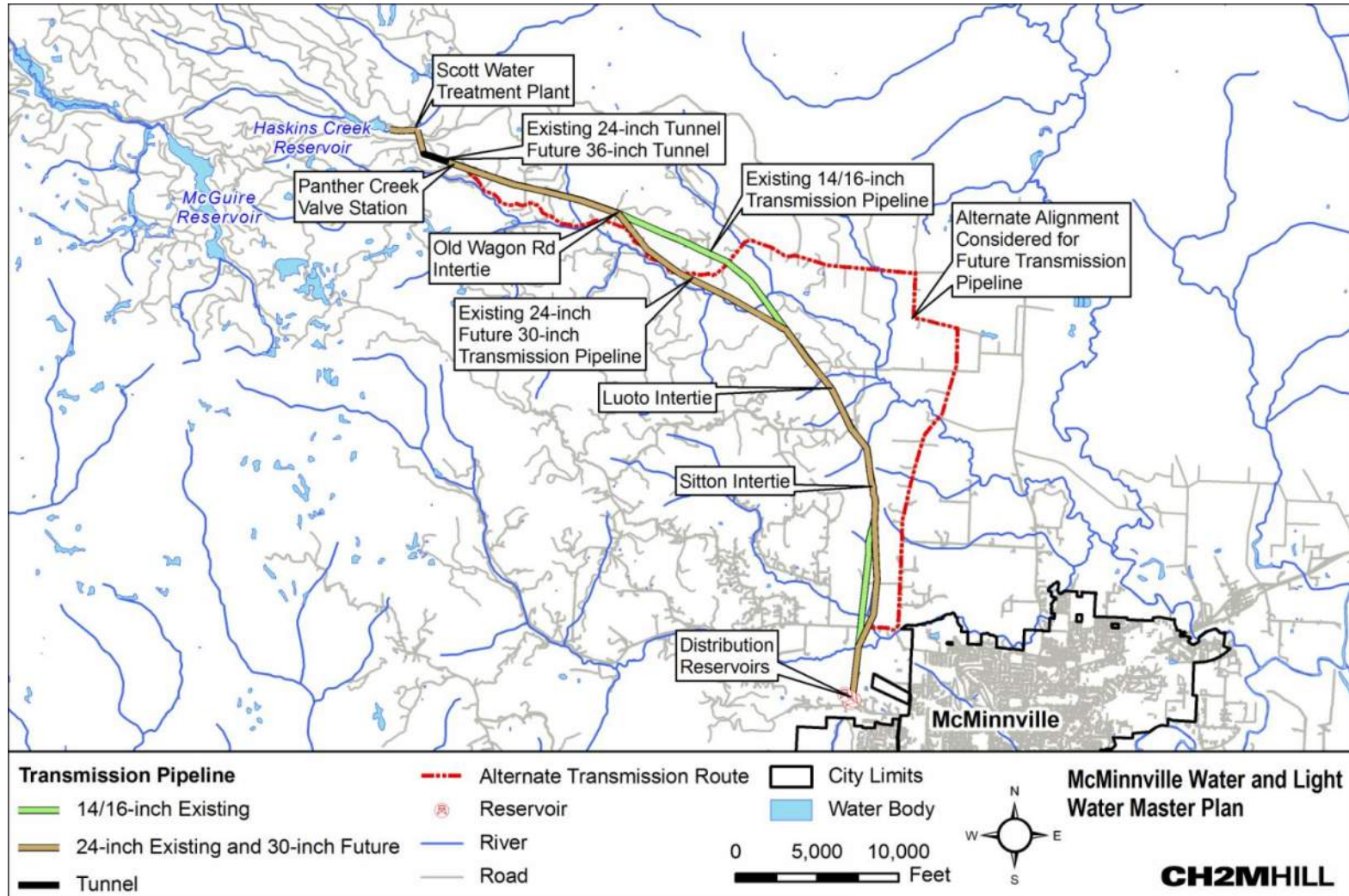


EXHIBIT 8-3

Finished Water Transmission Pipeline Profile (from Scott WTP to Service Reservoirs, following existing 24-inch pipe)

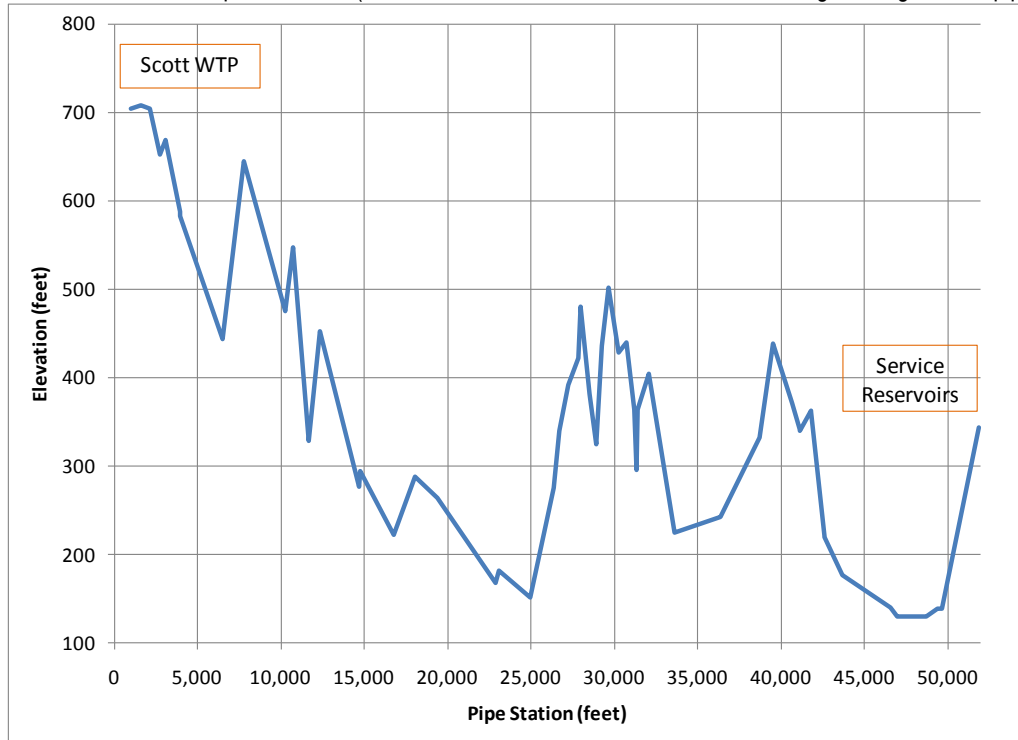
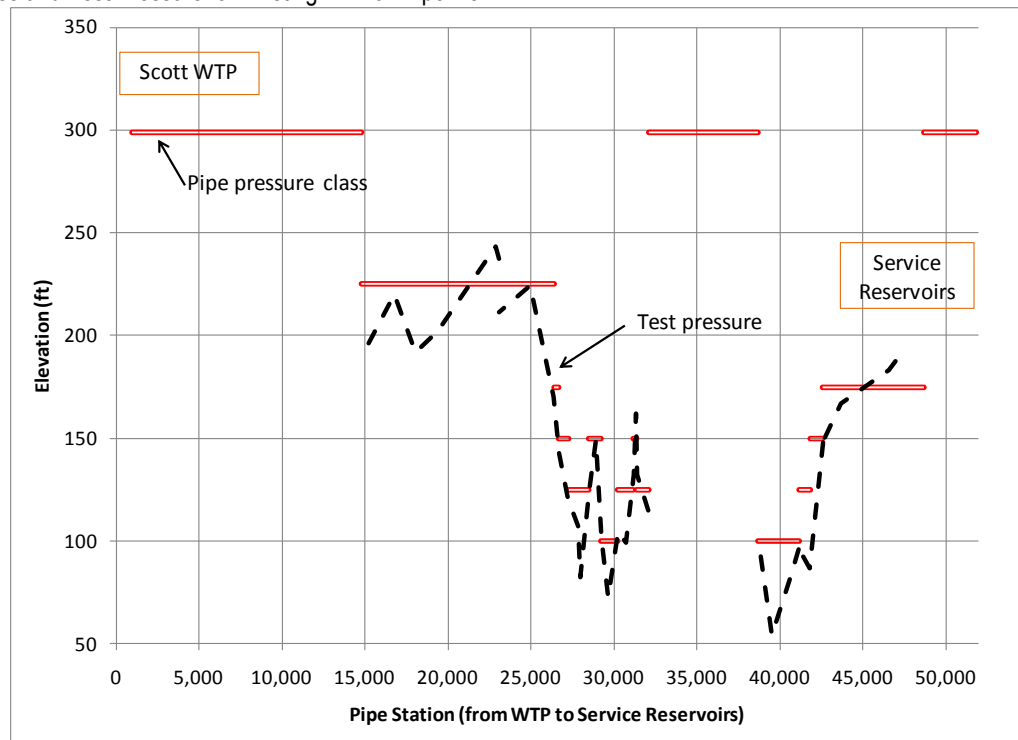


EXHIBIT 8-4

Pipe Class and Test Pressure for Existing 24-inch Pipeline



The parallel pipelines generally travel cross-country through private property, as allowed by the issuance of a large number of individual easements. The easements for the older, smaller pipeline are 10 feet in width. The easements for the newer, larger pipeline are 30 feet in width. In years past, MW&L granted water service to several customers, representing a current population of approximately 100, along the length of these pipelines. However, MW&L has no obligations to continue serving any of these transmission pipeline customers, according to information provided by MW&L. MW&L indicated that decisions about improvements to the FW transmission system should not be dictated by impacts to these customers.

8.2 Capacity Analysis for Existing Pipelines

8.2.1 Capacity Need

The FW transmission system, like the water treatment plant, must be sized to deliver the maximum day demand (MDD). Higher, peak hour demands are met through the storage provided in the Service Reservoirs. As reported in the Water Requirements chapter of this report, MW&L has reported MDDs of 14.3 and 14.9 mgd in 2007 and 2008. However, these values are questionable and may reflect metering inaccuracies. The MDD projection for 2012 is approximately 13.6 mgd, and MDD is projected to increase to 20.4 mgd in 2032. The FW transmission system should be designed to carry the build-out capacity for the WTP of 30 mgd.

8.2.2 Physical Measurement of Capacity

MW&L conducted a physical measurement of the flow capacity of the FW transmission system in March 2011. Two of the Service Reservoirs were nearly emptied to provide sufficient volume to store the high test flows, and the production of the Scott WTP was incrementally ramped to higher and higher rates until the maximum flow capacity was reached. The flow in the 14/16-inch pipeline was limited to 3.5 mgd because of concerns with the integrity of this pipeline. The total delivered flow through the pipelines reach a maximum of 14.7 mgd, with a rate of 11.2 mgd for the 24-inch pipeline.

8.2.3 Model Approach to Determining Capacity

A comprehensive hydraulic computer model was developed and used to analyze the capacity of the existing FW transmission system and possible new pipelines. The varying profile results in open-surface (non-pressurized) sections of pipeline and therefore, EPASWMM was used as the computational software for the analyses. This software is designed to handle open pipe as well as pressurized pipe flows.

The pipelines were modeled to determine their delivery capacity to the Service Reservoirs when the water level in the Service Reservoirs was at the maximum level (tanks were nearly full). This simulates a flow-limiting condition, as flows will increase as the level drops. The other condition applied for the modeling of the FW transmission system was to limit the water level in the Scott WTP clearwell to a maximum of 719 feet. A level of 719 feet has been established as the lowest allowable operating level to ensure adequate supply for backwashing filters and fire suppression. The combination of the lowest level in the clearwell and the highest level in the receiving reservoirs results in the minimum expected

flow for any given set of pipelines. Normally, the flow capacity will be slightly higher because these represent the limiting conditions.

Relatively conservative values for the pipe roughness coefficient (Manning's n values of 0.013 and 0.015) were used to determine flow capacity. The two values of the pipe roughness coefficient were used to determine the sensitivity of the analyses to pipe roughness. Selecting an exact roughness coefficient for the existing pipes would not be possible without extensive testing. Furthermore, the roughness of the pipe wall (and therefore, the appropriate value of the roughness coefficient) will continue to change and generally to increase as the pipe ages. For this reason, new pipeline options were evaluated using the same roughness values as those assigned to the existing pipelines. When new, the pipes will have a smoother interior and therefore be capable of delivering more water than predicted by the model. However, because transmission pipelines are considered a long-term investment, estimating their capacity near the end of their service life, when roughness is at a maximum, is important. The pipeline roughness value was selected to simulate end-of-life conditions.

8.2.4 Model Findings for Capacity Analysis

Based on the assumptions as described, model analyses predicted a maximum flow capacity of 14.5 mgd for the existing FW transmission system, with 3.5 mgd through the 14/16-inch pipeline and 11.0 mgd through the 24-inch pipeline. The combined flow for both lines of 14.5 mgd determined by the modeling correlates well with the field testing value of 14.7 mgd.

The high point elevations along the pipeline route impose some limitations on the flow capacity, but the primary limiting factor is the long length of the pipes. The driving head required for delivering water through 10 miles of pipe is significant and therefore, replacing or adding short sections of pipeline (such as the tunnel portion) will only marginally increase the flow capacity.

8.3 Flow Control

Flow through the FW transmission system is currently controlled at the upstream end, using the flow control valve installed at the WTP on the clearwell outlet pipeline. The plant operators adjust the production rate of the WTP and the flow out of the clearwell into the FW transmission system based on water level trends in the Service Reservoirs and other considerations such as weather, time-of-day, treatment flow restrictions, and expected system demands. The operators adjust the flow to achieve a balance between producing sufficient water to meet demands while making only gradual changes in the production rate of the WTP. Sudden flow increases through a media filtration plant can contribute to less effective treatment and are avoided if possible.

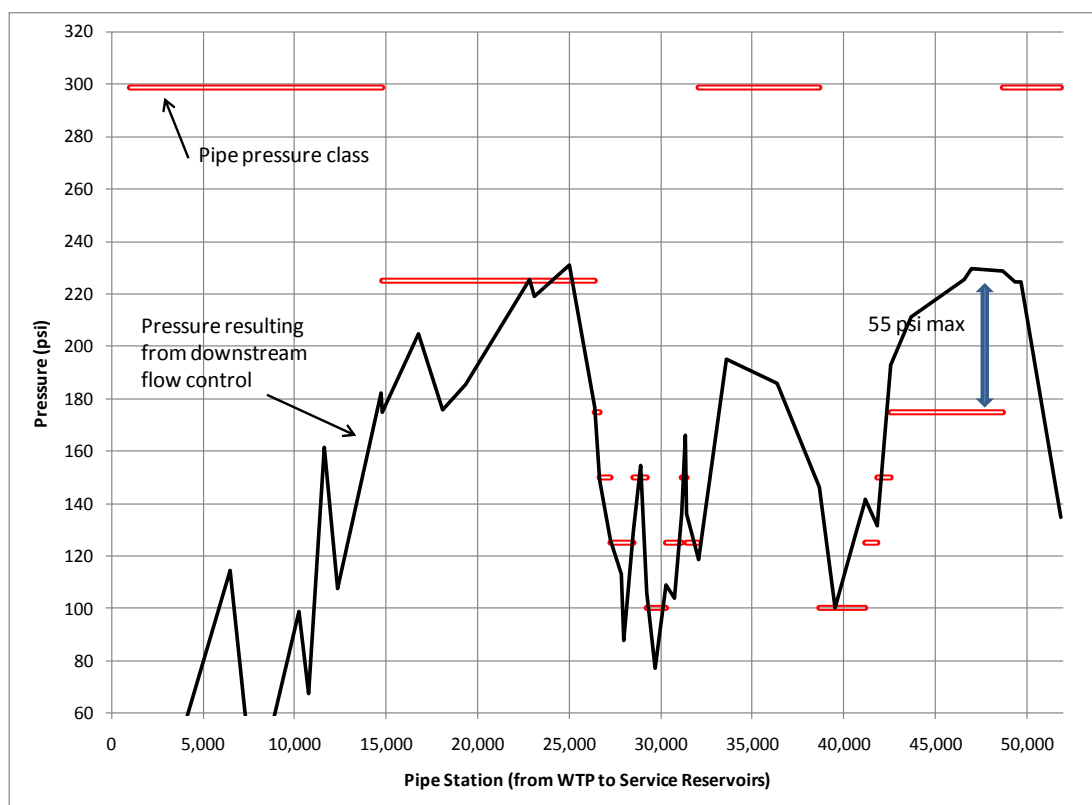
An alternative approach would be to control the flow at the downstream end of the FW transmission pipelines, just prior to entry into the Service Reservoirs. This approach would raise the hydraulic grade line along the entire length of the pipelines and consequently, increase the pressure in the pipelines. This is not feasible or recommended as long as the 14/16-inch pipeline remains in service. The 14/16-inch pipeline already has a history of failures (breaks and leaks) at current operating pressures. Higher pressures would

exacerbate the failures. However, when the 14-/16-inch pipeline is replaced, a long-term goal is to change operations to downstream control.

Consideration must also be given to the design pressure and condition of the existing 24-inch pipeline. For some of the higher elevation (lower pressure) sections of this pipeline, a lower pressure class of pipeline was used. This has provided acceptable performance as the line is operated now; however, the pressure resulting from downstream flow control may exceed the design pressure. Even if the design pressure is not exceeded, changing to downstream flow control will increase the pressure in the line and may result in leaks or breaks. **Exhibit 8-5** provides a chart comparing the test pressures used along the length of this pipeline to the pressures it would see under a downstream flow control scenario. The downstream flow control pressure will exceed the test pressure in several locations, including by up to 55 psi in one area.

EXHIBIT 8-5

Downstream Flow Control Pressures in Existing 24-Inch Pipeline Compared to Pipe Class



In summary, downstream flow control is not feasible as long as the 14-/16-inch pipe remains in service and may result in problems even in the existing 24-inch pipeline. Revisiting the use of downstream flow control when the 14-/16-inch line has been removed from service is recommended because it offers advantages over upstream control:

- It eliminates the gravity (non-pressurized) sections of the pipeline – upstream control results in some high-elevation sections of the pipeline that flow only partially full, rather than under pressure. A non-pressurized pipeline is more susceptible to infiltration if there are leaks. If a pipe is held under pressure, water will flow out of leaks and not into

the pipe. When it is not pressurized, groundwater may flow into the pipe and possibly carry contamination into the potable line.

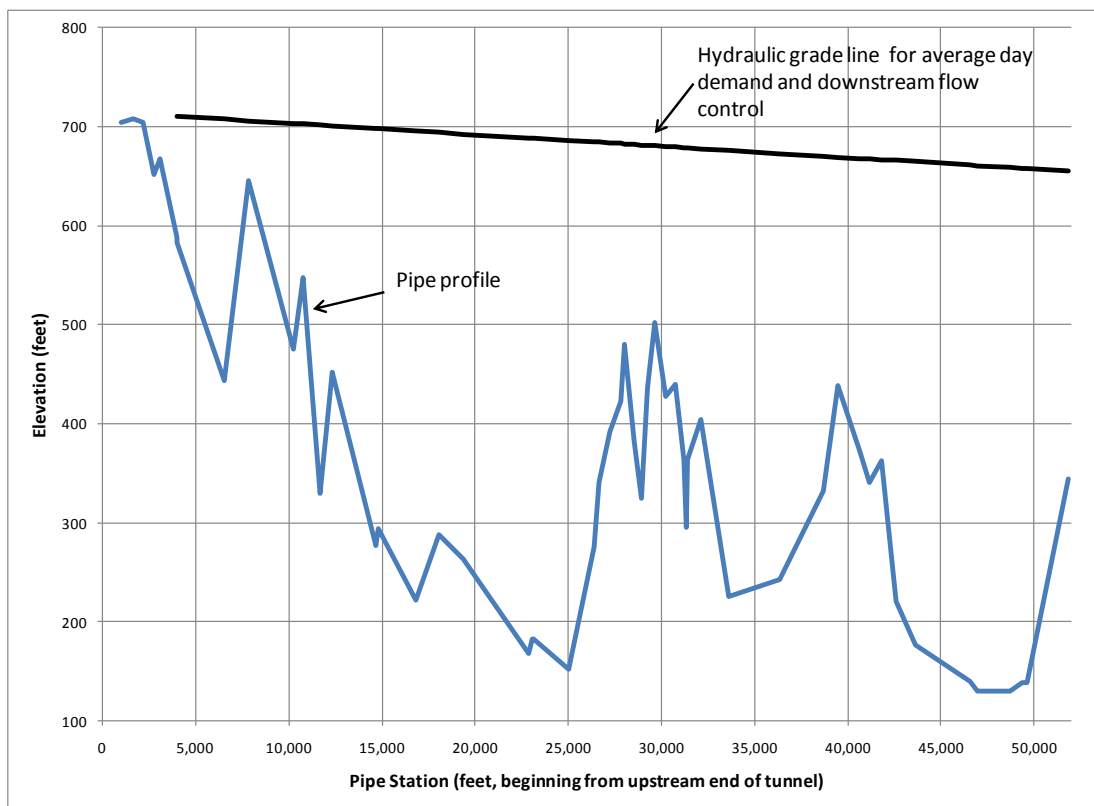
- It provides more positive and responsive flow control – upstream control results in a delay between valve adjustment and higher flows reaching the Service Reservoirs. Downstream control will be more immediate.
- It enables the system to directly serve the proposed Zone 2 by gravity during the lower-flow periods of fall through spring. Downstream control preserves as much head as possible at the downstream end of the pipelines. Pumping will only be needed during the peak flows of summer when nearly all of the available head from the clearwell is needed for delivery through the FW transmission pipelines.

8.3.1 Direct Service to Zone 2

MW&L currently serves only a few customers whose connections are located at elevations higher than can be served by gravity supply from the Service Reservoirs. The elevation boundary for service connections is approximately 272 feet. Customer connections located at this elevation have a static water pressure of approximately 40 psi. Customers located above this elevation will have a static pressure of less than 40 psi, which is generally considered unacceptable. A small number of existing customers have connections above 272 feet and are served by a small pump station located by the Service Reservoirs. Others, located near the elevation boundary, have provided their own booster pumps to obtain acceptable pressure.

As described the Water Requirements chapter, MW&L expects significant growth in Zone 2. The plan is to add a storage tank with overflow elevation of approximately 510 feet to serve Zone 2 as it develops. Currently, with the FW transmission flow controlled from the upstream end (at the Scott WTP), the potential head in the FW transmission piping falls to the head needed to fill the Service Reservoirs. Therefore, with this arrangement, water must be pumped from the Service Reservoirs to a Zone 2 tank when it is installed. The application of downstream flow control, if it can be instituted in the future when the 14-/16-inch line has been removed from service, will allow direct gravity flow to the Zone 2 tank during much of the year. Direct gravity service to Zone 2 will be possible during all but the peak demand periods in the summer. **Exhibit 8-6** illustrates the hydraulic grade line for an average day demand condition. The hydraulic grade line at the Service Reservoirs remains over 600 feet, sufficient to directly fill a Zone 2 tank with an overflow elevation of 510 feet.

EXHIBIT 8-6
Hydraulic Grade Line for Average Day Demand and Downstream Flow Control



8.4 Redundancy Concern

MW&L's water system has a long history of continuously providing safe drinking water to its customers and this is the expectation for a public water utility in the United States. It is understood that brief and localized interruptions in service may occur because of a main break or installation of a replacement main. Further, a brief interruption for the whole community is conceivable during an earthquake, security breach, or severe storm, though this has never happened. However, the goal (and the experience to date) is for the system to achieve 100 percent reliability of supply to the community.

One hundred percent reliability normally requires redundant facilities. MW&L's system includes redundancy within the supply system (Haskins and McGuire Reservoirs, multiple diversions), for most of the FW transmission piping (two parallel pipelines), and within the storage system (four finished water storage reservoirs, providing a volume exceeding a maximum day demand). Although there is only a single water treatment plant, the plant processes have redundancy (multiple filters, redundant chemical systems, redundant pumps and mechanical systems, redundant control options) and most plant facilities are accessible for rapid repairs.

Perhaps the most vulnerable component in the existing system is the single section of FW transmission piping located within the tunnel. There is only a single pipeline from the outlet of the Scott WTP to the Panther Creek valve station but most of this pipeline was installed

just a few feet below the ground surface and could be repaired relatively quickly if a break occurred. However, there is no access to the pipe located in the tunnel. A failure of this section of pipeline could interrupt water service to the community for an extended period. Therefore, the highest priority for the FW transmission piping improvements is to add a second pipeline that parallels the pipeline located in the tunnel. This parallel pipeline will also eventually be needed to increase the capacity of the FW transmission system to the buildout value of 30 mgd.

8.5 Evaluation of Expansion Alternatives

8.5.1 Material Selection

MW&L requested that planning be based on using cement-lined ductile iron as the pipe material for the new FW transmission line. High density polyethylene (HDPE) is becoming more commonplace as an alternative to ductile iron for water transmission but the high pressures in this line and MW&L's positive history with ductile iron make ductile iron a good choice. The one exception for ductile iron would be in the tunnel section, as described later in this chapter. Either HDPE or fusible PVC is proposed for inside the tunnel as the flexibility of the pipe and welded joints are necessary for a horizontal direction drill installation. Additionally, the plastic material provides long-term corrosion resistance for the inaccessible length of the tunnel.

8.5.2 Alignment and Size

The master planning analyses assumed that the existing 24-inch ductile iron pipeline installed from Panther Creek valve station to the Service Reservoirs will continue to provide reliable service for many years. Because long pipelines such as this represent such a major investment, it is recommended that its condition be checked on a regular basis and replacement be planned well in advance of the end of its useful life.

The new FW transmission pipeline plus the existing 24-inch pipeline should be capable of delivering the watershed and Scott WTP buildout capacities of 30 mgd. (The maximum capacity of 30 mgd for the watershed was documented in the June 2007 *Norman R. Scott Water Treatment Plant Facility Plan*. The buildout capacity of 30 mgd for the Scott WTP was set to match the watershed capacity.)

In addition to setting the target capacity at 30 mgd, assuming the continued use of the 24-inch pipeline, and assuming the use of ductile iron for the new line, the following conditions were set for the capacity evaluations:

1. The 14-/16-inch pipeline would be abandoned.
2. A new parallel pipeline will be installed from the Scott WTP to the Panther Creek valve station, sized at 36 inches; this line was sized to carry the full 30 mgd buildout capacity in the event that the existing tunnel section was to fail.
3. The system should be capable of delivering 30 mgd for the lowest operating clearwell level of 719 feet and the full level in the Service Reservoirs of 372 feet.

4. The evaluations should be based on a pipe roughness coefficient that reflects aged pipe because the finished water transmission system will need to supply the 30 mgd flow throughout its useful life.

A primary question to address was the routing for the new FW transmission pipeline. MW&L's original goal was to locate the new pipeline in public right of way, along the shoulders of county roads. This would allow MW&L easier access for operation and maintenance, as well as avoiding the possible challenges associated with modifying or obtaining new easements for following the existing 24-inch pipeline alignment which passes through private property. It may be possible to install the new pipeline within the same easement as the existing 24-inch pipeline (a 30-foot easement), without significant renegotiations and cost, but this will require legal interpretations of the easements to confirm. After examining options for the alignment of the new pipeline, it was found that following a public right of way would add approximately 15,000 feet to the pipeline length. This route is illustrated in Exhibit 8-2.

The hydraulic computer modeling indicated that a 30-inch pipeline along this alternative routing, because of its longer length, would achieve a combined delivery of only 28.4 mgd, less than the target of 30 mgd. (As described in sections to follow, a 30-inch size is sufficient if the alignment follows the existing 24-inch pipeline alignment.) The additional cost for an extra 15,000 feet plus upsizing at least a portion of the line from 30- to 36-inch would potentially add four to five million dollars to the project cost. MW&L concluded that accessibility limitations by following the existing easement for the 24-inch pipeline did not justify such a substantial cost increase.

Once MW&L is ready to abandon the 14/16-inch pipeline, MW&L indicated that it would consider whether to sell the existing pipeline to the transmission line customers, providing them with water through a wholesale arrangement, or to end service to these customers and abandon the pipeline. Depending on easement agreements and environmental regulations, MW&L may be able to abandon the AC pipeline in place or it may be required to remove and dispose of the AC pipe in a suitable disposal site. The CIP assumes it can be abandoned in place.

The results from the hydraulic modeling indicated that a new pipeline, following the alignment of the existing 24-inch pipeline, will need to be sized at 30 inches in diameter to deliver the full 30 mgd target capacity. The use of a 24-inch line instead of 30-inch would provide only 24.1 mgd.

8.5.3 Phasing

One of MW&L's goals was to identify logical phasing for the new 30-inch pipeline because it represents a major capital investment. After examining a number of possible divisions into smaller sections, it was agreed that existing interties between the 14-/16-inch and 24-inch pipelines were favorable start and end points for adding sections of the new 30-inch pipeline. Although the new 30-inch line will follow the alignment of the 24-inch line and therefore, the two could be interconnected at regular intervals, portions of the 14-/16-inch line must remain in service until the entire 30-inch line has been constructed to provide the needed flow capacity and to provide redundancy. The 14-/16-inch cannot be abandoned unless the new line is interconnected at both the upstream and downstream ends. The

proposed phases for the new pipeline uses the following stations for beginning and ending points: Scott WTP, Panther Creek valve station, and Old Wagon Road. The Luoto and Sitton interties were replaced with an intermediate intertie on Fir Crest Road, at a location that is more easily accessible because it is on a public road. Consideration should be given during the design to the final number and location of interties.

Exhibits 8-7 and 8-8 summarize the findings from the hydraulic analyses and recommended plan for phasing. The first priority is to add a parallel pipeline from the WTP to Panther Creek valve station. Its priority was dictated by it being a single point of failure for the system. The addition of this parallel pipeline will provide important redundancy. In addition, it increases the transmission capacity from 14.7 to 15.8 mgd. This first phase of the finished water transmission improvements represents a significant capital project for MW&L because of the tunnel portion. A further description of the tunneled portion is presented in a later sub-section of this chapter.

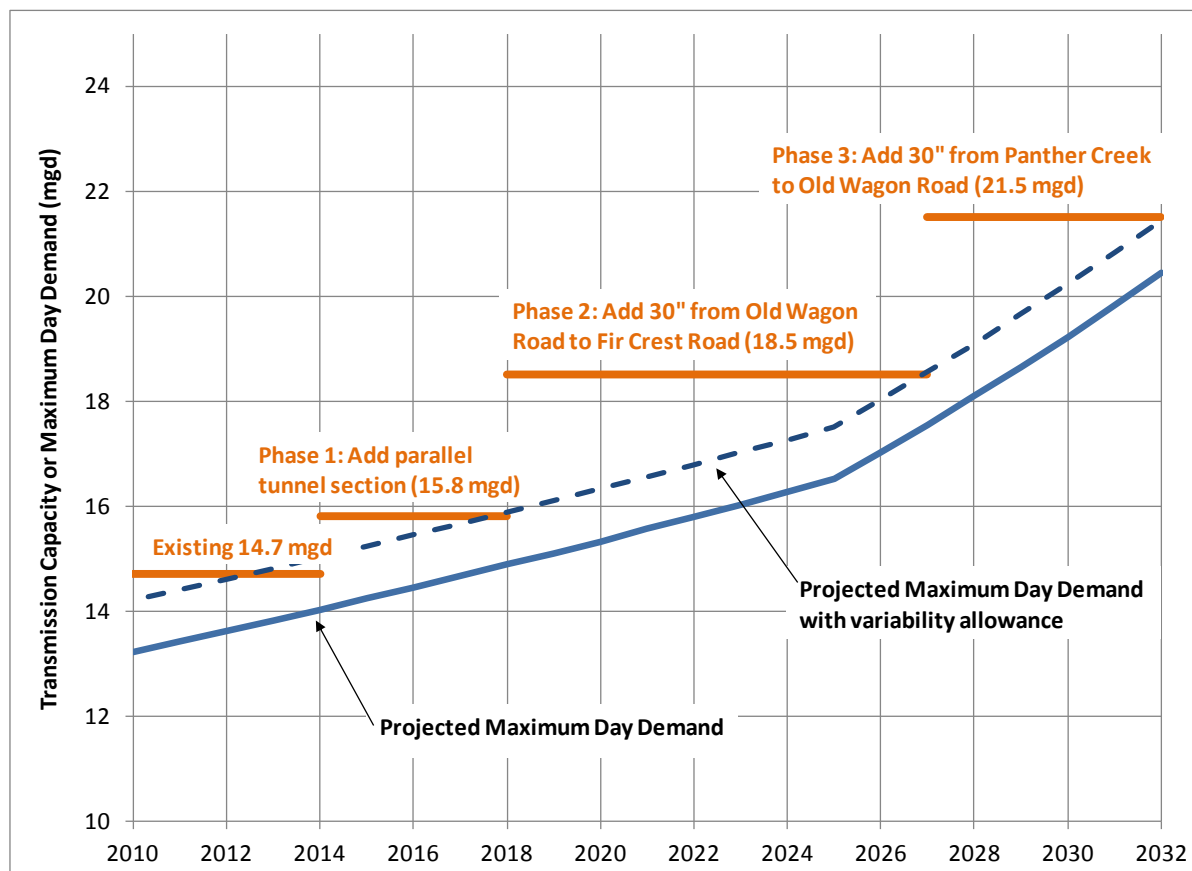
The second phase improvement consists of replacing the center section of the older, smaller pipeline, from the interconnection at Old Wagon Road to a new intertie at Fir Crest Road. This is the longest of the three sections of the older line and therefore, provides the largest flow increase. It is approximately 20,300 feet in length. This has been proposed as the second phase but there is flexibility and MW&L could implement phases two through four in any sequence. It may be necessary to adjust the sequence of these phases to fit with budget constraints or possibly if easements could be obtained earlier for one section than another. The work to obtain easements should begin well in advance of the design and construction dates for the pipeline segments.

EXHIBIT 8-7

Proposed Phasing for Finished Water Transmission Improvements

Phase	Description Of Addition	Flow Capacity With Addition (mgd)
0	Existing system	14.7
1	Add parallel 36" pipe from Scott WTP to Panther Creek valve station (including new tunnel section)	15.8
2	Replace 14/16-inch pipeline from the intertie on Old Wagon Road to a new intertie on Fir Crest Road with 30-inch pipeline	18.5
3	Replace 14/16-inch pipeline from Panther Creek valve station to Old Wagon Road with 30-inch pipeline	21.5
4	Replace 14/16-inch pipeline from a new intertie on Fir Crest Road to Service Reservoirs with 30-inch pipeline	30

EXHIBIT 8-8
Timing for Finished Water Transmission Improvements



8.6 Proposed Improvements

8.6.1 Tunnel

Gravity flow from the WTP to the reservoirs will continue to require a tunneled section of line. The existing pipeline was encased in concrete within the tunnel. In 2008, MW&L examined some of the tunnel interior by using a camera and the viewable pipeline generally appeared to be in good condition. However, the pipeline interior was not inspected and examining the entire length of the pipeline was not possible. As described previously in this chapter, the pipeline through the tunnel represents a single point of failure for the system. If this pipeline was lost for some reason, it would be difficult if not impossible to repair and the entire system would be without water for an extended period. Therefore, installing a parallel pipeline is a high priority project to provide redundancy and increase the FW transmission capacity.

The recommendation is to size the new pipeline from the WTP to Panther Creek valve station sufficient for 30 mgd. A flow of 30 mgd represents the buildout capacity of the watershed and Scott WTP and thus would enable the new pipeline to deliver the entire capacity should the existing line fail. Both pipelines will be used. The hydraulic modeling

indicated that this new line should be sized at 36 inches in diameter to achieve the 30 mgd capacity. The entire length from the Scott WTP to Panther Creek valve station will be sized at 36 inches. A new connection will be made downstream of the clearwell and new connections will be made at the downstream end at Panther Creek valve station. The two pipelines could also be interconnected just downstream of the tunnel sections if that is found to provide advantages during construction or for operations.

Rather than digging and blasting a new tunnel and then inserting pipe within it, the state-of-the-art approach is to install the pipe using horizontal directional drilling (HDD). The following preliminary design criteria were selected for the HDD installation:

- The new HDD section must have adequate separation from the existing tunnel to avoid integrity issues with either line, and to minimize the potential for the release of drilling fluids passing from the HDD into the tunnel (termed 'frac-out' for fractured outlet). A preliminary separation estimate, provided by an experienced HDD installer, is 40 feet for the rock that is expected in this area.
- The planning level cost estimate assumes the use of DR 13.5 42-inch diameter HDPE pipe. This pipe has an outside diameter of 44.5 inches and an inside diameter of 36.76 inches. As an alternative, MW&L could consider the use of fusible PVC if it is available with a similar inside diameter. Competitive bids can be obtained for only HDPE or for allowing the option of either material; competitive bids will not be obtained if only fusible PVC is allowed because there is only one company supplying and providing welding of fusible PVC.
- The HDD alignment should be sloped downstream at a 2 percent (or greater) grade, because controlling the installation with the necessary precision to ensure that no intermediate high points result is difficult for slopes less than 2 percent.
- Generally, it is advantageous to begin drilling from the downstream end and operate the drilling tool in the uphill direction. This makes it easier to handle the drilling fluids. The pipe will be laid out at the uphill end and it was assumed that a welded pipe string could extend across the WTP site to eliminate or at least minimize mid-installation welds.
- An area of approximately 100 feet by 150 feet will be needed for the drill rig on the downstream end. There is reasonable access at the downstream end of the tunnel, but some clearing will be needed. The availability of land and access was not confirmed during the master planning analysis.
- At least three geotechnical test holes are warranted, one near each end and one near the center of the route, to provide sufficient information for design and construction. If the three holes show significant differences, then additional test holes may be warranted.
- The master plan cost estimate assumes the presence of basalt. The Coast Range typically consists of basalt or mudstone, with basalt being more difficult and expensive for HDD installations.
- The available mapping indicates that the HDD length will be approximately 1,500 feet. Actual surveying of the site will be necessary to confirm the location of the existing

tunnel and to confirm the alignment and length of the new HDD pipeline. Since an HDD installation will have a high cost per foot of length, it will be important to optimize the location to reduce the HDD length to the greatest extent possible.

The cost estimate included in the CIP for this pipeline was determined based on recent, similar installations, and with input provided by a major Northwest HDD contractor. An allowance was added for geotechnical explorations and engineering design. The master plan cost does not account for land purchase, if any is needed.

8.6.2 Panther Creek to Service Reservoirs

As indicated earlier, a new 30-inch pipeline will be connected at Panther Creek, and it will follow the same alignment as the existing 24-inch pipeline. The two lines should include periodic interconnections with valves to allow isolation of smaller portions of the lines for maintenance and repairs. The 30-inch line will be installed in phases to provide a manageable investment schedule for MW&L. The capital improvements plan presented in this master plan includes phasing that will match the projected system demand growth.

8.6.3 Downstream Flow Control

Downstream flow control is recommended for several reasons, as enumerated in this chapter. It cannot be implemented until the existing 14-/16-inch line has been fully abandoned and even then, must be carefully implemented to avoid over-pressurizing the existing 24-inch line. Once the system is operated in this manner, Zone 2 can be fed by gravity during the non-peak demand periods of each year.

Finished Water Storage

9.1 Description of Existing Storage Tanks

MW&L's system uses four storage tanks (called the Service Reservoirs) for finished water storage. All four are located on a single property on Fox Ridge Road, just west of the McMinnville city limits. (The WTP clearwell is not included in this discussion as its function differs from the four distribution storage tanks.) A control valve/pump building shares the same site. The inlet and outlet lines to all tanks pass through this building, and the valves allow isolation of tanks for maintenance. The building includes a transfer pump to move water from one tank into another, if a need arises.

The combined volume of the four tanks is 22.7 million gallons. The tanks are filled by gravity through the finished water transmission pipes. Water from the Service Reservoirs flows by gravity to MW&L's customers. All four tanks share a common overflow elevation of 371.7 feet. **Exhibit 9-1** provides descriptions for the tanks.

There is space for a future fifth reservoir tank located just north of pump house. The pump house has a designated location for inlet and outlet piping for this future reservoir.

EXHIBIT 9-1

Finished Water Storage Reservoirs

Reservoir No.	Volume (MG)	Construction Year	Notes
1	2.1	1915-20	Rectangular concrete tank with hopper bottom
2	3.1	1915-20	Rectangular concrete tank with hopper bottom
3	7.0	1964	Circular prestressed concrete, partially buried; upgraded to then-current seismic criteria in 1990s
4	10.5	1995	Circular prestressed concrete, partially buried
Total	22.7		

9.2 Capacity Analysis

9.2.1 Criteria

Finished water storage is provided to meet fire flow, equalization, and emergency needs. Equalization refers to the volume needed to meet short duration (peak hour) demand spikes, since they can exceed the capacities of the WTP and the transmission pipelines which are designed to meet maximum day demands. The pertinent design criteria for overall storage, presented in Section 5 of this report, are the following:

- Fire volume = 960,000 gallons (4,000 gpm for 4 hours)
- Equalization volume = 20 percent of maximum day demand
- Emergency volume = 100 percent of maximum day demand

The design criteria for the future Zone 2 storage differ because Zone 2 will only include residential customers. The following criteria apply to Zone 2:

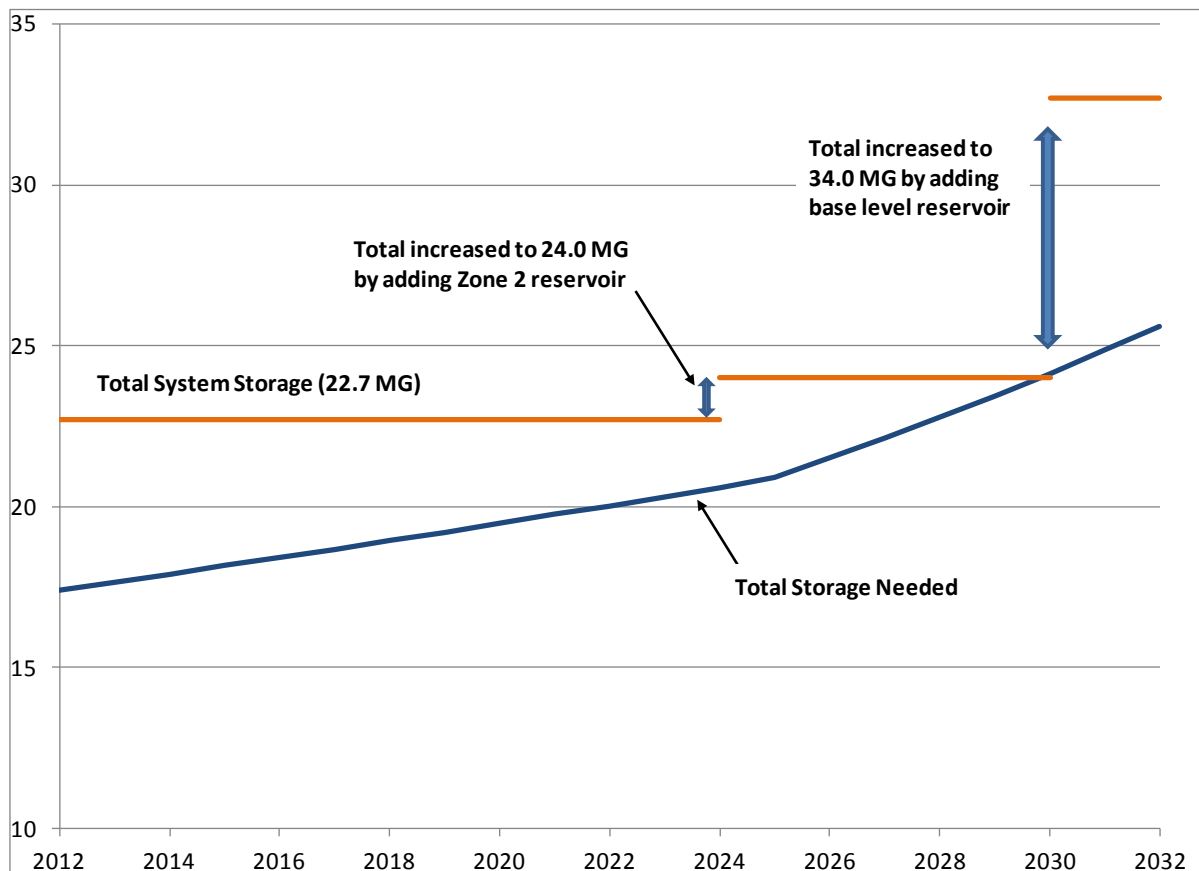
- Fire volume = 540,000 gallons (3,000 gpm for 3 hours)
- Equalization volume = 25 percent of maximum day demand
- Emergency volume = 100 percent of maximum day demand

Based on these criteria, and the estimated buildout demand for Zone 2, the buildout storage requirement for Zone 2 is estimated at 1.3 million gallons.

9.3 Proposed Capacity Improvements

Exhibit 9-2 shows the current and projected reservoir storage requirements. In 2011, the storage requirement based on the criteria above is 17.2 million gallons, compared to actual storage of 22.7 million gallons. Therefore, MW&L currently has 5.5 million gallons of excess storage capacity.

EXHIBIT 9-2
Existing Storage and Projected Storage Requirements



If demands grow as projected, additional storage will be needed by 2028. Storage requirements can be met by adding a 10-million gallon reservoir, as planned for the reservoir site at Fox Ridge Road. In addition, the increasing storage needs will be met by adding a 1.3-million gallon Zone 2 tank if Zone 2 develops as planned. Construction of a Zone 2 tank would delay the need for the proposed new 10-million gallon Zone 1 reservoir.

The CIP assumes that much of the early growth will occur in Zone 2 and therefore, the first storage addition will be to add the 1.3 million gallon reservoir to serve Zone 2. This will delay the need for the 10-million gallon tank. This progression of storage additions is reflected in the chart shown in Exhibit 9-2.

One sizing concern for reservoirs is avoiding stagnant water. Reservoir tanks with poor mixing and low turnover rates can result in excess water age. Loss of chlorine residual, re-growth of bacteria, and formation of disinfection byproducts are all concerns associated with excessive water age. Because all of the water produced at the Scott WTP passes through the Service Reservoirs, the water is better circulated (“turned over”) than if the Service Reservoirs were on the opposite side of the distribution system. MW&L has not identified water quality concerns with its present storage and it is not anticipated that there will be concerns in the future. Nevertheless, close attention should be paid to the inlet and outlet design of any future reservoirs to ensure proper water circulation to reduce the impacts of excessive water age. Additionally, routine water quality monitoring at the reservoirs is recommended.

The recommended material selection for the 10-million gallon tank is prestressed concrete. Reservoirs 3 and 4 are prestressed concrete tanks and have provided reliable service for MW&L. This is generally the material of choice for tanks of this volume because the prestressing allows for a decrease in wall thickness, thus saving on cost. In addition, the prestressing effectively controls shrinkage cracking that occurs in conventionally reinforced concrete tanks.

Steel, conventionally reinforced concrete, and prestressed concrete are all options to consider for the proposed Zone 2 reservoir. If the tank must be partially buried to achieve the desired overflow elevation, because of the site elevation and excavation options, then it should be constructed of concrete and not steel.

9.4 Reservoir Security Evaluation

Security upgrades were completed at the Scott WTP during the 2008-2010 plant expansion and upgrades. The other primary vulnerability in MW&L’s water system is at the Service Reservoirs because of the concern of intentional contamination. The reservoir tanks are particularly vulnerable because of the following factors:

- Reservoirs are a visible component of the system, so a person intent on doing harm could recognize them as an opportunity. (A water treatment plant is another visible component but as noted, security upgrades have been completed at the Scott WTP.)
- The Service Reservoirs are not staffed, so malevolent activity may go unnoticed.

- Water stored in tanks is not under pressure (as it is in pipelines), making it easier for someone to add a contaminant.
- Reservoir tanks present natural pathways for access to the stored water, through hatches and vents.
- Water leaving the Service Reservoirs may reach customers within minutes.

Therefore, a component of the master plan was to perform a preliminary review of the existing security features at the Service Reservoirs and to identify security capital improvement projects to upgrade the security systems. At the time of implementation, MW&L should further review the recommended security improvements and revise the recommendations based on product advances and the system's history with vandalism and security breaches, if any.

Exhibit 9-3 summarizes costs for the recommended security improvements. Costs are broken down by reservoir, except for projects common to all reservoirs. All costs are summarized as a single line item in the overall master plan CIP table. In general, the security improvements consist of physical hardening of the reservoir entry doors, hatches, and vents. Physical hardening refers to modifications to the doors, hatches, and vents to delay an intruder, making it more likely that an intruder would be detected and appropriate response measures could be undertaken to prevent successful introduction of a contaminant. The recommendations also include adding detection alarms at select locations for the reservoir facilities.

In addition to these measures, the recommendations include the addition of cameras for the reservoir site. The cameras are not intended for detecting intruders – this would only be possible if 24/7 monitoring was provided and this is impractical because of the cost. Instead, the cameras have been recommended for their value in alarm assessment. If evidence was found that indicated someone may have gained entry to a tank or if an intrusion alarm was triggered, the cameras provide a video history to enable MW&L to review the recent site history and confirm or deny a security breach. A preliminary selection of cameras, with an allowance for electrical and SCADA connections, has been included to provide a basis for the CIP. A detailed analysis of the site will be necessary to determine the appropriate number and location of cameras.

Further details on recommended security improvements were provided in confidential documents to MW&L during the course of this master plan project. It is generally advisable to limit public disclosure of specific security plans for obvious reasons.

EXHIBIT 9-3Recommended Reservoir Security Improvement
Costs

Projects	Cost Estimate¹
Reservoir 1	\$9,000
Reservoir 2	\$9,000
Reservoir 3	\$4,000
Reservoir 4	\$4,000
Common	\$55,000
Subtotal	\$81,000
Contingency at 30%	\$24,000
Subtotal	\$105,000
Engineering allowance at 20%	\$21,000
Total	\$126,000

¹ Values rounded to the nearest \$1,000.

Distribution System

10.1 Overview

This section contains a discussion of the hydraulic analysis of the MW&L water distribution piping and pump stations for existing (2010) and future conditions (2032). Both domestic (meaning in this case, all residential, commercial, and industrial non-fire flow uses of city water) and fire flow demands are considered. The discussion also includes hydraulic model development, demand allocation, calibration, assumptions, system analysis, and recommended improvements.

10.2 Analysis Approach

To evaluate hydraulic deficiencies in a water system, the computer model is run for a series of specific demand sets. Model output for pressure and hydraulic gradient at selected junctions and model output for flow, velocity, and headloss in pipelines are observed and compared to specific design criteria. When model elements do not meet the design criteria, improvements are identified to correct those deficiencies.

10.2.1 Design Criteria

The design criteria used to evaluate system deficiencies and improvements are based on the Oregon Administrative Rules and industry standards as described in Section 5, Planning Criteria and summarized in **Exhibit 10-1** and **Exhibit 10-2**. Criteria are provided for domestic demands and domestic plus fire flow demands.

