



**BUSINESS OF THE CITY COUNCIL
CITY OF MERCER ISLAND, WA**

**AB 4329
July 7, 2008
Regular Business**

2008 WATER SYSTEM PLAN

Proposed Council Action:

Adopt the 2008 Water System Plan.

DEPARTMENT OF

Maintenance (Rona Lin)

COUNCIL LIAISON

Bruce Bassett

EXHIBITS

1. SPU review comments and the City's response letter
2. DOH review comments and the City's response letter
3. Resolution No. 1399

APPROVED BY CITY MANAGER

Rich Council 7-7-08

AMOUNT OF EXPENDITURE	\$	n/a
AMOUNT BUDGETED	\$	n/a
APPROPRIATION REQUIRED	\$	n/a

SUMMARY

Staff presented the Draft 2008 Water System Plan (WSP) during a Study Session on March 3, 2008. At the Study Session, the Council agreed to adopt the final 2008 Water System Plan as a no-presentation Regular Business item at a future meeting.

The Draft 2008 WSP

At the Study Session, staff presented the highlights of the few significant changes from the current Plan. These include modifying the criteria used to calculate storage needs, and adding new elements to the Plan to address requirements of the new Water Efficiency Rules and the establishment of an emergency water supply. Consultants from Roth Hill Engineering explained these changes and talked in detail about why a reduction in residential minimum fire flow requirements was being proposed and why the Island's water storage capacity and storage requirements were being re-evaluated. The Council was satisfied with the recommendations regarding storage and directed staff bring the Plan back in final form for adoption.

Agencies Review

Prior to the March Study Session, the Draft 2008 Water System Plan was submitted to the Department of Health (DOH), King County, Seattle Public Utilities (SPU), and the City of Bellevue in early February for review and comment.

Review comments from SPU and DOH were received in mid-March and early April, respectively. Most of SPU's comments were related to sections of the Plan dealing with Water Conservation, Water Use Efficiency, and Water Quality and were primarily editorial in nature. Responses to SPU's comments were provided on May 16, 2008. Minor modifications to the Plan in response to the comments have been incorporated.

DOH's review comments can be summarized as follows:

- A review for consistency with the City's Comprehensive Plan and development regulations by the City's Principal Planner was requested.
- Questions were asked about water supply and water demand data and how a computerized model of the water system was used in developing the Plan.
- Additional information was requested about water quality monitoring and standard construction specifications.

Responses to DOH's comments were submitted on May 15, 2008. On June 19, 2008, DOH indicated that the responses were adequate and had been accepted. Exhibit 1 contains the review comments from SPU and the City's response letter. Exhibit 2 contains the review comments from DOH and the City's response letter.

Final Plan Adoption/Approval

A new regulation took effect in February 2008 that requires "water systems to obtain their governing body's approval of a water system plan prior to Department of Health's approval". This is different from the approval process in the past which allows the City Council to adopt the final Water System Plan after the Department (DOH) approves the Plan.

Since DOH has reviewed the draft Plan and accepted the response from the City, a final Plan with all revisions suggested by DOH is now ready for Council's adoption. After adoption, the Plan along with the adoption document will be submitted to DOH for final approval. Resolution No. 1399 (Exhibit 3) has been prepared for the 2008 WSP adoption. While no formal presentation is planned for this agenda bill, staff will be available to answer questions.

RECOMMENDATION

Project Engineer

MOVE TO: Approve Resolution No. 1399, which adopts the 2008 City of Mercer Island Water System Plan.



City of Seattle

Gregory J. Nickels, Mayor

Seattle Public Utilities

Chuck Clarke, Director

March 7, 2008

Rona Lin
Utilities Engineer
City of Mercer Island
9601 SE 36th Street
Mercer Island, WA 98040-3732

Re: City of Mercer Island – 2008 Comprehensive Water Plan-Agency Review Draft

Dear Ms. Lin:

Thank you for the opportunity to review and comment on the Agency Review Draft of the 2008 Comprehensive Water Plan for the City of Mercer Island. Our comments include general comments and more specific comments, primarily editorial in nature. We hope that these changes will add to the quality of the plan.

Page E.2, Page 3.3, and 3.9 (similar) and 4.1: The descriptions of the contract heads and maximum flow rates to be provided by SPU are not accurate. Please see Section III.A and Exhibit II of the contract with SPU. Suggest revising the text to read as follows: “The Contract will supply water at the minimum hydraulic gradient up to a maximum flow rate that totals to 3,205 gallons per minute (gpm) for the three services to the City.”

Page E.3 and page 1.9: References are made to “the SPU Comprehensive Water Plan (2005)”; there is no such document. These references should be replaced with “SPU’s 2007 Water System Plan (November 2006).”