EXHIBIT 10-1

Water System Evaluation Criteria for Domestic Demands

System Parameter	Evaluation Criteria	Value
System Pressure	Minimum	30 pounds per square inch (psi)
	Normal Range	40 to 75 psi
	Maximum	100 psi
Pipe Velocity	Maximum Velocity during ADD	5 feet per second (ft/s)
	Maximum Velocity during MDD	7 ft/s

EXHIBIT 10-2

Water System Evaluation Criteria for Domestic + Fire Flow Analysis

System Parameter	Evaluation Criteria	Value
System Pressure	Minimum during fire flow + MDD	20 psi
Pipe Velocity	Maximum velocity during fire flow + MDD	10 ft/s

10.2.2 Fire Flow Criteria

MW&L fire flow standards are presented in **Exhibit 10-3** by zoning category. The fire flow standards set by MW&L equal or exceed the fire flow requirements established by the city fire department, which follow International Standards Organization (ISO) recommendations. Improvements were analyzed to increase fire flow to the MW&L standard in main pipelines and along major roadways and growth corridors. In some situations, smaller pipelines and hydrants are privately owned and maintained. In these cases, improvements may not have been identified.

EXHIBIT 10-3

Water System Fire Flow Criteria by Land-Use Category

Land-Use Category	MW&L Criteria (gallons per minute)
Single-Family Residential	1,500
Multi-Family Residential	3,000
Schools	4,500
Commercial	4,500
Industrial	4,500

10.2.3 Hydraulic Modeling Files and Software

The hydraulic model files for the existing system were provided by MW&L in EPANET 2 and Bentley Systems, Inc. WaterCAD formats. MW&L has in recent years updated the model network and demands “in-house” and performed simulations with the EPANET 2 software. MW&L provided documentation showing a demand allocation performed in 2007 and a model calibration performed in 2009.

WaterCAD was used to perform the hydraulic simulations for the distribution system analysis. WaterCAD is a private domain software program developed by Bentley Systems, Inc. It uses the U.S. industry standard EPANET 2 as the hydraulic engine for the model and provides tools for running multiple scenarios and creating data subsets for calibration and improvement analysis. The MW&L distribution system hydraulic model has the capability to run as an extended period simulation to evaluate water quality, or as a steady state model to evaluate hydraulic capacity. The distribution system analysis was limited to the steady state version of the model to determine hydraulic deficiencies and improvements.

Updates to the model network were limited to system improvements. Elevations for new and existing model nodes were extracted from the USGS digital elevation model.

Existing System

The hydraulic model network consists of approximately 14,500 pipelines and junctions. Modeled pipe lengths are summarized by diameter and material for the existing system in **Exhibit 10-4**. The majority of the MW&L service area is contained within one large pressure zone (Zone 1). The hydraulic gradient for the system is established by the water surface elevation in the distribution supply reservoirs. The water surface elevation in the reservoirs typically fluctuates less than 2 feet during the day. For the hydraulic analysis, the water surface was assumed at the average water surface elevation of 370 feet.

A second, higher pressure zone (Zone 2) is located near the water supply reservoirs and contains a few residential units. Water is supplied from Zone 1 to Zone 2 by a small booster station. The booster station is limited to supplying domestic demands and consists of two constant speed pumps, a two-horsepower low demand pump and a ten-horsepower high demand pump. The design points for the pumps are approximately 18 gpm at 250 feet of head and 80 gpm at 240 feet of head respectively.

EXHIBIT 10-4

Pipeline Length in feet by Pipe Diameter and Material

Diameter (inch)	Pipe Material								Total	Percentage
	Asbestos Cement	Cast iron	Concrete	Copper	Ductile Iron	Galvanized iron	PVC	Steel		
1	0	68	0	1,569	0	0	0	0	1,637	0.2%
1.5	0	0	0	0	0	3,497	294	0	3,791	0.5%
2	0	0	0	718	0	7,190	13,007	15	20,930	2.6%
3	0	0	0	0	11	0	119	0	130	0.0%
4	0	7,424	0	0	26,545	388	3,316	0	37,673	4.7%
6	3,212	83,832	0	0	148,840	0	5,798	28	241,710	30%
8	709	16,226	0	0	210,034	0	0	251	227,220	28.2%
10	3,154	48,848	0	0	86,715	0	0	0	138,717	17.2%
12	165	25,796	0	0	48,235	0	0	0	74,196	9.2%
14	0	1,756	0	0	0	0	0	0	1,756	0.2%
16	0	0	0	0	21,228	0	0	126	21,354	2.7%
18	0	0	0	0	775	0	0	0	775	0.1%
20	0	0	0	0	4,844	0	0	169	5,013	0.6%
24	0	5,774	6,639	0	15,281	0	0	0	27,694	3.4%
36	0	0	0	0	2,239	0	0	0	2,239	0.3%
Total	7,240	189,724	6,639	2,287	564,747	11,075	22,534	589	804,835	100%
Percentage	0.9%	23.6%	0.8%	0.3%	70.2%	1.4%	2.8%	0.1%	100%	

10.2.4 Demand Allocation

The MW&L distribution system was modeled during Average Day Demand (ADD), Maximum Day Demand (MDD), and Peak Hour Demand (PHD) for the current water use (existing system-2010) and the projected water use in 2032 (future system). The existing system ADD was developed from water meter records in 2010 and compared to historic water production presented in Section 3, Water Requirements. Demand data for the three largest water users were replaced with the largest water usage between 2005 and 2010. Demands were allocated to the existing system model using geo-coded meter locations and spatially assigning each meter to the adjacent model node.

The future 2032 ADD was developed from demand projections presented in Section 3, Water Requirements. Future system ADD was assigned to undeveloped parcels according to designated land use, and using derived per-acre unit demands for each particular land use. As shown in **Exhibit 10-5**, the unit demands were derived by determining typical per acre water use on developed lands. All undeveloped parcels within the approved and proposed Urban Growth Boundary (UGB) were assigned demand to account for projected water use in 2032. Additionally, in-fill growth was assumed where the existing demand for a specific parcel was less than a percentage of the maximum potential demand based on the derived unit demands. The in-fill growth percent threshold was adjusted until land use-based demands for the entire system equaled demand projections for 2032. The resulting percent threshold for in-fill growth was 64 percent. Future demands were allocated to the future system model by spatially assigning future parcels to the nearest model node. To adequately account for future infrastructure, a network of looped pipelines and associated junctions was created for undeveloped areas, prior to the future demand allocation.

EXHIBIT 10-5
Derived Unit Demands by Land Use

Land Use Category	Land Use	Unit Demand (gpm/acre)
Residential ¹	R-1, R-2, R-3, R-4, AF-20, A-H, LDR9000	0.5-0.83, 0.65 typical
Commercial	C-1, C-2, C-3, O-R	1.23
Industrial	M-1, M-2, M-L	0.91
Low Density	EF-80	0.004

¹Based on 100 gallons per capita per day and 2.3 people per unit.

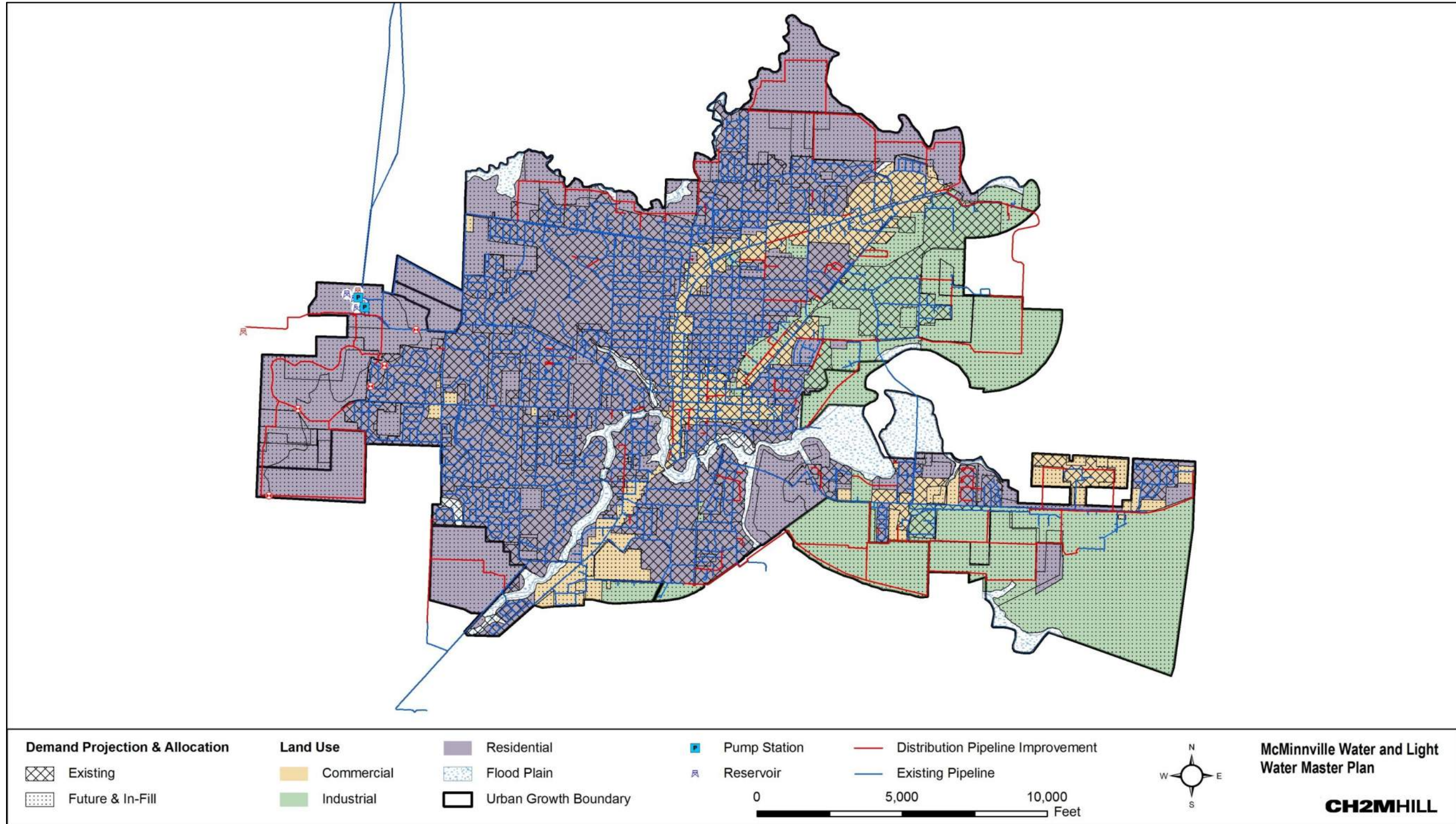
Using the allocated ADD for the existing (2010) and future (2032) scenarios, the MDD for the existing and future scenarios was developed by applying a factor of 2.3 to the ADD scenarios at each model node. PHD was assumed to be four times greater than ADD, and was developed by scaling the allocated ADD by a factor of 4. The MDD/ADD factor was developed from historic water production data presented in Section 3, Water Requirements. For the ADD, MDD, and PHD future scenarios, an additional 1.0 million gallons of demand was assigned at the far southwest model node for potential wholesale demand to adjacent communities. The maximum volume of water for potential wholesale use was provided by MW&L staff and is an estimated value as regionalization discussions are still on-going. **Exhibit 10-6** lists the approximate demands used for the modeling. In some cases, slightly

conservative (higher) demand values were used in the modeling analyses because decisions on the projection criteria were still be finalized. The distribution of existing and future demands by land-use is presented in **Exhibit 10-7**.

EXHIBIT 10-6
Overall System Demands by Scenario

Scenario	Demand (mgd)	Potential Wholesale (mgd)	Total (mgd)
Existing ADD	5.8		5.8
Existing MDD	14.0		14.0
Existing PHD	23.2		23.2
Future ADD	8.7	1.0	9.7
Future MDD	20.4	1.0	21.4
Future PHD	34.8	1.0	35.8

EXHIBIT 10-7
Land Use and Demand Projections

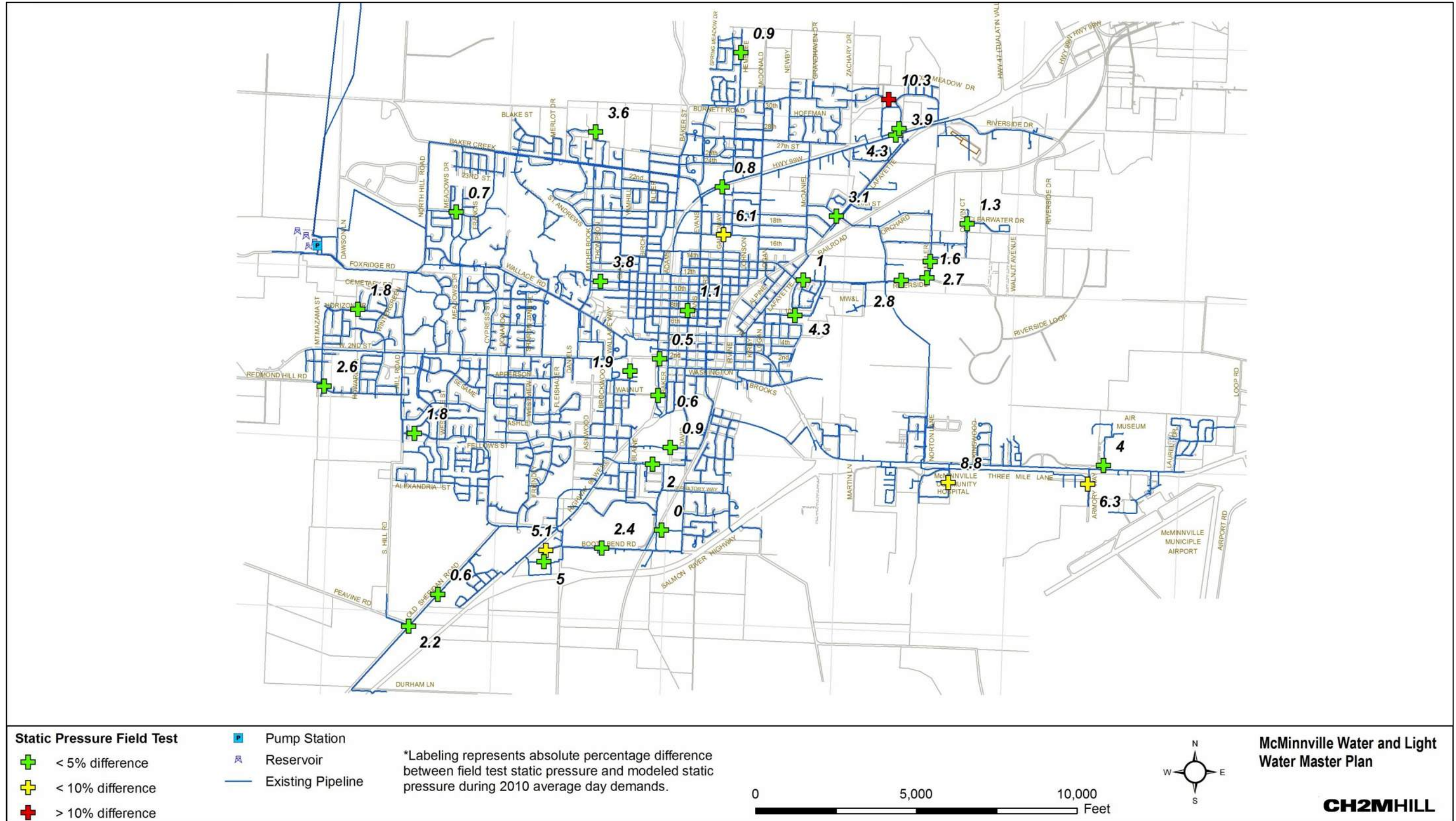


10.2.5 Calibration

To validate the performance of the hydraulic model, a series of field hydrant tests were performed and used to calibrate the model. Field tests including static pressure tests and fire flow tests were performed by MW&L between December 2004 and August 2010.

Static pressure was measured at 35 hydrants throughout the City of McMinnville. Static pressure field results were compared to modeled static pressures under 2010 ADD conditions to determine the predictive accuracy of the hydraulic model. Some inaccuracy was expected as actual water level in the storage tanks and overall system demands were not captured for the time of the field tests. The model-predicted pressures were within 2 percent of field data on average suggesting a high level accuracy. **Exhibit 10-8** shows static pressure calibration results. Several locations (indicated in yellow or red) on Exhibit 10-8 have lower accuracy. The most likely explanation for field tests with lower accuracy is that demands were higher in these areas during the actual field testing than were represented by the modeled ADD. Application of the hydraulic model when this type of inaccuracy is identified does not greatly impact the capability of the model to identify system deficiencies since deficiencies are typically determined by the MDD plus fire flow scenario where flow rates are significantly greater than the ADD scenario.

EXHIBIT 10-8
Static Pressure Hydraulic Model Calibration



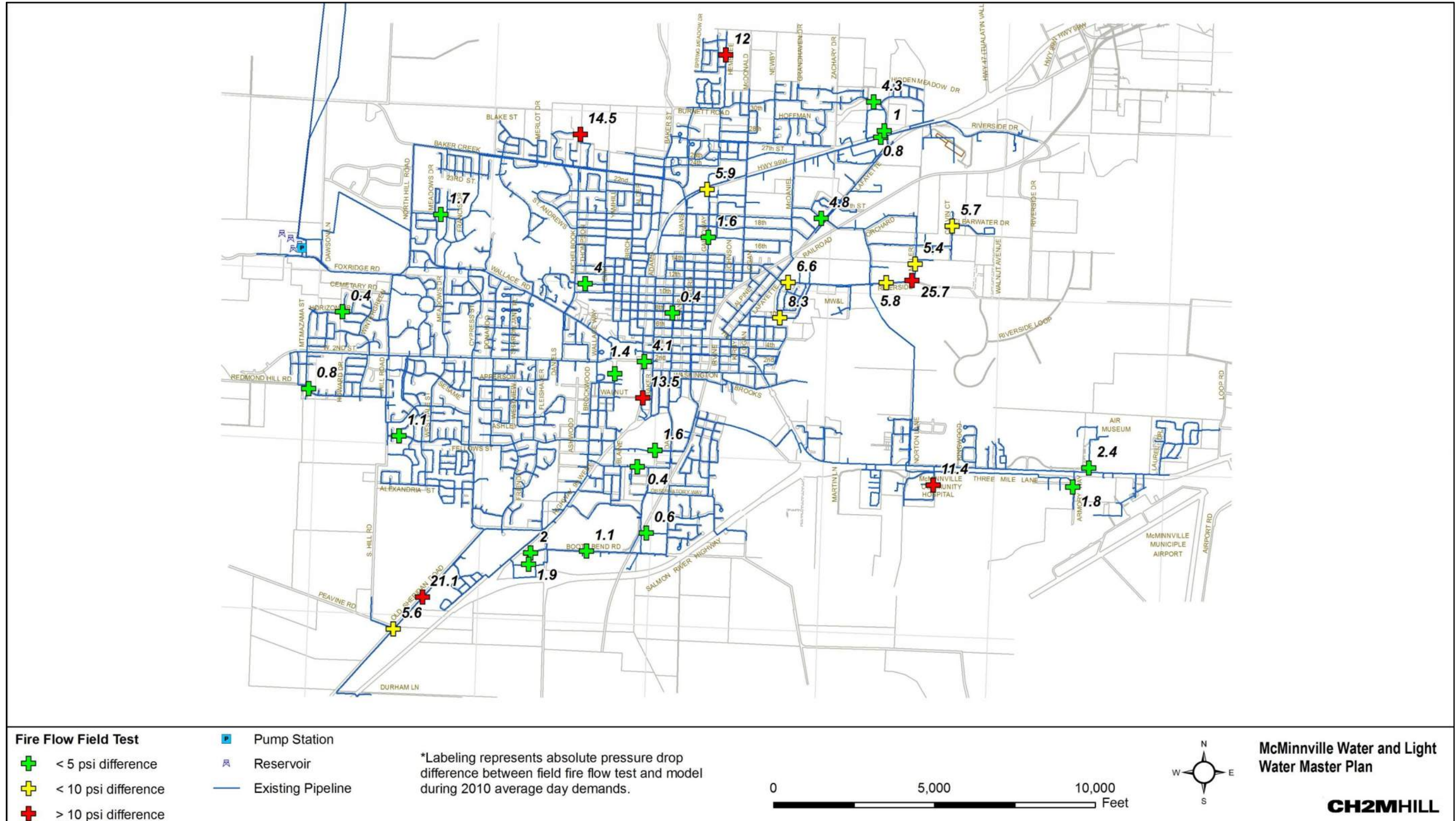
Fire flow testing was conducted by MW&L staff at 35 locations throughout the city. During flow testing, pressure drop was measured at a hydrant when the system was stressed by flowing water from an adjacent hydrant. The pressure drops obtained from field fire flow tests were compared to modeled fire flow conditions to determine the calibration accuracy of the hydraulic model under high flow conditions. Hazen-Williams C factors representing pipeline roughness were adjusted within a specified range for each pipe material to improve the calibration accuracy. Finalized Hazen-Williams C factors are listed in **Exhibit 10-9**. The model pressure drops calibrated within 5 psi for 62 percent of the tests, within 10 psi for 82 percent of the tests, and within 20 psi for 94 percent of the tests, resulting in a medium to high level of accuracy. Based on nearby tests, the field fire flow results for four test locations are questionable. Excluding the questionable test results, the model pressure drops calibrated within 5 psi for 70 percent of the tests, within 10 psi for 93 percent of the tests, and within 20 psi for 100 percent of the tests, resulting in a high level of accuracy. **Exhibit 10-10** is a system map showing the fire flow calibration results.

EXHIBIT 10-9

Hazen-Williams C Factors by Pipe Material

Pipe Material	Hazen-Williams C	Comment
Asbestos Cement	140	
Cast Iron	100	reduced from 130
Concrete	100	
Copper	135	
Ductile Iron	130	
Galvanized Iron	120	
PVC	130	reduced from 150
Steel	100	

EXHIBIT 10-10
Fire Flow Hydraulic Model Calibration



10.2.6 Hydraulic Analysis

After the calibration was complete, the model was used to analyze existing and future deficiencies within the water distribution system and to evaluate improvements. The following scenarios were analyzed:

- Existing (2010) ADD
- Existing (2010) MDD
- Existing (2010) MDD + Fire Flow
- Existing (2010) PHD
- Future (2032) ADD
- Future (2032) MDD
- Future (2032) MDD + Fire Flow
- Future (2032) PHD

10.2.7 Existing System Analysis

Hydraulic model results are summarized for the existing ADD, MDD, and PHD domestic demand scenarios in **Exhibit 10-11** through **10-14**.

EXHIBIT 10-11

Existing System Hydraulic Model Pressure Results

Demand	Pressure (psi) ¹	
	Zone 1 (Base)	Zone 2
ADD	36 – 115	147 – 210
MDD	34 – 109	136 – 199
PHD	< 0 – 97	110 – 144

¹ Excludes pressure results immediately adjacent to distribution reservoirs.

EXHIBIT 10-12
2010 ADD Hydraulic Model Results

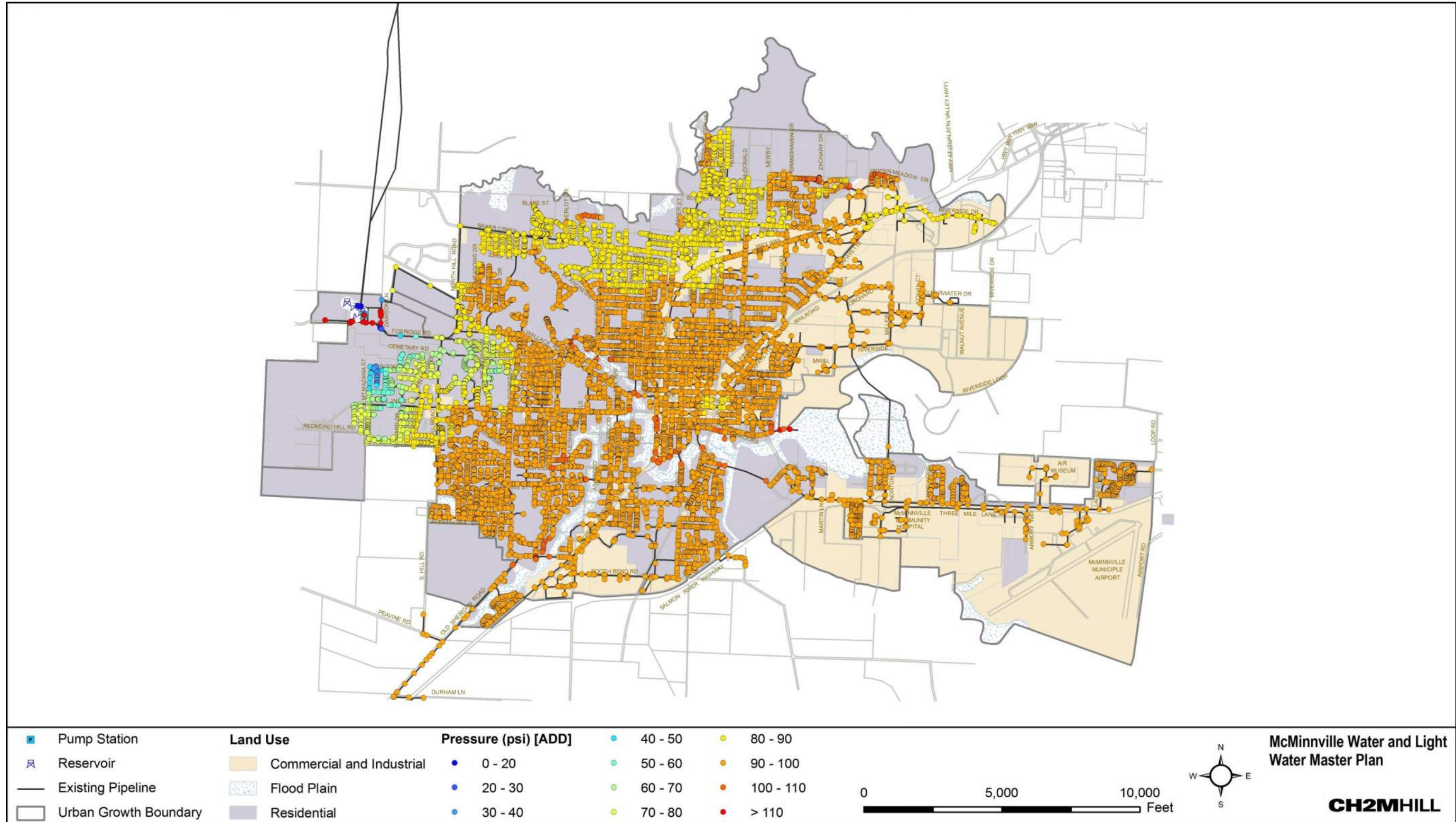


EXHIBIT 10-13
2010 MDD Hydraulic Model Results

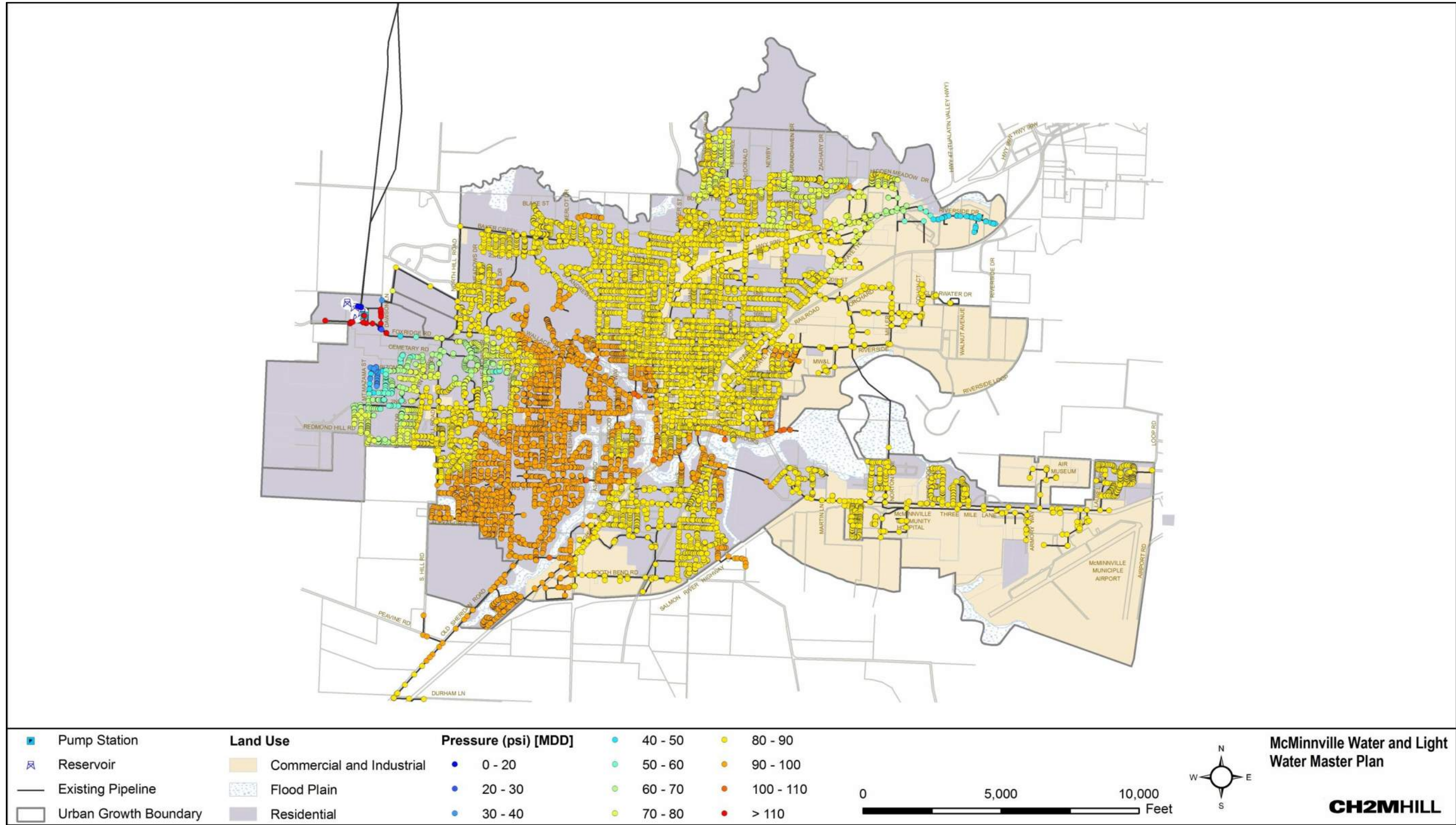
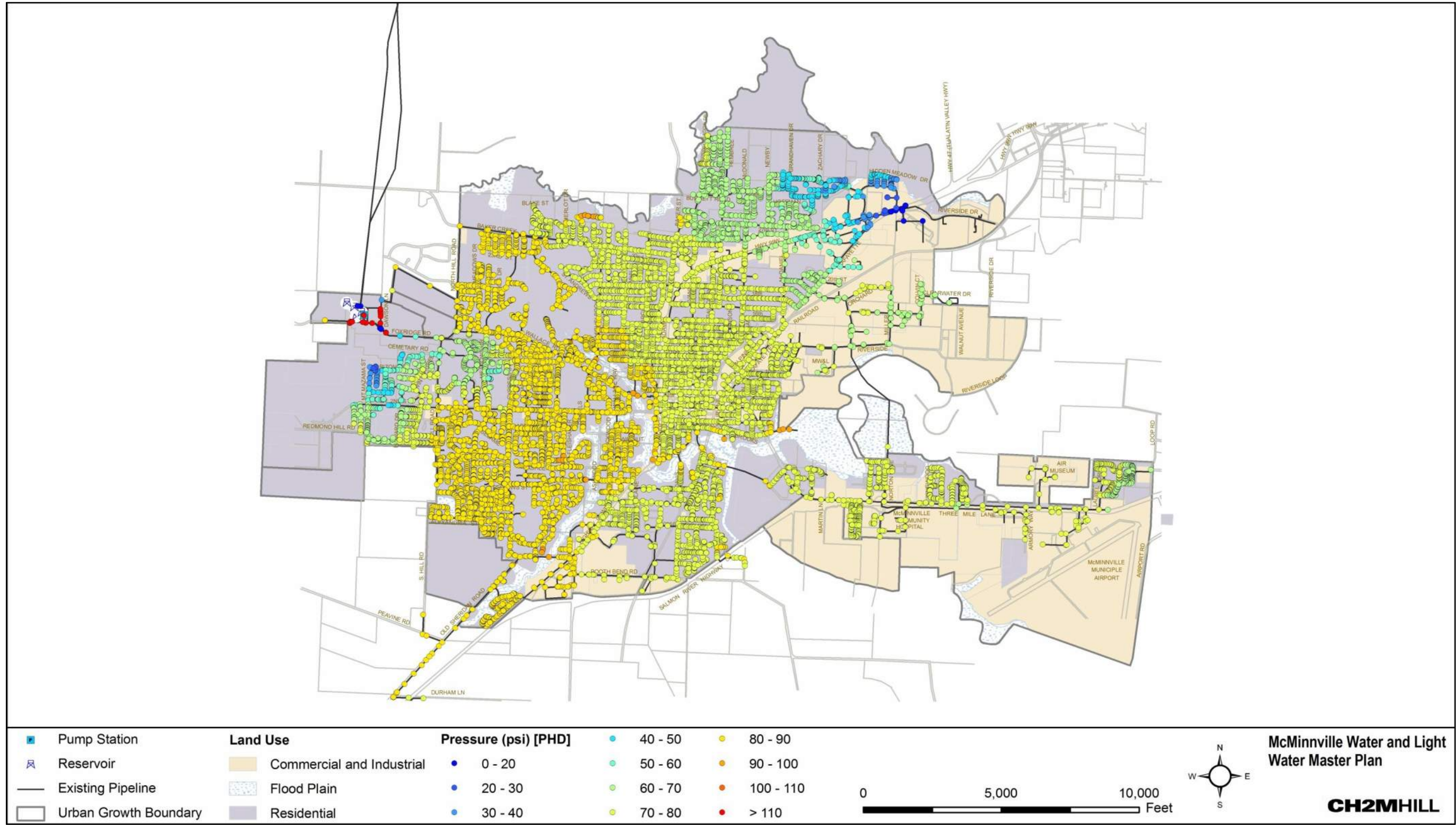


EXHIBIT 10-14
2010 PHD Hydraulic Model Results



Hydraulic model results are summarized for the existing MDD plus fire flow scenario in Exhibits 10-15 and 10-16.

EXHIBIT 10-15

Existing System Maximum Day Demand plus Fire Flow Results

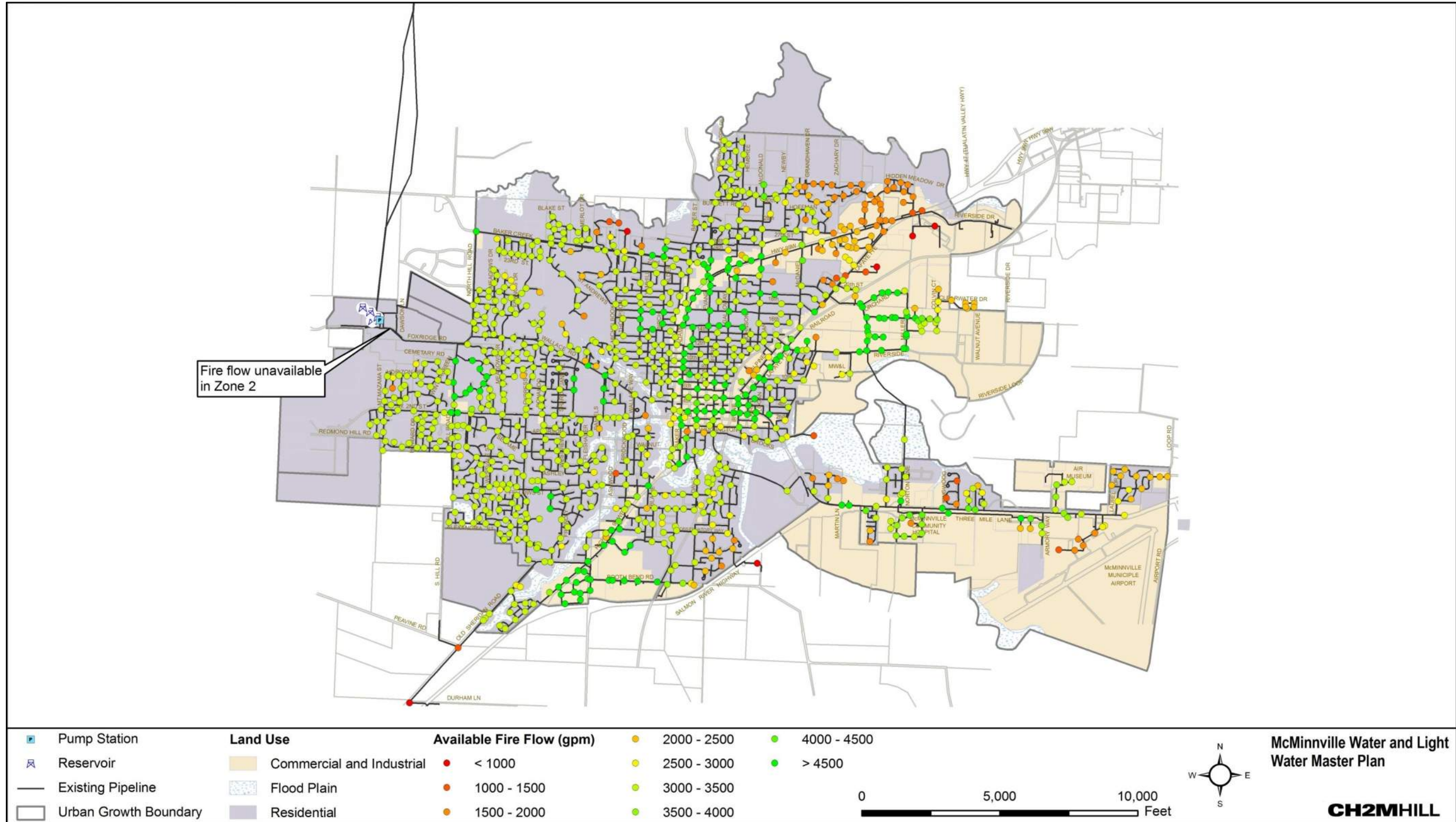
Land Use Category	Fire Flow (gpm) ¹	
	Zone 1 (Base)	Zone 2 (High)
Residential	430 – 4500+	Not available
Industrial and Commercial	505 – 4500+	Not applicable

¹ Available fire flow at 20 psi residual.

Existing system results and deficiencies are described below:

1. System pressures exceed the 100 psi pressure criterion at a number of locations throughout the system. The City of McMinnville requires individual pressure reducing valves (PRVs) at each service address to maintain pressure below the 80 psi criteria. The individual PRVs are owned and maintained by the customer.
2. Low pressures occur during all demand scenarios in Zone 1 on the western side of the city (north of Mt Hood Drive and east of Hillcrest Street). Some customers maintain individual booster pumps to increase pressure. In the future, Zone 2 will be improved and expanded. The services in this area of low pressure in Zone 1 will be incorporated into Zone 2.
3. Low pressures occur during PHD demands in the northeast area of the city near the steel mill (Riverside Drive). Additionally, fire flow is inadequate for many of the commercial and industrial customers. The low pressures and inadequate fire flows occur as a result of high demand, limited capacity, and limited looping. Parallel piping and looped piping capital improvements are planned to increase pressure and fire flow. The improvement project is identified as the “Eastside Feeder” and is further described in the Future System Analysis sub-section of this chapter.
4. Fire flow is limited in the commercial and industrial area in the southeast area of the city near the airport. The inadequate fire flow occurs as a result of limited capacity and looping. MW&L has increased capacity by adding a 24-inch pipeline along Three Mile Lane and creating a loop to Riverside Drive to the north. The 24-inch pipeline along Three Mile Lane will be extended in the future to improve fire flow capacity further east and provide the potential for delivering wholesale water to nearby communities. The improvement project is identified as the “Regionalization Pipeline” and is further described in the Future System Analysis sub-section of this chapter.
5. A number of localized fire flow deficiencies exist throughout the water system. These are typically the result of dead-end or under-sized pipelines. Looped piping improvements are identified for many of these deficiencies unless the piping is privately owned.

EXHIBIT 10-16
2010 MDD + Fire Flow Hydraulic Model Results



Future System Analysis (2032)

The identified growth areas for the city are located in areas where the water system has existing deficiencies including the west, northeast, and southeast. Improvements were developed and refined with the hydraulic model to eliminate the existing deficiencies in these areas and provide for future growth through 2032 for the entire city. Additionally, improvements were implemented to replace small service pipelines and eliminate asbestos cement (AC) pipelines. The major improvement categories are the following:

1. Regionalization pipeline: This improvement is a 24-inch pipeline extension on Three Mile Lane and 12-inch pipeline loop on Loop Road. The pipeline will provide improved pressure and fire flow to the area for existing services and future growth. The pipeline will also support regionalization efforts by supplying up to 1.0 mgd to communities east of McMinnville. Initially, the capacity of a 12-inch line would be sufficient for MW&L to supply water to regional partners. However, the proposed pipeline is sized at 24-inches to allow for a future Willamette River source to supply water back into the MW&L system. Therefore, the proposed cost share is for the partners to pay for the 12-inch line and for MW&L to pay to upsize the line from 12- to 24-inches.
2. Eastside feeder: This improvement consists of parallel 20-inch and 16-inch pipelines along Riverside Drive and a 12-inch pipeline replacement on Colvin Court. The pipeline will create a loop which will provide improved pressure and fire flow to the northeast part of town for existing services including the steel mill and for future growth.
3. Zone 2 improvements include the following:
 - a. 1.3 million gallon storage tank. MW&L already owns land for the storage tank above Zone 2. To provide adequate pressure and fire flow, the Zone 2 hydraulic gradient should be set at a minimum of 500 feet elevation. The storage tank is sized to provide fire flow, equalization storage, and emergency storage for Zone 2 (see Section 9, Finished Water Storage).
 - b. Two constant speed pumps to supply MDD to Zone 2 and supply the 1.3 million gallon storage tank (425 gpm at approximately 200 feet of total dynamic head). Each pump will be able to supply MDD individually to provide full redundancy. The pumps will be housed in the existing pump station near the distribution reservoirs. Pump slots are currently available. The pumps will operate based on water level set points in the 1.3 million gallon storage tank. When the water level drops to a specified minimum level, the pumps will turn on to supply demand to the system and fill the tank. Once the water level reaches a maximum level, the pumps will turn off and all water to Zone 2 will be supplied by the tank. During a fire or PHD, water will be supplied by both the storage tank and pumps.

During low demand times of the year, water can be supplied directly from the finished transmission pipelines to Zone 2 or the Zone 2 storage tank. This provides a level of storage redundancy to the system which may be required for pump station or storage tank maintenance. Bypassing the Zone 2 pump station also provides an energy savings to MW&L. Refer to the report section on finished water transmission for a discussion of direct service to Zone 2.

- c. 16-inch pipelines connecting the 1.3 million gallon storage reservoir to the pump station and Zone 2 distribution piping.
 - d. Back-up power generator at the Zone 2 pump station.
 - e. Decommissioning of existing Zone 2 pump station including the 2-HP and 10- HP pumps.
4. Zone 2 development improvements: Improvements include new pipeline mains, hydrants and PRVs to support development in Zone 2. PRVs are required at five locations on the border between Zone 2 and Zone 1. The PRV stations consist of a vault, small bypass valve, and main PRV with isolation valves upstream and downstream. During normal operation flow through the bypass valve from Zone 2 to Zone 1 will prevent stagnant water in Zone 2. The main PRVs should be set approximately 20 psi below the standard operating pressure in Zone 1. During a high demand or fire condition on the Westside of town in Zone 1, pressure will drop allowing the PRVs to open and provide additional water from Zone 2. These improvements will be funded by private development.
 5. Zone 1 storage: A new 10 million gallon prestressed concrete tank on existing property adjacent to other Zone 1 reservoirs. The storage tank is sized to provide fire flow, equalization storage, and emergency storage for Zone 1 when combined with the other Zone 1 reservoirs (see Section 9, Finished Water Storage). The new reservoir will be supplied by the finished water transmission pipelines. The water surface in the reservoir will be equal to the other Zone 1 reservoirs.
 6. Zone 1 development improvements: Improvements include new pipeline mains and hydrants to support development in Zone 1 within the UGB. These improvements will be funded by private development.
 7. Pipeline replacement: Improvements include replacements for pipeline condition and/or fire flow deficiencies. These improvements include replacement of all AC pipelines and of most small pipelines (6-inches and smaller).
 8. New pipelines: Improvements include new and parallel pipelines to increase available fire flow.

Specific improvement descriptions and mapping are provided in the Recommended Improvements sub-section of this chapter.

Hydraulic model results are summarized for the future system ADD, MDD, and PHD domestic demand scenarios with all distribution improvements implemented in **Exhibit 10-17** through **10-20**.

EXHIBIT 10-17
Future System Hydraulic Model Pressure Results

Demand	Zone 1 (Base)	Zone 2 (High)
ADD	48 – 125 psi	57 – 106 psi
MDD	44 – 109 psi	56 – 106 psi
PHD	31 – 87 psi	56 – 105 psi

¹ Excludes pressure results immediately adjacent to distribution reservoirs.

EXHIBIT 10-18
2032 ADD Hydraulic Model Results

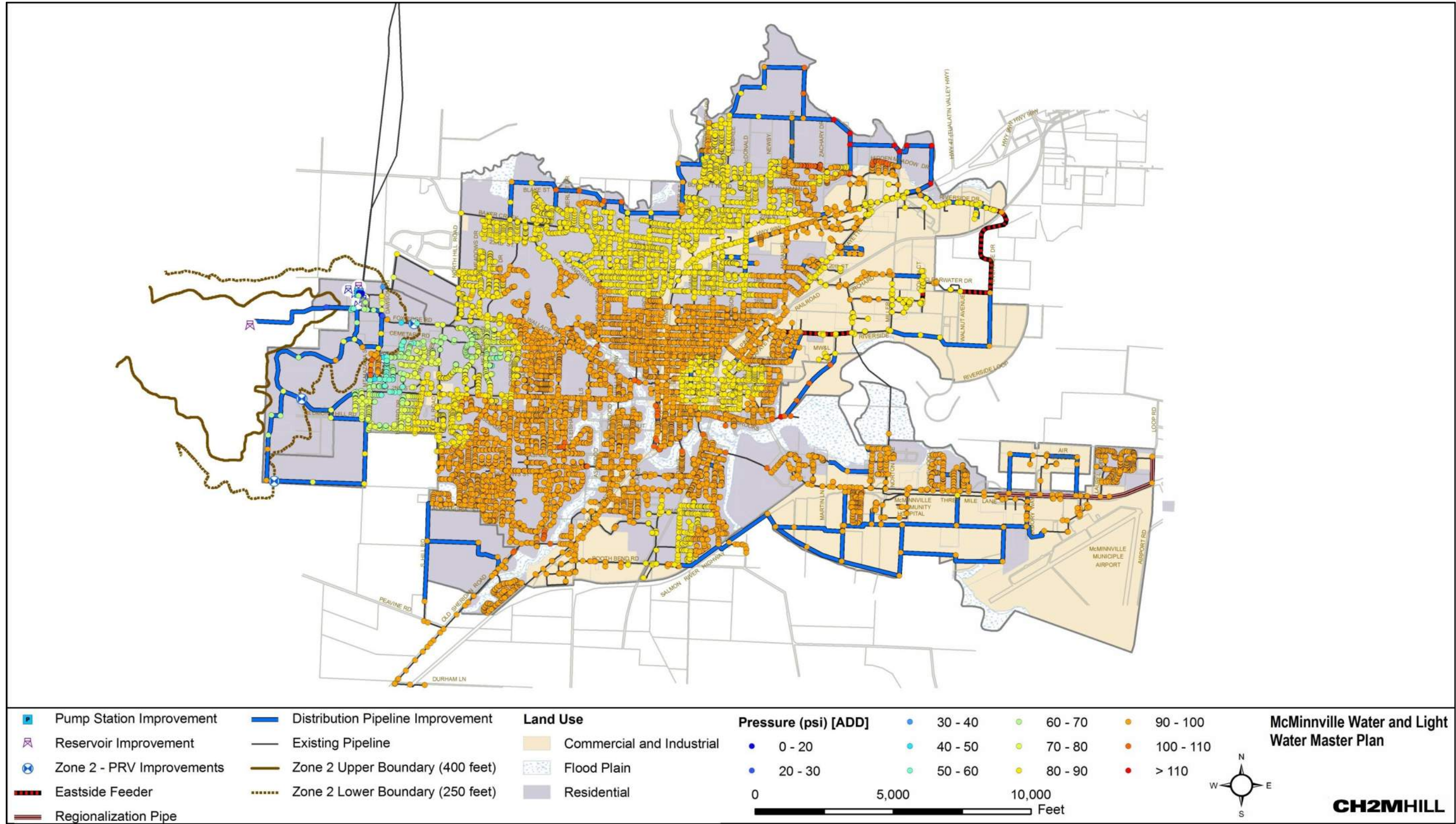


EXHIBIT 10-19
2032 MDD Hydraulic Model Results

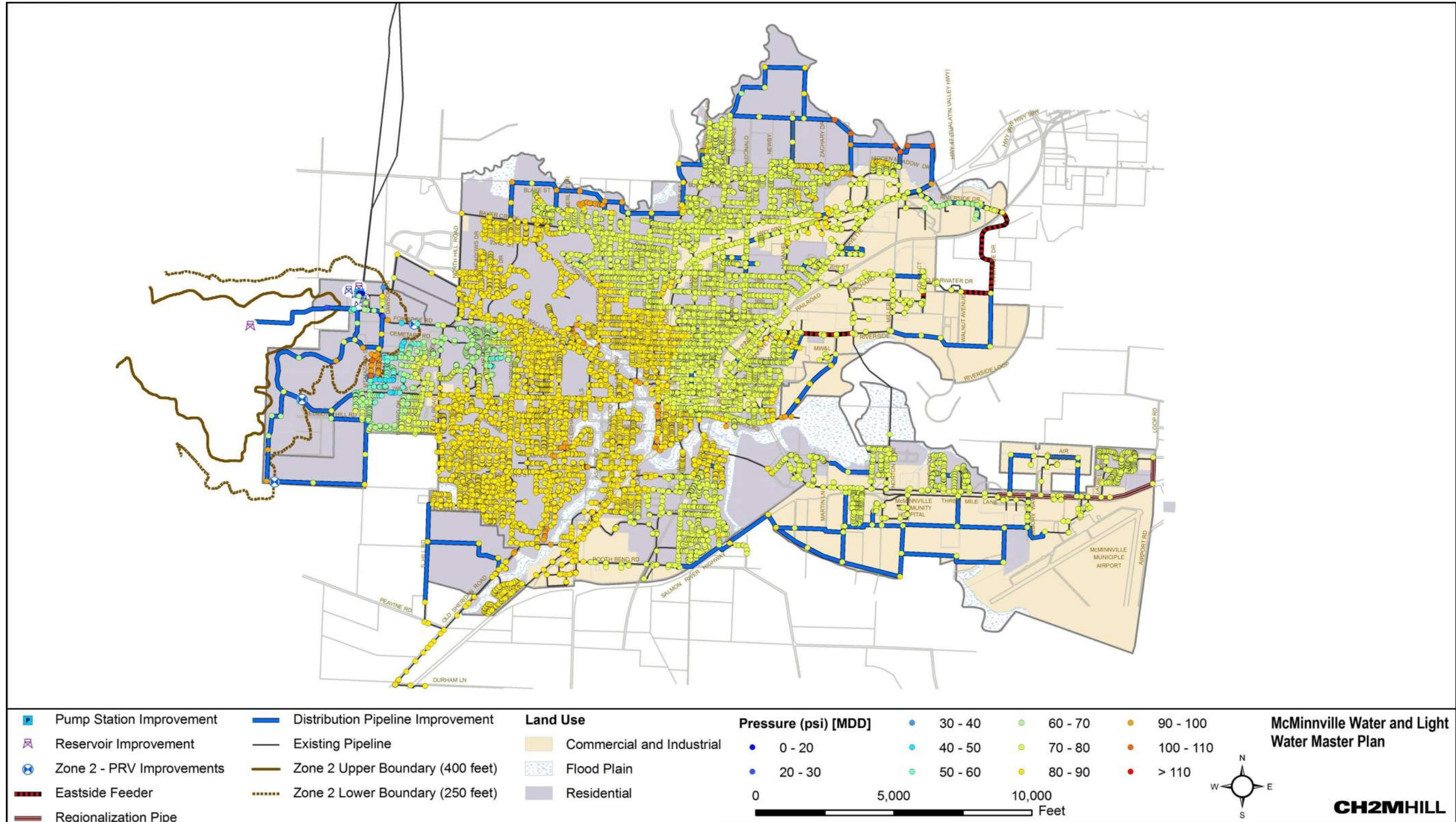
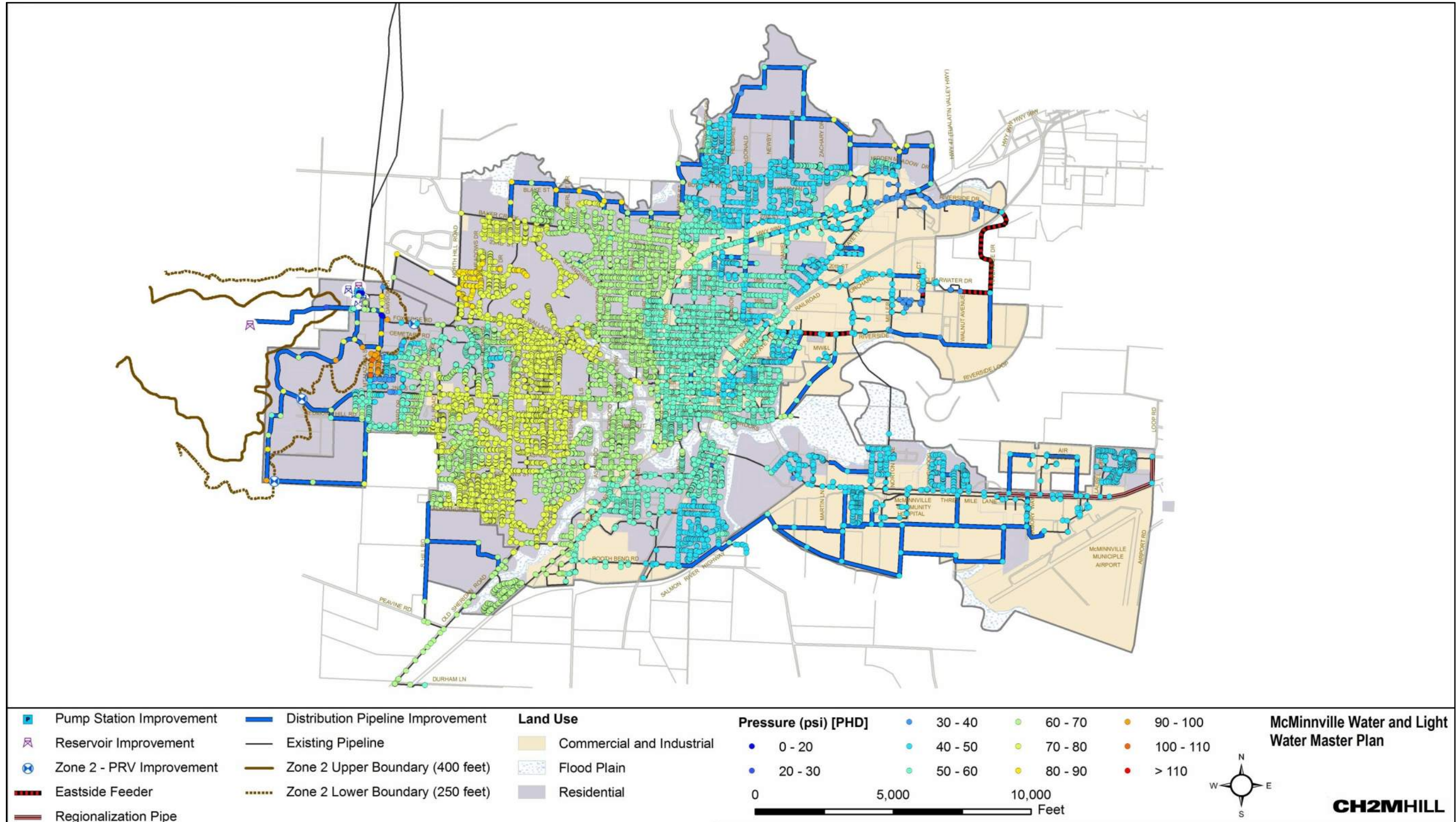


EXHIBIT 10-20
2032 PHD Hydraulic Model Results



Hydraulic model results are summarized for the existing MDD plus fire flow scenario with all distribution improvements implemented in **Exhibits 10-21** and **10-22**.