Page E.4, first paragraph, and page 4.3: The Cedar supply is not filtered. The Cedar system has intake screening, ultraviolet disinfection, ozonation, chlorination, fluoridation, and corrosion control. The Tolt system has intake screening, filtration (direct), ozonation, chlorination, fluoridation, and corrosion control.

Page E.4: Revise the section heading from “Water Reuse Efficiency” to “Water Use Efficiency.” Mention should be made of the inclusion of water conservation programs for Mercer Island customers within the rates the City pays SPU in its contract with SPU.

Page E.5 and frequently in the document references is made to a goal of “reducing by 1% through 2010.” The regional goal is a reduction of 11 MGD from 2001 through 2010, and accepting the Seattle Water Supply System Operating Board goal from 2011 to 2030 of 15 mgd. The goal is not to reduce annual use by 1%.

Page 2.4, first sentence: Distribution Leakage is defined broadly and then conditioned later. “Distribution leakage is calculated as the difference between the total amount of water purchased from SPU and the total water consumed by the City’s retail customers”. It might be better to

reword this first sentence so that leakage is not an umbrella for all non-revenue water losses. There are many causes of non-revenue water besides leaks, as described in this paragraph.

Page 3.15: It would be helpful to re-name the City's Water Use Efficiency Sub-Policy to something different than the Policy, to help distinguish the two components. Suggest stating here that Mercer Island adopted the regional goals. The Sub-Policy and goal for unaccounted for water might be better stated as a goal for distribution system leakage in accordance with DOH reporting.

Page 4.5, Table 4-2: Several corrections are needed:

- Lead and Copper Rule: "Regional monitoring conducted in 1992." should be replaced with "District monitoring conducted most recently in 2006."
- Asbestos: Action listed is not consistent with statements made on page 4.6.
- Disinfection By-Products: Should be deleted entirely and should add to table "Stage 2 Disinfection By-Products Initial Distribution System Evaluation" (DBP IDSE), with Mercer Island checked, and action of "8 samples collected every 60 days for a one-year period beginning in October 2007."
- Residual Disinfection Monitoring: Revise action to read "Samples collected at 5 stations. 18 samples are required per month. Seattle performs routine coliform and residual monitoring of the distribution system. Mercer Island is responsible for any follow-up monitoring. Additionally, 3 samples are taken per week in summer months at any areas of concern."

Page 4.5, Coliform Monitoring: SPU's direct service area coliform monitoring plan should not be included in Appendix K. Only the regional monitoring plan and Mercer Island's own coliform monitoring plan should be included.

Page 4.6, Consumer Confidence Report, and Appendix L: Mercer Island's own CCR should be included, and SPU's CCR should not be included. SPU provides data for the CCRs but each wholesale customer of SPU produces their own CCR. Change the two sentences that read, "SPU provides the CCR to regional customers. A copy of the 2006 CCR is included in **Appendix M.**" to "The City of Mercer Island provides its CCR to all of its direct service area [or retail] customers. A copy of the 2006 Mercer Island CCR is included in **Appendix L.**"

Page 5.1: Mention of the old goal - 35 mgd by 2005 - could be made clearer. It would help to explain that the regional 1% Conservation Program was described in SPU's Ten Year Conservation Program Plan (September 2002), which replaced this older goal.

Page 5.2: Modify the bullet that describes "decrease peak use by 10%" to clarify when this is to occur (i.e., the year) and whether this is a City of Mercer Island goal or a regional goal.

Page 5.2, first paragraph, second sentence: The water use numbers in this sentence are too low and should be rechecked: "The total average daily consumption in 2000 for all customer classes, single-family, multifamily, commercial and government was 4,286 gallons, and in 2006 it was 3,958 gallons". Compare these numbers with total water purchased further down the page.

Page 5.3, second paragraph: It would be helpful to have the conservation goal identified and clearly listed on either on one or both pages 3.15 and 5.3. The reader needs to find this in the appendix or find it later on page 5.9. We also suggest listing the date of December 3, 2007, for when Resolution 1394 was passed.

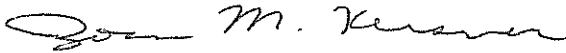
Page 5.10: It is unclear what is meant by the City adopting “certain measures” from SPU’s list. This is the regional list that Mercer Island is participating in; the City of Mercer Island is not picking from this list which to adopt.

Page 5.11: Suggest adding an introductory paragraph to better transition between the regional programs from page 5.10 and City Enhanced Measures, which are additional measures and activities that Mercer Island will be doing “above and beyond” the regional goal requirements.

Page 5.17, Table 5.5: Clarify which of these measures are part of the regional goal and which are for the enhanced measures to be done by the City of Mercer Island.

Again, thank you for the opportunity to comment. If you have any questions on our comments, please contact me at 206-684-0839 (joan.kersnar@seattle.gov).