EXHIBIT 10-21

Future System Maximum Day Demand plus Fire Flow Results

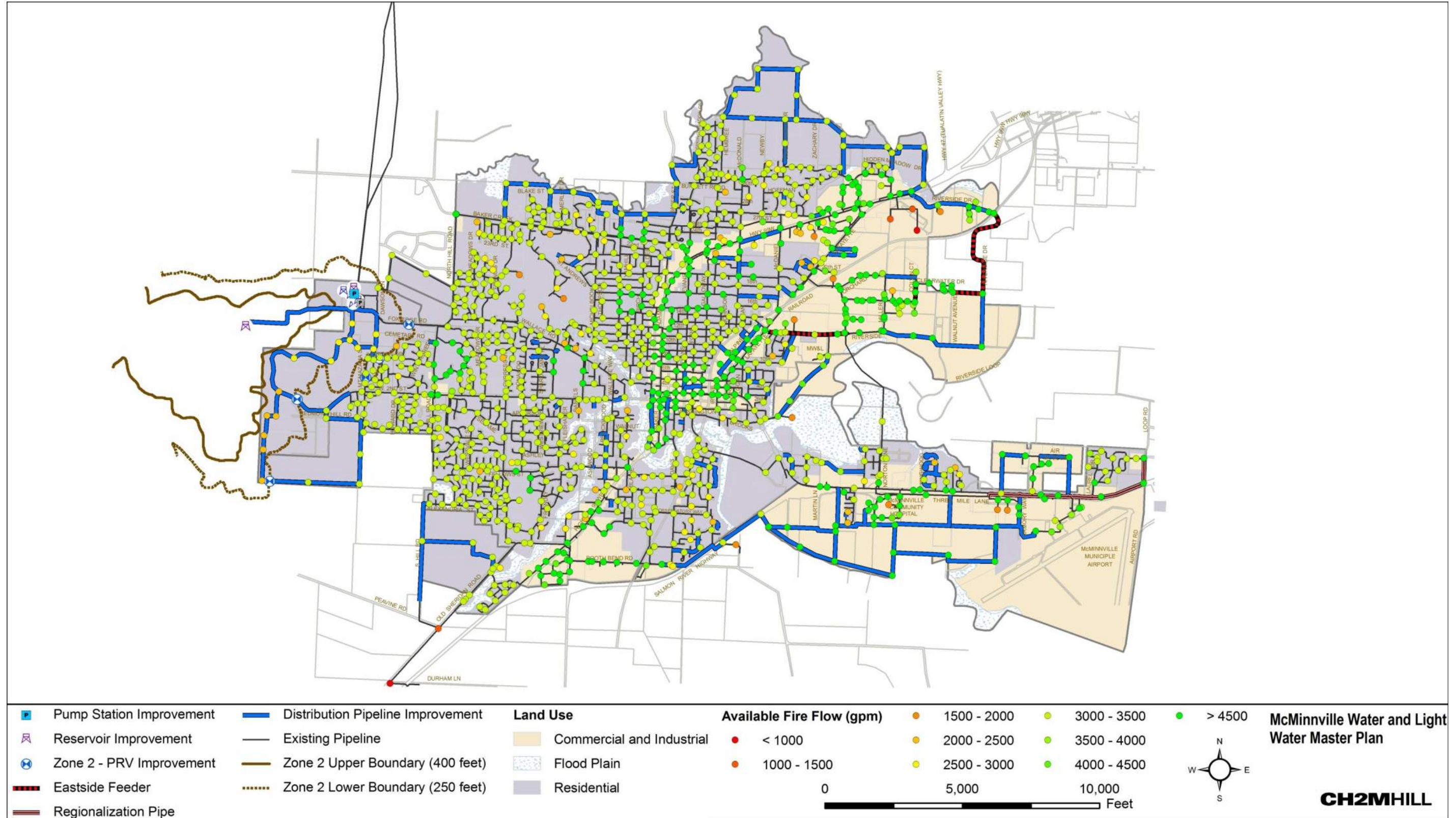
Land Use Category	Fire Flow (gpm) ¹	
	Zone 1 (Base)	Zone 2 (High)
Residential	650 – 3000+	2100 - 2900
Industrial and Commercial	850 – 4500+	Not Applicable

¹Available fire flow at 20 psi residual.

With the implementation of the capital improvements, all residential areas satisfy the MW&L fire flow requirements except for the dead end pipeline south of the city limits on Sheridan Road. Improvements were not identified in this area because of the limited number of services.

For industrial and commercial lands, the city fire flow requirement is satisfied at the connection to MW&L's main and often, within the customer's property. However, some commercial and industrial properties, such as the steel mill, take service from privately-owned, dead-end pipelines. In this case, adequate fire flow is provided at the main owned by MW&L but may not be provided at the downstream end of the privately-owned pipeline.

EXHIBIT 10-22
2032 MDD + Fire Flow Hydraulic Model Results



10.2.8 Recommended Improvements

Distribution system recommended improvements are described in **Exhibits 10-23** and the 22" x 34" fold-out map that is included with this report. Improvements are categorized and prioritized by year of construction. Prioritization was established based on discussions with MW&L staff. Highest priority is given to improvements which reduce existing hydraulic and condition deficiencies. Development based improvements are not given a specific construction year as scheduling of these improvements is unknown and funding will be provided by private entities. For further information on costs and improvement timing refer to Section 9, Finished Water Storage and Section 12, Capital Improvements Plan.

1. Regionalization pipeline - high priority to improve fire flow in southeast and provide wholesale water to nearby communities
2. Eastside feeder - high priority to improve pressure and fire flow to northeast for existing system
3. Zone 2 improvements, including pipelines and storage - timing dependent on development in Zone 2
4. Zone 1 storage - timing based on population/growth projections
5. Zone 1 development improvements - timing dependent on private development in Zone 1
6. Pipeline replacement (condition and fire flow) - high to moderate priority based on known condition and fire flow deficiencies
7. New pipelines (fire flow and looping) - high to low priority based on known fire flow deficiencies; looping improves fire flow and water quality
8. Pipeline replacement (fire flow only) - high to low priority based on known fire flow deficiencies

EXHIBIT 10-23
Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
Regionalization Pipeline						
P-017	15-16	Regional supply to Dayton: New 24 inch line along Salmon River Highway from end of existing 24 inch pipe near Watts Ln to Cirrus Ave.	3,300	24	DI	Regional
P-018	15-16	Regional supply to Dayton: New 24 inch line along Salmon River Highway from Cirrus Ave to Loop Rd.	2,800	24	DI	Regional
P-019	15-16	Regional supply to Dayton: New 12 inch line along Loop Rd from 3 Mile Ln to Oak Dr	910	12	DI	Regional
East Side Feeder						
P-025	16-17	East side feed: New 16 inch line along Riverside Dr and Clearwater Dr from WWTP to end of 10 inch near railroad crossing; includes RR undercrossing	5,210	16	DI	Fire Flow
P-026	16-17	East side feed: Replace existing 8 inch line with new 12 inch line along Colvin Ct from Rivergate to Clearwater	660	12	DI	Fire Flow
P-027	16-17	East side feed: New 20 inch line along Riverside Dr from near Lafayette to Alpha	2,930	20	DI	Fire Flow
Zone 2 Improvements						
Z2-001	25-26	New 16 inch parallel along Fox Ridge Road from new 12 inch loop to new 12 inch loop	1,070	16	DI	Development
Z2-002	25-26	New 16 inch line along Fox Ridge Road from new 16 inch line to new reservoir	4,300	16	DI	Development
Z2-003	25-26	Two constant speed pumps for maximum daily demands in Zone 2 (425 gpm, ~200 ft dynamic head) in existing building; addition of backup generator				Development
Z2-004	25-26	Zone 2 reservoir; 1.3 million gallon (single reservoir; backup provided by direct gravity service through transmission lines), concrete (may be partially buried)				Development

EXHIBIT 10-23

Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
Zone 2 Development Pipelines and PRVs						
P-072		New 12 inch line along Dawson Ln from Fox Ridge Road to Horizon	1,600	12	DI	Development
P-073		New 12 inch line from Fox Ridge Rd to Horizon	2,270	12	DI	Development
P-074		New 12 inch loop from 2nd to new 12 inch loop W of Dawson Ln	6,940	12	DI	Development
P-075		New 12 inch loop along 2nd & Redmond Hill from Blue Heron Ct to Valleys Edge	2,480	12	DI	Development
P-076		New 12 inch loop from Redmond Hill to new 12 inch loop W of 2nd	9,610	12	DI	Development
Z2-005		Pressure reducing valve, on existing 24 inch along Fox Ridge Road at 1300 ft east of Dawson Ln, installed in vault (coordinate with pipeline installation)		12		Development
Z2-006		Pressure reducing valve, on existing 10 inch along Horizon Dr at 130 ft west of Hillcrest, installed in vault (coordinate with pipeline installation)		8		Development
Z2-007		Pressure reducing valve, on existing 8 inch along Mt. Mazama St. at 100 ft north of Mt. Hood Dr, installed in vault (coordinate with pipeline installation)		8		Development
Z2-008		Pressure reducing valve, on new 12 inch loop north of Redmond Hill Rd at 1250 ft west of W 2nd St, installed in vault (coordinate with pipeline installation)		10		Development
Z2-009		Pressure reducing valve, on new 12 inch loop south of Redmond Hill Rd near SW corner of loop, installed in vault (coordinate with pipeline installation)		10		Development
Zone 1 Storage						
Z1-004	27-28	Install new 10 million gallon prestressed concrete tank on existing property by other service reservoirs				Development

EXHIBIT 10-23
Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
Zone 1 Development Pipelines						
P-077		New 10 inch line along Watts Lane from Air Museum - West Loop to 3 Mile Ln	2,260	10	DI	Development
P-078		New 10 inch line from Air Museum - East Loop to 3 Mile Ln	2,490	10	DI	Development
P-079		New 16 inch line along Salmon River HWY & Noble LN from Morgan Ln to 3 Mile Ln	6,500	16	DI	Development
P-080		New 16 inch line south of Evergreen Mobile Park and MCH from new 16 inch loop SW of Evergreen Mobile Park to 3 Mile Ln	5,360	16	DI	Development
P-081		New 16 inch loop along Armory Way from 3 Mile Ln to existing 8 inch pipe at west end of airport and to new 16 inch loop west of Armory Way	4,880	16	DI	Development
P-082		New 10 inch line from Village Ct to Dunn Pl	1,640	10	DI	Development
P-083		New 8 inch line from existing 8 inch line off of Norton Ln to new 16 inch loop SW of MCH	560	8	DI	Development
P-084		New 12 inch loop south and southwest of MCH from new 16 inch loop to new 12 inch loop	7,810	12	DI	Development
P-085		New 12 inch loop southeast of MCH from new 16 inch loop to new 12 inch loop	5,160	12	DI	Development
P-086		New 16 inch line along Riverside Dr from Miller to Clearwater	5,680	16	DI	Development
P-087		New 10 inch line along Orchard Ave between Miller St and Colvin Ct	1,130	10	DI	Development
P-088		New 12 inch loop along Grandhaven Dr from Lucy Belle to Hembree	3,940	12	DI	Development
P-089		New 12 inch loop from Hidden Meadow Dr to 99W	3,800	12	DI	Development
P-090		New 12 inch loop from Grandhaven St to new 12 inch loop NE of Hidden Meadow Dr	2,920	12	DI	Development

EXHIBIT 10-23

Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
P-091		New 12 inch loop from new 12 inch loop N of Grandhaven St to new 12 inch loop N of Walton Dr	2,700	12	DI	Development
P-092		New 12 inch loop along Westside & Baker from 27th to Summerfield	2,940	12	DI	Development
Zone 1 Development Pipelines						
P-093		New 12 inch loop from 25th to Baker	1,430	12	DI	Development
P-094		New 12 inch loop from Elm to new 12 inch loop N of 25th	1,060	12	DI	Development
P-095		New 12 inch loop along 12 inch loop N of Baker Creek Ln from Baker Crest to Elm	1,310	12	DI	Development
P-096		New 12 inch loop along 12 inch loop N of Baker Crest from Pinot Noir to 12 inch loop N of Baker Creek Ln	2,560	12	DI	Development
P-097		New 12 inch loop along 12 inch loop N of Pinot Noir from 12 inch loop N of Baker Crest to Baker Creek	3,110	12	DI	Development
P-098		New 12 inch line along new 12 inch W of Old Sheridan from Old Sheridan to S Hill Rd and Alexandria	7,140	12	DI	Development
P-099		New 12 inch loop from new 12 inch loop N of Grandhaven Dr to new 12 inch loop N of Hembree	5,980	12	DI	Development
Distribution Pipelines - Condition & Fire Flow						
P-001	12-13	Replace existing 2 inch line with new 6 inch line along Angela from Morgan to end (cul-de-sac)	450	6	DI	Condition/Fire Flow
P-002	12-13	Replace existing 2 inch line with new 8 inch line along 21st from St Andrews to St Andrews	480	8	DI	Condition/Fire Flow
P-003	12-13	Replace existing 6 inch AC line with new 10 inch line along 18th from McDaniel to Lafayette	595	10	DI	Condition/Fire Flow

EXHIBIT 10-23
 Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
P-004	12-13	Replace currently unused (capped) 6 inch AC pipeline with new 8 inch, from corner of 10th Ave. and Irvine to 6 inch pipe on 10th Ave.; includes railroad undercrossing	290	8	DI	Condition/Fire Flow
P-005	13-14	Replace existing 6 inch AC line with new 10 inch line along McDonald from St. Johns Church to 19th	865	10	DI	Condition/Fire Flow
P-006	13-14	Replace existing 1.5 inch line with new 6 inch line along 7th Ct from Hickory both east & west side of Hickory	565	6	DI	Condition/Fire Flow
Distribution Pipelines - Condition & Fire Flow						
P-007	13-14	Replace existing 2 inch line with new 6 inch line from St Andrews to end (dead end)	215	6	DI	Condition/Fire Flow
P-008	13-14	Replace existing 2 inch line with new 8 inch line along Elm from Jason to end	345	8	DI	Condition/Fire Flow
P-010	14-15	Replace existing 10 inch AC line with new 10 inch line along Brockwood from Fellows to Collard	1,220	10	DI	Condition
P-011	14-15	Replace existing 10 inch AC line with new 10 inch line along Brockwood from Fellows to Gilson	410	10	DI	Condition
P-012	14-15	Replace existing 2 inch line with new 8 inch line along 11th Ave from Alpine to Lafayette	210	8	DI	Condition/Fire Flow
P-020	15-16	Replace existing 2 inch line with new 12 inch line along Evans from 6th to 3rd	780	12	DI	Condition/Fire Flow
P-021	15-16	Replace existing 2 inch line with new 8 inch line along 4th from Evans to Galloway	690	8	DI	Condition/Fire Flow
P-022	15-16	Replace existing 12 inch AC pipe with 12 inch DI pipe along W. 2nd across Almond Ct. intersection.	160	12	DI	Condition
P-028	16-17	Replace existing 10 inch AC line with new 10 inch line along 17th from McDonald to McDaniel	1,410	10	DI	Condition

EXHIBIT 10-23

Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
P-034	17-18	Replace existing 6 inch AC line with new 8 inch line along 21st from McDonald to Hembree	990	8	DI	Condition/Fire Flow
P-035	17-18	Replace existing 6 inch line with new 8 inch line along Logan from 13th to 14th	265	8	DI	Condition/Fire Flow
P-036	17-18	Replace existing 2 inch line with new 6 inch line along 8th Ct from Fenton to end (cul-de-sac, dead end)	130	6	DI	Condition/Fire Flow
Distribution Pipelines - Condition & Fire Flow						
P-037	17-18	Replace existing 1.5 inch line with new 6 inch line along 9th Ct from Hickory to end (cul-de-sac, dead end)	255	6	DI	Condition/Fire Flow
P-038	17-18	Replace existing 2 inch line with new 6 inch line along 1st Ct from Fleishauer to end (cul-de-sac, dead end)	255	6	DI	Condition/Fire Flow
P-040	18-19	Replace existing 1.5 inch line with new 6 inch line along Davis Ct from 27th to end (dead end)	155	6	DI	Condition/Fire Flow
P-041	18-19	Replace existing 2 inch line with new 6 inch line along Davis Ct from 27th to end (cul-de-sac, dead end)	135	6	DI	Condition/Fire Flow
P-042	18-19	Replace existing 2 inch line with new 8 inch line 6 inch line along 11th Way from Alpine to 12th	490	8	DI	Condition/Fire Flow
P-043	18-19	Replace existing 2 inch line with new 6 inch line along Cemetery from North Hill Rd to end of existing 2 inch line (dead end)	280	6	DI	Condition/Fire Flow
P-045	19-20	Replace existing 2 inch line with new 8 inch line along Storey from Hembree to Villard; includes railroad undercrossing	650	8	DI	Condition/Fire Flow
P-046	19-20	Replace existing 2 inch line with new 8 inch line along Willow from Storey to Naomi	890	8	DI	Condition/Fire Flow
P-049	20-21	Replace existing 2 inch line with new 8 inch line along Naomi from Villard to Willow	300	8	DI	Condition/Fire Flow

EXHIBIT 10-23
Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
P-050	20-21	Replace existing 2 inch line with new 6 inch line along Vine from Villard to end (dead end)	230	6	DI	Condition/Fire Flow
P-051	20-21	Replace existing 1.5 inch line with new 6 inch line along Holly from Evans to end (dead end)	200	6	DI	Condition/Fire Flow
P-052	20-21	Replace existing 2 inch line with new 6 inch line along Braly from 2nd to end (dead end)	320	6	DI	Condition/Fire Flow
Distribution Pipelines - Condition & Fire Flow						
P-053	20-21	Replace existing 2 inch line with new 6 inch line along Rose Dr from Clairmont to end (dead end)	280	6	DI	Condition/Fire Flow
P-054	20-21	Replace existing 2 inch line with new 6 inch line along Chalmers Way from Dunn PI to End (dead end)	250	6	DI	Condition/Fire Flow
P-055	20-21	Replace existing 1.5 inch line with new 6 inch line along Kingwood St from existing 6 inch line to end (cul-de-sac)	710	6	DI	Condition/Fire Flow
P-057	21-22	Replace existing 2 inch line with new 6 inch line from Baker to End (Gale's Towing, dead end line improvement; low priority)	120	6	DI	Condition/Fire Flow
P-058	21-22	Replace existing 8 inch AC line with new 10 inch line from Riverside Dr to end	550	10	DI	Condition/Fire Flow
Distribution Pipelines - New Installations (loop connections to eliminate dead ends for fire flow)						
P-009	13-14	New 8 inch line from existing 6 inch line on NW side of Lafayette to existing 10 inch line on SE side of Lafayette	40	8	DI	Fire Flow
P-013	14-15	New 8 inch line along Adams from Baker St to existing 6 inch on Adams	300	8	DI	Fire Flow
P-014	14-15	New 10 inch line from Grandhaven to existing 8 inch on NW side of 99W	20	10	DI	Fire Flow
P-015	14-15	New 10 inch line along 19th from NW side of Lafayette to SE side of Lafayette	60	10	DI	Fire Flow
P-029	16-17	New 8 inch line along Baker Creek from Baker Crest to Baker Creek	610	8	DI	Fire Flow

EXHIBIT 10-23

Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
P-030	16-17	New 8 inch line along Ashwood from north side of Fellows to south side of Fellows	90	8	DI	Fire Flow
P-031	16-17	New 10 inch line along Queensboro from Debbie to Border	230	10	DI	Fire Flow
P-047	19-20	New 10 inch line along 99W from the N side of 99W to Riverside Dr	670	10	DI	Fire Flow
P-048	19-20	New 10 inch line along Riverside Dr from near 99W to near railroad crossing (parallel existing 10-inch pipeline)	3,010	10	DI	Fire Flow
P-056	20-21	New 16 inch line along Booth Bend & Salmon River HWY from Davis to Morgan	2,620	16	DI	Fire Flow
Distribution Pipelines - New Installations (loop connections to eliminate dead ends for fire flow)						
P-059	21-22	New 8 inch line along 27th from existing 6 inch line to existing 8 inch line	340	8	DI	Fire Flow
P-061	25-26	New 12 inch line along Joe Dancer Park from Brooks St to Marsh Ln	2,900	12	DI	Fire Flow
Distribution Pipelines - Future Size Upgrades for fire flow						
P-016	14-15	Replace existing 6 inch line with new 12 inch line along Adams from Handley to 3rd	1,470	12	DI	Fire Flow
P-023	15-16	Replace existing 6 inch line with new 12 inch line along 99W from McDonald to McDaniel	1,540	12	DI	Fire Flow
P-024	15-16	Replace existing 4 inch line with new 8 inch line along Cows from 1st to Lincoln	460	8	DI	Fire Flow
P-032	16-17	Replace existing 4 inch line with new 6 inch line along Kingwood Ct from Kingwood St to end (cul-de-sac)	720	6	DI	Fire Flow
P-033	16-17	Replace existing 4/6 inch line with 8 inch line along Kingwood Dr and Kingwood St and connect to American Dr	1,960	8	DI	Fire Flow
P-039	17-18	Replace existing 4 inch line with new 8 inch line along Pacific & Springer from 3 Mile Ln to End of Springer	1,130	8	DI	Fire Flow

EXHIBIT 10-23
Distribution System Recommended Improvements

Project ID	Construction Year	Description	Pipe Length (ft)	Pipe Diameter (in)	Pipe Material	Improvement Driver
P-044	18-19	Replace existing 2 inch line with new 10 inch line along 2nd from Star Mill to Wallace Way	500	10	DI	Fire Flow
P-060	23-24	Replace existing 2 inch line with new 8 inch line along Evergreen Pkwy W from Shoreline to Evergreen Pkwy	180	8	DI	Fire Flow
P-062	26-27	Replace existing 6 inch line with new 10 inch line along Queensboro from Debbie to Alethea	330	10	DI	Fire Flow
P-063	26-27	Replace existing 6 inch line with new 10 inch line along Alethea from Davis to Queensboro	1,020	10	DI	Fire Flow
P-064	27-28	Replace existing 6 inch line with new 10 inch line along Koch & Gibbs from Orchard to end	1,410	10	DI	Fire Flow
Distribution Pipelines - Future Size Upgrades for fire flow						
P-065	28-29	Replace existing 6 inch line with new 10 inch line along Kimberly Ct from Hoffman to end (dead end line improvement; low priority)	370	10	DI	Fire Flow
P-066	28-29	Replace existing 8 inch line with new 10 inch line along Davis from existing 6 inch on N side of Booth Bend to Site on S side of Booth Bend (dead end line improvement; low priority)	130	10	DI	Fire Flow
P-067	30-31	Replace existing 8 inch line with new 10 inch line along Alpine from 13th Way to 7th/Lafayette	2,550	10	DI	Fire Flow
P-068	After 31-32	Replace existing 6 inch line with new 10 inch line from Lafayette to hydrant and implement full loop	1,960	10	DI	Fire Flow
P-069	After 31-32	Replace existing 6 inch line with new 10 inch line from McDonald to end (dead end line improvement; low priority)	450	10	DI	Fire Flow
P-070	After 31-32	Replace existing 6 inch line with new 10 inch line from 10th to end (dead end line improvement; low priority)	130	10	DI	Fire Flow
P-071	After 31-32	Replace existing 6 inch line with new 10 inch line along 10th Ave from 10th to Riverside Dr	1,170	10	DI	Fire Flow

Supervisory Control and Data Acquisition

11.1 Introduction

Instrumentation and control (I&C) and supervisory control and data acquisition (SCADA) systems at MW&L's source, transmission, and distribution facilities were evaluated to identify improvements to maintain systems, provide redundancy, and to achieve better coordination and functionality. The facilities are located at the Haskins Creek and McGuire Dams, the Scott Water Treatment Plant (WTP), Panther Creek valve station, and Fox Ridge Service Reservoirs. Systems located at these facilities provide operational data including valve position, flow rates, water levels, and alarm and other status conditions.

11.1.1 Existing System

The I&C and SCADA systems at the Scott WTP were updated as part of the upgrade and expansion project completed in 2010. Two servers located at the Scott WTP provide redundant Scott WTP operation capabilities. However, only one server stores historical data. Control system communication between the Scott WTP, Fox Ridge Service Reservoirs, and McGuire Dam occurs via an Ethernet radio system. Communication between the Scott WTP and Haskins Creek valve vault is hardwired, and communication between the Scott WTP and the Panther Creek valve station no longer exists.

Data Collection and Alarming

MW&L currently has an Opto22 system that provides data collection and alarming from the Fox Ridge and McGuire Dam sites. Information is communicated via Ethernet radio to a Structured Query Language (SQL) Server database at the Scott WTP and the main MW&L office.

Three of the remote sites, Fox Ridge Service Reservoirs, Panther Creek valve station, and McGuire Dam, have a secondary, Zetron, alarm system that communicates via radio pagers. This system provides back up alarming when Ethernet radio communication is lost because of interference. Both systems require power; therefore a long-term power failure prevents both alarm systems from working.

Remote Valve Operation

The two valves at the Haskins Creek Intertie Vault were integrated into the Scott WTP control system as part of the expansion project. The valves can be remotely operated from the Scott WTP but the valves are normally operated locally. Feedback from the valves reports when a valve is open or closed but because of wiring limitations with the existing valve actuators, intermediate valve positions (percent open) are not available to the SCADA system. According to the plant operators, the intermediate position information is not needed or even desired by staff.

No monitoring or control connection between the Panther Creek valve station and the Scott WTP SCADA system is currently available.

11.1.2 Modified System

Data Collection and Alarming

At the Scott WTP, the upgraded control system provides control, alarming, data storage, and reporting. These functions can be enhanced by implementing remote control and/or monitoring at remote sites.

To standardize and streamline system maintenance, removal of the Opto22 hardware and replacement of existing programmable logic controllers (PLCs) with standardized Allen Bradley, Siemens, or Modicon PLCs is recommended. The existing Ethernet radio system is 12 years old and requires a technology upgrade to a new system. The new radio system can be used with minimal changes to tie the new site PLCs to the Scott WTP SCADA system. Using site PLCs tied to a SCADA system for data collection and alarming is the current standard approach for water utilities.

Maintenance of the secondary, Zetron, alarm system is recommended. All alarms generated by the site PLCs are currently displayed at the Scott WTP SCADA system. Coordination between MW&L Scott WTP staff and programming staff is recommended to allow the Scott WTP staff to receive all water system-related dial-out alarms via paging and e-mail.

While the system currently includes two SCADA servers, only one server is used for historical data storage. Providing system redundancy for historical data storage is recommended. It can be accomplished by upgrading the historian software and implementing system configuration changes.

The HMI software manufacturer, Invensys Wonderware, has updated system design recommendations since the Scott WTP upgrade. Recommendations now include providing Microsoft Terminal Services on a separate server which would require adding a third server to the Scott WTP site. Periodic review of system configuration and optimization is recommended.

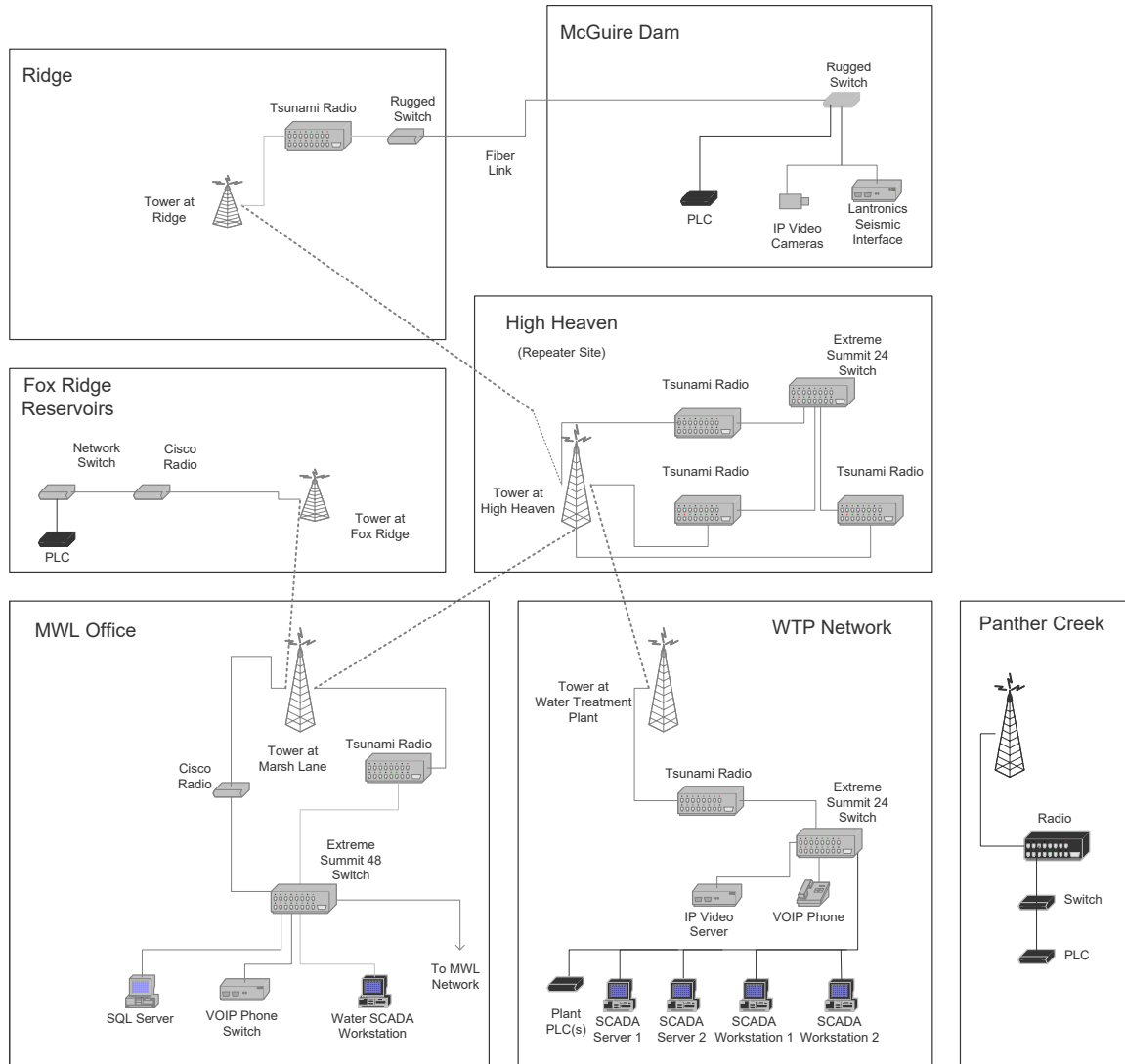
Remote Valve Operation

For system optimization, the ability to remotely monitor and adjust valve position at both Haskins Creek valve vault and Panther Creek valve station is desirable. Haskins Creek valve functions have been integrated into the Scott WTP SCADA system, but new actuators and wiring will be needed to provide remote monitoring of intermediate valve position.

Reestablishment of Scott WTP control system communication with the Panther Creek valve station is recommended. Integrating the valve station controls with the Scott WTP control system will improve reliability and allow for coordination of the Panther Creek valve control with Scott WTP operation. A design effort is needed to determine the best communications solution for the Panther Creek valve station. Options include installation of new radio communications equipment, installation of a fiber optic system in association with a new pipeline, or using the existing fiber network which runs along an easement through MW&L property. Modification or replacement of valve actuators may be needed.

Exhibit 11-1 is a schematic of a radio communication option for an expanded communication network. This schematic shows the recommended new PLCs at remote sites and new radio communication with Panther Creek valve station. A summary of recommended improvements for each remote facility follows.

EXHIBIT 11-1
Expanded Communication Network – Radio Communications Option



11.2 Recommendations by Facility

11.2.1 Scott WTP

- Upgrade the historian software and make necessary configuration changes to be able to use the new version of software.
- Review latest recommendations from Wonderware, and consider the addition of a third server at the Scott WTP and other optimization requirements.

11.2.2 Fox Ridge Service Reservoirs

- Remove the existing Direct Logic PLC currently used for security monitoring and replace with an Allen Bradley, Siemens, or Modicon PLC. The existing PLC is not widely used in the region; therefore, spare parts and support availability are limited. Evaluate the need for redundant processors. Install and incorporate automatic control functions within the new PLC and provide remote control at the Scott WTP.
- Provide alarm setpoint adjustment from the Scott WTP.
- Provide expansion capability for future Zone 2 pumping.
- Evaluate the Zetron alarm notification system. At a minimum, replace the field wiring.
- Evaluate the need for the existing Opto22 data collection and alarming system. Signals currently wired to this system can be connected to the new site PLC, allowing data collection and alarming to be handled by the Scott WTP SCADA system.

11.2.3 Panther Creek

- Replace all site wiring. Relocate all control devices inside a NEMA 4X control panel. Coordinate with PLC replacement. A single panel should be considered.
- Remove the existing Mitsubishi PLC and replace with an Allen Bradley, Siemens, or Modicon PLC. Evaluate the need for redundant processors. Incorporate all automatic control functions within new PLC.
- Reestablish control system communications with this site. Options include a fiber optic system associated with a new pipeline, new radio communications equipment, or using the existing fiber network which runs along an easement through MW&L property.
- Integrate this station with the Scott WTP control system to improve reliability and allow for coordination of Panther Creek valve control with Scott WTP operations. This may require modification to or replacement of the valve actuators to provide adequate feedback and control interface.
- Evaluate the existing site Zetron alarm notification system. At a minimum, replace the field wiring.
- Replace the existing, 16-inch, water meter with an appropriately-sized new meter, and provide remote indication and trending at the Scott WTP. Coordinate sizing of replacement meter with the future pipeline replacement.

11.2.4 Haskins Creek

- Provide infrastructure (i.e., conduit and wiring) for any future processes that may be implemented on raw water such as the addition of on-line monitoring instruments.
- Evaluate the need for a remote raw water meter. If needed, repair or replace the meter and provide remote indication and trending at the Scott WTP. A new raw water meter was provided at the Scott WTP as part of the plant upgrade and expansion project. The

remote raw water meter is no longer being used for day-to-day plant operations, but continues to be monitored for annual water use reporting.

11.2.5 McGuire Dam

- Install an Allen Bradley, Siemens, or Modicon PLC. Evaluate the need for redundant processors. Incorporate necessary water monitoring functions within the new PLC.
- Evaluate the existing site Zetron alarm notification system. At a minimum, replace the wiring.
- Evaluate the need for the existing Opto22 data collection and alarming system that is used for water system monitoring. Signals currently wired to this system can be connected to the new PLC, allowing data collection and alarming to be handled by the water Scott WTP SCADA system. Local alarming should be maintained to avoid loss of signal conditions that would prevent alarming.

Capital Improvements Plan

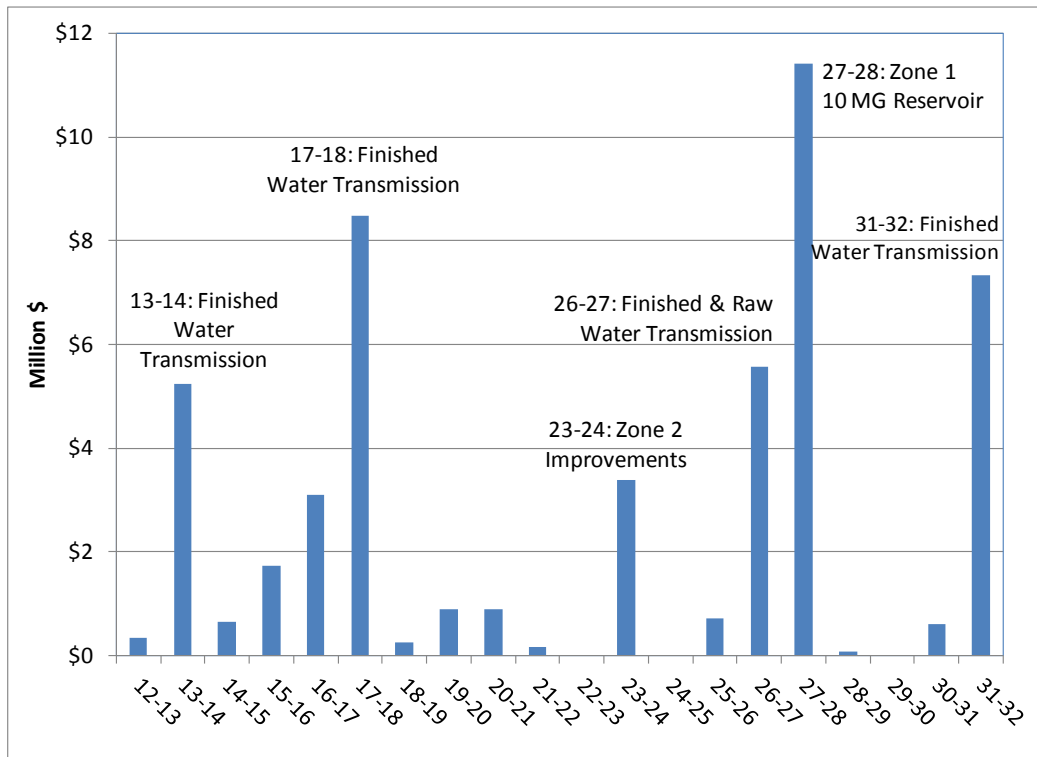
This section summarizes the improvements discussed in the preceding chapters, and presents a capital improvements plan (CIP) update for MW&L’s water system. The CIP identifies project needs for the 20-year planning period.

12.1 Capital Improvements Plan

The proposed CIP table for MW&L is attached at the end of this section as **Exhibit 12-4**. The individual projects include those that have been described in the technical sections of this report. The project descriptions and dates shown in the CIP should be considered approximate. MW&L will evaluate the proposed projects on a regular basis and make adjustments as appropriate. This is particularly the case for projects in later years, as many are demand-driven and the demand projections are approximate. These dates will be refined and estimated costs updated as proposed implementation dates approach.

Exhibit 12-1 provides a summary chart showing the capital outlay by fiscal year corresponding to the CIP table. The chart highlights the major capital projects, with the earliest ones being additions to the finished water transmission piping.

EXHIBIT 12-1
Capital Improvements Plan Cash Flow



The grand total of the proposed capital projects is \$79,000,000. This total includes the expansion of the Scott WTP, which according to the demand projections, does not need to occur until one year beyond the 20-year planning horizon. It was included in the CIP because design and early construction may need to occur within 20 years to complete the expansion in time.

12.2 Major Projects

The major projects described below, are primarily driven by population and demand growth. One exception is an improvement to the finished water transmission pipeline that provides both increased capacity and important redundancy in case of a pipeline failure. Detailed information on specific projects, including proposed project timing, can be found in individual sections of this master plan.

12.2.1 Finished Water Transmission

Within the 20-year planning period, water use within the community is expected to exceed the capacity of the existing finished water transmission pipelines between the Scott WTP and the Service Reservoirs. Improvements to the finished water transmission pipelines are needed to meet capacity needs and to provide additional redundancy. As shown in Exhibit 12-1, projects to improve the finished water transmission system dominate the capital improvement spending over the 20-year planning period.

Providing a pipeline parallel to the existing pipeline, which was installed in a tunnel between the Scott WTP and the Panther Creek valve station, has been recommended for early implementation. This improvement will provide additional capacity and redundancy. A failure of the existing pipe located in the tunnel could interrupt water service to the community for an extended period because access to the pipeline is very limited. Horizontal directional drilling of a new tunnel and installation of a 36-inch inside diameter pipeline section is recommended.

Other improvements to the finished water transmission pipeline include a phased approach to replacing the 14-inch asbestos cement and 16-inch steel pipelines with a 30-inch diameter cement-lined ductile iron pipeline following a similar alignment to the existing 24-inch pipeline. An alternative alignment using public right of way along roadways was rejected because of the required longer length and resulting higher cost of this route.

12.2.2 Raw Water Transmission

The steel raw water transmission pipeline between Haskins Dam and the Scott WTP is approximately 60 years old and has an estimated capacity of 20 mgd. The capacity of the control valve and meter at the inlet to the Scott WTP is approximately 18.5 mgd. To meet projected demands and to ease concerns about the age and condition of the original steel pipeline, replacing the control valve and meter, and adding a 36-inch diameter ductile iron pipe to provide raw water capacity sufficient for the 30 mgd build out capacity of the Scott WTP are recommended.

12.2.3 Scott WTP Expansion

The Scott WTP has a current capacity of approximately 22 mgd. According to the demand projections presented in this master plan, the maximum day demand will exceed 22 mgd in year 2033. The plant was designed for a straightforward, relatively inexpensive expansion to 30 mgd. Construction of this improvement is shown in the CIP table to occur in 2032-2033, which is one year beyond the 20-year study planning horizon. It has been included in the CIP table because the design and construction will represent a multi-year project and depending on actual demand growth, may need to be initiated within 20 years.

12.2.4 Zones 1 and 2 Storage

To meet projected storage Zone 1 storage requirements, construction of a 10-MG prestressed concrete tank near the existing Service Reservoirs is proposed for FY 2027-2028. Depending on development in Zone 2, construction of a 1.3-MG Zone 2 reservoir may be needed prior to this date. The CIP has included an estimated date of construction for the Zone 2 reservoir of FY 2023-2024.

12.2.5 Distribution System

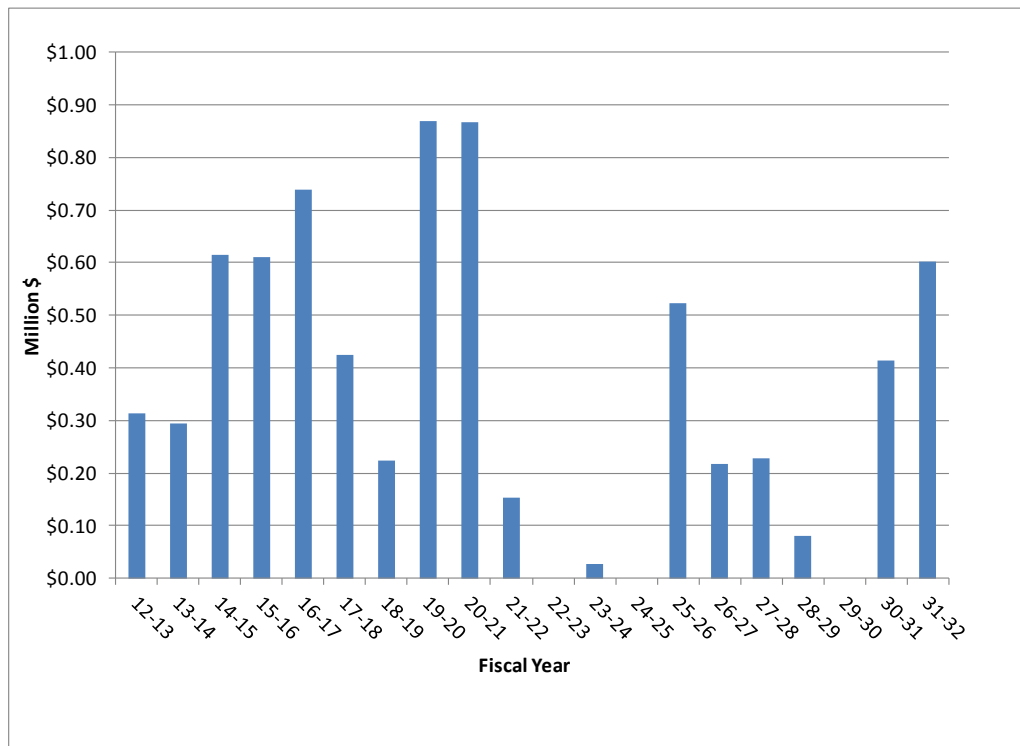
MW&L's current distribution system is fundamentally sound; it contains a large proportion of industry-standard ductile iron and cast iron pipelines. Distribution system pipeline improvements were identified to help meet pressure and fire flow criteria under existing and future demand conditions, to replace old and poor-quality pipes, and to provide for future development.

MW&L has been planning for its role in a future regional water supply system. A pipeline project located in the southeast portion of the service area provides for improved fire flow and for future delivery of up to 1 mgd of wholesale water to a nearby city.

In the years leading up to this master plan, MW&L was spending approximately \$300,000 per year on distribution system projects, and has been working to replace asbestos cement and galvanized iron pipelines. The CIP includes plans for continued asbestos cement and galvanized iron pipeline replacement and upgrades to improve fire flows. **Exhibit 12-2** shows the projected cash flow for the distribution pipeline portion of the CIP.

EXHIBIT 12-2

Capital Improvements Planning Cash Flow for Distribution System Pipeline Improvements



12.3 Project Cost Background

The project costs are considered rough order of magnitude estimates. Actual costs will vary by plus 50 percent to minus 30 percent, depending on the final project scope, the bidding climate, and other variable factors.

The project cost estimates are given in June 2011 dollars at an approximate *Engineering News-Record* Construction Cost Index for Seattle Area value of 8758. Costs should be updated each year prior to finalizing MW&L’s budget and capital plans. For large projects, in particular, it may be helpful to develop a preliminary design to define the scope of work and confirm the design and construction cost estimates.

MW&L provided the unit costs to use for distribution pipeline projects and these are summarized in **Exhibit 12-3**. These are complete project costs for installing ductile iron pipelines, inclusive of administration, design, and contingency.

EXHIBIT 12-3

Project Cost Estimates for Distribution Pipelines

Pipeline Diameter (inches)	Unit Pipeline Cost (\$/foot)
6	\$125
8	\$144
10	\$162
12	\$180
16	\$220

EXHIBIT 12-4
Capital Improvements Plan (CIP) Table

Project ID	Fiscal Year for Construction	Description	Pipe Length (ft)	Diameter (in)	Material	Construction Cost	Engineering & Admin Cost	Total Cost	Improvement Driver
Finished Water Transmission									
FW-001	13-14	Phase 1a. Parallel upper-most section of transmission piping, excluding tunnel portion, from WTP to Panther Creek valve station. Include 4 inch conduit for SCADA.	2,430	36	DI	\$1,020,000	\$230,000	\$1,250,000	Development
FW-002	13-14	Phase 1b. Parallel upper-most section of transmission piping--only the tunnel portion. Assume use of 42 inch DR 13.5 HDPE installed by horizontal direction drilling. Include 4 inch conduit for SCADA.	1,500	42	HDPE	\$3,000,000	\$490,000	\$3,490,000	Development
FW-003	16-17	Allowance for investigating and obtaining easements for Phase 2 transmission pipeline (for Old Wagon Rd to Fir Crest Rd, Section C-D)						\$200,000	Development
FW-004	17-18	Phase 2. Install new transmission pipe from Old Wagon Road to Fir Crest Road (Section C-D) Add two 4-inch power conduits and three 3-inch communication conduits; one vault for all conduits at 1000 ft spacing.	20,300	30	DI	\$7,110,000	\$930,000	\$8,040,000	Development
FW-005	25-26	Allowance for investigating and obtaining easements for Phase 3 transmission pipeline (for Panther Creek to Old Wagon Rd, Section B-C)						\$200,000	Development
FW-006	26-27	Phase 3. Install new transmission pipe from Panther Creek valve station to Old Wagon Rd (Section B-C). Add two 4-inch power conduits and three 3-inch communication conduits; one vault for all conduits at 1000 ft spacing.	10,800	30	DI	\$3,780,000	\$500,000	\$4,280,000	Development
FW-007	30-31	Allowance for investigating and obtaining easements for Phase 4 transmission pipeline (for Fir Crest Rd to Service Reservoirs, Section D-E)						\$200,000	Development
FW-008	31-32	Phase 4. Install new transmission pipe from Fir Crest Road to Service Reservoirs (Section D-E). Add two 4-inch power conduits and three 3-inch communication conduits; one vault for all conduits at 1000 ft spacing.	17,000	30	DI	\$5,950,000	\$780,000	\$6,730,000	Development
								\$24,390,000	
Raw Water Transmission and Watershed Diversion Pipeline									
RW-001	11-12	Partial replacement of existing diversion line around Haskins Reservoir. Existing steel pipeline has history of leakage. 460 feet scheduled in 2011.	480	30/24	DI			\$51,000	Condition
RW-002	12-13	Partial replacement of existing diversion line around Haskins Reservoir.	240	30/24	DI			\$26,000	Condition
RW-003	13-14	Partial replacement of existing diversion line around Haskins Reservoir.	230	30/24	DI			\$25,000	Condition
RW-004	14-15	Partial replacement of existing diversion line around Haskins Reservoir.	240	30/24	DI			\$26,000	Condition
RW-005	15-16	Partial replacement of existing diversion line around Haskins Reservoir.	230	30/24	DI			\$25,000	Condition
RW-006	16-17	Partial replacement of existing diversion line around Haskins Reservoir.	240	30/24	DI			\$26,000	Condition
RW-007	17-18	Partial replacement of existing diversion line around Haskins Reservoir.	230	30/24	DI			\$25,000	Condition
RW-008	18-19	Partial replacement of existing diversion line around Haskins Reservoir.	240	30/24	DI			\$26,000	Condition
RW-009	19-20	Partial replacement of existing diversion line around Haskins Reservoir.	230	30/24	DI			\$25,000	Condition
RW-010	20-21	Partial replacement of existing diversion line around Haskins Reservoir.	240	30/24	DI			\$26,000	Condition
RW-011	26-27	Replace raw water transmission pipeline from Haskins Dam valve vault to WTP using 36 inch Class 200 psi ductile iron pipe, installed in gravel road to plant site	1,700	36	DI	\$740,000	\$100,000	\$840,000	Development
RW-012	26-27	Replace existing 20 inch WTP inlet control valve and meter with 24 inch		24	DI	\$110,000	\$30,000	\$140,000	Development
								\$1,261,000	
Regionalization Pipelines									
P-017	15-16	Regional supply to Dayton: New 24 inch line along Salmon River Highway from end of existing 24 inch pipe near Watts Ln to Cirrus Ave. Regional partners to pay for 12 inch pipeline (\$594,000); MW&L to pay remaining cost for pipe upsized (\$363,000). Total project cost (\$957,000).	3,300	24	DI			\$363,000	Regional

EXHIBIT 12-4
Capital Improvements Plan (CIP) Table

Project ID	Fiscal Year for Construction	Description	Pipe Length (ft)	Diameter (in)	Material	Construction Cost	Engineering & Admin Cost	Total Cost	Improvement Driver
P-018	15-16	Regional supply to Dayton: New 24 inch line along Salmon River Highway from Cirrus Ave to Loop Rd. Regional partners to pay for 12 inch pipeline (\$504,000), MW&L to pay remaining cost for pipe upsized (\$308,000). Total project cost (\$812,000).	2,800	24	DI			\$308,000	Regional
P-019	15-16	Regional supply to Dayton: New 12 inch line along Loop Rd from 3 Mile Ln to Oak Dr	910	12	DI			\$164,000	Regional
								\$835,000	
Eastside Feeder									
P-025	16-17	East side feed: New 16 inch line along Riverside Dr and Clearwater Dr from WWTP to end of 10 inch near railroad crossing; includes RR undercrossing	5,210	16	DI			\$1,196,000	Fire Flow
P-026	16-17	East side feed: Replace existing 8 inch line with new 12 inch line along Colvin Ct from Rivergate to Clearwater	660	12	DI			\$119,000	Fire Flow
P-027	16-17	East side feed: New 20 inch line along Riverside Dr from near Lafayette to Alpha	2,930	20	DI			\$762,000	Fire Flow
								\$2,077,000	
Zone 2 Improvements									
Z2-001	23-24	New 16 inch parallel along Fox Ridge Road from new 12 inch loop to new 12 inch loop	1,070	16	DI			\$235,000	Development
Z2-002	23-24	New 16 inch line along Fox Ridge Road from new 16 inch line to new reservoir	4,300	16	DI			\$946,000	Development
Z2-003	23-24	Two constant speed pumps for maximum daily demands in Zone 2 (425 gpm, ~200 ft dynamic head) in existing building; addition of backup generator				\$180,000	\$45,000	\$225,000	Development
Z2-004	23-24	Zone 2 reservoir; 1.3 MG (single reservoir; backup provided by direct gravity service through transmission lines), concrete (may be partially buried)				\$1,700,000	\$260,000	\$1,960,000	Development
								\$3,366,000	
Zone 2 Development Pipelines and Pressure Reducing Valves (PRVs)									
P-072		New 12 inch line along Dawson Ln from Fox Ridge Road to Horizon	1,600	12	DI			\$288,000	Development
P-073		New 12 inch line from Fox Ridge Rd to Horizon	2,270	12	DI			\$409,000	Development
P-074		New 12 inch loop from 2nd to new 12 inch loop W of Dawson Ln	6,940	12	DI			\$1,249,000	Development
P-075		New 12 inch loop along 2nd & Redmond Hill from Blue Heron Ct to Valleys Edge	2,480	12	DI			\$446,000	Development
P-076		New 12 inch loop from Redmond Hill to new 12 inch loop W of 2 nd	9,610	12	DI			\$1,730,000	Development
Z2-005		Pressure reducing valve, on existing 24 inch along Fox Ridge Road at 1300 ft east of Dawson Ln, installed in vault (coordinate with pipeline installation)		12				\$66,000	Development
Z2-006		Pressure reducing valve, on existing 10 inch along Horizon Dr at 130 ft west of Hillcrest, installed in vault (coordinate with pipeline installation)		8				\$50,000	Development
Z2-007		Pressure reducing valve, on existing 8 inch along Mt. Mazama St. at 100 ft north of Mt. Hood Dr, installed in vault (coordinate with pipeline installation)		8				\$50,000	Development
Z2-008		Pressure reducing valve, on new 12 inch loop north of Redmond Hill Rd at 1250 ft west of W 2nd St, installed in vault (coordinate with pipeline installation)		10				\$56,000	Development
Z2-009		Pressure reducing valve, on new 12 inch loop south of Redmond Hill Rd near SW corner of loop, installed in vault (coordinate with pipeline installation)		10				\$56,000	Development
								\$4,400,000	
WTP Expansion									
WTP-001	32-33	Expand WTP from 22 to 30 mgd: Add Filters 7 & 8; add second hypochlorite generation system; add second gravity thickener; modify some chemical feed pumps. NOTE: This project falls outside the 20-year planning horizon.				\$7,100,000	\$900,000	\$8,000,000	Development
								\$8,000,000	

Project ID	Fiscal Year for Construction	Description	Pipe Length (ft)	Diameter (in)	Material	Construction Cost	Engineering & Admin Cost	Total Cost	Improvement Driver
SCADA									
FW-004	13-14	Panther Creek SCADA and instrumentation improvements--replace meter, establish connection with WTP, replace panels; work to coincide with installation of new pipeline from WTP to Panther Creek valve station				\$150,000	\$30,000	\$180,000	Condition
RW-013	26-27	Haskins Creek vault SCADA and instrument improvements--replace flow meter, replace actuators, new electrical connections, new SCADA panel				\$80,000	\$20,000	\$100,000	Condition
								\$280,000	
Zone 1 Storage									
Z1-004	27-28	Install new 10 million gallon prestressed concrete tank on existing property by other service reservoirs				\$10,200,000	\$1,000,000	\$11,200,000	Development
								\$11,200,000	
Security at Reservoirs									
Z1-001	15-16	Hardening of hatches, vents, and installation of cameras for alarm assessment				\$105,000	\$21,000	\$126,000	Condition
								\$126,000	
Reservoir Repainting									
Z1-002	15-16	Repainting Service Reservoirs 3 & 4 (surface preparation and painting external concrete surfaces, not including roof; estimated at \$4.00/sf)				\$120,000	\$10,000	\$130,000	Condition
Z1-003	16-17	Repainting steel backwash tanks at WTP (internal and external surfaces; estimated at \$8.00/sf)				\$50,000	\$10,000	\$60,000	Condition
								\$190,000	
Zone 1 Development Pipelines									
P-077		New 10 inch line along Watts Lane from Air Museum - West Loop to 3 Mile Ln	2,260	10	DI			\$366,000	Development
P-078		New 10 inch line from Air Museum - East Loop to 3 Mile Ln	2,490	10	DI			\$403,000	Development
P-079		New 16 inch line along Salmon River HWY & Noble LN from Morgan Ln to 3 Mile Ln	6,500	16	DI			\$1,430,000	Development
P-080		New 16 inch line south of Evergreen Mobile Park and MCH from new 16 inch loop SW of Evergreen Mobile Park to 3 Mile Ln	5,360	16	DI			\$1,179,000	Development
P-081		New 16 inch loop along Armory Way from 3 Mile Ln to existing 8 inch pipe at west end of airport and to new 16 inch loop west of Armory Way	4,880	16	DI			\$1,074,000	Development
P-082		New 10 inch line from Village Ct to Dunn Pl	1,640	10	DI			\$266,000	Development
P-083		New 8 inch line from existing 8 inch line off of Norton Ln to new 16 inch loop SW of MCH	560	8	DI			\$81,000	Development
P-084		New 12 inch loop south and southwest of MCH from new 16 inch loop to new 12 inch loop	7,810	12	DI			\$1,406,000	Development
P-085		New 12 inch loop southeast of MCH from new 16 inch loop to new 12 inch loop	5,160	12	DI			\$929,000	Development
P-086		New 16 inch line along Riverside Dr from Miller to Clearwater	5,680	16	DI			\$1,250,000	Development
P-087		New 10 inch line along Orchard Ave between Miller St and Colvin Ct	1,130	10	DI			\$183,000	Development
P-088		New 12 inch loop along Grandhaven Dr from Lucy Belle to Hembree	3,940	12	DI			\$709,000	Development
P-089		New 12 inch loop from Hidden Meadow Dr to 99W	3,800	12	DI			\$684,000	Development
P-090		New 12 inch loop from Grandhaven St to new 12 inch loop NE of Hidden Meadow Dr	2,920	12	DI			\$526,000	Development
P-091		New 12 inch loop from new 12 inch loop N of Grandhaven St to new 12 inch loop N of Walton Dr	2,700	12	DI			\$486,000	Development
P-092		New 12 inch loop along Westside & Baker from 27th to Summerfield	2,940	12	DI			\$529,000	Development
P-093		New 12 inch loop from 25th to Baker	1,430	12	DI			\$257,000	Development
P-094		New 12 inch loop from Elm to new 12 inch loop N of 25th	1,060	12	DI			\$191,000	Development
P-095		New 12 inch loop along 12 inch loop N of Baker Creek Ln from Baker Crest to Elm	1,310	12	DI			\$236,000	Development
P-096		New 12 inch loop along 12 inch loop N of Baker Crest from Pinot Noir to 12 inch loop N of Baker Creek Ln	2,560	12	DI			\$461,000	Development

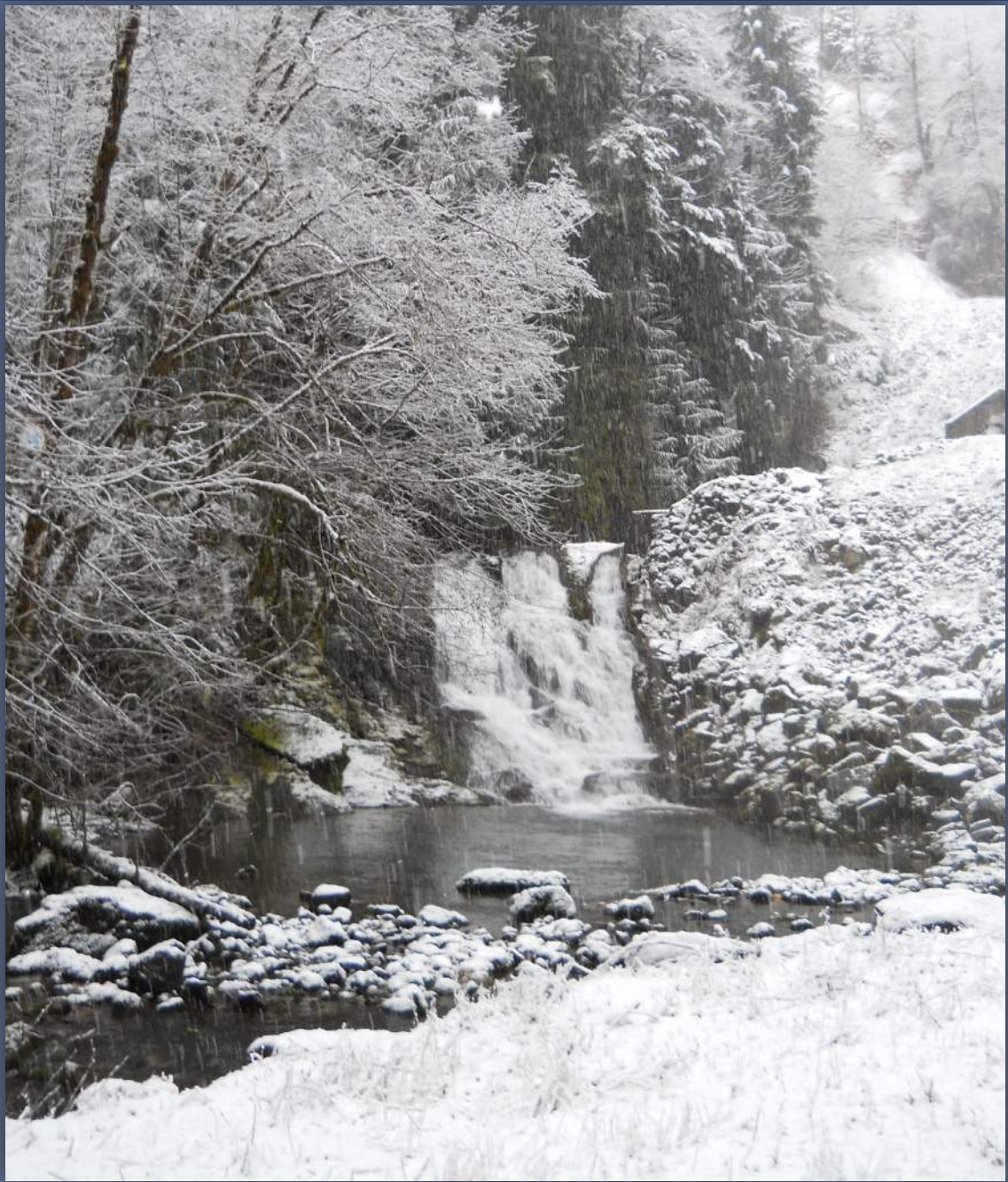
Project ID	Fiscal Year for Construction	Description	Pipe Length (ft)	Diameter (in)	Material	Construction Cost	Engineering & Admin Cost	Total Cost	Improvement Driver
P-097		New 12 inch loop along 12 inch loop N of Pinot Noir from 12 inch loop N of Baker Crest to Baker Creek	3,110	12	DI			\$560,000	Development
P-098		New 12 inch line along new 12 inch W of Old Sheridan from Old Sheridan to S Hill Rd and Alexandria	7,140	12	DI			\$1,285,000	Development
P-099		New 12 inch loop from new 12 inch loop N of Grandhaven Dr to new 12 inch loop N of Hembree	5,980	12	DI			\$1,076,000	Development
								\$15,567,000	
Distribution Pipelines - Condition & Fire Flow Based (current plan)									
P-001	12-13	Replace existing 2 inch line with new 6 inch line along Angela from Morgan to end (cul-de-sac)	450	6	DI			\$56,000	Condition/Flow
P-002	12-13	Replace existing 2 inch line with new 8 inch line along 21st from St Andrews to St Andrews	480	8	DI			\$69,000	Condition/Flow
P-003	12-13	Replace existing 6 inch AC line with new 10 inch line along 18th from McDaniel to Lafayette	595	10	DI			\$96,000	Condition/Flow
P-004	12-13	Replace currently unused (capped) 6 inch AC pipeline with new 8 inch, from corner of 10th Ave. and Irvine to 6 inch pipe on 10th Ave.; includes railroad undercrossing	290	8	DI			\$92,000	Condition/Flow
P-005	13-14	Replace existing 6 inch AC line with new 10 inch line along McDonald from St. Johns Church to 19th	865	10	DI			\$140,000	Condition/Flow
P-006	13-14	Replace existing 1.5 inch line with new 6 inch line along 7th Ct from Hickory both east & west side of Hickory	565	6	DI			\$71,000	Condition/Flow
P-007	13-14	Replace existing 2 inch line with new 6 inch line from St Andrews to end (dead end)	215	6	DI			\$27,000	Condition/Flow
P-008	13-14	Replace existing 2 inch line with new 8 inch line along Elm from Jason to end	345	8	DI			\$50,000	Condition/Flow
P-010	14-15	Replace existing 10 inch AC line with new 10 inch line along Brockwood from Fellows to Collard	1,220	10	DI			\$198,000	Condition
P-011	14-15	Replace existing 10 inch AC line with new 10 inch line along Brockwood from Fellows to Gilson	410	10	DI			\$66,000	Condition
P-012	14-15	Replace existing 2 inch line with new 8 inch line along 11th Ave from Alpine to Lafayette	210	8	DI			\$30,000	Condition/Flow
P-020	15-16	Replace existing 2 inch line with new 12 inch line along Evans from 6th to 3rd	780	12	DI			\$140,000	Condition/Flow
P-021	15-16	Replace existing 2 inch line with new 8 inch line along 4th from Evans to Galloway	690	8	DI			\$99,000	Condition/Flow
P-022	15-16	Replace existing 12 inch AC pipe with 12 inch DI pipe along W. 2nd across Almond Ct. intersection.	160	12	DI			\$29,000	Condition
P-028	16-17	Replace existing 10 inch AC line with new 10 inch line along 17th from McDonald to McDaniel	1,410	10	DI			\$228,000	Condition
P-034	17-18	Replace existing 6 inch AC line with new 8 inch line along 21st from McDonald to Hembree	990	8	DI			\$143,000	Condition/Flow
P-035	17-18	Replace existing 6 inch line with new 8 inch line along Logan from 13th to 14th	265	8	DI			\$38,000	Condition/Flow
P-036	17-18	Replace existing 2 inch line with new 6 inch line along 8th Ct from Fenton to end (cul-de-sac, dead end)	130	6	DI			\$16,000	Condition/Flow
P-037	17-18	Replace existing 1.5 inch line with new 6 inch line along 9th Ct from Hickory to end (cul-de-sac, dead end)	255	6	DI			\$32,000	Condition/Flow
P-038	17-18	Replace existing 2 inch line with new 6 inch line along 1st Ct from Fleishauer to end (cul-de-sac, dead end)	255	6	DI			\$32,000	Condition/Flow
P-040	18-19	Replace existing 1.5 inch line with new 6 inch line along Davis Ct from 27th to end (dead end)	155	6	DI			\$19,000	Condition/Flow
P-041	18-19	Replace existing 2 inch line with new 6 inch line along Davis Ct from 27th to end (cul-de-sac, dead end)	135	6	DI			\$17,000	Condition/Flow
P-042	18-19	Replace existing 2 inch line with new 8 inch line 6 inch line along 11th Way from Alpine to 12th	490	8	DI			\$71,000	Condition/Flow

Project ID	Fiscal Year for Construction	Description	Pipe Length (ft)	Diameter (in)	Material	Construction Cost	Engineering & Admin Cost	Total Cost	Improvement Driver
P-043	18-19	Replace existing 2 inch line with new 6 inch line along Cemetery from North Hill Rd to end of existing 2 inch line (dead end)	280	6	DI			\$35,000	Condition/Flow
P-045	19-20	Replace existing 2 inch line with new 8 inch line along Storey from Hembree to Villard; includes railroad undercrossing	650	8	DI			\$144,000	Condition/Flow
P-046	19-20	Replace existing 2 inch line with new 8 inch line along Willow from Storey to Naomi	890	8	DI			\$128,000	Condition/Flow
P-049	20-21	Replace existing 2 inch line with new 8 inch line along Naomi from Villard to Willow	300	8	DI			\$43,000	Condition/Flow
P-050	20-21	Replace existing 2 inch line with new 6 inch line along Vine from Villard to end (dead end)	230	6	DI			\$29,000	Condition/Flow
P-051	20-21	Replace existing 1.5 inch line with new 6 inch line along Holly from Evans to end (dead end)	200	6	DI			\$25,000	Condition/Flow
P-052	20-21	Replace existing 2 inch line with new 6 inch line along Braly from 2nd to end (dead end)	320	6	DI			\$40,000	Condition/Flow
P-053	20-21	Replace existing 2 inch line with new 6 inch line along Rose Dr from Clairmont to end (dead end)	280	6	DI			\$35,000	Condition/Flow
P-054	20-21	Replace existing 2 inch line with new 6 inch line along Chalmers Way from Dunn Pl to End (dead end)	250	6	DI			\$31,000	Condition/Flow
P-055	20-21	Replace existing 1.5 inch line with new 6 inch line along Kingwood St from existing 6 inch line to end (cul-de-sac)	710	6	DI			\$89,000	Condition/Flow
P-057	21-22	Replace existing 2 inch line with new 6 inch line from Baker to End (Gale's Towing, dead end line improvement; low priority)	120	6	DI			\$15,000	Condition/Flow
P-058	21-22	Replace existing 8 inch AC line with new 10 inch line from Riverside Dr to end	550	10	DI			\$89,000	Condition/Flow
								\$2,462,000	
Distribution Pipelines - New Installations (loop connections to eliminate dead ends for fire flow)									
P-009	13-14	New 8 inch line from existing 6 inch line on NW side of Lafayette to existing 10 inch line on SE side of Lafayette	40	8	DI			\$6,000	Fire Flow
P-013	14-15	New 8 inch line along Adams from Baker St to existing 6 inch on Adams	300	8	DI			\$43,000	Fire Flow
P-014	14-15	New 10 inch line from Grandhaven to existing 8 inch on NW side of 99W	20	10	DI			\$3,000	Fire Flow
P-015	14-15	New 10 inch line along 19th from NW side of Lafayette to SE side of Lafayette	60	10	DI			\$10,000	Fire Flow
P-029	16-17	New 8 inch line along Baker Creek from Baker Crest to Baker Creek	610	8	DI			\$88,000	Fire Flow
P-030	16-17	New 8 inch line along Ashwood from north side of Fellows to south side of Fellows	90	8	DI			\$13,000	Fire Flow
P-031	16-17	New 10 inch line along Queensboro from Debbie to Border	230	10	DI			\$37,000	Fire Flow
P-047	19-20	New 10 inch line along 99W from the N side of 99W to Riverside Dr	670	10	DI			\$109,000	Fire Flow
P-048	19-20	New 10 inch line along Riverside Dr from near 99W to near railroad crossing (parallel existing 10 inch)	3,010	10	DI			\$488,000	Fire Flow
P-056	20-21	New 16 inch line along Booth Bend & Salmon River HWY from Davis to Morgan	2,620	16	DI			\$576,000	Fire Flow
P-059	21-22	New 8 inch line along 27th from existing 6 inch line to existing 8 inch line	340	8	DI			\$49,000	Fire Flow
P-061	25-26	New 12 inch line along Joe Dancer Park from Brooks St to Marsh Ln	2,900	12	DI			\$522,000	Fire Flow
								\$1,944,000	
Distribution Pipelines - Future Size Upgrades for fire flow									
P-016	14-15	Replace existing 6 inch line with new 12 inch line along Adams from Handley to 3rd	1,470	12	DI			\$265,000	Fire Flow
P-023	15-16	Replace existing 6 inch line with new 12 inch line along 99W from McDonald to McDaniel	1,540	12	DI			\$277,000	Fire Flow
P-024	15-16	Replace existing 4 inch line with new 8 inch line along Cows from 1st to Lincoln	460	8	DI			\$66,000	Fire Flow
P-032	16-17	Replace existing 4 inch line with new 6 inch line along Kingwood Ct from Kingwood St to end (cul-de-sac)	720	6	DI			\$90,000	Fire Flow
P-033	16-17	Replace existing 4/6 inch line with 8 inch line along Kingwood Dr and Kingwood St and connect to American Dr	1,960	8	DI			\$282,000	Fire Flow
P-039	17-18	Replace existing 4 inch line with new 8 inch line along Pacific & Springer from 3 Mile Ln to End of Springer	1,130	8	DI			\$163,000	Fire Flow

Project ID	Fiscal Year for Construction	Description	Pipe Length (ft)	Diameter (in)	Material	Construction Cost	Engineering & Admin Cost	Total Cost	Improvement Driver
P-044	18-19	Replace existing 2 inch line with new 10 inch line along 2nd from Star Mill to Wallace Way	500	10	DI			\$81,000	Fire Flow
P-060	23-24	Replace existing 2 inch line with new 8 inch line along Evergreen Pkwy W from Shoreline to Evergreen Pkwy	180	8	DI			\$26,000	Fire Flow
P-062	26-27	Replace existing 6 inch line with new 10 inch line along Queensboro from Debbie to Alethea	330	10	DI			\$53,000	Fire Flow
P-063	26-27	Replace existing 6 inch line with new 10 inch line along Alethea from Davis to Queensboro	1,020	10	DI			\$165,000	Fire Flow
P-064	27-28	Replace existing 6 inch line with new 10 inch line along Koch & Gibbs from Orchard to end	1,410	10	DI			\$228,000	Fire Flow
P-065	28-29	Replace existing 6 inch line with new 10 inch line along Kimberly Ct from Hoffman to end (dead end line improvement; low priority)	370	10	DI			\$60,000	Fire Flow
P-066	28-29	Replace existing 8 inch line with new 10 inch line along Davis from existing 6 inch on N side of Booth Bend to Site on S side of Booth Bend (dead end line improvement; low priority)	130	10	DI			\$21,000	Fire Flow
P-067	30-31	Replace existing 8 inch line with new 10 inch line along Alpine from 13th Way to 7th/Lafayette	2,550	10	DI			\$413,000	Fire Flow
P-068	31-32	Replace existing 6 inch line with new 10 inch line from Lafayette to hydrant and implement full loop	1,960	10	DI			\$318,000	Fire Flow
P-069	31-32	Replace existing 6 inch line with new 10 inch line from McDonald to end (dead end line improvement; low priority)	450	10	DI			\$73,000	Fire Flow
P-070	31-32	Replace existing 6 inch line with new 10 inch line from 10th to end (dead end line improvement; low priority)	130	10	DI			\$21,000	Fire Flow
P-071	31-32	Replace existing 6 inch line with new 10 inch line along 10th Ave from 10th to Riverside Dr	1,170	10	DI			\$190,000	Fire Flow
								\$2,792,000	
							GRAND TOTAL	\$79,000,000	

Notes:

1. Materials: DI = ductile iron; HDPE = high density polyethylene
2. Unit cost for pipelines provided by MW&L as single value, including construction and engineering
3. Improvement Drivers:
 Condition = replacing old pipe that is prone to leakage or failure
 Fire flow = adding pipes to improve fire flows

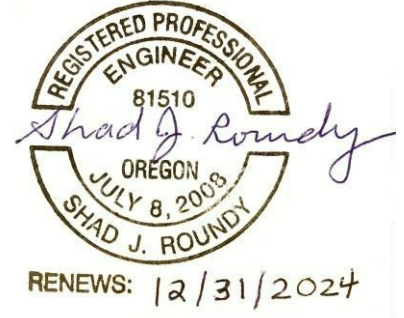


McMinnville Water and Light Water Master Plan Addendum

Revision no: 5

McMinnville Water and Light

Water Master Plan Addendum
October 1, 2024



McMinnville Water and Light Water Master Plan Addendum

Client name: McMinnville Water and Light
 Project name: Water Master Plan Addendum
 Revision no: 5
 Date: October 1, 2024
 Doc status: Final

Project no: D3701300
 Project manager: Craig Massie
 Prepared by: Claire DeVoe and Shad Roundy
 File name: MWL Water Master Plan Addendum 2024.10.01

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
Draft	9/22/2023		Claire DeVoe		Shad Roundy	Craig Massie
Draft	12/20/2023	MWL Comments				
Draft-Final	2/2/2024	Jacobs Revision	Claire DeVoe		Shad Roundy	Craig Massie
Draft-Final V.2	3/5/2024	Additional MWL Comments	Claire DeVoe		Shad Roundy	Craig Massie
Draft -Final V.3	8/15/2024	Minor Edits	Shad Roundy		Shad Roundy	Craig Massie
Final	10/1/2024	Minor Edits	Shad Roundy		Shad Roundy	Craig Massie

Jacobs Engineering
 2020 SW Fourth Avenue
 3rd Floor
 Portland, OR 97201
 United States

T +1.503.235.5000
 ***.jacobs.com

Copyright Jacobs Engineering © 2024.

All rights reserved. The concepts and information contained in this document are the property of the Jacobs group of companies. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright. Jacobs, the Jacobs logo, and all other Jacobs trademarks are the property of Jacobs.

NOTICE: This document has been prepared exclusively for the use and benefit of Jacobs' client. Jacobs accepts no liability or responsibility for any use or reliance upon this document by any third party.

Executive Summary

This document is an addendum to the 2011 McMinnville Water and Light (MW&L) Water Master Plan (WMP). This WMP Addendum is necessary to meet the Oregon Administrative Rules (OAR) requirements pertaining to expansion of the City of McMinnville (City) Urban Growth Boundary (UGB), updated system demands, and re-evaluation of existing capital projects. MW&L will continue to evaluate the need to update the WMP per Oregon Administrative Rule (OAR) 333-061-0060(5).

Recent system demands are significantly less than 2011 projections, making some of the 2011 WMP planned projects no longer necessary in the near term. Population growth was slightly overestimated through 2025, and then significantly increased at rates after 2025 that are no longer expected. Per capita demand for average day demand (ADD) and maximum day demand (MDD) have both decreased, resulting in total ADD that has remained relatively constant and MDD that has decreased by one to two million gallons per day (MGD) since the 2011 projections. Since 2011, several additional changes have occurred that result in different project needs.

In 2012, the Yamhill Regional Water Authority (YRWA) was formed and comprised of the City of McMinnville (acting by and through the McMinnville Water and Light Commission), the City of Carlton, and the City of Lafayette. The authority was created to discuss and develop joint governance, financing, and operation of future regional water facilities along the Willamette River.

Wholesale water supply is anticipated to be provided to the City of Lafayette at a rate of up to 500 gallons per minute (gpm) and to the City of Carlton (currently in negotiations). Additionally, the Urban Growth Boundary (UGB) was adjusted in 2021 for future growth. At the time the 2011 WMP was approved, the adoption of the City's UGB was appealed. Therefore, MW&L proceeded in the 2011 WMP to assume providing water service to land that was not in the existing City's UGB but was proposed by the City. A majority of these parcels were adopted in the 2021 UGB adjustment, resulting in only minor modifications to the Capital Improvement Program (CIP) project list.

The overall reductions in ADD and MDD projections indicate that localized CIP projects based on pipeline condition, fire flow, and resiliency remain necessary, but the water treatment plant (WTP) expansion may be delayed. Additionally, many projects are developer driven and based on UGB expansion, including the Zone 2 projects. Zone 2 will include upgrades to the booster pump station to meet the required system water pressure and fire flow requirements. Completing the replacement of the 14/16-inch transmission main with a new 36-inch transmission main will provide resiliency and conveyance for the future. Upgrading the 14/16-inch transmission main will also provide future options for Zone 2. This includes Zone 2 potentially being fed directly off the finished water transmission main, rather than pumping from Zone 1.

The elements analyzed in this plan should be reevaluated when the MW&L WMP Update is completed in the future.

Contents

Executive Summary	i
1. Introduction	1
1.1 Referenced Documents	1
1.2 Definition of Terms.....	1
2. System Description	2
2.1 System Overview	2
3. Water Requirements	3
3.1 Population and Employment Projections.....	3
3.2 Historical Water Production	5
3.3 Wholesale Customers	7
3.4 Industrial Customers and Largest Water Users	8
3.5 Demand Per Capita.....	8
3.6 Demand Projection.....	9
4. Design and Operating Criteria	10
5. Storage Evaluation	11
6. Supply	13
6.1 Water Rights.....	13
6.2 Supply System Limitations.....	13
7. Distribution System Hydraulic Analysis	15
7.1 Zone 2 Analysis.....	15
7.2 System Analysis	15
8. Capital Improvement Program	16
8.1 Changes to Prior Capital Improvement Projects.....	16
8.2 Cost Assumptions.....	19

Appendices

Appendix A. McMinnville Urban Growth Boundary Extension Map	31
Appendix B. 2011 MW&L WMP Operating and Design Criteria	33
Appendix C. Water Right Permits and Certifications	38
Appendix D. Hydraulic Model System Deficiency Maps	40
Appendix E. Updated Map of CIP Pipeline Projects	44

1. Introduction

This *Water Master Plan (WMP)* Addendum updates components of MW&L's master plan, prepared in 2011. This addendum focuses on significant changes to the UGB limits, population and demand projections, subsequent system and storage analyses, and the resulting changes to the CIP. This addendum does not discuss raw water supply, treatment, regional water supply, or seismic impacts, as these issues and others will be discussed in a plan update to be completed in the next 5 to 7 years.

The 2011 WMP identified significant projects over the next few years to upgrade the water system. However, MW&L has not seen the demands to necessitate these projects. Deviation from demand projections has been caused by numerous factors including slower population growth than anticipated, lower demand per capita, and service area boundary changes from the expansion of the UGB that was recently adopted (2020-2021). Therefore, the CIP developed from this addendum will guide MW&L's investment in the short term, before the next WMP is developed. Although the plan presents specific projects and proposed dates for implementation, the projects and their implementation schedules will be adjusted periodically to ensure that the system is managed efficiently to meet customer needs.

1.1 Referenced Documents

This report references the following documents:

1. *McMinnville Water and Light Water System Master Plan*, CH2M Hill, 2011
2. *City of McMinnville Urban Growth Boundary (UGB) Expansion Memo*, Jacobs, 2020
3. *2023 City of McMinnville Economic Opportunities Analysis*, ECONorthwest, June 2023
4. *McMinnville Growth Management and Urbanization Plan, Urbanization Report*, City of McMinnville, December 2020
5. *Finished Water Transmission Main Final Alignment Study and Phasing Technical Memorandum*, Stantec, September 2022

1.2 Definition of Terms

Section 3.1 of the 2011 WMP is repeated here for key water definitions.

Demand refers to total water use, the sum of metered consumption (residential, commercial, governmental, and industrial), unmetered uses (for example, firefighting or hydrant flushing), and water lost to leakage or storage reservoir overflows.

When discussing daily or annual water use, the terms *demand* and *production* are used synonymously in this report. Both refer to all water used in the system, the sum of metered and unmetered use. Demand equals production because both terms refer to all water that is delivered from the water treatment plant (WTP) to the distribution system.

The terms *demand* and *production* are not synonymous with respect to hourly demands. Water is produced at the WTP at a relatively steady rate throughout the day. Hourly water demands fluctuate in response to water use patterns by residential, commercial, and industrial customers. For example, hourly demands typically exceed the production rate during morning and afternoon/early evening peaks. Hourly demand will be less than the production rate during night-time hours. Hourly demands will be estimated and used for the distribution system modeling.

Metered use or consumption refers to the portion of water use that is recorded by customer meters.

Connection refers to a metered connection to a customer of MW&L.

Unaccounted for water refers to the difference between production and consumption. Unaccounted for water includes unmetered hydrant use, other unmetered uses such as hydrant flushing, or sewer flushing, reservoir overflow, and leakage. Meter inaccuracies (both production and customer) also contribute to unaccounted for water.

Specific *demand* terms include:

- Average day demand (ADD) equals the total annual production divided by 365 days.
- Maximum day demand (MDD) equals the highest system demand that occurs on any single day during a calendar year. It is also called the one-day MDD.
- The three-day maximum day demand (3-d MDD) equals the average of the daily demands that occurred on the day before, the day of, and the day after the MDD.
- Monthly demand equals the total volume of water produced in a month divided by the number of days in the month.
- Maximum monthly demand (MMD) equals the highest demand in one of the 12 months of a calendar year.
- Peak hour Demand (PHD) equals the highest hourly demand.
- Peaking factors (PFs) are the ratios of one demand value to another. The most common and important peaking factor is the ratio of the MDD to the ADD.

MDD is an important value for water system planning. The supply facilities (combination of intake, treatment plant, and transmission pipelines) must be capable of meeting the MDD. If the MDD exceeds the combined supply capacity on any given day, storage levels will be reduced. Consecutive days at or near the MDD will result in a water shortage.

The most common units for expressing demands are million gallons per day (mgd). One mgd is equivalent to 695 gallons per minute (gpm) or 1.55 cubic feet per second (cfs). Units of million gallons (MG) are also used.

2. System Description

Refer to the 2011 WMP for a detailed description of the water system.

Recently, the City of McMinnville (City) expanded its UGB. This boundary expansion and subsequent changes to utility service areas, including the MW&L water service area are documented in the *McMinnville Urbanization Report* (City of McMinnville, 2020). The existing MW&L water system will need to be expanded to serve the extended UGB area. Also, see **Appendix A** for the updated service area boundary and UGB.

2.1 System Overview

Refer to the 2011 WMP for a detailed description of the water system.

In 2022, MW&L served a population of approximately 34,746 residents, which includes 34,515 residents in the City (within UGB) and approximately 231 residents outside City limits.

MW&L's raw water comes from streams and two reservoirs located in the Coast Mountain Range. Water is treated at the Norman R. Scott Water Treatment Plant (Scott WTP) located in the Coast Mountain Range and gravity flows approximately 10 miles through transmission pipelines to the four finished water storage tanks (called the Service Reservoirs) located along Fox Ridge Road. These reservoirs provide gravity supply to the system, which is currently one pressure zone.

3. Water Requirements

This section updates the water use history for MW&L’s water system and presents projected future water needs based on recent water use trends and updated population projections. Average and maximum demands, per capita demands, and unaccounted for water are documented. City population growth has varied substantially from the 2011 WMP projections, due to many factors, including significant economic changes. Additionally, the COVID-19 pandemic has affected water use and patterns as more people stayed home beginning in April 2020. Updated water requirements will provide a better assessment of CIP projects.

3.1 Population and Employment Projections

Population projections were updated based on 2017 Portland State University (PSU) Population Research Center (PRC) information and UGB expansion data from the City. Eighty-one (81) connections or approximately 231 people are served by MW&L outside the UGB and are included in the population projections below. Wholesale customers such as the Cities of Lafayette or Carlton are not included. The City of McMinnville has standardized a projected 20-year growth of 47,498 people in 2041, to be used as the planning horizon across all infrastructure planning. 231 people outside the UGB are added to this 2041 estimate for the MW&L service population. The projected service area population is summarized in **Table 1** and compared with the 2011 WMP projections in **Figure 1**.

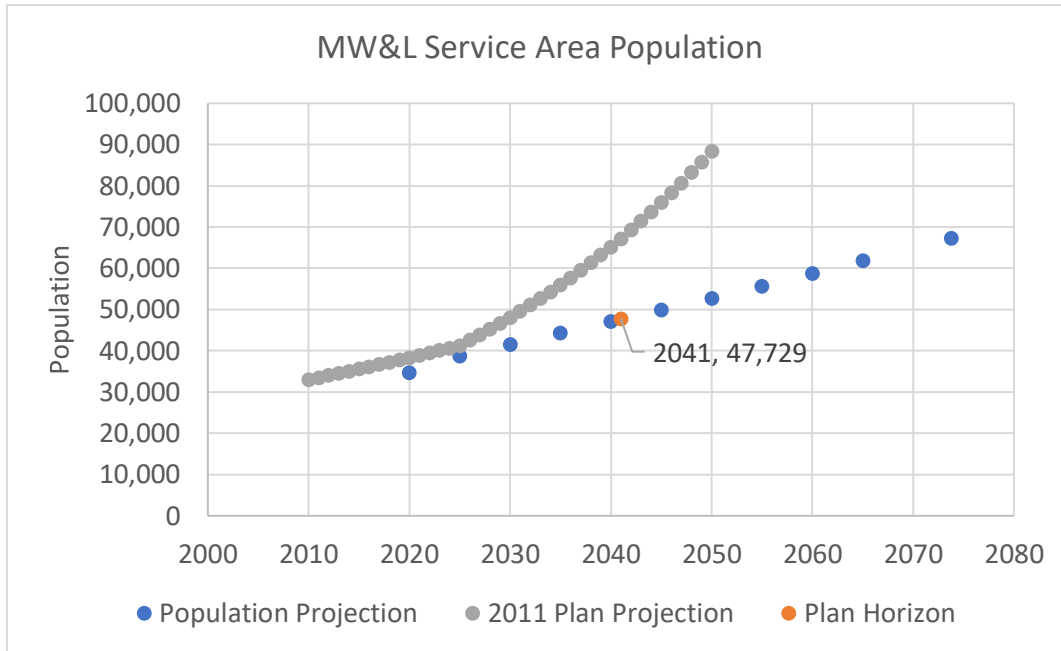
In this plan, future demand projections are based solely off population projections, rather than separating residential and employment-based demands. Employment-based projections are useful when residential and non-residential development occur at different rates (UGB expansion for significant industrial growth with only minor residential infill, for example). Based on estimates from the 2023 *City of McMinnville Economic Opportunities Analysis* (ECONorthwest, June 2023), employment growth is anticipated to essentially mirror population growth rates through 2067 (see **Table 2** from ECONorthwest). Therefore, for this plan addendum, population growth can reasonably be used to project all future demands.

Table 1 – Population Projection

Year	Population Projection
2020	34,640
2025	38,668
2030	41,486
2035	44,353
2040	47,187
2045	49,959
2050	52,772
2055	55,659
2060	58,680
2065	61,788

2020 population from 2022 PSU PRC updated estimates for McMinnville UGB population plus 231 people located outside the UGB. No growth assumed outside the UGB; future years from 2017 PSU PRC projection plus 231 people located outside the UGB.

Figure 1 – Population Projection



2041 Plan horizon and City population of 47,498 consistent with City wide planning efforts. Population includes population within the McMinnville UGB and additional 231 people located outside the UGB.

Table 2 – 2023 EOA Employment Forecasts

Year	Population	Total Employment
2021	36,238	22,157
2041	47,498	29,042
2067	62,803	38,158
<i>Change 2021-2041</i>		
Number	11,260	6,885
Percent	31%	31%
AAGR	1.36%	1.36%
<i>Change 2021-2067</i>		
Number	26,565	16,001
Percent	73%	72%
AAGR	1.20%	1.19%

Source: ECONorthwest, EOA, June 2023. AAGR = Average Annual Growth Rate

Note that the population estimates in this table do not perfectly match those provided in Table 1. The information in this table was developed by ECONorthwest for the 2023 Economic Opportunities Analysis and is used as a basis to understand general differences in population growth and employment growth. No projections in this report are based off numbers provided in Table 2.

3.2 Historical Water Production

Production data includes supply to wholesale customers served off the finished water transmission line in addition to customers located within the UGB. This distinction is important when addressing storage limitations and projected demands for the UGB. ADD and MDD are used for system analysis. Peaking factors (PF) are calculated from the ratio of MDD to ADD.

ADD has not significantly changed since the 2011 plan, however MDD has decreased by about 1-2 mgd. This is consistent with regional trends due to increased water conservancy measures such as low flow plumbing fixtures, drought resistant plantings, water main replacement program, and leak detection. Water production data for the past three years are compared against values from the 2011 WMP in **Table 3, and Figures 2 and 3.**

Table 3 – Historical Water Production, 2020-2022

Year	ADD (mgd)	MDD (mgd)	PF
2011 Plan Avg	5.2	12.1	2.33
2020	4.97	10.64	2.14
2021	5.40	11.25	2.08
2022	4.88	10.41	2.13
Avg	5.08	10.77	2.12

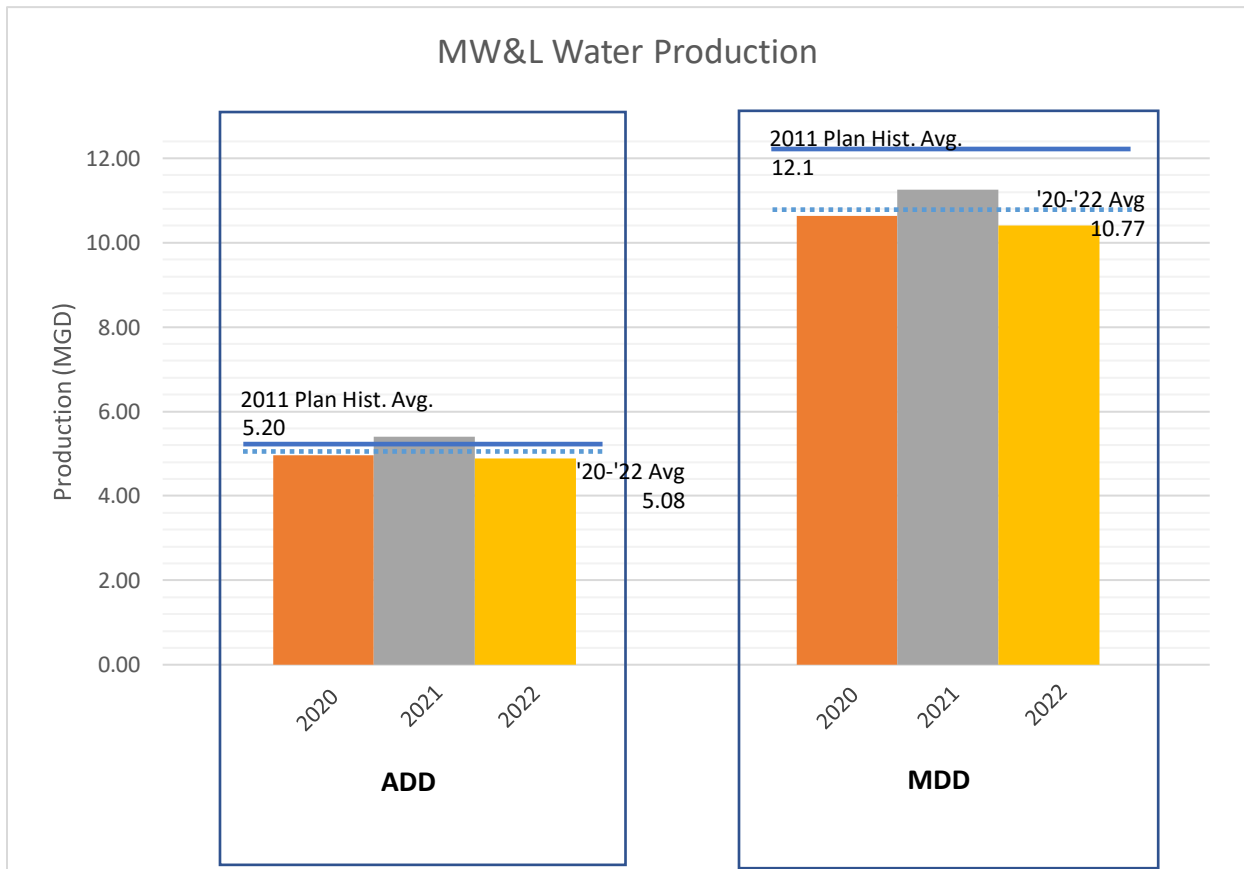
ADD = Average Day Demand; MDD = Maximum Day Demand, Avg = Average, mgd = million gallons per day, PF = peaking factor

Figure 2 – Historical Water Production



ADD = Average Day Demand, MDD = Maximum Day Demand

Figure 3 – Historical Water Production



ADD = Average Day Demand, MDD = Maximum Day Demand, MGD = Million Gallons per Day

3.3 Wholesale Customers

MW&L has intergovernmental agreements with the Cities of Lafayette and Carlton to form the Yamhill Regional Water Authority (YRWA). The YRWA has secured a water right on the Willamette River for development of a future water supply. However, until a future WTP off the Willamette River is established, MW&L will provide wholesale customers water from the Coast Mountain Range.

The Surplus Water Purchase Agreement with Lafayette is an eleven-year agreement with the option to renew for a total of twenty-one years starting March 20, 2019. Subject to the terms of the Surplus Water Purchase Agreement, Lafayette may receive up to the maximum amount of 720,000 gallons per day or 500 gallons per minute. This number is used for all future planning.

MW&L provided the City of Carlton with water through a Temporary Surplus Water Purchase Agreement between 2021 to 2023, while Carlton dredged their existing reservoir and upgraded their WTP. MW&L and the City of Carlton are currently negotiating a Water Purchase Agreement for MW&L to provide Carlton water.

The Cities of Lafayette and Carlton have individual interties with MW&L located at different points within the water system. The Lafayette intertie is located at the UGB boundary along Highway 18. This is downstream of the finished water reservoirs and must be treated as regular system demands, whereas the Carlton Intertie is located along Panther Creek Road off the finished water transmission, but upstream of the finished water reservoirs. Therefore, any wholesale water provided to the City of Carlton in the future would not be included in the storage calculations. Historic and future supply to wholesale customers is summarized in **Table 4**.

Table 4 – Wholesale Customers

Customer	2022 Total (MG)	2022 ADD (mgd)	Supply Location	Future Supply and Agreements
Carlton	102	0.28	Panther Creek Rd (upstream of distribution system)	TBD
Lafayette	21	0.06	HWY 18 (distribution, pump station intertie)	0.72 mgd at a max of 500 gpm (assumed 500 gpm for all scenarios for modeling)

MG = million gallons, mgd = million gallons per day, gpm = gallons per minute, ADD = Average Day Demand

3.4 Industrial Customers and Largest Water Users

Lacking additional specific information on industrial growth, it was assumed existing industry would grow at the same rate as population and employment growth. Existing vacant industrial land is generally located adjacent to existing industry. Increasing demands at existing service locations mimic new adjacent industry. The mix of industrial and multifamily communities as the largest water users in the City is typical of other communities in the region. The 15 largest water users based on 2022 consumption records are listed in **Table 5**.

Table 5 – Fifteen Largest Water Users, 2022 Records

Customer Type	Metered Consumption (MG)	Percent of Total Annual Production
Industry	167	9.4%
Carlton	102	5.7%
McMinnville	51.2	2.9%
School	43.7	2.5%
Lafayette	21.4	1.2%
Senior Living	20.3	1.1%
Industry	18.9	1.1%
School	15.3	0.8%
Medical Center	14.9	0.8%
Museum	12.4	0.7%
Senior Living	9.50	0.5%
Industry	9.00	0.5%
Apartments	8.80	0.5%
Apartments	8.50	0.5%
Industry	7.00	0.4%
Total	509.90	28.6%

Largest water users based on 2022 metered consumption. MG = million gallons

3.5 Demand Per Capita

Demand per capita for ADD and MDD is used along with population projections to project future demands. Demand per capita is calculated from production data and includes residential, commercial, and industrial demands, fire flow, construction use, and all other system use including leaks. Demand per capita excludes wholesale demand. In some cases, it can be valuable to remove certain industrial customers as well. However, as specific industrial growth in the City is unknown and, as shown in **Table 2**, employment growth is projected to be at the same rate as population growth, a per capita demand that includes all water users was developed for demand projections based on population growth. Wholesale demand was not included in these calculations as wholesale demand is not dependent on the existing City population and is developed based on City agreements. Demand per capita is summarized in **Table 6** and comparison with 2011 averages, results in a 20% reduction per capita ADD demand and a 30% reduction per capita MDD demand. These updated values are consistent with other regional providers in the Willamette Valley.

Table 6 – Total Water Use Demand Per Capita

Year	Population	Per Capita ADD	Per Capita MDD
Prior Plan Avg		173	413
2020	34,640	143	307
2021	34,494	156	326
2022	34,746	140	300
Updated Avg		147	311
Updated Avg without wholesale supply		136	288

Population based on 2022 updated PSU PRC estimates for 2020-2022 McMinnville UGB plus estimated 231 people outside UGB. Per capita demand in gallons per capita per day. Demand includes all system water usage, including residential demands, non-residential demands, and water loss. Wholesale supply is not included in the ADD and MDD values used for projections.

3.6 Demand Projection

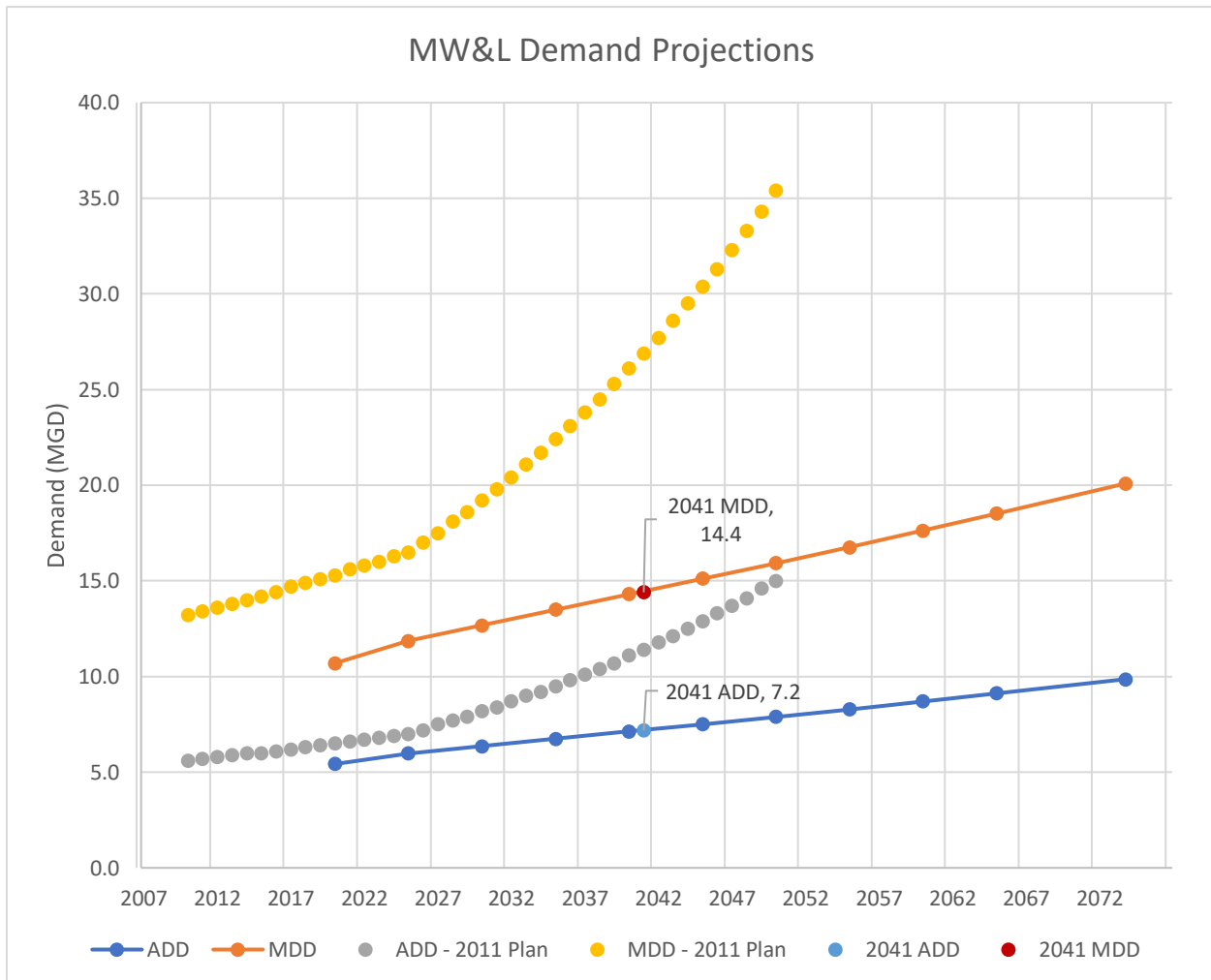
Demand projections are calculated from population projections, demand per capita, and wholesale supply. Wholesale supply was assumed at 500 gpm (0.72 mgd) for all demand scenarios and years (ADD, MDD, PHD for 2020-2065), per agreements with the Cities of Carlton and Lafayette. Projections are significantly less than the 2011 Plan, due to reduced population growth and reduced per capita demands. ADD and MDD are calculated based on per capita demands while PHD is based on an assumed 4xADD multiplier from the 2011 plan. Updated system wide ADD, MDD, and PHD projections are summarized in **Table 7** and **Figure 3**.

Table 7 – Demand Projections

Year	ADD (MGD)	MDD (MGD)	PHD (MGD)
2020	5.4	10.7	19.6
2025	6.0	11.9	21.7
2030	6.4	12.7	23.3
2035	6.7	13.5	24.8
2040	7.1	14.3	26.4
2045	7.5	15.1	27.9
2050	7.9	15.9	29.4
2055	8.3	16.8	31.0
2060	8.7	17.6	32.6
2065	9.1	18.5	34.3

ADD and MDD based on per capita demands. No hourly consumption data available, PHD estimated from 4x ADD multiplier assumed in the 2011 plan. ADD = Average Day Demand, MDD = Maximum Day Demand, PHD = Peak Hour Demand, mgd = million gallons per day

Figure 4 – Demand Projections



ADD = Average Day Demand, MDD = Maximum Day Demand

4. Design and Operating Criteria

Design and operating criteria from the 2011 plan remain unchanged. Criteria are generally consistent with other regional providers. See **Appendix B** for the criteria developed in the 2011 WMP.

5. Storage Evaluation

MW&L's system uses four service reservoirs for finished water storage. All four are located on a single property on Fox Ridge Road and serve Zone 1 by gravity at a hydraulic gradeline of 370 feet (ft). The combined volume of the four Service Reservoirs is 22.7 million gallons (the WTP Clearwell is not included in this discussion as its function differs from the four service reservoirs).

The storage analysis has been updated from the 2011 WMP to reflect decreased system demands. No changes to storage requirements were made including:

- 20% of MDD for equalizing storage
- 4,500 gpm for 4 hours for fire flow storage
- 1xMDD for emergency storage
- No operational storage is required, since MW&L operational procedures require a constant flow by gravity to the service reservoirs. Zone 2 may require operational storage, depending on supply conditions.

Zone 2 would benefit from gravity storage, as recommended in the 2011 WMP, with totals depending on how supply is provided to the zone. Additionally, structural and seismic analysis should be completed on the existing reservoirs. Two of the four are over 100 years old and may need significant investment to bring them up to existing standards. If any of the existing reservoirs are found to be deficient and are decommissioned, additional Zone 1 storage could either be provided through oversizing the Zone 2 storage to offset the lost capacity of the decommissioned reservoir, or replacing a reservoir at the Fox Ridge location, in addition to a new Zone 2 reservoir sized to serve Zone 2 only.

System wide demands, storage requirements, and available storage surplus or deficit is summarized in **Table 8** and **Figure 5**. Zone 2 storage should be sized when more clarity is known about how Zone 2 will be served (pumping or gravity feed). Extra storage capacity is required well beyond the 20-year planning horizon of this addendum. Future WMP updates should consider existing storage reliability and condition, among other factors.

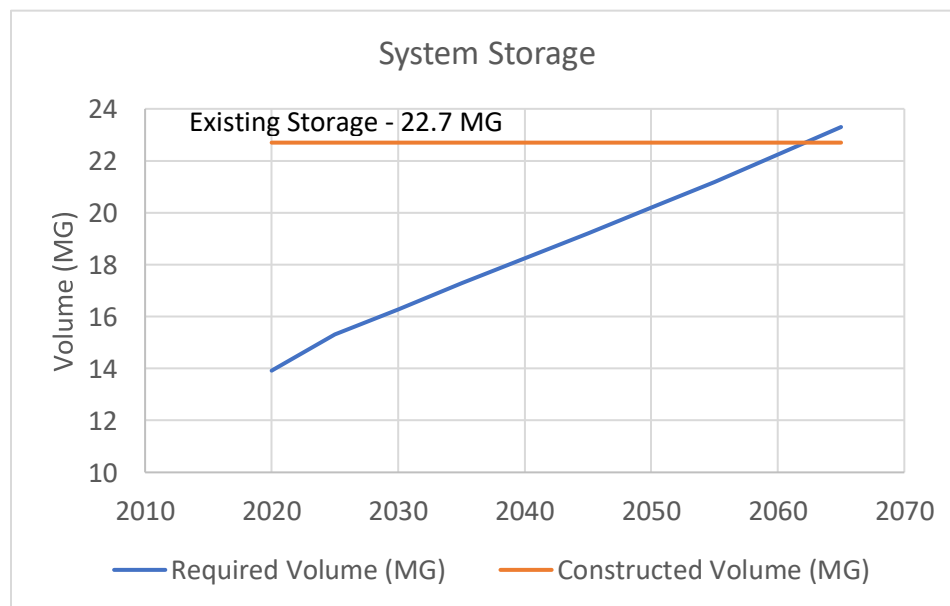
Table 8 – System Storage Analysis (MGD/MG)

Year	ADD (mgd)	MDD (mgd)	Equalizing (MG)	Fire (MG)	Emergency (MG)	Required Volume (MG)	Constructed Volume (MG)	Surplus (Deficit) (MG)
2020	5.4	10.7	2.1	1.1	10.7	13.9	22.7	8.8
2025	6.0	11.9	2.4	1.1	11.9	15.3	22.7	7.4
2030	6.4	12.7	2.5	1.1	12.7	16.3	22.7	6.4
2035	6.7	13.5	2.7	1.1	13.5	17.3	22.7	5.4
2040	7.1	14.3	2.9	1.1	14.3	18.3	22.7	4.4
2045	7.5	15.1	3.0	1.1	15.1	19.2	22.7	3.5
2050	7.9	15.9	3.2	1.1	15.9	20.2	22.7	2.5
2055	8.3	16.8	3.4	1.1	16.8	21.2	22.7	1.5
2060	8.7	17.6	3.5	1.1	17.6	22.2	22.7	0.5
2065	9.1	18.5	3.7	1.1	18.5	23.3	22.7	(0.6)

ADD = Average Day Demand, MDD = Maximum Day Demand. mgd = million gallons per day, MG = million gallons

Storage criteria: 20% MDD for equalizing storage, 4,500 gpm for 4 hours for fire flow storage, 1xMDD for emergency storage, and no operational storage required as MW&L operations are constant, and gravity supplied.

Figure 5 – Projected Storage Needs



MG = million gallons, Existing storage assumes all Zone 1 reservoirs.

6. Supply

6.1 Water Rights

Refer to Section 6 of the 2011 WMP for a detailed description of the water rights. MW&L holds water rights in three creeks or rivers: Haskins Creek, the Nestucca River, and Walker Creek.

The prior WMP discussed in Section 6.5 the possibility of regionalization and development of a water source on the Willamette River to increase system resilience and regional connectivity. Since the 2011 WMP, MW&L has partnered with the Cities of Carlton and Lafayette to form the Yamhill Regional Water Authority (YRWA). In the Willamette River, MW&L has access to 21.4 mgd of water rights through YRWA and 9.9 mgd through MW&L water rights. See **Appendix C** for updated water rights. Authorized completion dates to establish beneficial use for water rights perfection include:

- River rights on Haskins Creek and stored water from Haskins Reservoir (10/1/2050)
- Stored water from McGuire Reservoir (10/1/2042)
- River rights on Walker Creek and stored water in Walker Reservoir (10/1/1997, in extension with Oregon Water Resources Department, OWRD)
- Willamette River rights for municipal use (10/1/2046 and 10/1/2052)

6.2 Supply System Limitations

The supply system must be capable of providing MDD. While the prior plan discussed the concept of 3-day MDD, this plan takes a slightly more conservative approach that is common among similar providers of using the criteria of supplying MDD rather than 3-day MDD. 3-day MDD is the average flow rate over the highest three consecutive demand days. In the 2011 plan, the 3-day MDD was 97% of MDD, well within demand uncertainty and therefore the approach was simplified to MDD. The supply capacity limitations listed below are summarized from the 2011 WMP. No further analysis on specific capacities were completed in this addendum.

The 2011 WMP indicated a need for WTP expansion by 2032. With updated demands, this expansion is no longer necessary within even a 50-year planning horizon. Expansion of the existing WTP should be revisited as system demands increase. However, MW&L is also looking at a new supply and WTP from the Willamette River through the YRWA. This Willamette source would provide a redundant supply and improve system resilience against seismic events, source capacity or quality issues, as well as WTP maintenance and operations. A Willamette River source could also allow for additional opportunities to sell water to other regional providers. A Willamette Source may be valuable for more than just system capacity needs and the project should be addressed as opportunities arise.

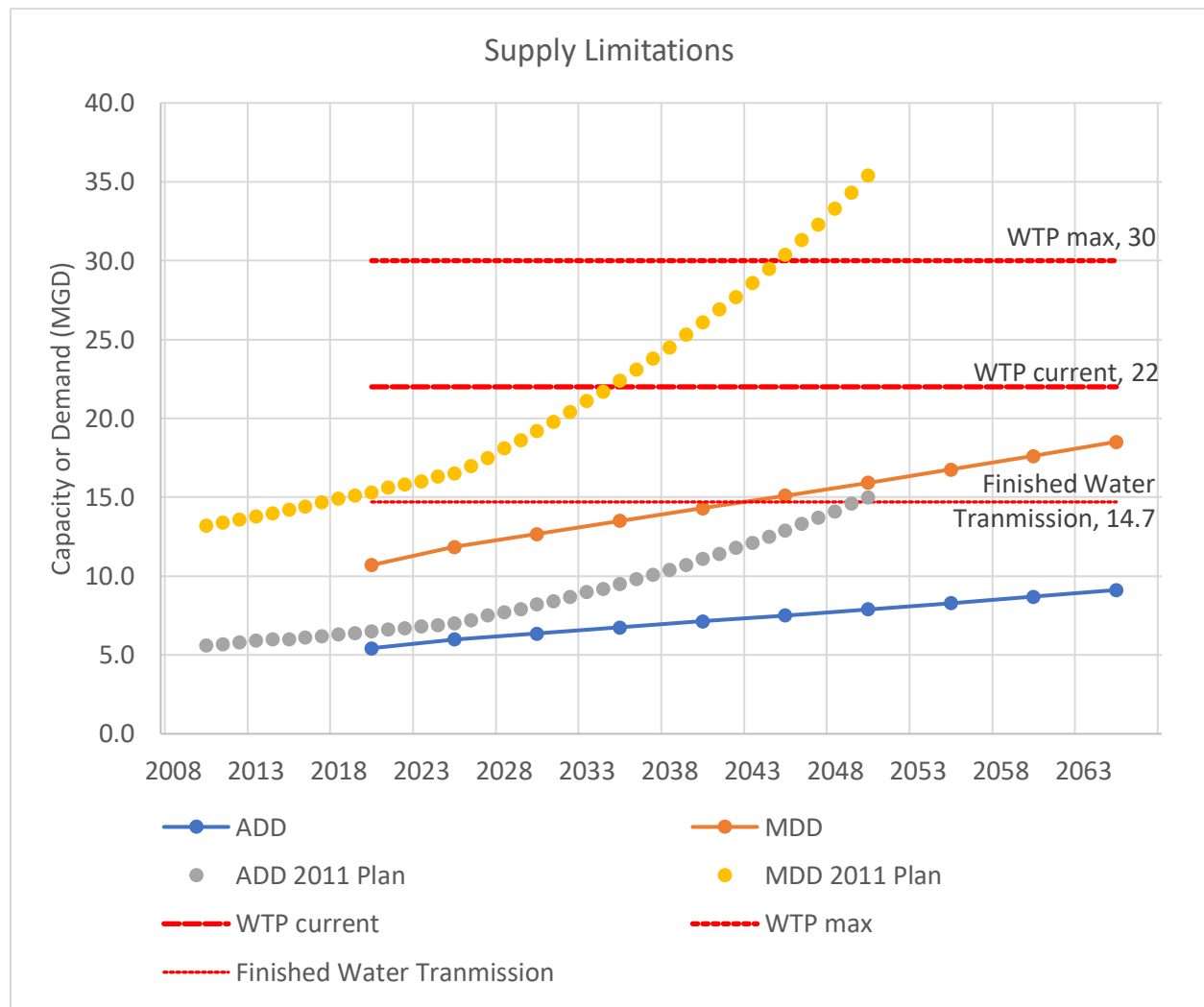
MW&L is in the process of increasing finished water transmission capacity. Phase 1A and 1B have been completed, upsizing piping to 36-inch from the WTP to the Panther Creek valve station. This section includes a tunnel portion. Additional WTP transmission has been upsized from Luoto Intertie to Sitton Intertie. The remaining phases of this project should be completed for reliability and maintenance. Additional finished water capacity is still needed, although at a longer time scale. Current construction and project planning should continue. **Table 9** compares 2011 WMP capacity projection to the current amended capacity projection shown in **Figure 5**.

Existing supply system capacity from the 2011 WMP is listed in **Table 9** and compared against 2011 demand projections and updated demand projections in **Figure 5**. Based on updated demands, MDD surpasses finished water transmission capacity in 2045, however finished water transmission capacity is anticipated to increase to 30 mgd once the current WTP transmission project is fully completed (Stantec, 2022).

Table 9 – Supply Limitations

Supply Facility	Capacity (MGD)
Current WTP Capacity	22
Maximum Allowed WTP Capacity with future expansion	30
Finished Water Transmission Capacity, 2011 Plan	14.7 (30 mgd once Finished Water Transmission Line Projects complete)

Figure 6 – Supply Limitations



MGD = million gallons per day, ADD = average day demand, MDD = maximum day demand, WTP = water treatment plant. 2011 Plan projections for MDD and ADD significantly overestimated growth when compared with updated projections. Finished Water Transmission capacity is assumed pre current WTP transmission projects.

7. Distribution System Hydraulic Analysis

The hydraulic model was updated to account for completed projects since the 2011 WMP and 2041 demands, then analyzed under ADD, PHD, and MDD including fire flow conditions. The model was provided by MW&L as an EPANet model and imported into Innowyze InfoWater Pro. New demand junctions were added to UGB areas. Within the UGB areas, demand was equally distributed among junctions and remaining growth was applied as a global scalar to existing junctions. Wholesale demand was kept constant at 500 gpm for supply to Lafayette, located at the UGB boundary along Highway 18.

7.1 Zone 2 Analysis

Future development in the west above 272 feet elevation was included in Zone 2. This zone will be served initially by a variable speed pump (VSP) and fire pumps to provide the range of flows required to serve near-term development. In the future, a new service reservoir will be built at an overflow of approximately 510 feet to serve the area and fire pumps will no longer be required. Supply to this zone may eventually be provided directly off the finished water supply line and gravity fed to the Zone 2 reservoir, reducing pumping operations only to peak hours. Depending on storage needs in Zone 1, MW&L may consider oversizing the Zone 2 reservoir to provide emergency storage to Zone 1, assuming adequate system pressure reducing valves (PRVs) between the two zones. The exact number and location of PRVs to be decided once the layout for the area has been decided. PRVs shown in mapping are shown for modeling purposes.

7.2 System Analysis

Under future ADD conditions, most areas of the system lie within the 40 to 100 pounds per square inch (psi) operating band. A significant portion of the system is above 80 psi, which indicates individual service PRV's are required. MW&L may want to consider a subzone separated by PRV's in the UGB expansion areas north of Highway 99 and east of NE Grandhaven Drive, depending on the type of development that occurs in this area. Individual service PRV's may also suffice.

Under future PHD conditions, homes along Mount Mazama Street at the Zone 2 boundary in Zone 1 are less than 40 psi, but more than 35 psi. Parallel piping to extend the future Zone 2 exists in some of this area. If real world conditions result in significant deficiencies, MW&L may consider either extending piping from Zone 2 to serve these limited areas or adjusting valving to move the future zone boundaries.

Fire flow deficiencies remain primarily at piping dead ends (no looping) and 6-inch or smaller mains. Some of these deficiencies already have onsite pumping to provide adequate flows and should be addressed on a case-by-case basis.

Figures illustrating system deficiencies for ADD, PHD, and MDD including fire flow are attached in **Appendix D**.

8. Capital Improvement Program

A significant number of projects from the 2011 WMP have been completed. MW&L provided a CIP table updated as of late 2022 with currently planned and budgeted projects. This table was appended to the prior CIP table and projects already completed were removed. Projects were implemented in the model and adjusted as needed to provide for fire flow deficiency, future service area, and distribution and transmission needs. Capital cost estimates were updated to current dollars (July 2023) and anticipated development timing was selected based on MW&L provided timing or split into 6 to 10, 11 to 20, or 20+ year development.

Projects are summarized in the tables below and illustrated in **Appendix E**. A complete CIP list with brief project descriptions and costs are included at the end of this section. CIP costs are summarized by project type in **Table 10** and anticipated implementation years in **Table 11** and **Figure 7..** Cost assumptions are summarized in **Table 12**.

8.1 Changes to Prior Capital Improvement Projects

Changes in areas considered for UGB expansion have adjusted the CIP list. Project P-079 was a new 16-inch diameter pipeline that crossed the South Yamhill River at Highway 18. This project runs through areas outside of the present UGB, but within the area considered under the 2011 WMP. However, this project was included in the updated CIP because of significant resilience and connectivity benefits. It is the third crossing of the Yamhill River in addition to the 12-inch pipeline between Highway 18 and SE Three Mile Lane, and the 24-inch pipeline running north of NE Norton Lane and connecting into NE Riverside Drive. As supply is limited to the Three Mile Lane area, P-079 provides additional resilience. At present, the supply is adequate to the area but maintenance or other emergencies on the two existing lines could result in reduced service, including to the City of Lafayette. Therefore, while P-079 is outside the UGB, it is included in the CIP.

Additionally, the Eastside Feeder was a series of projects (P-025, P-026, P-027) in the prior plan that may be adjusted in this plan. The projects help to move water from City center, south of the railroad tracks, to the northeast area of the City. These projects primarily include upsizing to 16-inch and 20-inch diameter pipeline and providing service to UGB areas. The projects are still important for general service and increased fire flow demands, however the projects may be downsized to 12-inch diameter, depending on development timing and system looping availability.

A project was added (2,100 feet of 12-inch ductile iron) associated with the 3rd Street streetscape work.

Pipelines and supplying infrastructure were added where UGB expansion necessitated, such as the Fox Ridge Road area. These areas will largely be developer driven and at this planning level outline, may include non-buildable lands such as flood zones or steep slopes. At this level of effort, only basic backbone pipelines are included, and further refinement will be necessary when developed. No development was assumed above Zone 2 elevations.

Table 10 – Capital Improvement Program Cost Summary by Project Type

Project Type	Cost
Watershed/Diversion/Outlet	\$1,665,000
Treatment	\$10,545,000
Transmission	\$75,235,000
Zone 1 Storage	\$25,165,000
Distribution - Condition	\$7,075,000
Zone 1 Development Pipelines	\$52,335,000
Zone 2 Improvements	\$26,985,000
Planning Work	\$495,000
Distribution Pipelines - Condition & Fire Flow Based (current plan or current project)	\$2,745,000
Distribution Pipelines - New Installations (loop connections to eliminate dead ends for fire flow)	\$7,500,000
Distribution Pipelines - Future Size Upgrades for fire flow	\$8,945,000
TOTAL	\$218,690,000

Table 11 – Capital Improvement Program Costs Distributed by Time

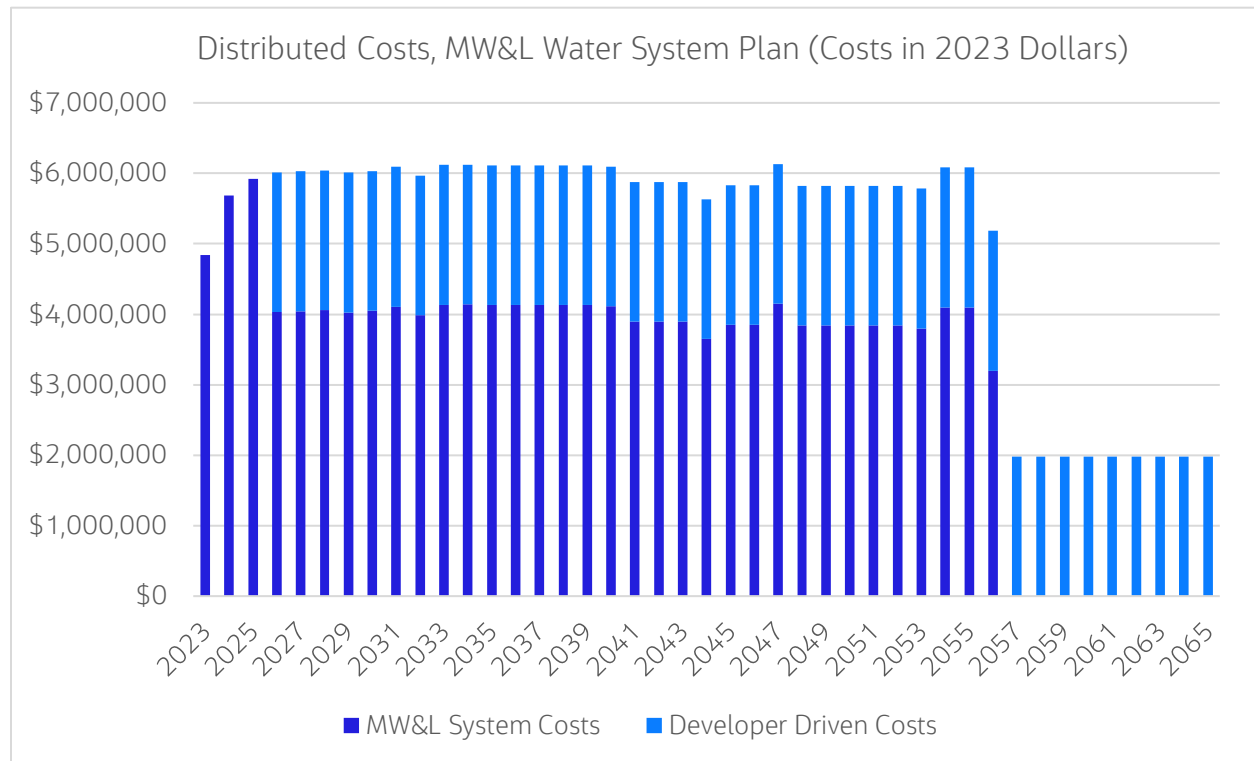
Year	Water System Projects (non-development driven)	Water System Projects (development driven)	Total
2022-23	\$4,843,750	\$0	\$4,843,750
2023-24	\$5,682,500	\$0	\$5,682,500
2024-25	\$5,925,605	\$0	\$5,925,605
2025-26	\$4,033,050	\$1,983,000	\$6,016,050
2026-27	\$4,044,035	\$1,983,000	\$6,027,035
2027-28	\$4,059,550	\$1,983,000	\$6,042,550
2028-29	\$4,026,510	\$1,983,000	\$6,009,510
2029-30	\$4,048,000	\$1,983,000	\$6,031,000
2030-31	\$4,109,400	\$1,983,000	\$6,092,400
2031-32	\$3,984,000	\$1,983,000	\$5,967,000
2032-33	\$4,135,600	\$1,983,000	\$6,118,600
2033-34	\$4,138,100	\$1,983,000	\$6,121,100

McMinnville Water and Light Water Master Plan Addendum

Year	Water System Projects (non-development driven)	Water System Projects (development driven)	Total
2034-35	\$4,128,500	\$1,983,000	\$6,111,500
2035-36	\$4,128,500	\$1,983,000	\$6,111,500
2036-37	\$4,128,500	\$1,983,000	\$6,111,500
2037-38	\$4,128,500	\$1,983,000	\$6,111,500
2038-39	\$4,128,500	\$1,983,000	\$6,111,500
2039-40	\$4,113,900	\$1,983,000	\$6,096,900
2040-41	\$3,894,500	\$1,983,000	\$5,877,500
2041-42	\$3,894,500	\$1,983,000	\$5,877,500
2042-43	\$3,894,500	\$1,983,000	\$5,877,500
2043-44	\$3,650,000	\$1,983,000	\$5,633,000
2044-45	\$3,850,000	\$1,983,000	\$5,833,000
2045-46	\$3,850,000	\$1,983,000	\$5,833,000
2046-47	\$4,150,000	\$1,983,000	\$6,133,000
2047-48	\$3,840,000	\$1,983,000	\$5,823,000
2048-49	\$3,840,000	\$1,983,000	\$5,823,000
2049-50	\$3,840,000	\$1,983,000	\$5,823,000
2050-51	\$3,840,000	\$1,983,000	\$5,823,000
2051-52	\$3,840,000	\$1,983,000	\$5,823,000
2052-53	\$3,800,000	\$1,983,000	\$5,783,000
2053-54	\$4,100,000	\$1,983,000	\$6,083,000
2054-55	\$4,100,000	\$1,983,000	\$6,083,000
2055-56	\$3,200,000	\$1,983,000	\$5,183,000
2056-57	\$0	\$1,983,000	\$1,983,000
2057-58	\$0	\$1,983,000	\$1,983,000
2058-59	\$0	\$1,983,000	\$1,983,000
2059-60	\$0	\$1,983,000	\$1,983,000
2060-61	\$0	\$1,983,000	\$1,983,000
2061-62	\$0	\$1,983,000	\$1,983,000
2062-63	\$0	\$1,983,000	\$1,983,000
2063-64	\$0	\$1,983,000	\$1,983,000
2064-65	\$0	\$1,983,000	\$1,983,000
Total	\$139,370,000	\$79,320,000	\$218,690,000

Note: Development-driven projects and costs distributed equally by year over the available period for population projections. Actual timing may vary based on development demands. Other projects and costs distributed to for capital budgets of \$5 to \$6 million dollars per year.

Figure 7 – Capital Costs Distribute by Year



8.2 Cost Assumptions

Capital improvement cost estimates are consistent with Class 5 budget estimates, as established by the *American Association of Cost Engineers (ACE)*. This preliminary estimate class is used for conceptual screening and assumes project definition maturity level below two percent. The expected accuracy range is -20 to -50 percent on the low end, and +30 to +100 percent on the high end. Cost estimates are intended to be used as guidance in establishing funding requirements at the project planning level based on information available at the time of the estimate. All costs estimates are developed in 2023 dollars.

Costs for linear assets were developed based on recent costs per linear foot and escalated to total costs with indirect and contingency markups listed below in **Table 12**. Costs were recalculated for linear projects where MW&L provided values. Non-linear asset cost assumptions were evaluated based on similar projects in the region. Costs were not adjusted if MW&L provided recent costs aligned with similar estimates.

Table 12 – Markups and Factors for Capital Improvement Cost Estimates

Markup Category	Markup
Indirect: Contractor General Conditions	10%
Indirect: Contractor Overhead and Profit	15%
Indirect: Engineering, Legal and Administration	25%
Indirect: Pipelines Only – Service Connections Fittings, Valves	40%
Indirect: Mobilization, Traffic, etc	15%
Total Indirect	105%
Construction Contingency	30%
Total Factor Indirect + Contingency	2.7

McMinnville Water and Light Water Master Plan Addendum

Project ID	Description	Pipe Length (feet)	Diameter (in)	Material	Preliminary Budget Year	Distributed Budget Year	UPDATED COSTS
Watershed/Diversion/ Outlet							
--	McGuire Dam Control Building - Door Installation				2022-23	2023	\$20,000
--	McGuire Dam Control Building - Battery Replacement				2023-24	2024	\$80,000
RW-011	Raw Water Line - Haskins Dam to WTP - Design & Construction	1,700	36	DI	2022-25	2023-2024	\$1,450,000
RW-010	Diversion Line Pipe Replacement - Engineering & Construction	240	30/24	DI	2025-27	2025-2027	\$115,000
Treatment							
--	SCADA/Software Upgrades - WTP				2022-27	2023-2026	\$95,000
--	Land Acquisition for Future Regional Water Treatment Plant Site				2022-24	2023-2024	\$2,050,000
--	Chlorine Generation System - Unit #1 Cell Replacement				2023-24	2024	\$90,000
	UPS Main Building				2024-25	2025	\$60,000
WTP-001	Chlorine Generation System - Unit #2 Purchase and Installation				--	2040	\$250,000
WTP-001	WTP Expansion - Filters 7&8 (Engineering & Construction)				--	2053-2056	\$8,000,000

McMinnville Water and Light Water Master Plan Addendum

Transmission							
--	Transmission Main Alignment, Easement Acquisition, and Design				2022-23	2023	\$200,000
FW-007 & 008	Finished Water Transmission Main 3 - Baker Creek Rd. Intertie to Fox Ridge Reservoirs - Design & Construction	6,458	36	DI	2022-25	2023-2025	\$5,500,000
FW-007 & 008	Finished Water Transmission Main 4 - Sitton Intertie to Baker Creek Rd. Intertie - Design & Construction	6,458	36	DI	2025-30	2025-2031	\$18,000,000
FW-105 & 106	Finished Water Transmission Main 5 - Diane's Hill Rd. to Panther Creek Intertie - Design & Construction	5,300	36	DI	--	2040-2044	\$9,000,000
FW-003-004	Finished Water Transmission Main 6 - Diane's Hill Rd. to Old Wagon Rd. Intertie - Design & Construction	5,300	36	DI	--	2044-2047	\$11,000,000
FW-003-004	Finished Water Transmission Main 7 - Old Wagon Rd. Intertie to Luoto Creek Rd. - Design & Construction	8,700	36	DI	--	2047-2053	\$24,000,000
FW-003-004	Finished Water Transmission Main 8 - Luoto Creek Rd. to Luoto Intertie - Design & Construction	8,700	36	DI	--	2053-2056	\$6,000,000
	Water Meter Replacement and Control Improvements (Design & Construction)				2022-24	2023-2025	\$500,000
	SCADA/Software Upgrade - Distribution Reservoirs				2022-27	2024-2027	\$35,000
--	Willamette River Regional Intake & Pump Station (Permitting & Design)				2026-28	2026-2028	\$1,000,000
Zone 1 Storage							
Z1-001	Fox Ridge Reservoir Security Improvements				2027-28	2028	\$125,000
	Land - Reservoir #5				2023-24	2024	\$200,000
Z1-004	New Fox Ridge Reservoir No. 5 -Design & Construction (10MG)				--	2031-2040	\$24,840,000

McMinnville Water and Light Water Master Plan Addendum

Distribution - Condition							
--	Organic Valley Water Main Replacement				2023-24	2024	\$140,000
	New Water Main - 3 Mile Lane Bridge 12 inch Ductile Iron Inspection Support (ODOT)				2023-24	2024	\$50,000
	Michelbook South of 12th to 18th Street (1500 feet of 12 inch Cast Iron)	1,500	12	DI	2023-24	2024	\$1,050,000
--	Galloway Street Water Main Replacement (5th to 7th: 652 feet of 6 inch Cast Iron)	652	6	DI	2023-24	2024	\$380,000
P-019	Loop Rd Intertie - Homeward Bound to Existing Northern Connection (480 feet of 10 inch Ductile Iron)	480	10	DI	2024-25	2025	\$315,000
--	27th Street Water Main Replacement (Baker St. to Evans St.)(500 feet of 6 inch Cast Iron)	500	6	DI	2024-25	2025	\$290,000
P-040 & 041	27th St. NE Water Main Replacement (NE 27th St. & NE Davis Ct.) (300 feet+ of 2 inch Galvanized pipe)	300	2	DI	2024-25	2025	\$165,000
P-044	2nd Street Water Main Replacement (500 feet of 2 inch PVC - 2 leaks)	500	2	DI	2024-25	2025	\$275,000
P-067	Alpine Ave Water Main Replacement (738 feet of 6 inch Cast Iron - 2 leaks)	738	6	DI	2025-26	2026	\$430,000
--	12th Ave Water Main Extension (213 feet of 8 inch Ductile Iron)	213	8	DI	2025-26	2026	\$135,000
P-042	11th Way Water Main Extension (Replace 315 feet of 2 inch Galvanized w/ 290 feet of 8 inch Ductile Iron)	605	8	DI	2025-26	2026	\$375,000
--	21st Street Water Main Replacement (Cedar to Birch: 240 feet of 6 inch Cast)	240	6	DI	2025-26	2026	\$140,000
P-008	Elm Street Water Main Replacement (Jason Ct north: 330 feet of 2 inch Galvanized - 1 leak)	330	2	DI	2025-26	2026	\$180,000
--	Newby St. Water Main Replacement (Grandhaven St. to 27th St: 1360 feet of 6 inch Cast - 2 leaks)	1,360	6	DI	2026-27	2027	\$785,000

McMinnville Water and Light Water Master Plan Addendum

P-020	Evans Street Water Main Extension (3st to 4th: 220 feet of 12 inch Ductile)	220	12	DI	2026-27	2027	\$155,000
P-007	St. Andrews Point Water Main Replacement (213 feet of 2 inch Galvanized)	213	2	DI	2026-27	2027	\$120,000
P-022	2nd Street Water Main Replacement (Meadows Drive Intersection: 166 feet of 12 inch Asbestos Cement)	166	12	DI	2026-27	2027	\$120,000
--	Woodmill Court SE Water Main Replacement (323 feet of 4 inch Cast Iron)	323	4	DI	2027-28	2028	\$180,000
P-016	Adams Street Water Main Replacement - Engineering & Construction (1216 feet of 6 inch Cast Iron- 1 leak)	1,216	6	DI	2028-29	2029	\$705,000
--	Davis Street Water Main Replacement (Debbie St to Morgan St: 1105 feet of 6 inch Cast Iron - 2 leaks)	1,105	6	DI	--	2030	\$640,000
--	Davis Street Water Main Replacement (Debbie St to Booth Bend: 770 feet of 6 inch Cast Iron)	770	6	DI	--	2031	\$445,000

Zone 1 Development Pipelines (development-driven costs evenly distributed over the growth period 2025-2065)							
P-077	New 10 inch line along Watts Lane from Air Museum - West Loop to 3 Mile Ln	2,260	10	DI	Developer	2026-2065	\$1,480,000
P-078	New 10 inch line from Air Museum - East Loop to 3 Mile Ln	2,490	10	DI	Developer	2026-2065	\$1,630,000
P-079	New 16 inch line along Salmon River HWY & Noble LN from Morgan Ln to 3 Mile Ln	6,500	16	DI	Developer	2026-2065	\$5,155,000
P-080	New 16 inch line south of Evergreen Mobile Park and MCH from new 16 inch loop SW of Evergreen Mobile Park to 3 Mile Ln	5,360	16	DI	Developer	2026-2065	\$4,250,000
P-081	New 16 inch loop along Armory Way from 3 Mile Ln to existing 8 inch pipe at west end of airport and to new 16 inch loop west of Armory Way	4,880	16	DI	Developer	2026-2065	\$3,870,000

McMinnville Water and Light Water Master Plan Addendum

P-082	New 10 inch line from Village Ct to Dunn Pl	1,640	10	DI	Developer	2026-2065	\$1,075,000
P-083	New 8 inch line from existing 8 inch line off of Norton Ln to new 16 inch loop SW of MCH	560	8	DI	Developer	2026-2065	\$345,000
P-084	New 12 inch loop south and southwest of MCH from new 16 inch loop to new 12 inch loop	1,000	12	DI	Developer	2026-2065	\$700,000
P-085	New 12 inch loop southeast of MCH from new 16 inch loop to new 12 inch loop	5,160	12	DI	Developer	2026-2065	\$3,610,000
P-086	New 12 inch line along Riverside Dr from Miller to Clearwater	5,680	12	DI	Developer	2026-2065	\$3,970,000
P-087	New 10 inch line along Orchard Ave between Miller St and Colvin Ct	1,130	10	DI	Developer	2026-2065	\$740,000
P-088	New 12 inch loop along Grandhaven Dr from Lucy Belle to Hembree	3,940	12	DI	Developer	2026-2065	\$2,755,000
P-089	New 12 inch loop from Hidden Meadow Dr to 99W	3,800	12	DI	Developer	2026-2065	\$2,660,000
P-090	New 12 inch loop from Grandhaven St to new 12 inch loop NE of Hidden Meadow Dr	2,920	12	DI	Developer	2026-2065	\$2,045,000
P-091	New 12 inch loop from new 12 inch loop N of Grandhaven St to new 12 inch loop N of Walton Dr	2,700	12	DI	Developer	2026-2065	\$1,890,000
P-092	New 12 inch loop along Westside & Baker from 27th to Summerfield	2,940	12	DI	Developer	2026-2065	\$2,055,000

McMinnville Water and Light Water Master Plan Addendum

P-093	New 12 inch loop from 25th to Baker	1,430	12	DI	Developer	2026-2065	\$1,000,000
P-094	New 12 inch loop from Elm to new 12 inch loop N of 25th	1,060	12	DI	Developer	2026-2065	\$745,000
P-095	New 12 inch loop along 12 inch loop N of Baker Creek Ln from Baker Crest to Elm	1,310	12	DI	Developer	2026-2065	\$920,000
P-096	New 12 inch loop along 12 inch loop N of Baker Crest from Pinot Noir to 12 inch loop N of Baker Creek Ln	2,560	12	DI	Developer	2026-2065	\$1,790,000
P-097	New 12 inch loop along 12 inch loop N of Pinot Noir from 12 inch loop N of Baker Crest to Baker Creek	1,450	12	DI	Developer	2026-2065	\$1,015,000
P-098	New 12 inch line along new 12 inch W of Old Sheridan from Old Sheridan to S Hill Rd and Alexandria	7,140	12	DI	Developer	2026-2065	\$4,990,000
P-025	East side feed: New 12 inch line along Riverside Dr and Clearwater Dr from WWTP to end of 10 inch near railroad crossing; includes RR undercrossing	5,210	12	DI	Developer	2026-2065	\$3,645,000

Zone 2 Improvements (development-driven costs evenly distributed over the growth period 2025-2065)							
Z2-001	New 16 inch parallel along Fox Ridge Road from new 12 inch loop to new 12 inch loop	1,070	16	DI	Developer	2026-2065	\$850,000
Z2-002	New 16 inch line along Fox Ridge Road from new 16 inch line to new reservoir	4,300	16	DI	Developer	2026-2065	\$3,410,000
Z2-003	Two constant speed pumps for maximum daily demands in Zone 2 (425 gpm, ~200 feet dynamic head) in existing building; addition of backup generator				Developer	2026-2065	\$2,500,000

McMinnville Water and Light Water Master Plan Addendum

Z2-004	Zone 2 reservoir; 1.3 MG (single reservoir; backup provided by direct gravity service through transmission lines), concrete (may be partially buried)				Developer	2026-2065	\$3,100,000
Z2-005	Pressure reducing valve, on existing 24 inch along Fox Ridge Road at 1300 feet east of Dawson Ln, installed in vault (coordinate with pipeline installation)		12		Developer	2026-2065	\$100,000
Z2-006	Pressure reducing valve, on existing 10 inch along Horizon Dr at 130 feet west of Hillcrest, installed in vault (coordinate with pipeline installation)		8		Developer	2026-2065	\$100,000
Z2-007	Pressure reducing valve, on existing 8 inch along Mt. Mazama St. at 100 feet north of Mt. Hood Dr, installed in vault (coordinate with pipeline installation)		8		Developer	2026-2065	\$100,000
Z2-008	Pressure reducing valve, on new 12 inch loop north of Redmond Hill Rd at 1250 feet west of W 2nd St, installed in vault (coordinate with pipeline installation)		10		Developer	2026-2065	\$100,000
Z2-009	Pressure reducing valve, on new 12 inch loop south of Redmond Hill Rd near SW corner of loop, installed in vault (coordinate with pipeline installation)		10		Developer	2026-2065	\$100,000
P-072	New 12 inch line along Dawson Ln from Fox Ridge Road to Horizon	1,600	12	DI	Developer	2026-2065	\$1,120,000
P-073	New 12 inch line from Fox Ridge Rd to Horizon	2,270	12	DI	Developer	2026-2065	\$1,590,000

McMinnville Water and Light Water Master Plan Addendum

P-074	New 12 inch loop from 2nd to new 12 inch loop W of Dawson Ln	6,940	12	DI	Developer	2026-2065	\$4,850,000
P-076	New 12 inch loop from Redmond Hill to new 12 inch loop W of 2nd	9,610	12	DI	Developer	2026-2065	\$6,720,000
P-100	New 12 inch loop north of Fox Ridge Rd	3,350	12	DI	Developer	2026-2065	\$2,345,000

Planning Work								
	Water Master Plan Amendment to Incorporate City UGB					2023-24	2024	\$60,000
--	Water Management & Conservation Plan Update (YRWA & Nestucca)					2030-31	2031	\$35,000
--	Water Master Plan Update					2032-33	2033	\$400,000

Distribution Pipelines - Condition & Fire Flow Based (current plan or current project)								
P-102	3rd Street Streetscape Project, Adams to Portland & Western Railroad	2100	12	DI		2024-2029	2025-2029	\$1,455,000
P-007	Replace existing 2 inch line with new 6 inch line from St Andrews to end (dead end)	215	6	DI		6-10 Years	2030-2034	\$125,000
P-008	Replace existing 2 inch line with new 8 inch line along Elm from Jason to end	345	8	DI		6-10 Years	2030-2034	\$215,000
P-022	Replace existing 12 inch AC pipe with 12 inch DI pipe along W. 2nd across Almond Ct. intersection.	160	12	DI		6-10 Years	2030-2034	\$115,000
P-040	Replace existing 1.5 inch line with new 6 inch line along Davis Ct from 27th to end (dead end)	155	6	DI		6-10 Years	2030-2034	\$90,000
P-041	Replace existing 2 inch line with new 6 inch line along Davis Ct from 27th to end (cul-de-sac, dead end)	135	6	DI		6-10 Years	2030-2034	\$80,000

McMinnville Water and Light Water Master Plan Addendum

P-042	Replace existing 2 inch line with new 8 inch line 6 inch line along 11th Way from Alpine to 12th	490	8	DI	6-10 Years	2030-2034	\$305,000
P-058	Replace existing 8 inch AC line with new 10 inch line from Riverside Dr to end	550	10	DI	6-10 Years	2030-2034	\$360,000

Distribution Pipelines - New Installations (loop connections to eliminate dead ends for fire flow)							
P-013	New 8 inch line along Adams from Baker St to existing 6 inch on Adams	300	8	DI	11-20 Years	2034-2043	\$185,000
P-014	New 10 inch line from Grandhaven to existing 8 inch on NW side of 99W	20	10	DI	11-20 Years	2034-2043	\$15,000
P-015	New 10 inch line along 19th from NW side of Lafayette to SE side of Lafayette	60	10	DI	11-20 Years	2034-2043	\$40,000
P-029	New 8 inch line along Baker Creek from Baker Crest to Baker Creek	610	8	DI	11-20 Years	2034-2043	\$375,000
P-031	New 10 inch line along Queensboro from Debbie to Border	230	10	DI	11-20 Years	2034-2043	\$155,000
P-047	New 10 inch line along 99W from the N side of 99W to Riverside Dr	670	10	DI	11-20 Years	2034-2043	\$440,000
P-048	New 10 inch line along Riverside Dr from near 99W to near railroad crossing (parallel existing 10 inch)	3,010	10	DI	11-20 Years	2034-2043	\$1,970,000
P-056	New 16 inch line along Booth Bend & Salmon River HWY from Davis to Morgan	2,620	16	DI	11-20 Years	2034-2043	\$2,080,000
P-059	New 8 inch line along 27th from existing 6 inch line to existing 8 inch line.	340	8	DI	11-20 Years	2034-2043	\$210,000
P-061	New 12 inch line along Joe Dancer Park from Brooks St to Marsh Ln	2,900	12	DI	11-20 Years	2034-2043	\$2,030,000

McMinnville Water and Light Water Master Plan Addendum

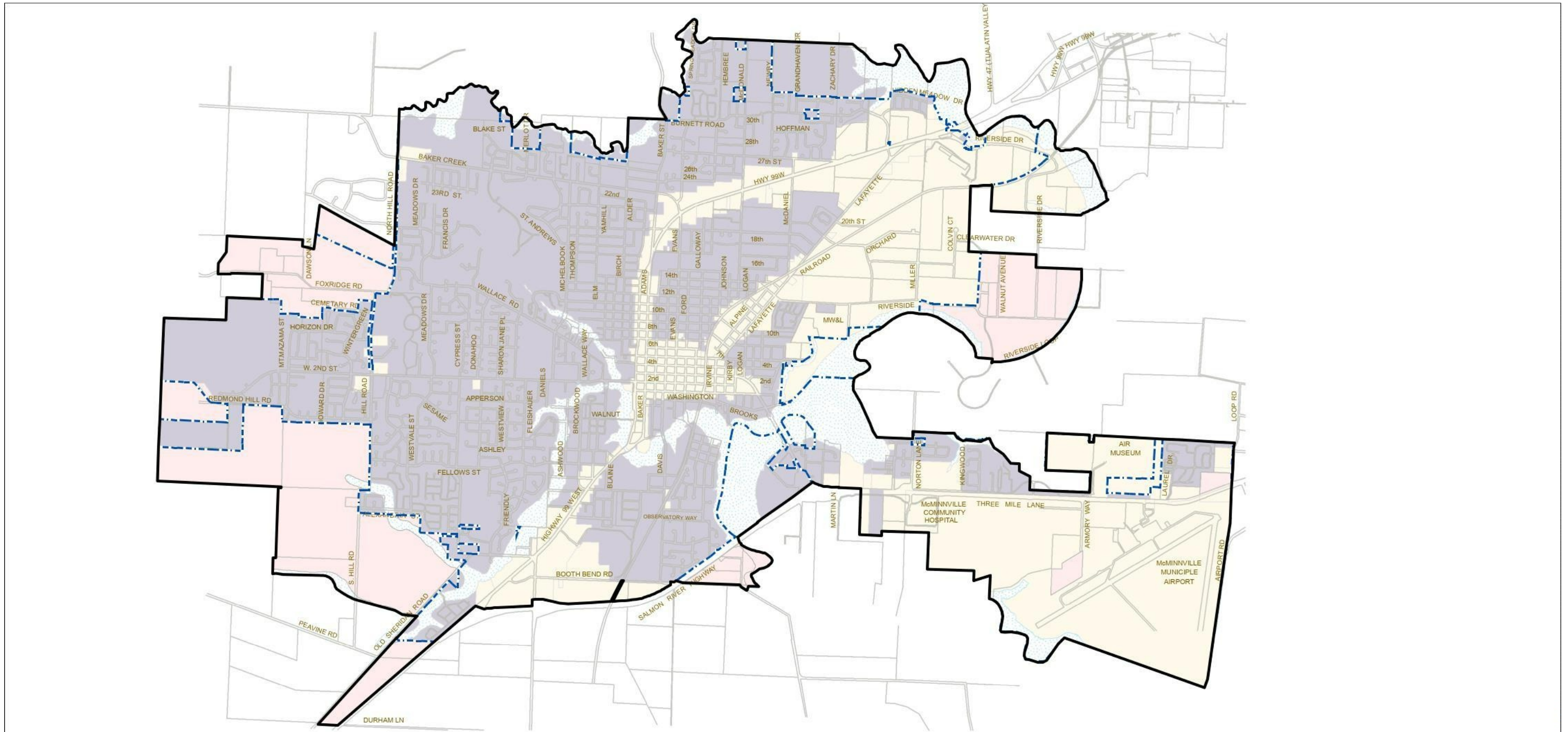
Distribution Pipelines - Future Size Upgrades for fire flow							
P-016	Replace existing 6 inch line with new 12 inch line along Adams from Handley to 3rd	1,470	12	DI	11-20 Years	2034-2043	\$1,030,000
P-026	East side feed: Replace existing 8 inch line with new 12 inch line along Colvin Ct from Rivergate to Clearwater	660	12	DI	11-20 Years	2034-2043	\$465,000
P-039	Replace existing 4 inch line with new 8 inch line along Pacific & Springer from 3 Mile Ln. to end of Springer	1,100	8	DI	11-20 Years	2034-2043	\$675,000
P-044	Replace existing 2 inch line with new 10 inch line along 2nd from Star Mill to Wallace Way	500	10	DI	11-20 Years	2034-2043	\$330,000
P-060	Replace existing 2 inch line with new 8 inch line along Evergreen Pkwy W from Shoreline to Evergreen Pkwy	180	8	DI	11-20 Years	2034-2043	\$115,000
P-062	Replace existing 6 inch line with new 10 inch line along Queensboro from Debbie to Alethea	330	10	DI	11-20 Years	2034-2043	\$220,000
P-063	Replace existing 6 inch line with new 10 inch line along Alethea from Davis to Queensboro	1,020	10	DI	11-20 Years	2034-2043	\$670,000
P-064	Replace existing 6 inch line with new 10 inch line along Koch & Gibbs from Orchard to end	1,410	10	DI	11-20 Years	2034-2043	\$925,000
P-065	Replace existing 6 inch line with new 10 inch line along Kimberly Ct from Hoffman to end (dead end line improvement; low priority)	370	10	DI	11-20 Years	2034-2043	\$245,000
P-066	Replace existing 8 inch line with new 10 inch line along Davis from existing 6 inch on N side of Booth Bend to Site on S side of Booth Bend (dead end line improvement; low priority)	130	10	DI	11-20 Years	2034-2043	\$90,000

McMinnville Water and Light Water Master Plan Addendum

P-068	Replace existing 6 inch line with new 10 inch line from Lafayette to hydrant and implement full loop	1,960	10	DI	11-20 Years	2034-2043	\$1,285,000
P-069	Replace existing 6 inch line with new 10 inch line from McDonald to end (dead end line improvement; low priority)	450	10	DI	11-20 Years	2034-2043	\$295,000
P-070	Replace existing 6 inch line with new 10 inch line from 10th to end (dead end line improvement; low)	130	10	DI	11-20 Years	2034-2043	\$90,000
P-071	Replace existing 6 inch line with new 10 inch line along 10th Ave from 10th to Riverside Dr	1,170	10	DI	11-20 Years	2034-2043	\$770,000
P-101	Replace existing 6 inch line with new 10 inch line along Old Sheridan Rd from Peavine Rd to Durham	2660	10	DI	11-20 Years	2034-2043	\$1,740,000

Note: Capital cost estimates are consistent with Class 5 budget estimates, as established by the American Association of Cost Engineers (AACE). This preliminary estimate class is used for conceptual screening and assumes project definition maturity level below two percent. The expected accuracy range is -20 to -50 percent on the low end, and +30 to +100 percent on the high end. Cost estimates are intended to be used as guidance in establishing funding requirements at the project planning level based on information available at the time of the estimate.

Appendix A. McMinnville Urban Growth Boundary Extension Map



Updated Urban Growth Boundary

- Urban Growth Boundary
- City Limits

- Future Development
- Commercial and Industrial
- Residential
- Flood Plain



**McMinnville Water and Light
2023 Water Master Plan Addendum**



Appendix B. 2011 MW&L WMP Operating and Design Criteria

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
1	Fire flows for single-family residential areas	1,500 gpm for 2 hours, storage of 180,000 gallons	ISO: 1000 gpm for 2 hrs National Fire Protection Agency: Sliding scale for single family residential 0-3600 sf: 1000 gpm/2 hrs 3601-4800 sf: 1750 gpm/2 hrs 4801-6200 sf: 2000 gpm/2 hrs 6001-7700 sf: 2250 gpm/2 hrs	Minimum of 1,000 gpm for 2 hours (120,000 gallons), at a minimum residual pressure of 20 psi, superimposed over maximum day demands	International Standards Organization (ISO), the nation's leading source for ranking fire suppression effectiveness, downgrades a community's insurance rating unless at least 1,000 gpm is available for 2 hours for houses situated such that the spacing between houses is 11 to 30 feet.	<i>Recommended Standards for Water Works</i> ("Ten States Standards") indicates that fire flows shall meet ISO standards. California Administrative Code requires 750 gpm minimum for residential one story, single family dwellings on average sized lots, and 2,000 gpm for more densely built areas, apartments, and light commercial. Oregon has no flow requirements, but does require 20 psi at all times. ISO standards also call for residual pressure of 20 psi. McMinnville previously targeted 3000 gpm for 3 hours for residential, but reduced the target during the 2011 master plan.
2	Fire flows for schools and other habitational buildings	4500 gpm for 4 hours, storage of 1,080,000 gallons	ISO: 3500 gpm for 3 hours (630,000 gallons)	Minimum of 3500 gpm for 3 hours (630,000 gallons)	ISO downgrades a community's insurance rating unless at least 3,500 gpm is available for 3 hours for habitational buildings such as schools. This category also includes care centers and light commercial. McMinnville Fire Department follows ISO standards.	See discussion for residential fire flows. No Oregon requirements.
3	Fire flows for multi-family residential areas	3,000 gpm for 3 hours, storage of 540,000 gallons		3,000 gpm for 3 hours, 540,000 gallons	McMinnville Fire Department follows ISO standards.	See discussion for residential fire flows. No Oregon requirements.
4	Fire flows for commercial and industrial areas	4500 gpm for 4 hours, storage of 1,080,000 gallons	ISO: 4,000 gpm for 4 hours (960,000 gallons)	4,000 gpm for 4 hours, 960,000 gallons	ISO sets commercial and industrial fire flow requirements based on building material type and other variable factors, and may require up to 12,000 gpm for full insurance credit. MW&L could consider fire flows up to 4,000 gpm, and for buildings needing more than this amount, to require sprinklers. McMinnville Fire Department follows ISO standards.	No guidance from other states or Ten States Standards for commercial/industrial areas.
5	Minimum pressure during fire flows	20 psi	OAR Chapter 333	20 psi		
6	Hydrant spacing	500 feet between hydrants		600 feet maximum spacing between hydrants so that distance to a house is <=300 ft. This is needed to meet ISO credit for 1500 gpm residential fire flows	ISO credits hydrants for up to 1,000 gpm if located within 300 feet of structure, for 670 gpm if located 301 to 600 feet from structure, and for 250 gpm if located from 601 to 1000 feet from structure. A spacing of 1,000 feet maximum would ensure at least 1,000 gpm is available to each house.	
7	Hydrant type	Include Storz adaptors are on all new hydrants. All to include two 2-1/2" hose ports + one 4-1/2" steamer port		Provide at least one large pumper outlet (typically a 4-inch port)	ISO downgrades fire hydrants that do not have at least one large pumper outlet.	
8	Residential piping sizes and looping	6-inch minimum; follow recommended values		12" diameter outer loops (for <= 1-mile sq) 8" diameter internal grid 6" diameter in cul-de-sacs (for <250 ft length). Limit velocities to approximately <=6 fps for peak hour demands. (Higher velocities are acceptable for meeting fire flow demands.)	Follows Washington Administrative Code. Meets OARs (minimize dead ends) and Ten States Standards (minimum of 6-inch diameter mains)	Several states require a minimum of 6-inch diameter mains, and indicate that dead end lines shall be minimized. Proliferation of cul-de-sacs means that the criterion of allowing 6-inch diameter dead end mains up to 250 feet in length may result in a system that is not well-looped. Therefore, it is critical to confirm acceptability of dead end lines using hydraulic model.

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
9	Transmission main sizing	Follow recommended values		Evaluate on a case-by-case basis, based on allowable head loss. Velocities up to 8-10 fps are acceptable for peak hour demands.	Peak hour demands are uncommon, and sizing a transmission main for velocities of 8-10 fps will result in lower velocities a large percentage of the time.	No guidance from other states or Ten States Standards.
10	Operating pressures	Target peak hour pressures of 40-80 psi per plumbing code	OAR Chapter 333	Normal (any time except during fire flows): 40 - 100 psi. Pressures measured at service connection (meter).	Oregon requires a minimum of 20 psi at all times, as do most states. The 40-100 psi normal range is a reasonable target, recognizing that it may be acceptable in some cases for the minimum to drop below 40 psi and still provide acceptable service.	Oregon is silent on pressure except for the 20 psi minimum. Washington requires 30-110 psi, California 25-125 psi, Texas >35 psi, and Pennsylvania 25-125 psi. Ten States Standards indicates that normal working pressures should be 60-80 psi, and not less than 35 psi.
11	Pressure reducing valves on customer services	Pressure reducing valves required for static pressures exceeding 80 psi	Pressure reducing valves (by utility or customer) required for pressures exceeding 80 psi, according to Oregon Plumbing Specialty Code. Pressures measured at service connection (meter).	Customers to provide their own PRVs when pressures > 80 psi. City provides if system change results in pressures > 80 psi. Customer responsible for O&M and MW&L has no liability.	Typical for water utilities	
12	Equalization storage volumes: residential only	20% of MDD		20% of maximum day demand	A range of 20-25% is typical for water utilities; MW&L could consider 25% of MDD for proposed 2nd level in absence of specific diurnal demand data	Only general guidance is provided by states, indicating that equalization storage should account for daily use patterns.
13	Equalization storage volumes: residential plus schools/commercial	20% of MDD		20% of maximum day demand	Generally, diurnal peaks are lower from commercial customers and schools than from residential areas.	Only general guidance is provided by states, indicating that equalization storage should consider daily use patterns.
14	Emergency storage volumes	1 x MDD		1 x MDD	Assumes that failure of system occurs on a maximum day demand, and that customers continue water use at MDD rate for 12 hours, then reduce use to ADD rate for 24 hours, and that emergency condition is fixed in 36 hours.	Washington regulations indicate that emergency storage may be reduced when there is a second independent supply. Oregon rules do not include discussion of emergency storage.
15	Total storage	Sum of fire, equalization, and emergency storage volumes. (There is currently no water quality consideration in this equation.)		Sum of fire, equalization, and emergency storage volumes --or-- equalization plus fire or plus emergency, whichever is larger	Need to balance distribution storage between meeting storage needs and water quality considerations; not a significant concern for MW&L for the main service level, since all water passes through tanks (i.e., tanks are not located on dead end lines and do not float on system)	Washington codes allow a system to provide the total of the equalization storage plus the larger of the emergency or fire volumes. This approach assumes that a fire will not occur concurrently with an emergency failure.
16	Valve exercising	Exercise all valves and fire hydrants once a year. Flush all mains once a year.		Exercise all valves at least once every 4 years. Consider more frequent exercising for older valves and large diameter (>= 12")	Annual valve exercising is commonly recommended for all valves, however, this is probably not practical. Some systems exercise older valves (gate valves with expanding seats) annually and resilient seat valves at least once every 4 years.	States do not provide guidance on valve exercising.
17	Water age/chlorine residual/Heterotrophic Plate Count (HPC)	Chlorine residuals taken weekly at coliform sample sites. Target free chlorine residuals of 0.7 - 1.0 mg/L. HPC goal < 1 cfu/mL.		At all distribution system locations: measurable free chlorine residual; HPC < 1 colony forming units (cfu)/mL	The critical water age is system-specific. EPA has a value for HPC as a non-regulated surrogate of 500 cfu/mL. A value of 100 cfu/mL is conservative in protecting water quality. Together with maintaining a measurable chlorine residual, these are the best available practices for ensuring safe drinking water in the distribution system.	One further criterion that may be considered is to limit the maximum water age in the system, particularly if a long water age can be associated with low chlorine residuals or high HPC concentrations. May need separate summer and winter management policies.
18	Pump station sizing	(No criteria as system currently includes no pump stations)		Provide maximum day demand over 24 hours, with largest pump out of service	A typical approach for pump station sizing.	

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
19	Number of pumps in booster pump stations	(No criteria as system currently includes no pump stations)		Two or more; 4 for isolated, closed-end systems	A typical approach for pump stations	
20	Pipe materials	Ductile iron, HDPE, other materials where appropriate		Use ductile iron pipe as standard. Consider HDPE or steel for large transmission lines.	Ductile iron pipe is less prone to leaks than other pipe materials, and is the industry standard.	
21	Backflow prevention standards	MW&L has detailed policy; generally aligns with Oregon rules	OAR Chapter 333	Fulfill Oregon's rules	Oregon's backflow rules are comprehensive and defensible	
22	Water quality monitoring in distribution system	Fulfill Oregon rules	OAR Chapter 333	Monitor for chlorine residual using on-line instruments at locations prone to low residuals or high water age. Consider also additional instruments for flows out of reservoirs.	More comprehensive sampling in distribution system helps to ensure that high quality water is delivered to all customers. In addition, it provides value from a water system security standpoint.	Selection of sites can be evaluated using hydraulic model and by reviewing system maps
23	Water use record keeping	Track average and maximum day demands, and unaccounted for water. Track and report annual water use to OWRD. Maintain water quality monitoring and other operational records according to Oregon rules.	OAR Chapter 333	Track average day, maximum day, and monthly total demands and record annually. Track within individual service levels to extent possible. Develop monthly and annual numbers for unaccounted water (water losses).	These data are very helpful for planning purposes, and are time-consuming or impossible to generate if not recorded on a regular basis.	
24	Main Flushing	Mains are flushed at least once a year. Dead ends are flushed more frequently.		Every 6 months for dead end and problem areas; goal for entire system is once every 4 years	Typical water system practice	
25	Reservoir inspection/cleaning	Comply with recommended values		Inspections every 5 years using divers; cleaned only as inspection shows need		
26	Reservoir turnover	7-10 days in winter; 3-5 days in summer.		Depends on water quality. Many systems do not experience problems even though the water age is longer than AWWA recommendations	AWWA recommends complete turnover every 3-5 days	
27	Use of closed-end pumping systems in place of reservoir storage	Use closed-end system until residences exceed approximately 15 houses		15 or fewer homes preferred on a dead end, 30 homes max on a dead end	Although it is ideal to serve all customers with gravity storage, it may be an unacceptable cost to serve small groups of homes with a reservoir and may lead to water quality problems	
28	Isolation valving	Target is recommended value; currently, 90% of system complies with this		Maximum of 4 valves to close in order to isolate segment	Typical water system practice	
29	Number of services on an isolation segment	Not more than two blocks.		Not more than 30 homes max	Typical water system practice	
30	Installation of flush ends on dead end mains in cul-de-sacs.	All dead ends shall have blow-offs		Install flushing ends for all dead end mains	Typical water system practice	

EXHIBIT 5-1
Design and Operating Criteria

No.	Item	MW&L Criteria	Applicable Regulations	Recommended Value	Basis for Recommended Value	Discussion
31	Provision of emergency generators for pump stations	Currently not applicable; no MW&L criteria		Provide for all closed-end systems		
32	Pump stations backup power connections	Currently not applicable; no MW&L criteria		Standard for all distribution pump stations		
33	Reservoir design inlet/outlet piping	Separate inlet / outlet piping	Oregon rules: "When a single inlet/outlet pipe is installed and the reservoir floats on the system, provisions shall be made to insure an adequate exchange of water to prevent degradation of the water quality..." (OAR 333-061-0050 (7))	Provide separate inlet/outlet piping for all new reservoirs; consider inlet riser pipe to improve mixing	Follows Oregon regulations	
34	Master plan update schedule	According to recommended schedule		Annual minor updates; more significant review every 5 years; comprehensive review every 10 years		
35	5-Year capital improvements plans (CIPs)	Review annually		Proposed: Annual updates; ensure that 5-year plans follow general guidelines of the master plan. Plan shall be within financial guidelines of water division, and shall be balanced and prioritized so that rate increases are justified		
36	Annual capital budgeting	Review annually		Shall reflect 5-year CIP. Modifications shall be justified and documented.		

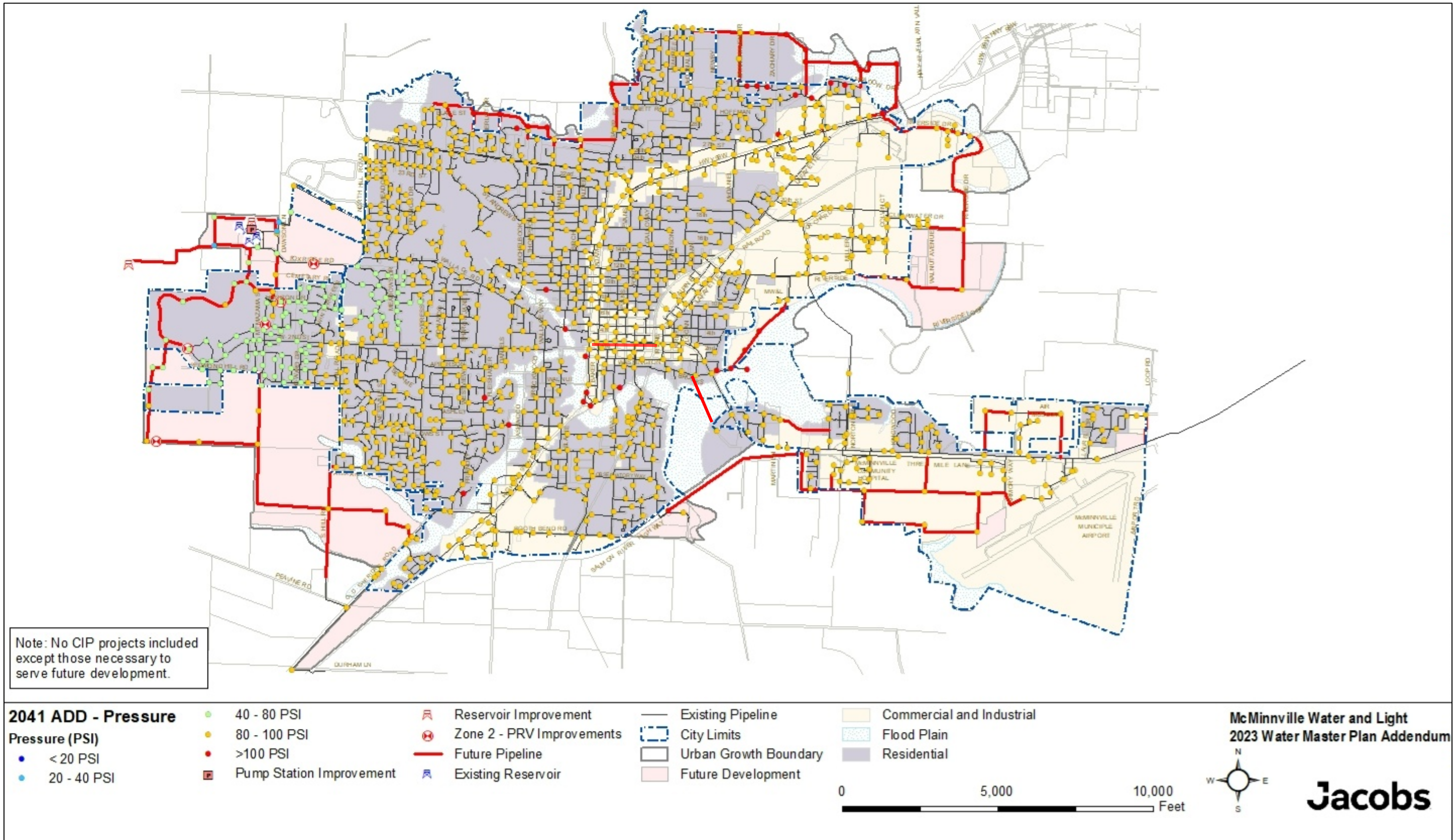
Notes: OAR = Oregon Administrative Rules; OWRD = Oregon Water Resources Department

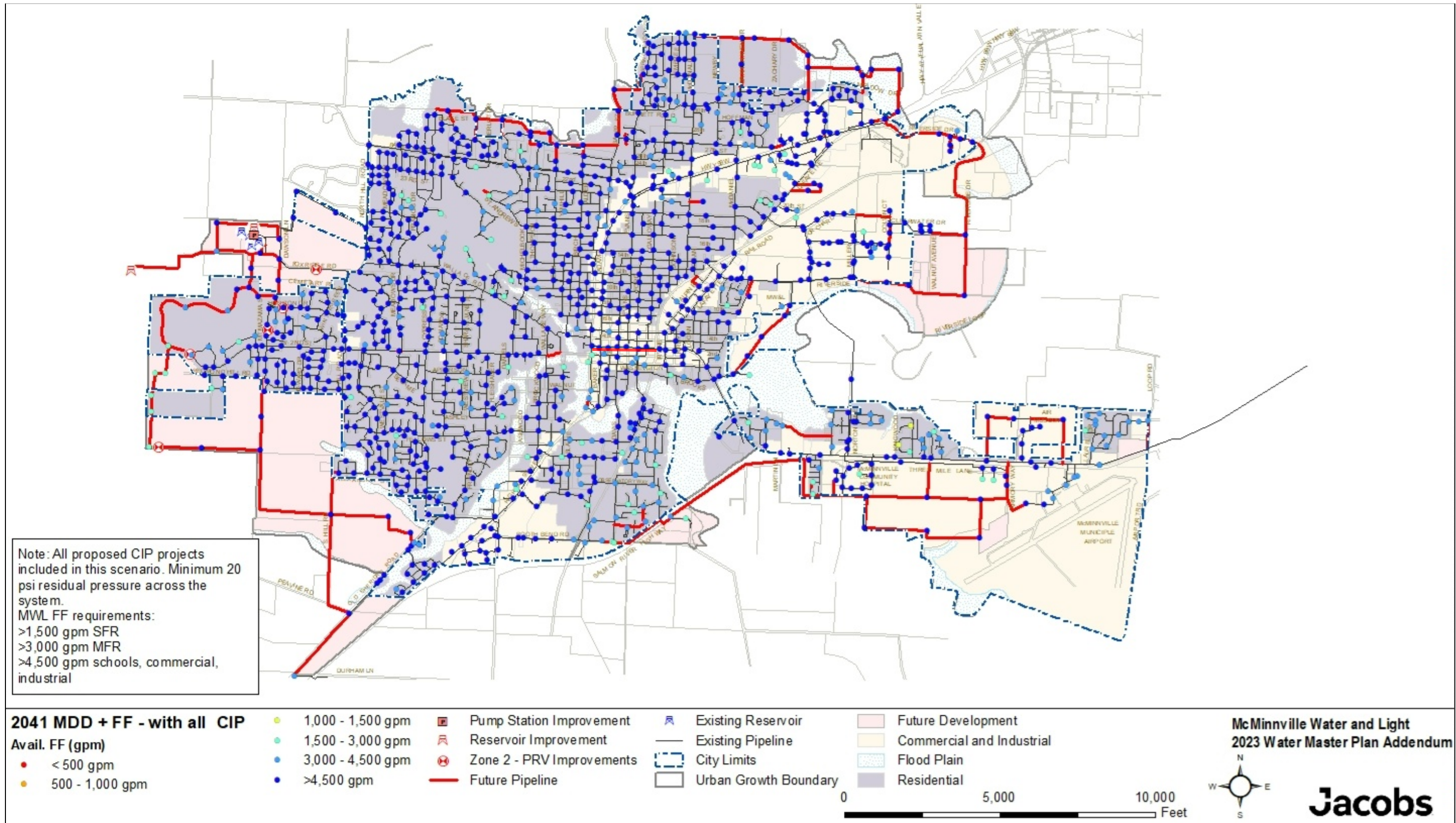
Appendix C. Water Right Permits and Certifications

McMinnville Water and Light Water Master Plan Addendum

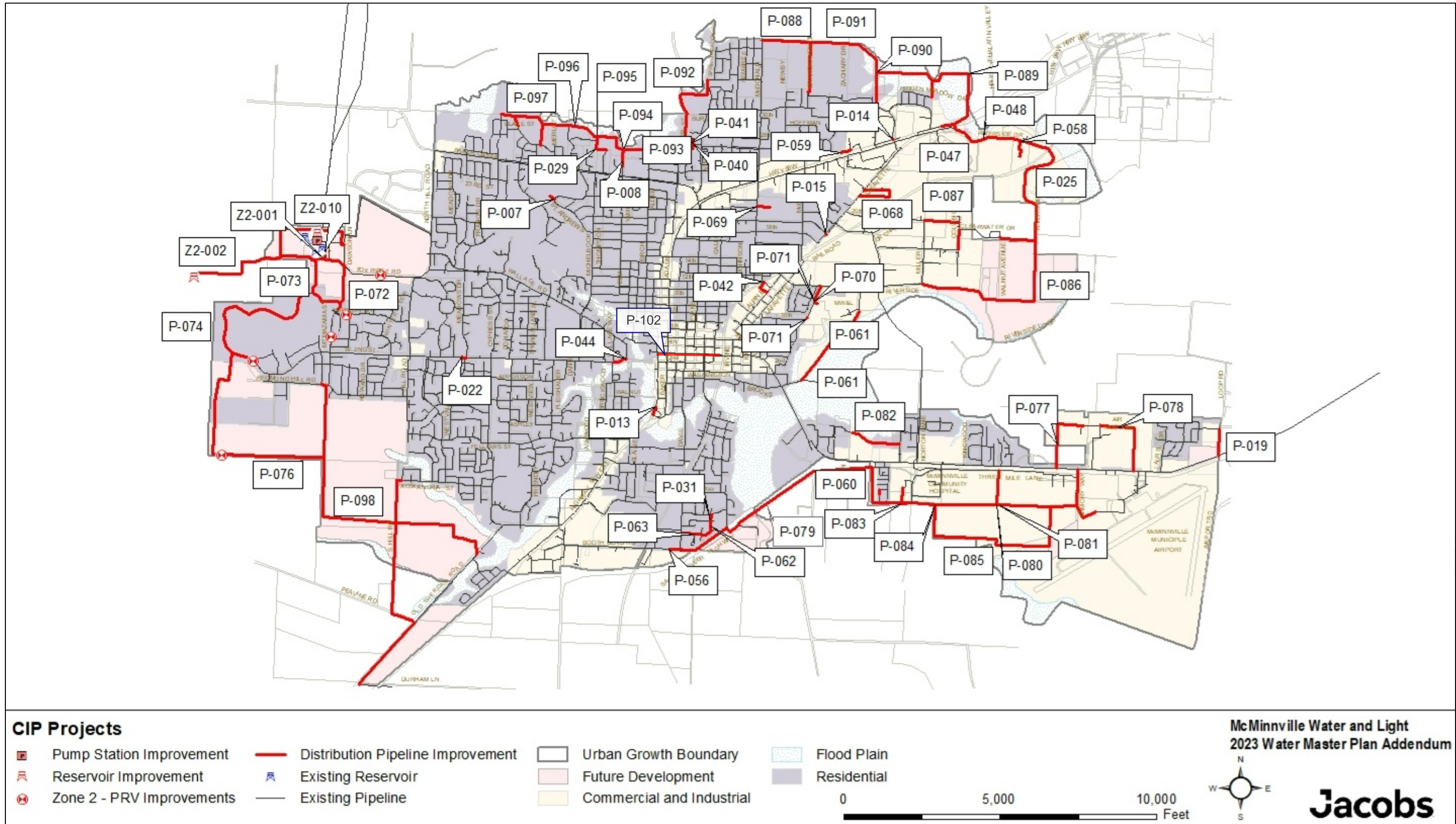
Application No.	Permit No.	Transfer No.	Certificate No.	Priority Date	Allowed Beneficial Use	Description	Allowable River Withdrawal		Allowable River Withdrawal (Withdrawal without a specified rate)		Allowable Storage		Maximum Amount of Use to Date	Authorized Date for Completion	
							Cubic Feet per Second	Million Gallons per Day	Acre feet	Million Gallons	Acre feet	Million Gallons			
Haskins Creek															
R-11338	R-612	-	82887	2/19/27	Storage for Domestic Use (Municipal)	Storage in Haskins Reservoir	-	-	-	-	410	134	410	AF	-
R-63054	R-8885	-	63659	11/23/81	-	Storage in Haskins Reservoir	-	-	-	-	355	116	355	AF	-
S-5029	S-3002	-	3367	7/8/16	Domestic Supply	Haskins Creek	4.5	2.9	-	-	-	-	4.5	cfs	-
S-11484	S-8881	-	82886	5/18/27	Municipal	Use of stored water from Haskins Reservoir			410	134	-	-	410	AF	-
S-19124	S-54829	-	94336	1/10/41	Domestic (Municipal)	River right on Haskins Creek and use of stored water from Haskins Reservoir	9.61	6.2	-	-	-	-	9.61	cfs	-
		-	-			5.39	3.5	-	-	-	-	7.12	cfs	10/1/2050	
S-63117	S-47779	-	63660	12/15/81	Municipal	Use of stored water from Haskins Reservoir			355	116	-	-	355	AF	-
TOTALS							19.5	12.6	765	249	765	249	-	-	-
Nestucca River/ McGuire															
R-32824	R-2652	-	86408	12/24/58	Storage for Municipal	Storage in McGuire Reservoir	-	-	-	-	3550	1157	3550	AF	-
R-46563	R-5561	-	86409	12/2/69	Storage for Municipal	Storage in McGuire Reservoir	-	-	-	-	210	68	210	AF	-
R-69772	R-13942	-	86306	12/7/88	Storage for Municipal	Storage in McGuire Reservoir	-	-	-	-	6040	1968	6040	AF	-
S-32770	S-27520	-	86410	11/19/58	Municipal	River right on Nestucca River and use of stored water from McGuire Reservoir	6.4	4.1	-	-	-	-	6.4	cfs	Partial Perfection
S-46564	S-34803	-	86820	12/2/69	Municipal	Use of stored water from McGuire Reservoir	-	-	210	68	-	-	210	AF	-
S-69773	S-54038	-	-	12/7/88	Municipal	Use of stored water from McGuire Reservoir	-	-	6040	1968	-	-	680	AF	10/1/2042
TOTALS							6.4	4.1	6250	2036	9800	3193			
Walker Creek															
R-32825	R-2653	-	-	12/24/58	Storage for Municipal	Storage in Walker Reservoir	-	-	-	-	4500	1466	0	AF	10/1/97 (in extension queue at OWRD)
S-32770	S-27520	-	-	11/19/58	Municipal	River right on Walker creek and use of stored water from Walker Reservoir	9.6	6.2	-	-			0.9	cfs	10/1/97 (in extension queue at OWRD)
TOTALS							9.6	6.2	-	-	4500	1466	-	-	-
Willamette River (Yamhill Regional Water Authority)															
S-87762	S-54792	-	-	11/2/11	-	Municipal Use: Willamette River	33.1	21.4	-	-	-	-	0	AF	1/17/2033
TOTALS							33.1	21.4	-	-	-	-	-	-	-
Willamette River (MW&L)															
-	-	T-13462	-	12/23/54	-	Municipal Use: Willamette River	7.5	4.9	-	-	-	-	-	-	10/1/2052
-	-	T-12065	-	10/29/82	-	Municipal Use: Willamette River	7.75	5.0	-	-	-	-	-	-	10/1/2046

Appendix D. Hydraulic Model System Deficiency Maps





Appendix E. Updated Map of CIP Pipeline Projects





McMinnville Water & Light Water Cost of Service Study and Financial Projection Report

October 2024



Corporate location:

Utility Financial Solutions, LLC

185 Sun Meadow Court

Holland, MI USA 49424

(616) 393-9722

Fax (888) 566-4430

Submitted Respectfully by:

Mark Beauchamp, CPA, CMA, MBA

President, Utility Financial Solutions, LLC

mbeauchamp@ufsweb.com

(616) 393-9722

October 2024

Trena McManus
Utility/Rate Analyst
McMinnville Water & Light
855 NE Marsh Lane
McMinnville, OR 97128

Dear Contact Name:

We are pleased to present the Report for the water cost of service study and financial projection for the McMinnville Water & Light (MW&L). This report was prepared to provide MW&L with a comprehensive examination of its existing rate structure by an outside party.

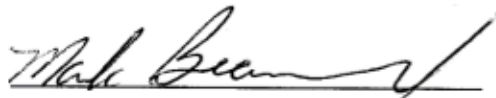
The specific purposes of this rate study are:

- Determine water utility's revenue requirements for fiscal year 2025
- Identify cross-subsidies that may exist between rate classes
- Determine rate adjustments needed to meet targeted revenue requirements
- Identify the appropriate monthly customer charge for each customer class

This report includes results of the water cost of service study and financial projection and considerations on future rate designs.

This report is intended for information and use by the utility and management for the purposes stated above and is not intended to be used by anyone except the specified parties.

Sincerely,



Utility Financial Solutions, LLC
Mark Beauchamp, CPA, MBA, CMA
185 Sun Meadow Ct
Holland, MI 49424

TABLE OF CONTENTS

1. Introduction1

2. Financial Projection Summary2

 Utility Rate Process2

 Utility Revenue Requirements.....2

 Projected Cash Flow4

 Minimum Cash Reserve6

 Debt Coverage Ratio7

 Optimal Rate Funded Capital (Target Operating Income)8

 Projected Rate Track.....10

3. Cost of Service Summary11

 Cost of Service Components13

 Combined Cost Summary15

 Customer Costs (Fixed) Breakdown.....16

 Commodity Costs (Variable) Breakdown.....19

4. Unbundling Process20

 Treatment Cost Breakdown.....21

 Distribution Cost Breakdown.....22

 Customer-Related Cost Breakdown.....23

 Fire Protection and Hydrants Cost Breakdown24

5. Significant Assumptions.....25

6. Considerations and Additional Information27

Appendix A – Rate Designi

LIST OF FIGURES

Figure 1 – Breakdown of Cost Structure20

Figure 2 – Breakdown of Treatment Costs21

Figure 3 – Breakdown of Distribution Costs22

Figure 4 – Breakdown of Customer Costs.....23

Figure 5 – Breakdown of Fire Protection Costs.....24

LIST OF TABLES

Table 1 – Projected Financial Statements.....	3
Table 2 – Projected Cash Flows (without rate adjustments).....	4
Table 3 – Timber Revenue Cash Flow (without rate adjustments).....	5
Table 4 – Minimum Cash Reserves (without rate adjustments).....	6
Table 5 – Projected Debt Coverage Ratios (without rate adjustments).....	7
Table 6 – Target Operating Income Calculation (without rate adjustments).....	9
Table 7 – Summary of Financials without Rate Adjustments	10
Table 8 – Summary of Financials with Projected Rate Adjustments	10
Table 9 – Cost of Service Summary.....	12
Table 10 – Comparison of Current Customer Costs (Fixed) with Cost of Service.....	14
Table 11 – Comparison of Current Commodity Costs (Variable) with Cost of Service.....	14
Table 12 – Total Costs by Customer Class.....	15
Table 13 – Meter Capacity Factors	17
Table 14 – Customer Charge Breakdown.....	18
Table 15 – Commodity Charge Breakdown	19
Table 16 – Unbundled Breakdown by Expense Type.....	20
Table 17 – Fire Protection Cost per Unit.....	24
Table 18 – Projected Operating Expenses	25
Table 19 – Capital Improvements Projection.....	26
Table 20 – Inside City (W-1) Proposed Rates.....	ii
Table 21 – Outside City (W-2) Proposed Rates	ii
Table 22 – Non-Metered (W-3) Proposed Rates	iii
Table 23 – Bulk Fill Station (W-4) Proposed Rates.....	iii

1. Introduction

This report was prepared to provide McMinnville Water & Light (MW&L) with a water cost of service study and financial projection and a comprehensive examination of its existing rate structure by an outside party.

The specific purposes of the study are identified below:

1. **Determine water utility's revenue requirements for fiscal year 2025.** MW&L's revenue requirements were projected for the period from 2025 – 2029 and included adjustments for the following:
 - a. Projected costs
 - b. Capital improvement plan projected over next five years
2. **Identify cross-subsidies that may exist between rate classes.** Cross-subsidies exist when certain customer classes subsidize the water costs of other customers. The rate study identifies if cross-subsidies exist and practical ways to reduce the subsidies. The cost of service study was completed using 2025 projected revenues and expenses. The financial projections are for the period from 2025 – 2029.
3. **Identify rate adjustments needed to meet targeted revenue requirements.** The primary purpose of this study is to identify appropriate revenue requirements, and the rate adjustments needed to meet targeted revenue requirements. The report includes a long-term rate track for MW&L to help ensure the financial stability of the utility in future years.
4. **Unbundled water rates.** The cost of providing water to customers consists of several components, including distribution, customer services, and transfers to the general fund. Water unbundling identifies the cost of each component to assist the utility in preparing for water restructuring and understanding its cost structure.
5. **Identify the appropriate monthly customer charge for each customer class.** The monthly customer charge consists of fixed costs to service customers.

2. Financial Projection Summary

Utility Rate Process

MW&L retained Utility Financial Solutions, LLC to review utility rates and cost of service. This study follows the process set forth for best practice through the American Water Works Association. This report includes results of the water cost of service and unbundling study and considerations on future rate designs.

Water consumption can vary significantly due to factors like weather (e.g., a hot, dry summer leads to more irrigation). This variability is a significant challenge for water utility planning since revenues can fluctuate with water usage while many of the utility's costs are fixed. The study assumes little to no growth in water consumption during the projection period. This is a conservative assumption and helps to ensure financial stability.

The assumptions used to develop the expense projection are described in greater detail in the “Significant Assumptions” section of this report and were developed collaboratively with staff.

Utility Revenue Requirements

To determine revenue requirements, the revenues and expenses for fiscal years 2022 and 2023, and 2024 budget were analyzed, with adjustments made to reflect projected operating characteristics. ***The projected financial statements are for cost of service purposes only.***

Table 1 is the projected financial statement for the Water Department from 2025 – 2029. The 2025 rate of return calculation established an operating income target of \$4.03M (See Table 6).

Adjusted operating income for 2025 is projected at \$1.91M and decreases to \$1.2M in 2029. Adjusted operating income is one target that helps to determine if rate adjustments are needed. The following pages review cash flow and debt coverage ratio which are also important indicators.

Table 1 – Projected Financial Statements

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Operating Revenues:					
Inside City Consumption	\$ 3,716,539	\$ 3,735,122	\$ 3,753,798	\$ 3,772,567	\$ 3,791,430
Outside City Consumption	52,426	52,689	52,952	53,217	53,483
5/8" and 3/4" Inside	1,801,042	1,810,047	1,819,097	1,828,193	1,837,333
1" Inside	333,245	334,911	336,586	338,269	339,960
1.5" Inside	59,400	59,697	59,995	60,295	60,597
2" Inside	141,012	141,717	142,426	143,138	143,853
3" Inside	49,056	49,301	49,548	49,796	50,045
4" Inside	49,368	49,615	49,863	50,112	50,363
6" Inside	30,720	30,874	31,028	31,183	31,339
5/8" and 3/4" Outside	17,050	17,135	17,221	17,307	17,393
1" Outside	13,789	13,858	13,928	13,997	14,067
1.5" Outside	2,880	2,894	2,909	2,923	2,938
2" Outside	3,528	3,546	3,563	3,581	3,599
Bulk Fill Station	32,686	32,849	33,013	33,178	33,344
Fire Line Inside	136,021	136,701	137,385	138,072	138,762
Fire Hydrant	72,946	73,311	73,677	74,046	74,416
Cascade	439,090	441,285	443,492	445,709	447,938
Lafayette	111,565	112,123	112,683	113,247	113,813
Other Operating Revenues	21,900	22,030	22,260	22,490	22,720
Access Charges Inside	468,227	468,227	468,227	468,227	468,227
Access Charges Outside	2,301	2,301	2,301	2,301	2,301
Total Operating Revenues	\$ 7,554,792	\$ 7,590,233	\$ 7,625,952	\$ 7,661,848	\$ 7,697,922
Operating Expenses:					
Water Supply and Transmission	\$ 1,041,546	\$ 1,101,587	\$ 1,153,693	\$ 1,220,392	\$ 1,278,206
Distribution System Operation	2,169,739	2,294,816	2,403,362	2,542,310	2,662,747
Customer Account Expense	458,340	484,761	507,691	537,042	562,484
General and Administrative	1,917,889	2,028,447	2,124,395	2,247,214	2,353,671
Taxes and Tax Equivalents	232,300	245,691	257,313	272,189	285,083
Other Charges	36,500	38,604	40,430	42,767	44,794
Depreciation Expense	2,211,599	2,400,298	2,625,490	2,774,940	2,842,342
Contributed Capital Depreciation	(467,283)	(484,755)	(502,572)	(520,738)	(538,547)
Total Operating Expenses	\$ 7,600,640	\$ 8,109,454	\$ 8,609,807	\$ 9,116,123	\$ 9,490,785
Operating Income	\$ (45,848)	\$ (519,221)	\$ (983,855)	\$ (1,454,275)	\$ (1,792,864)
Other Income & Expense					
Interest and Other Income	\$ 808,013	\$ 770,337	\$ 576,905	\$ 389,561	\$ 434,695
Timber Sales	1,870,243	2,500,000	2,650,000	2,800,000	2,950,000
Timer Offset	(280,500)	(300,000)	(318,000)	(350,000)	(368,750)
Other Income and Expense	32,103	33,954	35,560	37,615	39,397
Hookup Fees and Contributed Utility Syst	1,986,691	-	-	-	-
Cash	369,109	373,600	390,867	408,267	408,267
In-kind	500,000	500,000	500,000	500,000	500,000
Non Operating Income/Expense	\$ 5,285,659	\$ 3,877,890	\$ 3,835,331	\$ 3,785,444	\$ 3,963,609
Net Income	\$ 5,239,811	\$ 3,358,670	\$ 2,851,476	\$ 2,331,169	\$ 2,170,745
Adjusted Operating Income	\$ 1,913,004	\$ 2,054,379	\$ 1,739,012	\$ 1,403,992	\$ 1,196,653

Projected Cash Flow

The utility’s basic financial statements are kept on an accrual accounting basis. This means they recognize expenses when they are incurred and revenues when they are earned, rather than when cash changes hands. In the accrual basis of accounting, depreciation is recognized as an expense, even though it doesn't involve an actual cash outflow.

Table 2 is the projected cash flow for 2025 – 2029, including projections of capital improvements as provided by MW&L. To project actual cash flow, several adjustments are made to the accrual basis financial statements:

- Depreciation expense (a non-cash item) is added back since it reduces net income on the income statement but doesn’t involve an actual cash outflow.
- Debt principal payments are subtracted. These are actual cash outflows, but they are not treated as expenses on the income statement under accrual accounting.
- Capital Expenditures are subtracted. Like principal repayments, these are actual cash outflows that are not treated as expenses on the income statement.

The projection starts with the actual cash balances from FY2023, which are adjusted for the anticipated cash expenditures in FY2024. It’s important to note that changes in the capital improvement plan can have a significant impact on projected cash balances, as they involve large expenditures.

- If new projects are added, or if existing projects become more expensive than anticipated, this can significantly reduce projected future cash balances.
- Conversely, delaying or scaling back capital projects can help preserve cash.

Based on these assumptions and projections, the utility expects to have a cash balance of \$20.5M in 2025 and falling to \$-3.29M in 2029 under the current rates. The suggested minimum cash reserve level for 2025 is \$8.71M and \$9.12M for 2029.

Table 2 – Projected Cash Flows (without rate adjustments)

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Projected Cash Flows					
Net Income	\$ 5,239,811	\$ 3,358,670	\$ 2,851,476	\$ 2,331,169	\$ 2,170,745
Depreciation Expense/Amortization	1,744,317	1,915,543	2,122,918	2,254,202	2,303,796
Offset for Timber Contribution	(1,589,743)	(2,200,000)	(2,332,000)	(2,450,000)	(2,581,250)
Cash Available from Operations	\$ 5,394,384	\$ 3,074,213	\$ 2,642,394	\$ 2,135,371	\$ 1,893,291
Estimated Routine Capital	6,953,550	8,142,300	9,873,100	2,082,900	3,309,275
Estimated New Infrastructure (Not Cont)	3,035,000	315,000	40,000	15,000	1,066,600
CIAC Additions (In Kind)	500,000	500,000	500,000	500,000	500,000
Offset for CIP Paid by Timber	(3,035,000)	(315,000)	(40,000)	(15,000)	(1,066,600)
Net Cash From Operations	\$ (2,059,166)	\$ (5,568,087)	\$ (7,730,706)	\$ (447,529)	\$ (1,915,984)
Operating Cash					
Beginning Cash Balance	\$ 21,112,444	\$ 20,498,535	\$ 13,045,448	\$ 3,022,742	\$ 140,213
Ending Cash Balance	\$ 20,498,535	\$ 13,045,448	\$ 3,022,742	\$ 140,213	\$ (3,290,421)
Recommended Minimum	\$ 8,714,092	\$ 8,839,331	\$ 8,976,389	\$ 9,045,672	\$ 9,121,071

Timber Revenue and Development of Capital Reserve Fund

MWL’s Water Department owns and manages the sale of timber from forested lands owned by the utility. This generates an additional revenue stream, intended for the offset of capital improvement projects and to help fund future capital.

This cash will be set aside in a separate fund and not considered as part of funds available for operation. It is intended that this fund will grow and be used for water system assets.

Table 3 – Timber Revenue Cash Flow (without rate adjustments)

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Cash Flow Timber Revenue					
Net Timber Sales	\$ 1,589,743	\$ 2,200,000	\$ 2,332,000	\$ 2,450,000	\$ 2,581,250
Estimated New Infrastructure (Not Cont)	3,035,000	315,000	40,000	15,000	1,066,600
Beginning Cash Balance	\$ 6,106,325	\$ 4,661,068	\$ 6,546,068	\$ 8,838,068	\$ 11,273,068
Ending Cash Balance	\$ 4,661,068	\$ 6,546,068	\$ 8,838,068	\$ 11,273,068	\$ 12,787,718

Minimum Cash Reserve

Table 4 details the minimum level of cash reserves required to help ensure timely replacement of assets and to provide financial stability of the water utility. The methodology used to establish this target is based on the following assumptions.

Allocator	Risk Factor Assigned
Operation & Maintenance Less Depreciation Expense	45 day working capital lag = 12.3% factor
Historical Rate Base	Less than 50% depreciated = 1.0% factor
Five Year Capital Improvements – Net of Bond Proceeds	20% of MW&L’s water five year capital plan

Based on these assumptions, MW&L should maintain a minimum of \$8.71M in cash reserves for 2025 and \$9.12M in 2029.

Table 4 – Minimum Cash Reserves (without rate adjustments)

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Minimum Cash Reserve Levels Determinants					
Operation & Maintenance Less Depreciation Expense	\$ 5,856,323	\$ 6,193,911	\$ 6,486,889	\$ 6,861,920	\$ 7,186,990
Historical Rate Base	148,076,492	156,218,792	166,091,892	168,174,792	171,484,067
Loss of Major Customer	439,090	441,285	443,492	445,709	447,938
Five Year Capital Improvements - Net of bond proceeds	30,361,125	30,361,125	30,361,125	30,361,125	30,361,125
Minimum Cash Reserve Allocation					
Operation & Maintenance Less Depreciation Expense	12.3%	12.3%	12.3%	12.3%	12.3%
Historical Rate Base	1%	1%	1%	1%	1%
Loss of Major Customer	100%	100%	100%	100%	100%
Five Year Capital Improvements - Net of bond proceeds	20%	20%	20%	20%	20%
% Plant Depreciated	44%	43%	42%	43%	44%
Calculated Minimum Cash Level					
Operation & Maintenance Less Depreciation Expense	\$ 722,012	\$ 763,633	\$ 799,753	\$ 845,990	\$ 886,067
Historical Rate Base	1,480,765	1,562,188	1,660,919	1,681,748	1,714,841
Loss of Major Customer	439,090	441,285	443,492	445,709	447,938
Five Year Capital Improvements - Net of bond proceeds	6,072,225	6,072,225	6,072,225	6,072,225	6,072,225
Minimum Cash Reserve Levels	\$ 8,714,092	\$ 8,839,331	\$ 8,976,389	\$ 9,045,672	\$ 9,121,071
Projected Cash Reserves	\$ 20,498,535	\$ 13,045,448	\$ 3,022,742	\$ 140,213	\$ (3,290,421)

Projected operating cash balances are below minimum cash reserve levels from projected 2027 – 2029 years with current rates, assumptions, and projected capital plans.

Debt Coverage Ratio

Table 5 is the projected debt coverage ratios with capital additions as provided by MW&L. Debt coverage ratio is a measurement of debt affordability and measures the cash flow from operations in that fiscal year. A ratio of 1 indicates there was enough cash flow from operations to pay the debt payment one time. The minimum debt coverage ratio for prudent financial planning purposes is 1.40.

Maintaining a 1.40 debt coverage ratio is good business practice and helps to achieve the following:

- a. Help ensure debt coverage ratios are met in years when sales are low due to cold or wet summers or loss of a major customer(s).
- b. When debt coverage ratios are consistently met, it may help obtain a higher bond rating if revenue bonds are sold in the future, to lower interest cost.

Table 5 – Projected Debt Coverage Ratios (without rate adjustments)

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Debt Coverage Ratio					
Net Income	\$ 5,239,811	\$ 3,358,670	\$ 2,851,476	\$ 2,331,169	\$ 2,170,745
Add Depreciation/Amortization Expense	1,744,317	1,915,543	2,122,918	2,254,202	2,303,796
Cash Generated from Operations	\$ 6,984,127	\$ 5,274,213	\$ 4,974,394	\$ 4,585,371	\$ 4,474,541
Projected Debt Coverage Ratio (Covenants)	N/A	N/A	N/A	N/A	N/A
Minimum Debt Coverage Ratio	1.40	1.40	1.40	1.40	1.40

MW&L currently does not have debt.

Optimal Rate Funded Capital (Target Operating Income)

The optimal rate-funded capital target, or target operating income, is an essential concept in utility finance. It ensures the utility can meet its current financial obligations, plan for future capital needs, and operate in a financially sustainable and responsible manner. This concept is central to rate setting and is designed to balance the need for financial sustainability with the goal of fair and equitable rates for customers.

The operating income target aims to address several key financial needs for the utility.

- A. Funding of Interest Expense on Outstanding Debt Principal – Utilities often take on debt to fund major capital projects. The interest on this debt is a recurring expense that must be paid to keep the utility in good financial standing. By setting rates to achieve a target operating income, the utility ensures it has enough revenue to cover these interest payments.
- B. Funding of Inflationary Increase on Assets Invested in the System – As time passes and inflation occurs, the cost to replace or upgrade the utility's assets (e.g., pipes, treatment plants) increases. Target operating income should be sufficient to cover these increased costs, ensuring that the utility can continue to maintain and replace its infrastructure as needed without placing a financial burden on future generations.
- C. Funding of Inflationary Increase on Contributed Capital – For cost of service, assets acquired through developer contributions, grants, or other means through which the utility did not utilize its own cash, annual depreciation expense on contributed capital should not be recovered through current rates. However, the inflationary increase in the replacement cost of contributed assets should be recognized as part of the optimal rate funded capital.

Maintaining an ideal operating income helps ensure that current customers are paying for the full cost of the services they are receiving, rather than deferring these costs to future generations. This is a key principle of intergenerational equity and ensures the utility remains financially viable.

Table 6 establishes a utility basis target for operating income, starting at \$4.03M in 2025 and ending with \$4.66M in 2029.

Table 6 – Target Operating Income Calculation (without rate adjustments)

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Target Operating Income Determinants					
Contributed Capital Estimated	\$ 23,364,144	\$ 24,237,744	\$ 25,128,611	\$ 26,036,878	\$ 26,945,144
Net Book Value/Working Capital	83,208,409	88,950,412	96,198,022	95,505,982	95,972,914
System Equity	\$ 59,844,265	\$ 64,712,667	\$ 71,069,411	\$ 69,469,104	\$ 69,027,770
Target Operating Income Allocation					
Contributed Capital Estimated	3.10%	3.10%	3.10%	3.10%	3.10%
System Equity	5.52%	5.44%	5.35%	5.46%	5.54%
Target Operating Income					
Contributed Capital Estimated	\$ 724,288	\$ 751,370	\$ 778,987	\$ 807,143	\$ 835,299
System Equity	3,301,438	3,523,192	3,803,879	3,792,134	3,823,496
Target Operating Income	\$ 4,025,726	\$ 4,274,562	\$ 4,582,866	\$ 4,599,278	\$ 4,658,795
Projected Operating Income	\$ 1,913,004	\$ 2,054,379	\$ 1,739,012	\$ 1,403,992	\$ 1,196,653
Rate of Return in %	4.8%	4.8%	4.8%	4.8%	4.9%

Operating income is projected below this target, suggesting that revenue requirements (and thus rates) will likely need to increase over time to ensure the utility's financial health.

Projected Rate Track

Increasing rates requires balancing the financial health of the utility with the financial impact on customers and cost of service results. Table 7 is the summary financial projection without any rate changes. Operating income and cash balances decrease each year.

Table 7 – Summary of Financials without Rate Adjustments

Fiscal Year	Projected Rate Adjustments	Adjusted			Net Timber Fund Cash after CIP	Operating Cash	Recommended Minimum - Operating Cash Reserve
		COS Income (No Timber)	Adjusted COS Income	Optimal COS Income			
2025	0.0%	\$ 323,261	\$ 1,913,004	\$ 4,025,726	\$ 4,661,068	\$ 20,498,535	\$ 8,714,092
2026	0.0%	(145,621)	2,054,379	4,274,562	6,546,068	13,045,448	8,839,331
2027	0.0%	(592,988)	1,739,012	4,582,866	8,838,068	3,022,742	8,976,389
2028	0.0%	(1,046,008)	1,403,992	4,599,278	11,273,068	140,213	9,045,672
2029	0.0%	(1,384,597)	1,196,653	4,658,795	12,787,718	(3,290,421)	9,121,071

The study identifies increasing current revenues throughout the projection period to maintain financial targets. Table 8 is a summary of the financial results detailing the projected revenue adjustments.

Table 8 – Summary of Financials with Projected Rate Adjustments

Fiscal Year	Projected Rate Adjustments	Average Monthly Residential Impact	Adjusted			Net Timber Fund Cash after CIP	Operating Cash	Recommended Minimum - Operating Cash Reserve
			COS Income (No Timber)	Adjusted COS Income	Optimal COS Income			
2025	5.0%	\$ 1.80	\$ 676,379	\$ 2,266,122	\$ 4,025,726	\$ 4,661,068	\$ 20,851,654	\$ 8,736,047
2026	5.0%	1.89	581,891	2,781,891	4,274,562	6,546,068	14,126,078	8,884,563
2027	5.0%	1.99	531,377	2,863,377	4,582,866	8,838,068	5,227,737	9,046,295
2028	5.0%	2.09	498,919	2,948,919	4,599,278	11,273,068	3,890,135	9,141,726
2029	5.0%	2.19	605,921	3,187,171	4,658,795	12,787,718	2,450,019	9,244,828

This rate track stabilizes operating income and projected cash balances throughout the projection period. Depending on the system improvement timetable, additional changes may be needed throughout the projection period.

3. Cost of Service Summary

A cost of service study was completed for FY2025 to determine the cost of providing service to each class of customers and to assist in design of water rates for customers. The cost of service study consists of the following general steps:

1. Determine utility revenue requirement for test year 2025.
2. Classify utility expenses into common cost pools.

Source of Supply	Distribution	Customer
Treatment	Transmission	Administrative
Reservoirs	Fire Protection	Hydrants

3. Functionalize within cost pools.

Variable	Fixed
Base Commodity	Capacity
Max Day Commodity	Customer
Max Hour Commodity	Fire Protection

4. Allocate costs to customer classes based on the class’s contribution to utility expenses – Class usage patterns were analyzed and compared to system use to develop peaking factors used in allocating the variable components of the rate (Base, Max Day, Max Hour). Number of meters, meter costs, meter size, and meter equivalent ratios were used to allocate the fixed components of the rate (Capacity Fixed, Customer, Fire Protection).
5. Compare revenues received from each class to the cost of service. The cost of service provides guidance for the direction of the rate design.

The cost of service summary is included as Table 9 which compares the projected cost to serve each class (fixed and variable) with the revenue received from each class. The “% change” column is the revenue adjustment necessary to meet projected cost of service requirements.

Rate Class Designations

- The Inside and Outside City Consumption classes represent the revenue accrued through the commodity rate per hundred cubic foot (HCF).
- The meter-related classes represent the revenue accrued through the meter size charge per customer.
- The Bulk Fill Station represents the revenue accrued through schedule W-4.
- Fire Protection represents the revenue accrued through schedule W-3.

Table 9 – Cost of Service Summary

Customer Class	Cost of Service (\$)	Projected Revenues (\$)	% Change
Inside City Consumption	\$ 5,585,386	\$ 4,145,320	34.7%
Outside City Consumption	263,489	156,503	68.4%
5/8" and 3/4" Inside	2,082,254	1,801,042	15.6%
1" Inside	412,389	333,500	23.7%
1.5" Inside	97,839	59,760	63.7%
2" Inside	218,692	142,188	53.8%
3" Inside	47,912	49,056	-2.3%
4" Inside	63,860	51,612	23.7%
6" Inside	41,079	30,720	33.7%
8" Inside	8,077	5,664	42.6%
5/8" and 3/4" Outside	20,981	17,050	23.1%
1" Outside	18,267	13,789	32.5%
1.5" Outside	5,055	2,880	75.5%
2" Outside	5,866	3,528	66.3%
6" Outside	10,934	7,680	42.4%
Bulk Fill Station	48,025	32,686	46.9%
Fire Protection	247,605	208,967	18.5%
Total	\$ 9,175,606	\$ 7,062,008	29.9%

Cost of Service Components

Summary of Rate Components

The cost of service study is a critical tool in utility finance and management. It ensures that rates are set based on actual costs, and it helps to distribute those costs fairly among customers, based on how they use the service. It provides guidance for setting rates that support the utility's financial health and its capacity to provide reliable service in the long term. The purpose of the study is to allocate costs between flow (commodity costs, variable) and customer service costs (customer costs, fixed). The cost of service study was based on recognized procedures from the American Water Works Association.

Customer Costs (Fixed) – These are fixed costs, associated with serving customers regardless of how much water they use. They include the costs of operation and maintenance related to meters, services, meter reading, billing, customer service, and a base amount of distribution. Because these costs are largely fixed, they are typically recovered through a fixed ‘customer charge’ that customers pay regardless of their water use. This portion of the rate ensures that the utility can cover its basic operating costs, even if water use fluctuates significantly. Allocating these costs based on the relative cost of meters, services, and the number of customers ensures that each customer is paying their fair share of these basic operating costs.

Commodity Costs (Variable) – These are the variable costs associated with the actual production and delivery of water. They can include costs related to water supply, water treatment, pumping (energy costs), and distribution infrastructure. Because these costs tend to vary with the amount of water used, they are typically recovered through a variable ‘commodity charge’ that is based on the volume of water consumed.

For water utilities, the cost of service study is based on Long Term Marginal Costs (LTMC). LTMC is considered the best practice as it sends accurate price signals to consumers based on the full cost of providing additional units of service, including the cost of infrastructure investments that will be needed in the future. This promotes efficient use of water and ensures that the utility collects sufficient revenue to sustain its operations over the long term. This differs from Short-Term Marginal Cost (STMC) which refers to the cost associated with producing one additional unit of output (e.g., one more cubic meter of water treated and delivered) in the short term.

Table 10 details the current inside city monthly charges and provides a comparison with cost of service. MW&L currently uses a 2X multiplier for outside city rates. The rates below are not the suggested rates. They are used as a guide to move toward cost of service slowly over time. Classes that charge at or above cost of service may still see an increase due to meeting revenue requirements, but that increase may be lower than the average.

Table 10 – Comparison of Current Customer Costs (Fixed) with Cost of Service

Customer Class	Cost of Service		Variance
	Meter \$/Month	Current Meter \$/Month	
5/8" and 3/4" Inside	\$ 17.11	\$ 14.80	16%
1" Inside	26.29	21.28	24%
1.5" Inside	48.82	30.00	63%
2" Inside	75.31	49.00	54%
3" Inside	142.60	146.00	-2%
4" Inside	225.18	187.00	20%
6" Inside	427.91	320.00	34%
8" Inside	673.07	472.00	43%
5/8" and 3/4" Outside	36.43	29.60	23%
1" Outside	56.38	42.56	32%
1.5" Outside	105.31	60.00	76%
2" Outside	162.95	98.00	66%
6" Outside	911.13	640.00	42%

Table 11 outlines the COS commodity rates compared to the current commodity charge. MW&L currently uses a inclining block rate structure with a multiplier for outside city rates. The rates below are not the suggested rates. They are used as a guide to move toward cost of service slowly over time.

Table 11 – Comparison of Current Commodity Costs (Variable) with Cost of Service

Customer Class	Description	Cost of Service		Current Commodity Charge	Variance
		Commodity by Class	Commodity by Class		
Inside City Consumption	<i>Block 1 (10 HCF)</i>	\$ 1.76	\$ 1.73	1%	
	<i>Excess</i>	3.30	1.97	68%	
Outside City Consumption	<i>Block 1 (10 HCF)</i>	\$ 3.51	\$ 3.47	1%	
	<i>Excess</i>	6.60	3.94	68%	
Bulk Fill Station	<i>All Use</i>	\$ 10.03	\$ 3.47	189%	

Combined Cost Summary

Table 12 compares the cost of service rates for each customer class with the current rates. Charging these rates would directly match the cost of providing service to each customer class shown below.

Table 12 – Total Costs by Customer Class

Customer Class	Cost of Service Meter \$/Month	Current Meter \$/Month	Cost of Service Commodity by Class	Current Commodity Charge
Inside City Consumption				
<i>Block 1 (10 HCF)</i>	\$ -	\$ -	\$ 1.76	\$ 1.73
<i>Excess</i>	-	-	3.30	1.97
Outside City Consumption				
<i>Block 1 (10 HCF)</i>	-	-	3.51	3.47
<i>Excess</i>	-	-	6.60	3.94
5/8" and 3/4" Inside	17.11	14.80	-	-
1" Inside	26.29	21.28	-	-
1.5" Inside	48.82	30.00	-	-
2" Inside	75.31	49.00	-	-
3" Inside	142.60	146.00	-	-
4" Inside	225.18	187.00	-	-
6" Inside	427.91	320.00	-	-
8" Inside	673.07	472.00	-	-
5/8" and 3/4" Outside	36.43	29.60	-	-
1" Outside	56.38	42.56	-	-
1.5" Outside	105.31	60.00	-	-
2" Outside	162.95	98.00	-	-
6" Outside	911.13	640.00	-	-
Bulk Fill Station	133.78	18.50	10.03	3.47

The table above compares the current customer charges with the cost-based customer charges and identifies the cost-based commodity rates for each class.

Customer Costs (Fixed) Breakdown

The customer charge consists of expenses related to, 1) providing a minimum amount of water to the residential customer, and 2) servicing a meter on the customer's premises; together they reflect the cost for availability of service. The methodology used in this study is consistent with methodologies and practices used by AWWA.

The customer charge includes two types of costs called minimum system and direct charges. A further discussion of the two is below:

Minimum System Costs

The cost to provide the minimum level of service based on the potential capacity of the customer's meter. Utilities provide water lines to connect to the water transmission system, pumping stations, reservoirs, and subsequently the water treatment facilities. These water lines are required to provide even the minimal amount of service to a customer. For cost of service purposes, the total cost of the water distribution infrastructure is broken into two components:

1. The minimum system costs, in effect provide a customer with the minimum capacity and should be recovered through the customer charge.
2. Demand-related costs are additional infrastructure costs of providing customers with capacity in the water system for usage greater than the minimum amounts and should be recovered through the usage component.

The distribution system is sized to handle the customers' peak usage and the cost above the minimum sizing is recovered through the usage component (commodity costs, variable).

Determination of Meter Equivalents

A meter equivalent is the maximum capacity of the utility’s smallest meter size compared with the maximum capacity of other meters. The meter equivalent ratios are standard factors used by AWWA.

Table 13 – Meter Capacity Factors

Meter Size	Meter Capacity Ratios
	3/4"
0.63	0.67
0.75	1.00
1.00	1.67
1.50	3.33
2.00	5.33
3.00	10.00
4.00	16.67
6.00	33.33
8.00	53.33
10.00	76.67
12.00	14.33

The table of capacity factors was calculated using theoretical volume capacity of each meter size. The table can be interpreted as a 3-inch meter has 10 times more potential capacity than a 3/4-inch meter.

The customer charge cost-based rate breakdown for customers is listed in Table 14. The costs are generated by classifying the trial balance accounts from the general ledger for the test year into common cost pools. The costs are then functionalized into fixed components and allocated to each meter. The minimum system costs for distribution are included under distribution facilities, and direct costs include meters, services, customer service, and billing.

Table 14 – Customer Charge Breakdown

Customer Charge	Distribution					Public Fire Protection	Meters: Unit Cost	Meters: Current Rates	Percent Change
	Meters	Cust. Serv.	Facilities	Billing					
5/8" and 3/4" Inside	\$ 1.55	\$ 3.09	\$ 8.74	\$ 0.99	\$ 2.74	\$ 17.11	\$ 14.80	16%	
1" Inside	1.69	4.11	14.60	1.32	4.57	26.29	21.28	24%	
1.5" Inside	2.44	6.17	29.12	1.98	9.11	48.82	30.00	63%	
2" Inside	3.25	8.23	46.60	2.64	14.59	75.31	49.00	54%	
3" Inside	11.49	12.34	87.44	3.96	27.37	142.60	146.00	-2%	
4" Inside	12.07	16.46	145.76	5.28	45.62	225.18	187.00	20%	
6" Inside	12.67	24.69	291.43	7.91	91.21	427.91	320.00	34%	
5/8" and 3/4" Outside	2.93	6.17	19.87	1.98	5.47	36.43	29.60	23%	
1" Outside	3.19	8.23	33.18	2.64	9.14	56.38	42.56	32%	
1.5" Outside	4.61	12.34	66.17	3.96	18.23	105.31	60.00	76%	
2" Outside	6.14	16.46	105.91	5.28	29.17	162.95	98.00	66%	
Bulk Fill Station	6.14	16.46	105.91	5.28	-	133.78	18.50	623%	

Customer Charge Allocations

Meters	Installation, operation, and maintenance costs of meter
Customer Service	Personnel cost to service accounts
Distribution Facilities	Installation and maintenance cost of distribution system
Billing	Billing and collection costs
Public Fire Protection	Costs to maintain public fire protection lines and hydrants

Often, larger meters require additional time in processing and vetting the bills and answering customer service questions. Because of this, a weighting factor is assigned based on the size of the meter.

Commodity Costs (Variable) Breakdown

The commodity charges are generated by classifying the trial balance accounts from the general ledger for the test year into common cost pools. The costs are then functionalized into variable components and allocated to each meter based on allocation factors. The cost based commodity rates are broken down by meter size and listed in Table 15 below. The rate provided shows the average use by meter size across the three tiers.

**Cost of service unit cost and current rates are shown as a weighted averaged between the blocks.*

Table 15 – Commodity Charge Breakdown

Customer Charge	Extra Capacity - Treatment		Extra Capacity - Distribution		Extra Capacity - Transmission			Usage: Unit Cost	Usage: Current Rates	Percent Change
	Treatment Base	Treatment MD	Distribution MD	Distribution MH	Transmission Base	Transmission MD	Transmission MH			
Inside City Consumption	\$ 0.75	\$ 1.01	\$ 0.36	\$ 0.09	\$ 0.08	\$ 0.10	\$ 0.07	\$ 2.45	\$ 1.87	31%
Outside City Consumption	1.45	2.33	0.45	0.09	0.08	0.16	0.08	4.64	3.72	25%
Bulk Fill Station	1.44	6.56	1.25	0.14	0.08	0.45	0.12	10.03	3.74	168%

Commodity Allocation Factors

Treatment Base	Cost related to the average day production and treatment of water
Treatment MD	Cost above the average day treatment of water, determined by the ratio of average day consumption in the maximum month to the annual average-day consumption
Distribution MD	Cost above the average day consumption, determined by the ratio of maximum month to the annual average-day consumption
Distribution MH	Cost associated with the maximum hour of consumption, determined by the ratio of the max hour factor to annual average day consumption
Transmission Base	Average-day cost to transport between the treatment plant and local distribution lines
Transmission MD	Cost above the average day transmission of water, determined by the ratio of average day consumption in the maximum month to the annual average-day consumption
Transmission MH	Cost associated with the maximum hour of consumption, determined by the ratio of the max hour factor to annual average day consumption

4. Unbundling Process

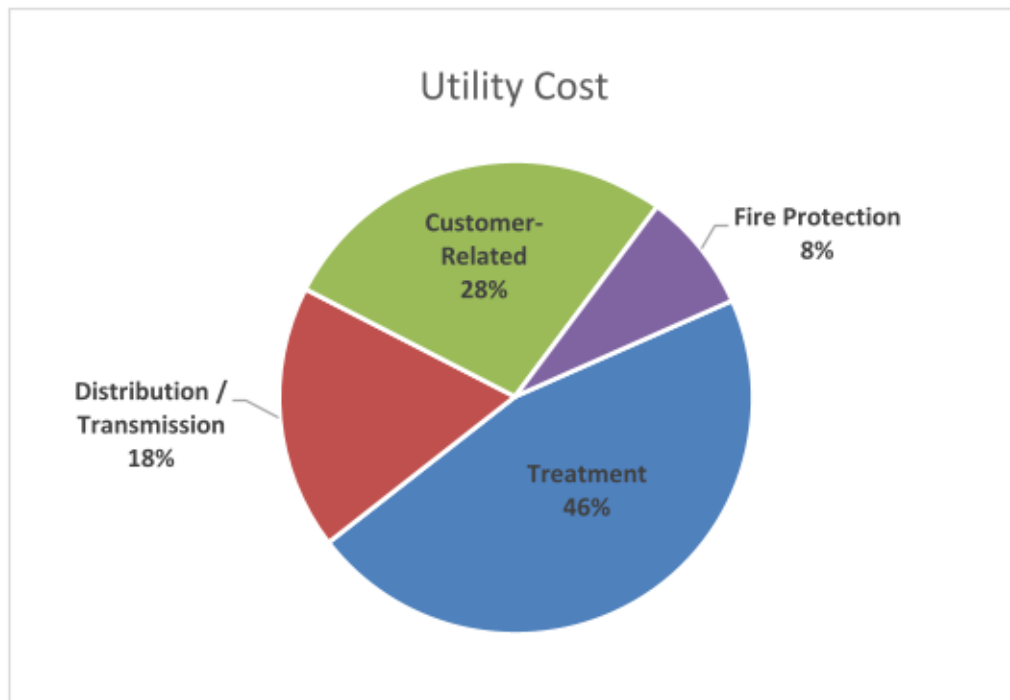
The cost of treatment, distribution, customer-related, and fire protection are identified as part of the unbundling process and are the first step in determining unbundled charges to customers. The total fiscal year 2025 revenue requirements of \$9.18M are separated into four categories identified in Figure 1.

Table 16 – Unbundled Breakdown by Expense Type

Expense Type	Amount	Percentage
Treatment	\$ 4,241,315	46%
Distribution / Transmission	\$ 1,653,979	18%
Customer-Related	\$ 2,524,468	28%
Fire Protection	\$ 755,844	8%
Total	\$ 9,175,606	100%

The expenses consist of 46% treatment costs, 18% distribution costs, 28% customer related costs, and 8% fire protection costs. These components are broken down into subcomponents and are identified in the following sections.

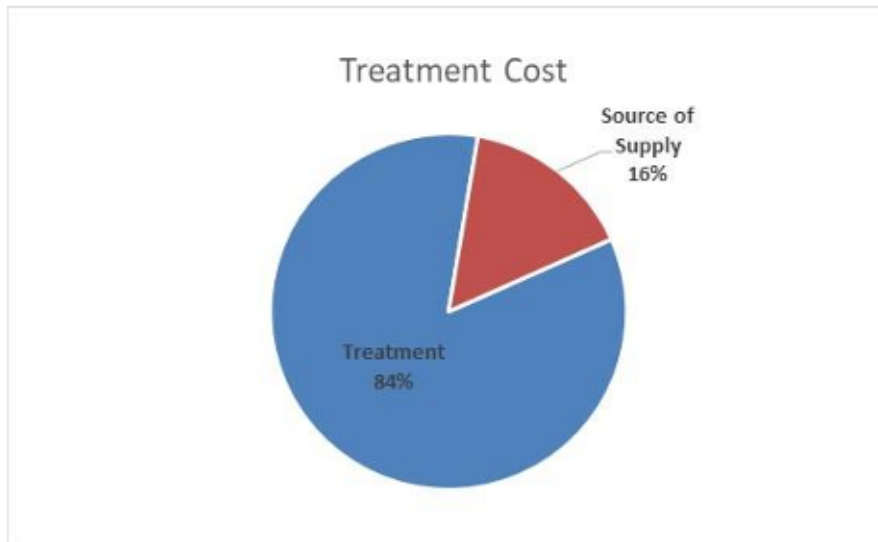
Figure 1 – Breakdown of Cost Structure



Treatment Cost Breakdown

Total treatment costs of \$4.24 million for fiscal year 2025 are broken down into the main components in Figure 2 below: Treatment and Source of Supply.

Figure 2 – Breakdown of Treatment Costs

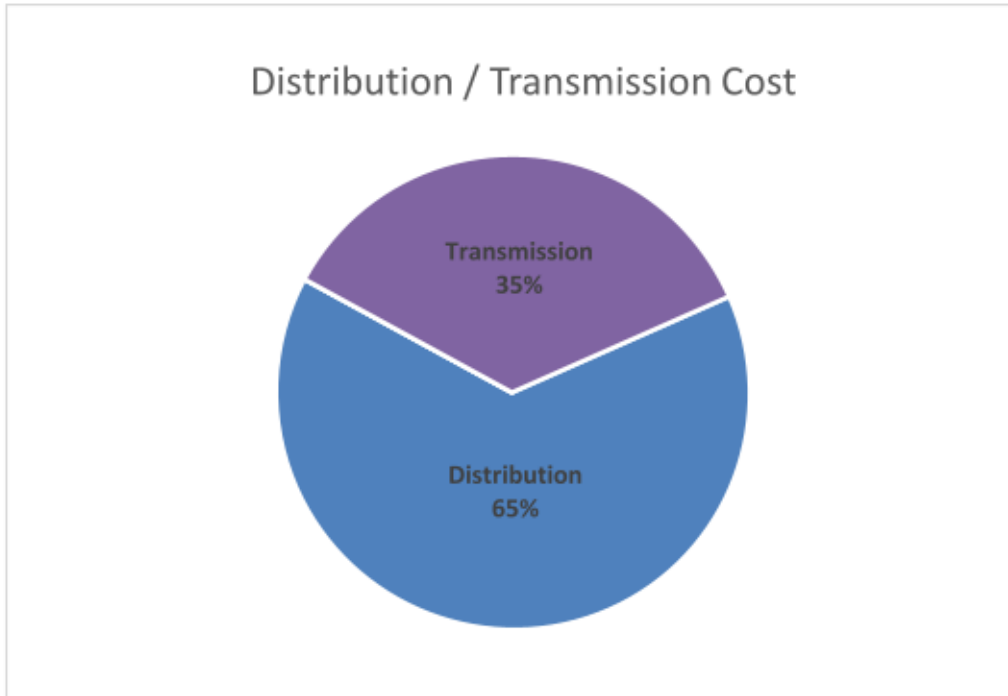


Each of these components are allocated to customer groups based on certain factors established in the study, such as the amount of water used and the peaking requirements of customer class.

Distribution Cost Breakdown

Total distribution costs of \$1.65 million for fiscal year 2025 are broken down into the main components Figure 3 below: Distribution and Transmission.

Figure 3 – Breakdown of Distribution Costs

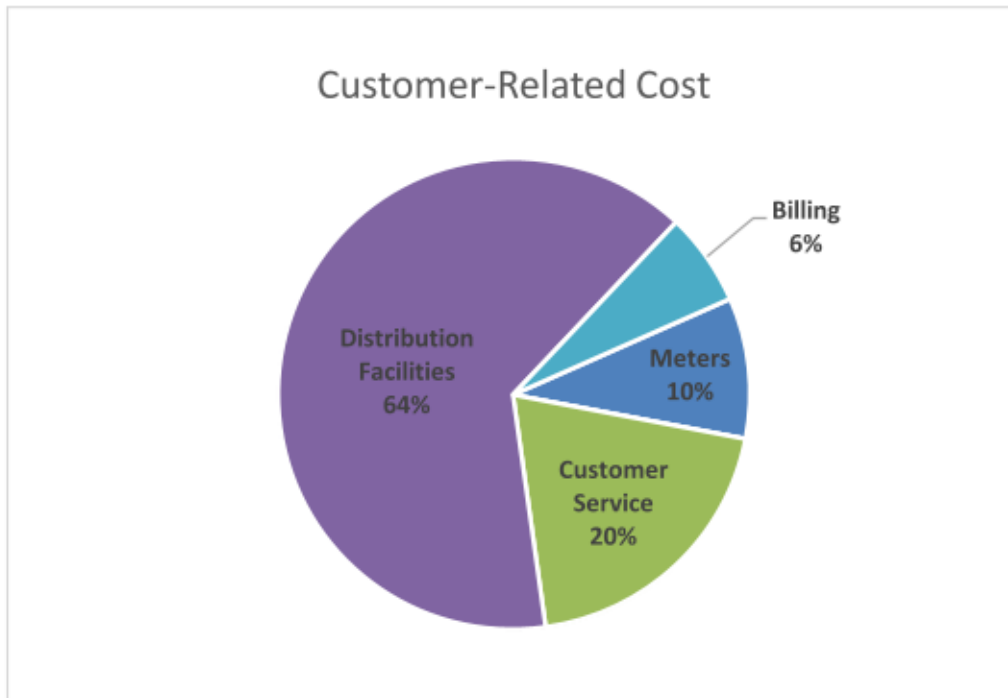


Each of these components are allocated to customer groups based on certain factors established in the study, such as the length of line extensions to reach certain customer classes. The distribution-related costs are separated into the customer charge based on the cost to provide a minimum amount of water to the customer, and the usage component expressed as a rate per HCF. Pumping and transmission costs are allocated into the usage component of the rates.

Customer-Related Cost Breakdown

MW&L’s total expenses for direct customer-related costs are \$2.52 million for fiscal year 2025. The cost is broken down into the following components in Figure 4.

Figure 4 – Breakdown of Customer Costs

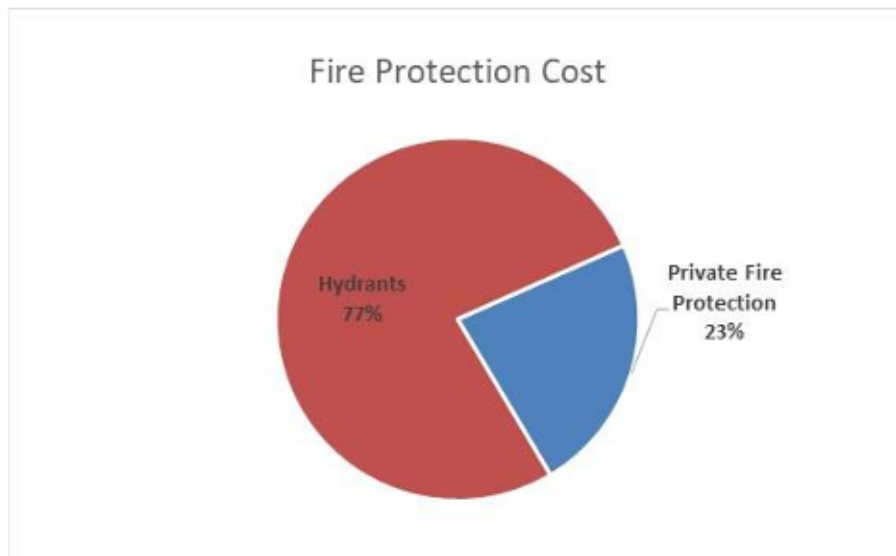


Direct customer-related costs are allocated to rate classes based on cost of meters, minimum sizing requirements, customer service and billing costs for each customer class and meter size.

Fire Protection and Hydrants Cost Breakdown

MW&L’s total expenses for fire protection costs are \$755,844 for fiscal year 2025. Fire protection costs are allocated to fire protection classes based on the potential fire flow requirements determined by the number and size of the fire lines. Hydrant expenses are directly related to installing and maintaining hydrants. Fire protection costs include costs related to the oversizing of the distribution infrastructure to ensure adequate capacity is available for fire protection use.

Figure 5 – Breakdown of Fire Protection Costs



The current hydrant rate is under recovering, and the excess hydrant related costs are allocated by meter size to each customer’s monthly charge (outlined in Table 14), based on allocation methods outlined in the AWWA manual. Further breakdown of the hydrant and fire protection related costs are described in Table 17.

Table 17 – Fire Protection Cost per Unit

Description	Per Hydrant	Per Inch Fire Line
Allocated Cost	\$ 576,336	\$ 174,659
Number of Services / Hydrants	1,132	1,282
COS - Annual Charge	\$ 509.13	\$ 136.21
COS - Monthly Charge	\$ 42.43	\$ 11.35
Current Charge - Monthly	\$ 5.37	\$ 8.84

5. Significant Assumptions

General Assumptions

This section outlines the procedures used to develop the cost of service for MW&L and the related significant assumptions.

Rate Implementation

Anticipated rate adjustments are modeled to take place October 1, 2024.

Forecasted Operating Expenses

Forecasted expenses were based on 2022 and 2023, and 2024 budget and adjusted for inflation. Table 18 is a summary of the expenses used in the analysis.

Table 18 – Projected Operating Expenses

Description	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Operating Expenses:					
Water Supply and Transmission	\$ 1,041,546	\$ 1,101,587	\$ 1,153,693	\$ 1,220,392	\$ 1,278,206
Distribution System Operation	2,169,739	2,294,816	2,403,362	2,542,310	2,662,747
Customer Account Expense	458,340	484,761	507,691	537,042	562,484
General and Administrative	1,917,889	2,028,447	2,124,395	2,247,214	2,353,671
Taxes and Tax Equivalents	232,300	245,691	257,313	272,189	285,083
Other Charges	36,500	38,604	40,430	42,767	44,794
Depreciation Expense	2,211,599	2,400,298	2,625,490	2,774,940	2,842,342
Contributed Capital Depreciation	(467,283)	(484,755)	(502,572)	(520,738)	(538,547)
Total Operating Expenses	\$ 7,600,640	\$ 8,109,454	\$ 8,609,807	\$ 9,116,123	\$ 9,490,785

Unit Sales

Growth projections of 0.5% was used for 2025 – 2029 and were discussed with management.

Inflation

Inflation was assumed at 4% for years 2025 – 2029.

Beginning 2025 Cash Balance

Beginning 2025 cash balance was based on actual 2023 cash and projected through the cash flows.

Depreciation Expense

Depreciation expense was projected based on historical capital additions and discussions with management on future capital additions.

Interest Income

Interest income was forecasted based on projected cash balances and an interest rate of 0.5%.

Capital Improvements

The capital improvement projections were provided by MW&L. Projections for 2025– 2029 are outlined in Table 19.

Table 19 – Capital Improvements Projection

Fiscal Year	Capital Improvements Plan	Capital Contributions	Total Capital Improvements (Including Contributions)
2025	\$ 9,988,550	\$ 3,105,800	\$ 13,094,350
2026	8,457,300	873,600	9,330,900
2027	9,913,100	890,867	10,803,967
2028	2,097,900	908,267	3,006,167
2029	4,375,875	908,267	5,284,142

6. Considerations and Additional Information

- MW&L is projected to require increases in rates charged to customers. The projected rate track is provided in the table below.

Fiscal Year	Projected Rate Adjustments	Average Monthly Residential Impact	Adjusted			Net Timber Fund Cash after CIP	Operating Cash	Recommended Minimum - Operating Cash Reserve
			COS Income (No Timber)	Adjusted COS Income	Optimal COS Income			
2025	5.0%	\$ 1.80	\$ 676,379	\$ 2,266,122	\$ 4,025,726	\$ 4,661,068	\$ 20,851,654	\$ 8,736,047
2026	5.0%	1.89	581,891	2,781,891	4,274,562	6,546,068	14,126,078	8,884,563
2027	5.0%	1.99	531,377	2,863,377	4,582,866	8,838,068	5,227,737	9,046,295
2028	5.0%	2.09	498,919	2,948,919	4,599,278	11,273,068	3,890,135	9,141,726
2029	5.0%	2.19	605,921	3,187,171	4,658,795	12,787,718	2,450,019	9,244,828

- Unknown events can occur that affect a utility’s financial plan. It is recommended that MW&L have the financial projection study updated annually to ensure the utility can meet revenue requirements with the current rate plan. Cost of service studies are separate from the financial projection and can be refreshed every 3-5 years.
- Cash balances are decreasing without changes in rates. Projected cash balances are below the suggested minimums during the projection period.
- MW&L currently does not have debt.
- Current rate related revenues are projected to result in operating income below the target operating income for each year. Meeting the operating income target indicates current rates are fully funding system revenue requirements and future replacement cost of current infrastructure. COS operating income adjusts for depreciation expense on contributed capital and removes cash contributions.
- Infrastructure of the Utility is newer than the national average. The infrastructure in total is approximately 44% depreciated compared with the national average between 50% - 55%. This indicates the Utility has newer infrastructure.
- MW&L may consider movements toward cost of service. The cost of service study indicates a variance exists between revenues and costs for certain rate classes. The study results are listed below:

Customer Class	Cost of Service	Projected Revenues	% Change
	(\$)	(\$)	
Inside City Consumption	\$ 5,585,386	\$ 4,145,320	34.7%
Outside City Consumption	263,489	156,503	68.4%
5/8" and 3/4" Inside	2,082,254	1,801,042	15.6%
1" Inside	412,389	333,500	23.7%
1.5" Inside	97,839	59,760	63.7%
2" Inside	218,692	142,188	53.8%
3" Inside	47,912	49,056	-2.3%
4" Inside	63,860	51,612	23.7%
6" Inside	41,079	30,720	33.7%
8" Inside	8,077	5,664	42.6%
5/8" and 3/4" Outside	20,981	17,050	23.1%
1" Outside	18,267	13,789	32.5%
1.5" Outside	5,055	2,880	75.5%
2" Outside	5,866	3,528	66.3%
6" Outside	10,934	7,680	42.4%
Bulk Fill Station	48,025	32,686	46.9%
Fire Protection	247,605	208,967	18.5%
Total	\$ 9,175,606	\$ 7,062,008	29.9%

8. The table below compares the current meter charges by rate class with the cost of service charges.

Customer Class	Cost of Service		Variance
	Meter \$/Month	Current Meter \$/Month	
5/8" and 3/4" Inside	\$ 17.11	\$ 14.80	16%
1" Inside	26.29	21.28	24%
1.5" Inside	48.82	30.00	63%
2" Inside	75.31	49.00	54%
3" Inside	142.60	146.00	-2%
4" Inside	225.18	187.00	20%
6" Inside	427.91	320.00	34%
8" Inside	673.07	472.00	43%
5/8" and 3/4" Outside	36.43	29.60	23%
1" Outside	56.38	42.56	32%
1.5" Outside	105.31	60.00	76%
2" Outside	162.95	98.00	66%
6" Outside	911.13	640.00	42%

9. The table below compares the current commodity charges with the cost of service charges.

Customer Class	Description	Cost of Service Commodity by Class	Current Commodity Charge	Variance
Inside City Consumption	<i>Block 1 (10 HCF)</i>	\$ 1.76	\$ 1.73	1%
	<i>Excess</i>	3.30	1.97	68%
Outside City Consumption	<i>Block 1 (10 HCF)</i>	\$ 3.51	\$ 3.47	1%
	<i>Excess</i>	6.60	3.94	68%
Bulk Fill Station	<i>All Use</i>	\$ 10.03	\$ 3.47	189%

10. It is proposed that MWL consider creating another usage block (block 3) with the next cost of service study.
11. To meet revenue needs and move classes toward their cost of service, the rate schedule in Appendix A was developed for the next two years.

Appendix A – Rate Design

Table 20 – Inside City (W-1) Proposed Rates

	Blocks	Current Charge	Proposed Charge Year 1	Proposed Charge Year 2	COS Charge	Variance Year 1	Variance Year 2
Inside City Consumption	<i>First 1000 cubic feet</i>	\$ 1.7329	\$ 1.7557	\$ 1.7557	\$ 1.76	1.3%	0.0%
	<i>Over 1000 cubic feet</i>	1.9710	2.0874	2.2305	3.30	5.9%	6.9%
5/8" and 3/4" Inside		\$ 14.80	\$ 15.55	\$ 16.30	\$ 17.11	5.1%	4.8%
1" Inside		21.28	22.28	23.28	26.29	4.7%	4.5%
1.5" Inside		30.00	32.00	34.00	48.82	6.7%	6.3%
2" Inside		49.00	52.50	56.00	75.31	7.1%	6.7%
3" Inside		146.00	146.00	146.00	142.60	0.0%	0.0%
4" Inside		187.00	197.00	207.00	225.18	5.3%	5.1%
6" Inside		320.00	335.00	350.00	427.91	4.7%	4.5%
8" Inside		472.00	497.00	522.00	673.07	5.3%	5.0%
10" Inside		850.00	880.00	910.00	956.23	3.5%	3.4%
12" Inside		1,550.00	1,600.00	1,650.00	1,736.72	3.2%	3.1%
Access Charge Inside		\$ 11.22	\$ 11.79	\$ 12.36	\$ -	5.1%	4.8%

Table 21 – Outside City (W-2) Proposed Rates

	Blocks	Current Charge	Proposed Charge Year 1	Proposed Charge Year 2	COS Charge	Variance Year 1	Variance Year 2
Outside City Consumption	<i>First 1000 cubic feet</i>	\$ 3.4658	\$ 3.5114	\$ 3.5114	\$ 3.51	1.3%	0.0%
	<i>Over 1000 cubic feet</i>	3.9420	4.1748	4.4610	6.60	5.9%	6.9%
5/8" and 3/4" Outside		\$ 29.60	\$ 31.10	\$ 32.60	\$ 36.43	5.1%	4.8%
1" Outside		42.56	44.56	46.56	56.38	4.7%	4.5%
1.5" Outside		60.00	64.00	68.00	105.31	6.7%	6.3%
2" Outside		98.00	105.00	112.00	162.95	7.1%	6.7%
3" Outside		292.00	292.00	292.00	303.62	0.0%	0.0%
4" Outside		374.00	394.00	414.00	479.46	5.3%	5.1%
6" Outside		640.00	670.00	700.00	911.13	4.7%	4.5%
8" Outside		944.00	994.00	1,044.00	1,433.14	5.3%	5.0%
10" Outside		1,700.00	1,760.00	1,820.00	2,036.06	3.5%	3.4%
12" Outside		3,100.00	3,200.00	3,300.00	3,697.91	3.2%	3.1%
Access Charge Outside		\$ 22.44	\$ 23.58	\$ 24.71	\$ -	5.1%	4.8%

Table 22 – Non-Metered (W-3) Proposed Rates

	Current Charge	Proposed Charge Year 1	Proposed Charge Year 2	COS Charge	Variance Year 1	Variance Year 2
Fire Line Inside	\$ 8.84	\$ 9.34	\$ 9.84	\$ 11.35	5.7%	5.4%
Fire Line Outside	17.68	18.68	19.68	22.70	5.7%	5.4%
Fire Hydrant	5.37	6.37	7.37	42.43	18.6%	15.7%

Table 23 – Bulk Fill Station (W-4) Proposed Rates

	Blocks	Current Charge	Proposed Charge Year 1	Proposed Charge Year 2	COS Charge	Variance Year 1	Variance Year 2
Bulk Fill Station	Customer Charge	\$ 18.50	\$ 20.10	\$ 21.70	\$ 21.70	8.6%	8.0%
	First 1000 cubic feet	3.47	\$ 6.75	\$ 10.03	\$ 10.03	94.7%	48.6%
	Over 1000 cubic feet	3.94	\$ 6.75	\$ 10.03	\$ 10.03	71.2%	48.6%

...

WATER SYSTEM

In 2025, the City of McMinnville adopted an amendment to the Water System element of the Public Facility Plan. The Water System element of McMinnville's Public Facility Plan was adopted as a supporting document to the Comprehensive Plan in compliance with *Statewide Planning Goal 11: Public Facilities and Services* and *OAR 660 Division 11: Public Facilities Planning*.

As specified in OAR 660-011-0010(3):

- Where all or part of an acknowledged comprehensive plan, facility master plan either of the local jurisdiction or appropriate special district, capital improvement program, regional functional plan, similar plan or any combination of such plans meets all or some of the requirements of this division, those plans, or programs may be incorporated by reference into the public facility plan required by this division.
- Only those referenced portions of such documents shall be considered to be a part of the public facility plan and shall be subject to the administrative procedures of this division and ORS Chapter 197.

The Water System element of McMinnville's Public Facility Plan is based on McMinnville Water & Light's 2011 Water System Master Plan as updated with a 2024 Addendum.

Only portions of those documents were incorporated by reference as part of McMinnville's Public Facility Plan, as described in the adopted document. Provisions of the 2011 Master Plan and the 2024 Addendum are summarized below. The information provided below is a summary of the key information from those documents and is not intended to incorporate by reference any provision summarized below.

2011 Water System Master Plan (McMinnville Water and Light)

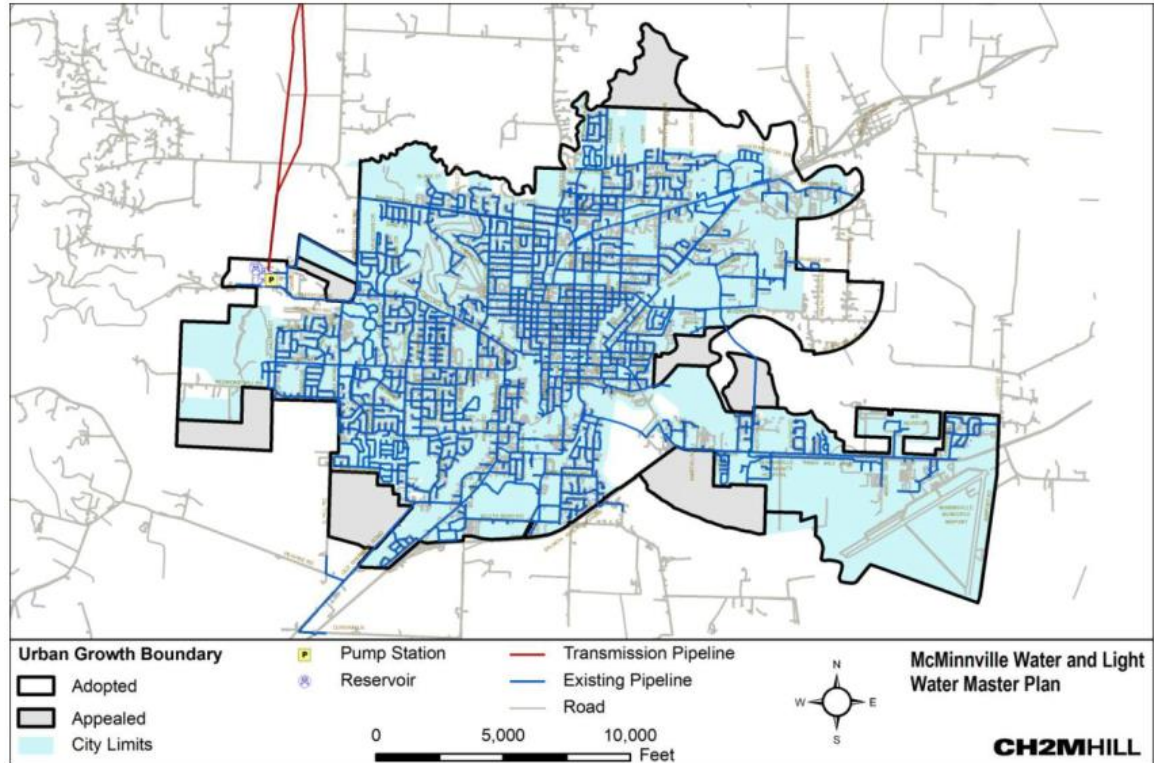
In 2011, McMinnville Water and Light (MW&L) updated their water master plan (WMP). The 2011 WMP superseded the previous 1996 document including analysis of MW&L's transmission piping, storage, distribution system, and other components of MW&L's water system. It provided a capital improvement plan (CIP) to guide MW&L's investment for the next 20 years.

Although the WMP presented specific projects and proposed dates for implementation, the projects and their implementation schedules were adjusted annually to ensure that the system was managed efficiently to meet customer needs and development trends. The 2011 WMP addressed the City of McMinnville (City) Urban Growth Boundary and MW&L's anticipated service area at the time including adopted and appealed areas of urban growth expansion and estimated population projections. The planned service area at the time is

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

shown in Figure 1 below. The City subsequently removed the “appealed” areas from the UGB following a remand from the Court of Appeals.

Figure 1. MW&L Planned Service Area 2011, City of McMinnville Urban Growth Boundary including Adopted and Appealed Areas.



The following information is from the 2011 WMP and was current at the time of adoption of the 2011 WMP:

1. As codified in Policy 144.00 of the McMinnville Comprehensive Plan, “The City of McMinnville, through McMinnville Water and Light, shall provide water services for development at urban densities within the McMinnville Urban Growth Boundary.”
2. The service area in the 2011 WMP was consistent with the Urban Growth Boundary as adopted at the time (2011) including the adopted expansion areas that were under appeal and subsequently removed from the UGB upon remand from the Court of Appeals.
3. Based on population projections at the time (2011), 30 mgd maximum day demands is required by 2044 (beyond 2031 planning horizon).
4. MW&L’s water system complies with all current state and federal standards. New rules have been proposed for adoption in the coming years. It is anticipated that MW&L will comply with these new regulations without significant capital or operational changes.

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

5. Water supply comes from streams and two reservoirs located in the Coast Mountain Range northwest of the City. Water from the Yamhill River Basin is impounded in the Haskins Reservoir, and water from the Upper Nestucca River is impounded in the McGuire Reservoir. Water from both reservoirs is treated at the Scott WTP.
6. MW&L holds water rights on Haskins Creek that allow impoundment and use of stored water, as well as direct diversion from the creek for domestic and municipal use. Additionally, MW&L holds water rights for storage and use of water for municipal purposes from the Nestucca River and Walker Creek. MW&L has sufficient water rights to take full advantage of the estimated 30 mgd reliable yield of its watersheds.
7. The Scott Water Treatment Plant (WTP), originally constructed in 1976, was expanded to 22 million gallons per day (mgd) capacity as of 2011 with plans for cost effective future expansion up to 30 mgd. The WTP uses conventional multi-media filtration technology. The treatment process consists of coagulant chemical addition and mixing followed by flocculation, sedimentation, filtration, and disinfection.
8. Raw water is supplied to the Scott WTP through a 32-inch diameter steel pipe that was installed in the 1940's. The pipe has a calculated flow capacity of approximately 20 mgd. There is a flow restriction at the inlet to the Scott WTP that restricts the capacity to approximately 18.5 mgd. The CIP includes the installation of a second raw water pipeline and expansion of the plant inlet facilities to achieve a capacity of 30 mgd, which is the full buildout for the plant. Since the existing pipeline is steel and long-term corrosion is a concern, the second line will be sized to deliver the full 30 mgd flow. The fittings are in place for this pipeline and the property is available, so there appears to be no major obstacle to its implementation. Its timing is primarily driven by growth. The single pipeline does not provide redundancy; however, it is accessible and can be readily repaired as needed.
9. The Scott WTP delivers water by gravity to the City through two parallel pipelines that are 10 miles in length. Their combined capacity is approximately 14.7 mgd. According to demand projections at the time, the maximum day demand (when the variability allowance is included) may exceed the finished water transmission capacity in the summer of 2013. The recommended plan was to replace the smaller of the two existing transmission pipelines, which is comprised of 14-inch asbestos cement and 16-inch steel, with a 30-inch ductile iron pipeline. The condition of the 14/16-inch pipeline is questionable and its capacity is limited to 3.5 mgd.

The plan is to install the new pipeline in the same easement as the existing 24-inch ductile iron pipeline. The finished water transmission improvements were divided into four phases to distribute the large capital cost over time. The highest priority phase is to install a parallel pipeline for the top section, where there is only a single pipeline. This will provide a capacity increase but more importantly, provide redundancy. A portion of this line passes through a hillside in a tunnel. The tunnel line is not accessible for repairs should it fail. The second line will also be installed through the hillside to allow for gravity flow from the WTP to the City. The remaining three phases have been distributed over the twenty-year planning period (by 2031).

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

10. Four reservoir tanks, located on the same property west of the city, provide potable water storage for MW&L. They are fed by gravity through the transmission pipelines. Water flows by gravity from the tanks into the city. The tanks, built from 1915 through 1995, hold a total of 22.7 million gallons, or about twice the volume used in a peak demand day. The CIP recommends the addition of two tanks, both of which may be needed within the 20-year planning horizon depending on the rate of growth and where the growth occurs. One is a fifth tank with a volume of 10 million gallons to be co-located with the other four. The other is a smaller tank that will be located at a higher elevation site to supply water to the future Zone 2. The Zone 2 tank will be needed as that area grows. In addition to these improvements, the WMP identifies security and painting improvements for the reservoirs.

11. The City's network of over 153 miles of distribution system pipelines were analyzed using a computerized hydraulic model to determine deficiencies and to evaluate options for improving the system. The modeling simulated both the existing system and the system that will be used to meet demands projected twenty years into the future. The system deficiencies and proposed improvements were as follows:
 - a. System pressures exceed 100 pounds per square inch (psi) at a number of locations in the system. The City requires individual pressure reducing valves at each service address to maintain pressure below 80 psi. The individual PRVs are owned and maintained by the customer.
 - b. Low pressures occur during all demand scenarios in Zone 1 on the western side of the city (north of Mt Hood Drive and east of Hillcrest Street). Some customers maintain individual booster pumps to increase pressure. In the future, Zone 2 will be improved and expanded. The services in this area of low pressure in Zone 1 will be incorporated into Zone 2.
 - c. Zone 2 improvements, which will be implemented as houses are constructed in this area, will include new pipeline mains, hydrants, pressure reducing valves (at the interconnections between Zone 2 and 1), a storage reservoir, and pumping improvements.
 - d. Low pressures occur during peak demands in the northeast area of the city near the Steel Mill (Riverside Drive). Additionally, the fire flow is lower than desired for many commercial and industrial customers. The low pressures and inadequate fire flows occur because of high demand, limited capacity, and limited looping. Parallel piping and looped piping capital improvements are planned to increase pressure and fire flow. The primary improvement to address these needs is termed the Eastside feeder, which consists of 16- and 20-inch pipelines on Riverside Drive and a 12-inch pipeline replacement on Colvin Court.
 - e. Fire flow is limited in the commercial and industrial area in the southeast area of the city near the airport. The lower-than-desired fire flow occurs because of limited capacity and looping. The 24-inch pipeline on Three Mile Lane will be extended to improve fire flows and to provide the potential for delivering wholesale water to nearby communities. This project is termed the Regionalization pipeline.
 - f. Several localized fire flow deficiencies exist throughout the water system. These are typically the result of dead-end or under-sized pipelines. Looped piping improvements are identified for many of these deficiencies unless the piping is

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

privately owned. Additionally, pipeline improvements have been identified where needed to replace aging and failing pipelines.

12. Instrumentation and control (I&C) and supervisory control and data acquisition (SCADA) systems at MW&L's source, transmission, and distribution facilities were evaluated to identify improvements to maintain systems, provide redundancy, and to achieve better coordination and functionality. The facilities are located at the Haskins Creek and McGuire Dams, Panther Creek Valve Station, and Fox Ridge Service Reservoirs. Systems located at these remote facilities provide operational data including valve position, flow rates, water levels, and alarm and other status conditions.
13. Major capital projects for water treatment, supply, and distribution system consisted of the following. Projects are also highlighted in Figure 2 and Table 1 below.
 - a. Install a new 36-inch diameter finished water transmission pipeline from the Scott WTP to the Panther Creek valve station, including a section tunneled through the hillside. The engineering for this project was scheduled to begin in fiscal year (FY) 2012-2013 and the construction in FY 2013-2014.
 - b. Implement long-planned SCADA improvements at the Panther Creek valve station to coordinate with the finished water transmission improvements. Design is scheduled for FY 2012-2013 and construction in FY 2013-2014.
 - c. Install a large diameter pipeline in the southeast area of the distribution system to enable MW&L to consider supply to regional partners and support growth for the City on the east side. The concept is for the regional partners to pay the equivalent cost of a 12-inch pipeline, sufficient to obtain water supply from MW&L, and for MW&L to pay for the upsizing to 24-inch to allow MW&L to obtain water from a future, possible Willamette River supply. MW&L's estimated project date of FY 2015-2016.
 - d. Implement security and painting improvements for the distribution storage tanks (Service Reservoirs) and for the Scott WTP steel backwash tanks, from FY 2015-2016 to FY 2016-2017.
 - e. Perform legal services to secure easements and then design and install Phase 2 of the finished water transmission pipeline improvements to increase capacity. The easement and engineering tasks were scheduled to begin in FY 2016-2017 and pipeline construction was scheduled for FY 2017-2018.
 - f. A series of pipeline additions along the eastern edge of the distribution system, termed the Eastside Feeder, proposed for installation in FY 2016-2017 to improve fire flows.
 - g. Multiple distribution pipeline projects that will improve fire flows and replace sections of existing pipelines that are in poor condition with annual investment for the first five years of the plan, from FY 2012-2013 to FY 2016-2017.
 - h. Zone 2 distribution, pumping and storage improvements based on development timing.

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

Figure 2. Capital Improvement Plan Cash Flow Projections (2011 dollars)
 Capital Improvements Plan Cash Flow Projections

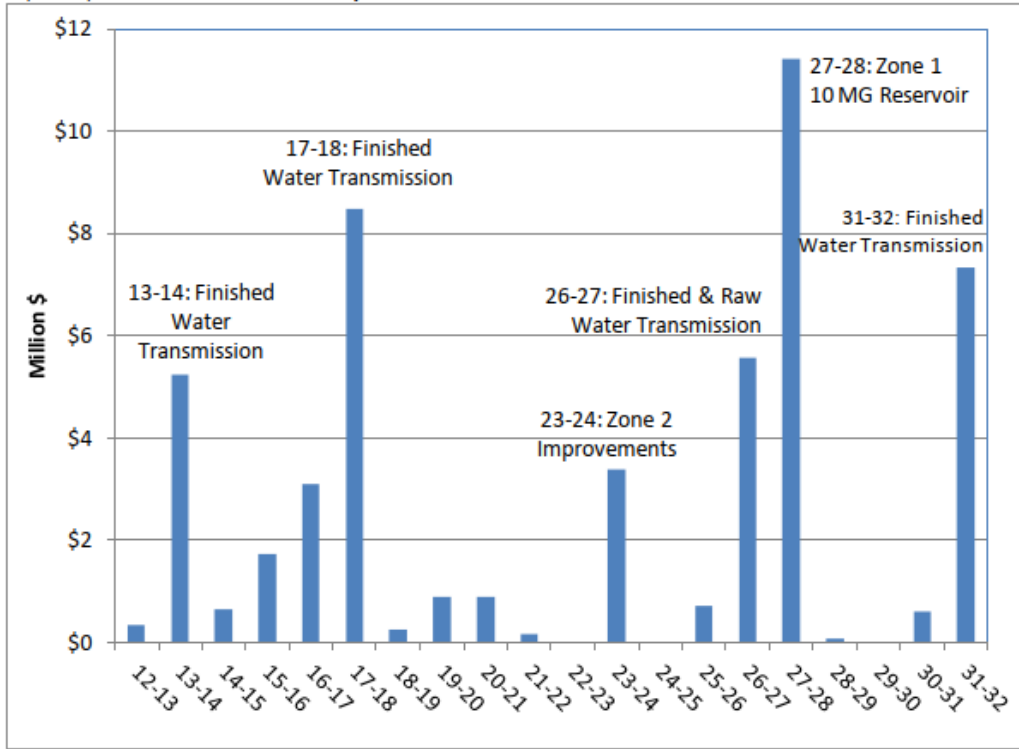


Table 1. Capital Improvement Plan (2011 dollars).
 Capital Improvements Plan Summary by Project Category

Project Category	Cost Estimate
Finished Water transmission pipeline additions	\$24,400,000
Raw water transmission pipeline and diversion pipelines	\$1,300,000
Regionalization pipelines	\$840,000
Eastside feeder pipelines	\$2,080,000
Zone 2 improvements	\$7,800,000
Scott WTP expansion	\$8,000,000
SCADA Improvements	\$280,000
Zone 1 storage addition	\$11,200,000
Reservoir security improvements	\$130,000
Reservoir repainting projects	\$190,000
Zone 1 development pipelines	\$15,600,000
Zone 1 condition and fire flow pipeline improvements	\$7,200,000
Total (rounded)	\$79,000,000

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

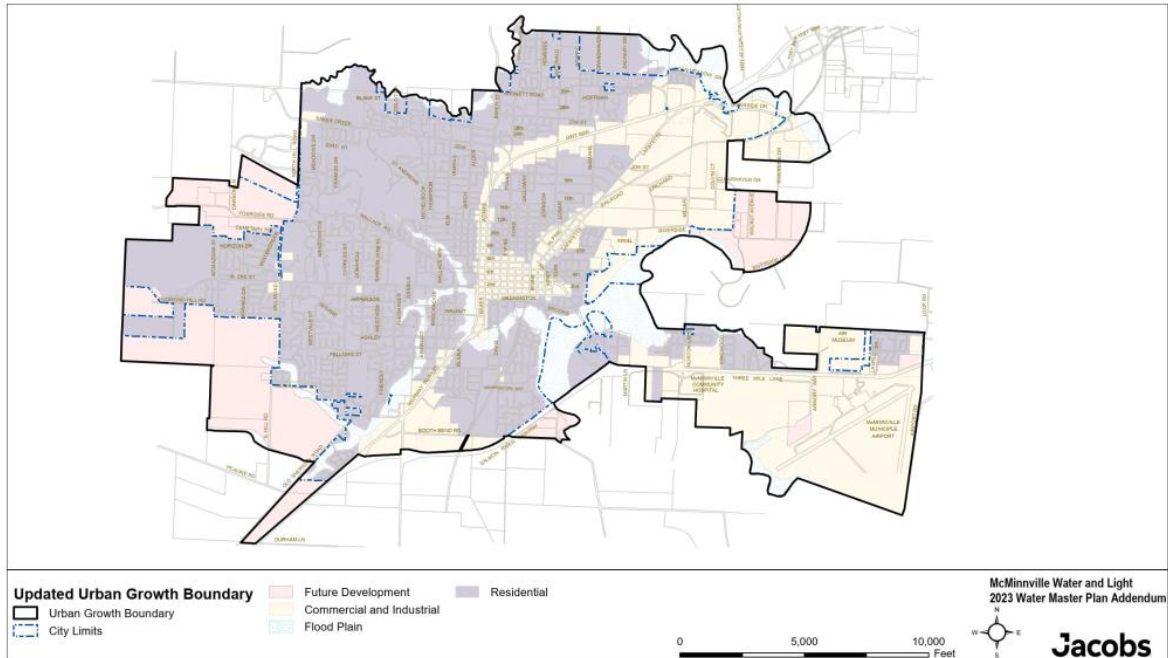
Note for Figure 2 and Table 1. Capital improvement cost estimates are consistent with Class 5 budget estimates, as established by the American Association of Cost Engineers (AACE). This preliminary estimate class is used for conceptual screening and assumes project definition maturity level below two percent. The expected accuracy range is -20 to -50 percent on the low end, and +30 to +100 percent on the high end. Cost estimates are intended to be used as guidance in establishing funding requirements at the project planning level based on information available at the time of the estimate.

The full capital project list, associated capital costs, and projected timing can be found in Exhibit 12-4 of the 2011 WMP.

2024 Water System Master Plan Addendum (McMinnville Water and Light)

As summarized above, in 2011, McMinnville Water and Light (MW&L) developed a Water System Master Plan (WMP) addressing water rights, water supply, and water distribution infrastructure including a 20-year capital improvement plan. In 2020, the City of McMinnville (City) expanded the City's Urban Growth Boundary. McMinnville Water and Light developed a 2024 Addendum to the 2011 Water Master Plan, which addresses the expanded service area including updated population estimates and an updated capital improvement plan through 2041. The planned service area is shown in Figure 1 below.

Figure 1. MW&L Planned Service Area 2021, City of McMinnville Updated Urban Growth Boundary.



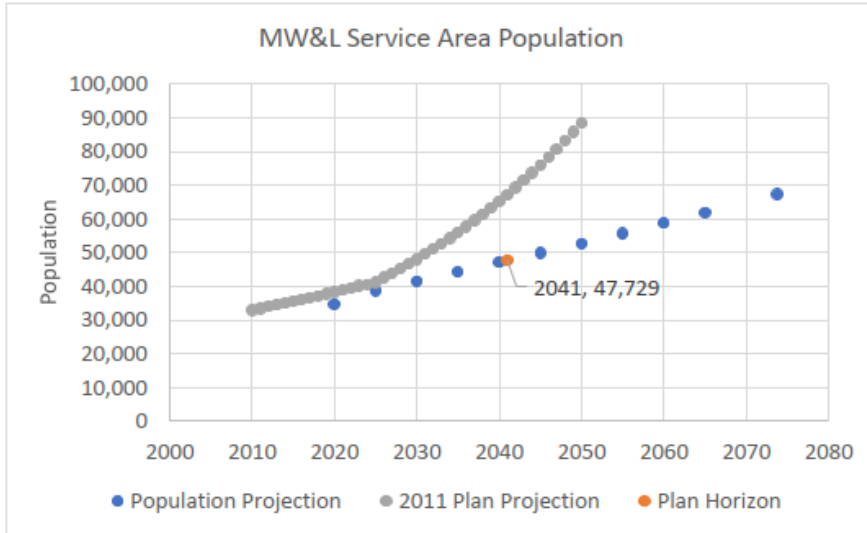
The following information is from the 2024 Addendum and was current at the time of adoption of the 2024 Addendum:

1. The study area was expanded to include areas added to McMinnville's UGB in 2020.

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

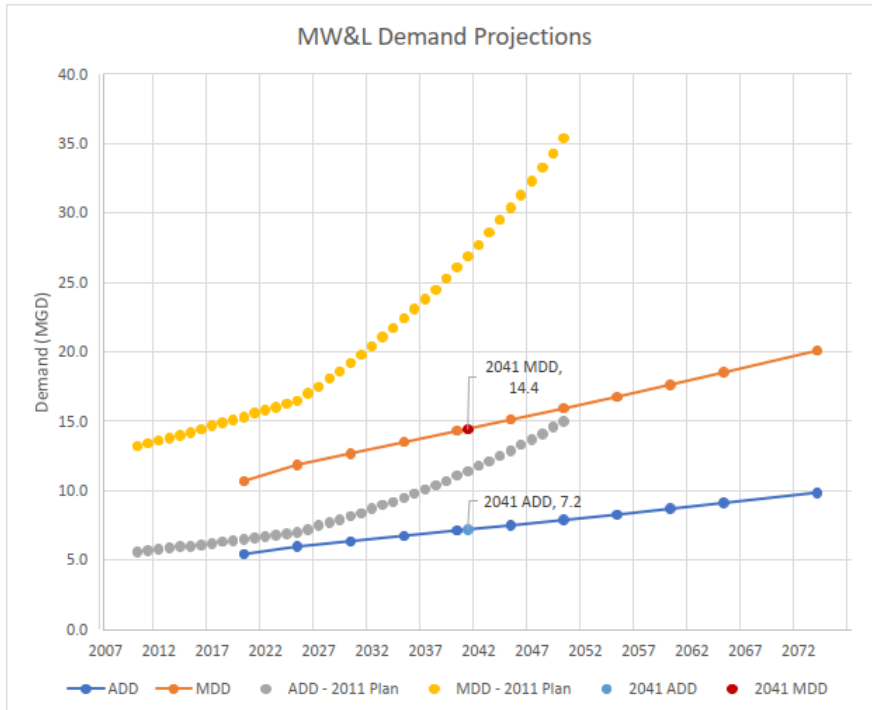
2. Water demand projections were updated consistent with Portland State University Population Research Center 2017 population projections as shown in Figure 2 and Figure 3.

Figure 2. Population projections consistent with Portland State University Population Research Center 2017 population projections.



2041 Plan horizon and City population of 47,498 consistent with City wide planning efforts. Population includes population within the McMinnville UGB and additional 231 people located outside the UGB.

Figure 3. Demand projections based on population projections consistent with Portland State University Population Research Center 2017 population projections.



ADD = Average Day Demand. MDD = Maximum Day Demand

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

3. Storage and water supply analysis was updated and compared to new demand projections. In all cases, the reduction in population projections from the 2011 WMP extended timing of required storage and water supply projects based on capacity. Based on condition and seismic resiliency, the original 2011 storage and water transmission projects are still recommended, and MW&L is proceeding with phased improvement of the water transmission system.
4. Specific changes to the 2011 capital project list include the following:
 - a. A new 16-inch diameter pipeline (P-079) that crosses the South Yamhill River at Highway 18 was identified. This project runs through areas outside of the present Urban Growth Boundary, but within the area considered under the 2011 WMP. This project was included in the updated capital project list because of significant resilience and connectivity benefits. It is the third crossing of the Yamhill River in addition to the 12-inch pipeline between Highway 18 and SE Three Mile Lane, and the 24-inch pipeline running north of NE Norton Lane and connecting into NE Riverside Drive. As supply is limited to the Three Mile Lane area, P-079 provides additional resilience. At present, the supply is adequate for the area but maintenance or other emergencies on the two existing lines crossing the river could result in reduced service.
 - b. The Eastside Feeder was a series of projects (P-025, P-026, P-027) in the prior WMP that were adjusted in the addendum. The projects help to move water from City center, south of the railroad tracks, to the northeast area of the City. These projects primarily include upsizing to 16-inch and 20-inch diameter pipeline and providing service to new growth areas. The projects are still important for general service and increased fire flow demands, however the projects may be downsized to 12-inch diameter, depending on development timing and system looping availability.
 - c. A project was added (2,100 feet of 12-inch ductile iron) associated with the 3rd Street streetscape work.
 - d. Distribution projects consistent with the recent Urban Growth Boundary expansion were adapted to the new boundary. Many of these projects will be driven by development timing. Distribution infrastructure projects were added as looping in all developing areas, such as the Fox Ridge Road area. At the master planning level of effort, only backbone pipelines were included, and further refinement will be necessary in coordination with development.
 - e. Future development in the west above 272 feet elevation was included in Zone 2. This zone will be served initially by a variable speed pump (VSP) and fire pumps to provide the range of flows required to serve near-term development. In the future, a new service reservoir will be built at an overflow of approximately 510 feet to serve the area and fire pumps will no longer be required. Supply to this zone may eventually be provided directly off the finished water supply line and gravity fed to the Zone 2 reservoir, reducing pumping operations only to peak hours. Depending on storage needs in Zone 1, MW&L may consider oversizing the Zone 2 reservoir to provide emergency storage to Zone 1, assuming adequate system pressure reducing valves (PRVs) between the two zones. The exact number and location of PRVs will be decided once the layout for the area has been planned.

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

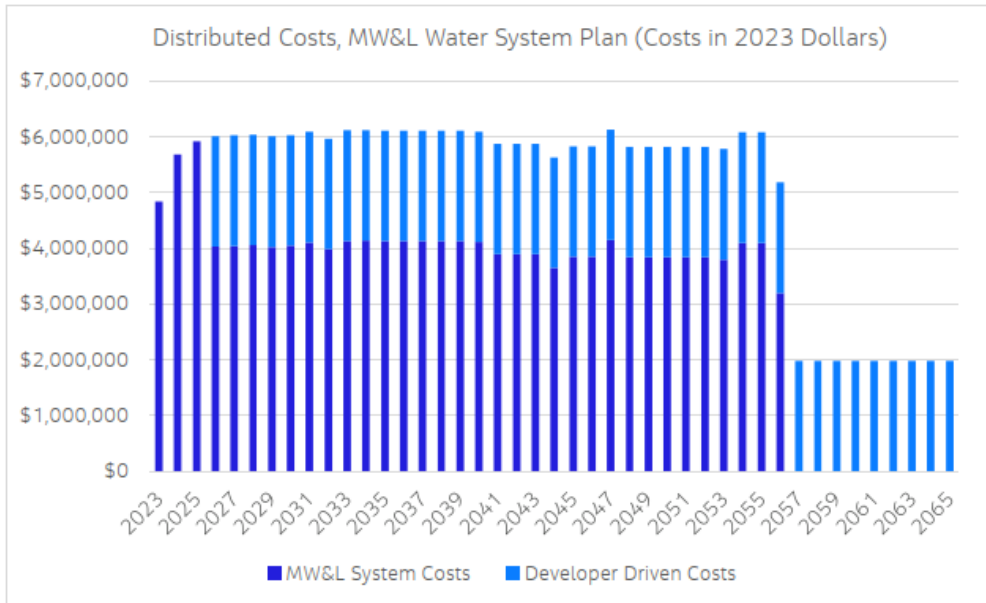
5. MW&L will complete a full WMP update by 2031 (20-years after the 2011 WMP) and include a specific evaluation of seismic resiliency.

Major capital projects for water treatment, supply, and distribution systems are highlighted in Table 1. A distribution of costs over time is shown in Figure 4.

Table 1. Capital Improvement Plan (2023 dollars).

Project Type	Cost
Watershed/Diversion/Outlet	\$1,665,000
Treatment	\$10,545,000
Transmission	\$75,235,000
Zone 1 Storage	\$25,165,000
Distribution - Condition	\$7,075,000
Zone 1 Development Pipelines	\$52,335,000
Zone 2 Improvements	\$26,985,000
Planning Work	\$495,000
Distribution Pipelines - Condition & Fire Flow Based (current plan or current project)	\$2,745,000
Distribution Pipelines - New Installations (loop connections to eliminate dead ends for fire flow)	\$7,500,000
Distribution Pipelines - Future Size Upgrades for fire flow	\$8,945,000
TOTAL	\$218,690,000

Figure 4. Capital Improvement Plan, Cost Distribution (2023 dollars).



MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

Note for Figure 4 and Table 1. Capital improvement cost estimates are consistent with Class 5 budget estimates, as established by the American Association of Cost Engineers (AACE). This preliminary estimate class is used for conceptual screening and assumes project definition maturity level below two percent. The expected accuracy range is -20 to -50 percent on the low end, and +30 to +100 percent on the high end. Cost estimates are intended to be used as guidance in establishing funding requirements at the project planning level based on information available at the time of the estimate.

The full updated capital project list, associated capital costs, and projected timing can be found in a table at the end of the addendum.

...

The water supply and distribution system is municipally owned and operated through the City Water and Light Department. Under the City Charter, the Water and Light Department is a separate agency from the city government proper, with the power and authority vested in the Water and Light Commission to construct, operate, and maintain water works facilities within and without the corporate city limits. As with sanitary sewers, the municipal water system is a key utility to be examined in terms of the adequacy of the system to meet projected needs of the population in the year 2000, both in terms of the capacity of the system to supply, treat, store, and distribute water, and in terms of the land areas that will need to be serviced. The expansion of the system is also important as a guide to the development of lands within the urban growth boundary in terms of the location and timing of development. The existing municipal water system, the future system as identified in water system study, coordination of water system planning and regulatory responsibilities with other agencies, and the application to land use planning of water system services are examined in this section.

EXISTING SYSTEM

The existing system consists of four major elements: (1) the supply impoundment's, (2) the water treatment plant, (3) the storage reservoirs, and (4) the distribution system. Figure VII-5 identifies the current capacities of each of the major elements of the water system (transmission line capacities from the impoundment's to the treatment plant are noted for the distribution system). Figure VII-6 maps the distribution system within the city, and shows the location of the existing reservoirs.

Figure VII-5

McMINNVILLE WATER SYSTEM DESIGN CHARACTERISTICS

Supply Impoundments

Walter Link Reservoirs	230mg
McGuire Reservoirs	1,095mg
TOTAL	1,325mg

Treatment Plant 13mgd

Storage Reservoirs 12mg

Transmission Lines 20mgd

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

The existing water system operates entirely on gravity feed. Water is fed from the supply impoundments to the treatment plant where it is treated, and then transmitted to the storage reservoir, outside the McMinnville city limits, and then distributed throughout the city limits.

FUTURE SYSTEM – WATER SYSTEM STUDY

Cornell, Howland, Hayes, Merryfield, and Hill (CH2M Hill), and the City Water and Light Department, prepared a water system study in 1974 that reviewed the then present condition of the municipal water system and presented various alternatives for future expansion. The short- and long-range programs outlined in the study were designed to provide technical and financial guidance in the expansion of supply, treatment, and distribution facilities.

Estimates for the future water requirements of the city were based on the inter-relationship of the historical demand for water, expressed in trends of per capita consumption, and the projected population growth in the service area. The study covered two planning periods: a short-range period to 1984 and a long-range period to the year 2000. The study area chosen for the report was prepared through use of the 1971 Comprehensive Plan for McMinnville and the 1974 Yamhill County Comprehensive Plan.

PLANNING CRITERIA

The per capita used in projecting the system demand to the year 2000 included a per capita usage of water, maximum daily demands and peak hourly demands, and a projected population.

Per Capita Demands

Demand projections for water were calculated in terms of per capita consumption. The per capita figures included all residential, commercial, industrial, and municipal water uses and unaccounted (unmetered or lost through system leakage) use. The projections were based on the average per capita demands for the time period 1964-1973. The rate of growth in water consumption per capita was estimated to average .85 percent per year for the planning period. This would result in an average consumption of 352 gallons per capita per day in the year 2000.

Maximum Daily Demand and Peak Hourly Flows

In addition to projecting the per capita increases, the maximum daily and peak hourly demands were projected to insure that the distribution system would be of sufficient size to handle demands at all times. The projections made for maximum daily and peak hourly demands (expressed in ratios of Maximum daily/Annual average demands and peak hour/maximum daily demand) assumed that the annual increases would remain constant through the year 2000.

Fire Flows

Fire flow requirements, based on insurance service office requirements, were studied, and recommendations were made for future systems improvements to meet fire flow demands.

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

Population

A previous (1964) water system study projected a population growth rate of 2.44 percent per year for its planning period (to the year 2000). The actual rate was about 2.44 percent until 1968, but increased more rapidly thereafter. For the purpose of the CH2M Hill study, the estimates of the Mid-Willamette Valley Council of Governments (MWVCOG) and the 1971 Comprehensive Plan for McMinnville were examined. The growth rate of the MWVCOG—2.56 percent per year to the year 2000—was used. The figure is close to the middle estimate—2.50 percent—contained in the 1971 Comprehensive Plan. The projected population in the year 2000 at the rate of 2.56 percent per year would be 24,500. This figure corresponds roughly to the 1993 projection in the McMinnville Comprehensive Plan, 1981.

Together these design criteria, along with proposed uses for various areas, were used in determining additions and improvements to the water system.

ULTIMATE SERVICE AREAS

The study area utilized in the 1974 study roughly corresponds to the urban growth boundary with the notable exception being a portion of northern McMinnville near the confluence of Baker Creek and the North Yamhill River. This area can, however, be serviced by extension of the existing system, according to the Water and Light Department General Manager, so that all areas within the urban growth boundary can be serviced by municipal water. In addition, the Water and Light Department General Manager has indicated that the Martin-Kauer Industrial Reserve Area can eventually be serviced through extension of lines south under Highway 18.

Special consideration is given to the West Hills area in the study. Development of portion of this area will require establishment of a second service level, and possibly a third service level, above the existing gravity flow system. The study recommended that any costs incurred for creating these additional levels of service should be borne by the property owners and/or developers.

FUTURE ADDITIONS TO THE SYSTEM

Proposed additions to the existing water system to meet projected population demands and to provide service to expected growth areas included additions to water supply and storage capacities, expansion of the water treatment plant, and additions and improvements to the water distribution system on a prioritized basis. Figure VII-7 lists the near future systems requirements as provided by the Water and Light Department in 1979.

The Walker Creek Reservoir project is underway with necessary permits for construction and appropriation of surface water rights already obtained from the Oregon Water Resources Board.

Beyond these near future projects, the study recommends additional storage capacity expansions in eastern McMinnville and possibly, at the existing storage reservoir site and prioritized to the distribution grid system to service future developing areas.

FINANCIAL RESOURCES

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

The Water and Light Department, through its own crews, constructs and maintains the water distribution system in the city. Revenues for additions and expansions to and maintenance of the water system come from several sources, with water sales, and timber sales from the watershed area (see Chapter II, Water Resource section), providing the majority of the financial resources. The CH2M Hill study projects that major improvements and additions to the system, as well as ongoing operations and maintenance, can be financed through the existing revenue sources, without additional public expenditures or tax levies.

Figure VII-7

NEAR FUTURE MAJOR ADDITIONS AND IMPROVEMENTS TO McMINNVILLE WATER SYSTEM

Supply

— New Walker Creek Dam and Reservoir site.

Treatment

— Additional backwash tank for treatment plant.

Storage

— New east side storage reservoir (estimated 2,500,000 gallons capacity).

— Replace reservoir roofs.

Distribution

— 16" Main — Hill Road south past Westvale, 1500'

— 16" Main — North on Hill Road from sub-transmission main then east to 27th & Evans Streets, 10,500'

— 16" Main — South on Hill road to 2nd Street, 2550'

— 12" Main — East on 2nd Street from Hill Road to existing 10", 3350'

— 12" Main — South from 2nd Street through Jandina to Old Sheridan Road, 5000'

— 12" Main — From 27th & Evans Streets east to Hembree Street, 925'

— 20" Main — From 19th & Cedar Streets east to Ford Street and north to 11th Street, 2760'

— 24" Main — 11th & Ford Streets east to Galloway Street, 430'

— 10" Main — 11th & Ford Streets north to 15th Street, 1030'

WATER SYSTEM—COORDINATION

Water quality standards are regulated by the State Department of Environmental Quality (DEQ). The city, through the Water and Light Department, shall continue to monitor water quality standards for full compliance with established standards. The city, through the Water and Light Department, shall also continue coordination with various agencies such as Oregon Water Resources Department, the State Land Board, and various other agencies involved in planning for and managing water resources.

The City and Water and Light Department shall continue to coordinate and consult on land use decisions requiring input or water services.

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

SUMMARY—APPLICATION TO PLANNING

~~The municipal water works system is a key public utility that must be provided at the urban level of development proposed for the planning area. As noted previously in this section, and as is further verified in Chapter IX, the areas within the McMinnville Urban Growth Boundary are within the service limits of the municipal water system. The overall carrying capacity of the system proposed in the CH2M Hill Water Study is adequate to service the projected population in the year 2000, with additions made to the existing system as proposed in the study.~~

~~Expansion of the water supply is already being undertaken in the planning of the new Walker Creek Reservoir. This impoundment is being planned to supply enough water, in conjunction with existing supplies, to meet potable water demands to the year 2015, based on the population projections adopted by the city for this comprehensive plan. The site for an additional water storage reservoir in east McMinnville is being sought at this time to insure that sufficient water supplies will be available for future development in this portion of the city. These additions, and others proposed in the CH2M Hill study, will provide adequate water service to the city for the planning area.~~

~~The extension of water services to areas outside the corporate limits of the city is discouraged by the Water and Light Commission, but is allowed under strict guidelines similar to those adopted by the city for extension of sewer service. The city shall encourage the Water and Light Department to continue application of this policy and to discourage water extensions outside the city limits except where major lines area being extended to service areas within the urban growth boundary and/or city limits, or where annexation of property is not prudent or timely.~~

~~As with sanitary sewer service, the city recognizes that the extension of water services is an important guide for encouraging development of specific lands. Working with the City Water and Light Department, the city will insure that all developing lands have an adequate level of urban services that will include water system distribution lines and water supply and storage capacity at proposed levels of development. Specific policies and implementation measures shall be included in the plan to insure that all urbanizable areas have or will have water service prior to or concurrent with development.~~

~~Based on the information contained herein, the city finds that:~~

- ~~1. The City of McMinnville, through its City Water and Light Department, has a municipally owned and operated water supply and distribution system.~~
- ~~2. The water system adequately meets the current requirements of the city in terms of peak demands, fire flows, and emergency situations.~~
- ~~3. The existing water distribution system is mapped in Figure VII-6. The capacities of the supply, storage, and treatment facilities are noted in Figure VII-5. The water system is currently all gravity feed.~~
- ~~4. CH2M Hill, in conjunction with the City Water and Light Department, prepared, in 1974, a water system study that includes recommendations for additions to and improvements of the water system. The recommendations, with modifications, have been followed. The proposed water system can service all lands included in the urban~~

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME I

- growth boundary at proposed levels of development.
- ~~5. Steps are being undertaken by the Water and Light Department to increase the water supply available to the city to meet demands in the year 2015, based on the adopted population projection in this plan.~~
 - ~~6. The West Hills area will require the establishment of a second, and possibly third, level of service. The costs for providing water service, as well as other urban services, merit special attention for this area.~~
 - ~~7. Figure VII-7 lists the proposed near future additions and improvements to the water system.~~
 - ~~8. City water services are extended according to priorities set by the Water and Light Commission. The city will continue to coordinate extension of key urban facilities and services with the Water and Light Department to insure that an adequate level of necessary services are available prior to or concurrent with development.~~
 - ~~9. Financial resources available to the Water and Light Department are projected to adequately cover the necessary costs for adding to and improving the water system as per the recommendations in the water system study.~~
 - ~~10. The city, through the Water and Light Department, shall continue to coordinate activities and operations with agencies responsible for water management programs, including, but not limited to, the DEQ and the State Water Resources Department.~~

**CHAPTER VII
COMMUNITY FACILITIES
AND SERVICES**

GOAL VII 1: TO PROVIDE NECESSARY PUBLIC AND PRIVATE FACILITIES AND UTILITIES AT LEVELS COMMENSURATE WITH URBAN DEVELOPMENT, EXTENDED IN A PHASED MANNER, AND PLANNED AND PROVIDED IN ADVANCE OF OR CONCURRENT WITH DEVELOPMENT, IN ORDER TO PROMOTE THE ORDERLY CONVERSION OF URBANIZABLE AND FUTURE URBANIZABLE LANDS TO URBAN LANDS WITHIN THE MCMINNVILLE URBAN GROWTH BOUNDARY.

...

WATER SYSTEM

Policies:

- 144.00 *The City of McMinnville, through McMinnville Water and Light, shall provide water services for development at urban densities within the McMinnville Urban Growth Boundary.*
- 145.00 *The City of McMinnville, recognizing McMinnville Water and Light as the agency responsible for water system services, shall extend water services within the framework outlined below:*
1. *Facilities are placed in locations and in such a manner as to insure compatibility with surrounding land uses.*
 2. *Extensions promote the development patterns and phasing envisioned in the McMinnville Comprehensive Plan.*
 3. *For urban level developments within McMinnville, sanitary sewers are extended or planned for extension at the proposed development densities by such time as the water services are to be utilized.*
 4. *Applicable policies for extending water services, as developed by the City Water and Light Commission, are adhered to.*
- 146.00 *The City of McMinnville shall continue to support the long-range planning efforts of McMinnville Water and Light to provide water system facilities and services commensurate with the projected population in the Comprehensive Plan.*

MCMINNVILLE COMPREHENSIVE PLAN – VOLUME II

- 147.00 *The City of McMinnville shall continue to support coordination between city departments, other public and private agencies and utilities, and McMinnville Water and Light to insure the coordinated provision of utilities to developing areas. The City shall also continue to coordinate with McMinnville Water and Light in making land use decisions.*
- 148.00 *The City of McMinnville shall encourage McMinnville Water and Light to continue management practices in the municipal watershed which insure highest quality water.*
- 149.00 *The City of McMinnville shall carefully consider the environmental impact of the location and design of water system facilities to minimize adverse effects on residential, farm, and natural areas.*
- 150.00 *The City of McMinnville and McMinnville Water and Light shall cooperate with Yamhill County, the Bureau of Land Management, and private parties owning or regulating lands around the municipal water supply impoundments to restrict land uses around these sites to those which would be compatible with and protect water quality and quantity.*

Proposals:

- 23.00 The City of McMinnville should require certain water system facilities such as reservoirs to be compatible with surrounding uses either through landscaping or other screening.
- 24.00 The City of McMinnville should encourage McMinnville Water and Light to evaluate whether or not to update its water master plan every five years, and following any major UGB amendment. The City shall supply McMinnville Water and Light consultants with necessary information to facilitate coordination of water system and land use plans. (Ord. 5098, December 8, 2020)
- 25.00 The City of McMinnville should support McMinnville Water and Light in its effort to develop an additional water supply impoundment in the Walker Creek drainage area. ~~to meet the needs of the projected population in the Comprehensive Plan.~~

...

ORDINANCE NO. 4146

McMINNVILLE URBAN GROWTH BOUNDARY MANAGEMENT AGREEMENT

An Ordinance adopting an agreement between the City of McMinnville and Yamhill County which sets forth the policies and procedures for managing certain lands within the McMinnville Urban Growth Boundary.

RECITALS:

The City of McMinnville and Yamhill County, in accordance with the requirements of the statewide planning statutes found in ORS Chapter 197, have created an agreement establishing the rights and responsibilities of each jurisdiction in the management of certain lands lying within the McMinnville Urban Growth Boundary. The agreement includes policy directives that shall be applied by the City and County to land use decisions under each jurisdiction's respective purview, and includes procedural guidelines that will insure that the decision making process of the City and the County are coordinated.

It is the desire of the City Council that this Urban Growth Boundary Management Agreement be adopted; now, therefore,

THE CITY OF McMINNIVILLE ORDAINS AS FOLLOWS:

Section 1. That the McMinnville Urban Growth Boundary Management Agreement, which is attached hereto and by this reference incorporated herein, is adopted.

This ordinance passed by the City Council on June 2, 1981.

McMINNVILLE URBAN GROWTH BOUNDARY MANAGEMENT AGREEMENT

SECTION I - POLICIES

INTRODUCTION

The purpose of this Agreement shall be to direct development within the McMinnville Urban Growth Boundary at urban level densities in a phased and orderly manner, and with the provision of an adequate level of urban services, and to provide a mechanism for Urban Growth Boundary amendments.

GENERAL POLICIES

Lands within the McMinnville Urban Growth Boundary but outside the city limits shall be designated as FUL (Future Urbanizable Lands) on the County Comprehensive Plan Map. Until such time as FUL-designated lands are annexed into the City, the existing County zones shall apply. Development of urban uses on lands designated as FUL shall be preceded by annexation of the land to the City of McMinnville. The plan designation placed on the affected lands by the City of McMinnville, as it exists at the time of the proposed annexation or as it is amended prior to annexation, shall be used as the standard for determining the appropriateness of the proposed urban use.

Agricultural uses shall be retained on FUL-designated lands until annexation, and County zone changes to densities greater than 20-acre minimum lot sizes shall be prohibited.

“Urban level densities” shall be considered as (1) residential developments at city densities from R-1 (single-family residential) to R-4 (multi-family residential); and (2) commercial, industrial and public uses that adhere to the goals and development requirements of the McMinnville Comprehensive Plan. Development proposals shall comply with applicable City Comprehensive Plan and land development requirements, including subdivision and zoning standards.

SPECIFIC POLICIES

The City and County agree to the application of the following policies and procedures regarding lands between the city limits and the Urban Growth Boundary:

- A. All annexations shall follow the procedures set out in the City of McMinnville Annexation Ordinance No. 4130.
- B. Developments at urban densities shall not occur within the FUL area until such time as the land is annexed by the City.
- C. “Phased and orderly development” shall be considered the extension of urban services and densities into areas in which the following conditions have been met:

- (1) Sufficient public facilities and services, including but not limited to sewer, water, police and fire services are available within three (3) years. An assessment of the need for community facilities and schools as a result of the proposed development shall be made. All of the above shall be included in a formation of conclusionary judgments either for or against the proposed land use action.
 - (2) Documentation shall be made on the availability and suitability of other sites in the city limits and of other lands within the UGB, but outside the city limits, for the proposed use. Documentation shall also be made on the cost effectiveness of extending services to the proposed site in comparison to alternative sites and shall include analysis of the developer's share of the cost. These findings shall be made to allow for the formation of conclusionary judgments either for or against the proposed land use action.
 - (3) Assurances that the resulting development shall be compatible with future urbanization of surrounding land areas, including necessary future utility easement agreements and waivers of remonstrance against annexation and assessment for public roadway and utility improvements as conditions of approval.
 - (4) Assurances that no extension of urban land areas or city water and sewer services beyond the designated Urban Growth Boundary shall occur, with the exception of individual water hook-ups by established policy of the McMinnville Water and Light Commission.
- D. The City shall annex any islands of non-incorporated territory within a year of the annexation which created the island.
- E. The designated residential area west of Hill Road (beyond the limits of the first water service level and the service boundary of the trunk sewer line that is being extended to the corner of Hill Road and West Second Street) shall not be allowed to develop at an urban density until all other designated residential areas within the Urban Growth Boundary are substantially developed. "Substantially developed" shall mean that 75 percent of the future residentially designated land area outside the city limits, but within the UGB (excluding the designated West Hills area and the Three Mile Lane residential area) at the time of LCDC acknowledgement of the Urban Growth Boundary, is developed or under development.
- F. The designated PUD Area along Three Mile Lane shall be designated for the uses shown on the McMinnville Comprehensive Plan Map. County land adjacent to Three Mile Lane shall remain in a resource zone. In addition the Area shall be developed in accordance with the following principles:
- (1) The minimization of entrances onto Three Mile Lane;

- (2) The development of on-site circulation systems;
 - (3) The provision of deep setbacks, landscaping, buffer strips, sign controls, and the setting of an adequate setback line from the existing right-of-way line; and
 - (4) The provision of acceleration and deceleration lanes and left-turn refuges when and where necessary and practicable in accordance with the State Highway Division's improvement project for Highway 18.
- G. Before Yamhill county shall create any special district for the provision of utilities, transportation, or other public facilities or services, the matter shall be referred to the City for a recommendation. The County shall not act contrary to such recommendation without a unanimous decision of the Board.
- H. (1) The City and County shall evaluate street and road development within the Urban Growth Boundary consistent with the City Comprehensive Plan according to the following criteria:
- (a) The circumstances under which the City will assume ownership or maintenance responsibility for County roads within the corporate limits;
 - (b) The conditions under which new public streets and roads will be developed within the Urban Growth Boundary;
 - (c) The conditions under which existing roads designated as future arterials in the City Comprehensive Plan will be improved; and
 - (d) The conditions under which the County and other roads should meet City standards within the Urban Growth Boundary. Roads should be compatible with City street alignments and extensions. Upon annexation of property, roads adjacent to (and which serve) such property shall also be annexed.
 - (e) The City shall request surrender of jurisdiction by the County of all County roads pursuant to criteria H(1)(a) through H(1)(d).
- (2) The County and City shall cooperatively develop an implementation policy to include, but not be limited to, items listed in H(1).

AIRPORT MANAGEMENT POLICY

The City shall coordinate the McMinnville Airport Master Plan update with the County, including joint review and adoption by both jurisdictions for areas within the FUL and the designated Area of Influence.

URBAN GROWTH BOUNDARY AMENDMENT POLICIES

- A. Lands outside the Urban Growth Boundary shall be considered “rural” and shall be controlled by the County plan designations and zoning districts. Upon inclusion into the Urban Growth Boundary, rural lands shall be considered “urbanizable” but shall not be developed at urban level densities until annexation occurs.

- B. Amendments to the Urban Growth Boundary shall be based upon consideration of:
 - (1) Goals and policies of the McMinnville Comprehensive Plan;
 - (2) Goals and policies of the Yamhill County Comprehensive Plan; and
 - (3) LCDC criteria as follows:
 - (a) Demonstrated need to accommodate long-range urban population growth requirements consistent with LCDC goals;
 - (b) Need for housing, employment opportunities, and livability;
 - (c) Orderly and economic provision for public facilities and services;
 - (d) Maximum efficiency of land uses within and on the fringe of the existing urban area;
 - (e) The long-term environmental, energy, economic and social consequences to the locality, the region and the state as the result of allowing urbanization and not preserving and maintaining the land for agricultural or forest uses, whichever is applicable;
 - (f) Retention of agricultural land as defined, with Class I being the highest priority for retention and Class IV being the lowest priority;
 - (g) Compatibility of the proposed urban uses with other adjacent uses; and
 - (h) Demonstration that there are no alternative locations within the area which could better be used for the proposed use(s).

McMINNVILLE WATERSHED AREA OF INFLUENCE POLICY

- A. The County shall provide notification to the City of all land use actions that affect the water quality of the City within the Watershed Area of Influence.

SECTION II - POLICIES

DEFINITIONS

- A. Area of Influence - An area of land designated by the City and County that extends outside the Urban Growth Boundary wherein the County shall give the City an opportunity to participate in land use actions to be taken by the County. McMinnville's Area of Influence is shown on Map # _____
- B. Urban Growth Boundary - A line jointly adopted by the City and the County that encircles the City and separates rural from urbanizable and urban land. McMinnville's Urban Growth Boundary is shown on Map # _____
- C. Watershed Area of Influence - An area of land designated by the City and that encompasses lands outside the Urban Growth Boundary wherein the County shall give the City an opportunity to participate in land use actions to be taken by the County. McMinnville's Watershed Area of Influence is shown of Map # _____
- D. Concurrence and Recommendation - Actions undertaken by the City or County concerning certain items of mutual interest included in this Agreement.
- (1) Where concurrence is required, the City and County shall agree upon a decision. If agreement cannot be reached, the procedures set out under item #6 of the Urban Growth Boundary Amendment Procedures of this Agreement shall be in effect.
- (2) Where recommendation is required, the City and County need not agree upon a decision. The right to object to any item referred to a jurisdiction for recommendation shall be waived after the stated referral deadline unless special arrangements are made with the other jurisdiction. Each jurisdiction shall have standing to appeal the decision of the other governing body.

TERMS OF THIS AGREEMENT AND AMENDMENT PROCEDURE

- A. The term of this agreement shall run from June 2, 1981 to June 2, 1982 and may be extended thereafter by increments of one year. During the term of the Agreement or extension, the Agreement may be changed by mutual consent of the City and County. This Agreement shall be automatically renewed at the end of such term or extension unless either the City or the County request revision of the Agreement by so notifying the other party at least ninety days before the end of the current term or extension.

RECOMMENDATION PROCEDURES

- A. Annexation shall occur in accordance with the City Comprehensive Plan and by the procedures set forth in the McMinnville Annexation Ordinance No. 4130. Prior to final action, the City shall forward the proposal to the County Board of Commissioners for review and recommendation.

- B. Prior to final action, land use actions within the McMinnville Area of Influence shall be forwarded by the County to the City for review and recommendation. Land use actions shall include, but not be limited to the following:
- (1) Plan Map Amendments;
 - (2) Conditional Use Permits;
 - (3) Planned Unit Developments;
 - (4) Subdivisions and Partitions;
 - (5) Public Improvement Projects;
 - (6) Health Hazards;
 - (7) Special Exceptions;
 - (8) Zone Changes;
 - (9) Capital Improvement Program; and
 - (10) Major Transportation Improvements.
- C. Prior to final action, land use actions within the McMinnville Watershed Area of Influence shall be forwarded by the County to the City for review and recommendation.
- D. The City shall continue to forward proposed land use actions within the city limits to the County for review and recommendation prior to final action.
- E. Plan text amendments to the McMinnville Comprehensive Plan shall be forwarded to the County for review and recommendation. Plan text amendments to the Yamhill County Comprehensive Plan that affect land use actions within the Urban Growth Boundary and Area of Influence shall be forwarded to the City for review and recommendation.

CONCURRENCE PROCEDURE

- A. Plan map amendments to land outside the city limits and within the Urban Growth Boundary may be initiated by the City or the County. Such amendments shall require concurrence by the City and the County prior to adoption of said Plan Map changes. In those cases where a plan amendment is proposed simultaneously with an annexation, concurrence shall not be required. Instead, the plan amendment and annexation request shall be referred to the County for recommendation prior to final action by the City.

URBAN GROWTH BOUNDARY AMENDMENT PROCEDURE

- A. Amendment of the Urban Growth Boundary may be initiated by the Yamhill County Board of Commissioners, the McMinnville City Council, or by an individual owner(s) of property who request(s) inclusion in or exclusion from the Urban Growth Boundary. The proposal shall be treated as a Plan Map amendment to both City and County Comprehensive Plans, thus requiring concurrence of both governing bodies.
- (1) The City of McMinnville and Yamhill County do hereby establish the McMinnville Urban Area Management Commission (MUAMC) as a hearings officer for amendments to the McMinnville Urban Growth Boundary in accordance with ORS 215.406. The MUAMC shall be composed of the following members:
 - (a) Commissioner of the Yamhill County Board of Commissioners designated by the Board;
 - (b) Mayor or Council person of the City of McMinnville designated by the City Council;
 - (c) Member of the McMinnville Planning Commission designated by the City Council;
 - (d) Member of the Yamhill County Planning Commission designated by the Board of Commissioners;
 - (e) Member of the McMinnville Planning Advisory Committee designated by the Board of County Commissioners;
 - (f) Member of the McMinnville Citizen's Advisory Committee designated by the City Council; and
 - (g) Member-at-large chosen by the above MUAMC members and ratified by the City Council and the County Board.
 - (2) The MUAMC shall function in accordance with bylaws to be adopted by the McMinnville City Council and Yamhill County Board of Commissioners. It shall be the responsibility of the McMinnville Urban Area Management Commission to hold hearings, make findings and present its maps to City and County governing bodies as outlined in this Agreement and the by-laws.
 - (3) Applications and maps shall be filed with the McMinnville Planning Department which shall collect the joint fee and forward the Yamhill County fee along with notice the Yamhill County Department of Planning and Development. Applications must be complete prior to processing for

hearing by the McMinnville Urban Area Management Commission. The joint fee for individual amendments shall be the sum of fees established from time to time by each governing body.

- (4) Applications shall be accumulated and referred twice yearly to the McMinnville Urban Area Management Commission for a public hearing for which at least ten days advance notice shall be given publication in a newspaper of general circulation in the County.
- (5) Following the public hearing, the MUAMC shall make and forward its findings and decision directly to the governing body of each jurisdiction. Each governing body may then make a determination based upon the facts and record presented at the MUAMC hearing without holding an additional public hearing thereon. However, nothing in this process prohibits the City or County from referring the application to its respective Planning Commissions for information. A final decision shall be rendered by the governing bodies within sixty (60) days of receipt of MUAMC's deliberations and decision.
- (6) If the governing bodies do not concur in their final decision a joint meeting shall be scheduled to resolve differences. If agreement cannot be reached by joint meeting(s), one governing body shall appeal the other governing body's decision to the Land Use Board of Appeals, or the appropriate appellate body.