Sincerely,



Joan M. Kersnar, P.E.
Manager, Drinking Water Planning and Performance Management Section

cc: Terri Gregg
Lynn Kirby
Al Dietemann
Bruce Flory
Eugene Mantchev



MAINTENANCE DEPARTMENT
9601 S.E. 36th Street • Mercer Island, WA 98040
(206) 236-3613

May 16, 2008

Seattle Public Utilities
Seattle Municipal Tower
701 Second Avenue, Suite 4900
PO Box 34018
Seattle, WA 98124-4018

Attn: Joan M. Kersnar, P.E.,
Manager, Drinking Water Planning and Performance Management Section

RE: City of Mercer Island
2008 Water System Plan

Dear Ms. Kersnar,

Thank you for your thorough review of the City of Mercer Island's 2008 Water System Plan. A simplification of the name of the Plan was among many edits completed, along with those suggested by you and the Department of Health.

This letter addresses your comments in the order provided and describes the changes or other response. It also provides direction on where to find these changes in the Plan.

1. Page E.2, page 3.3, 3.9 and 4.1: Modification to the description of contract flow rates to the City has been incorporated as suggested.
2. Page E.3 and page 1.9: the reference to the title of SPU's Plan has been changed.
3. Page E.4 and page 4.3: The description of each of the SPU water supplies has been modified per your suggestion.
4. Page E.4: The heading of this section has been changed. We suspect the ongoing regional discussions of water reuse led us to inadvertently mis-title this section.
5. Page E.5 and in various other locations in Chapter 5, we have revised the description of the regional water use efficiency goals per your suggestion to remove the 1% reference and include the total quantity goals.
6. Page 2.4: We have revised the description of distribution leakage as being just one component of unaccounted-for water, in keeping with the more detailed description later in the same paragraph.
7. Page 3.15: we have renamed the sub-heading to "Regional Water Use Efficiency Program" and included wording about Mercer Island's adoption of the regional goals. We believe the immediate following of the sub-policy, "Unaccounted for Water", clearly states the City's commitment to keeping levels of



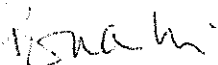
unaccounted for water below 10%. Additionally, the City's water use efficiency goal has been clearly stated under a new sub-policy.

8. Page 4.5, Table 4-2 has been edited to reflect your several suggested corrections.
9. Page 4.5: SPU's direct service area coliform monitoring plan has been replaced with the City's own Coliform Monitoring Plan, as referenced on page 4.5.
10. Page 4.6 and Appendix L: Mercer Island's 2006 CCR has been included in Appendix L and SPU's removed.
11. Page 5.1: Language has been added to Page 5.2 to clarify that Mercer Island participates in the regional goals, which have replaced these earlier goals.
12. Page 5.2: The bullet list is provided to give historical context and language has been added to Page 5.2 to clarify that Mercer Island participates in the regional goals, which have replaced these earlier goals.
13. Page 5.2: The average daily consumption numbers have been updated to correctly reflect usage.
14. Page 5.3: The City's water use efficiency goal has been clearly stated, indented and placed in a box for clarity. The same language is included on page 3.15. The date of Resolution 1394 has also been included.
15. Page 5.10: The introductory paragraph has been expanded to clarify the City's full participation in the regional program and also the additional measures the City plans to implement.
16. Page 5.11: An introductory paragraph has been added to clarify that all regional measures listed in Table 5-3 apply but that the City has its own specific measures that are described in several following sections.
17. Page 5.17 and Table 5.5: The City does not distinguish the percentage and quantity saved by each category of measure, including whether these savings are from the regional measures or the City's enhanced measures. Text has been added to clarify this position.

We appreciate your thorough review and believe that your comments were helpful in improving the readability and accuracy of the information in the plan. We hope this letter provides clear answers to your questions and adequate documentation of the revisions made to the plan. Should you like a revised copy of the plan, please contact me and we will arrange to deliver a copy.

Sincerely,

City of Mercer Island



Rona Lin
Utilities Engineer

cc: Scott Goss, Greg Hill – Roth Hill Engineering Partners, LLC



STATE OF WASHINGTON

DEPARTMENT OF HEALTH

20435 72nd Ave. S., Suite 200, K17-12 • Kent, Washington 98032 -2358

March 28, 2008

TERRY SMITH
CITY OF MERCER ISLAND
9611 SE 36th ST
MERCER ISLAND WA 98040-3732

RE: City of Mercer Island, ID# 53640
King County
Water System Plan – 2008
Submittal #:08-0201

Dear Mr. Smith:

Thank you for submitting the draft Water System Plan (WSP) for the City of Mercer Island (the City), received in this office on February 12, 2008. We have reviewed the plan and offer the following comments. The comments must be adequately addressed prior to approval.

System Description

1. Prior to DOH approval, please provide a Consistency Statement signed by the appropriate City of Mercer Island planning official.

Water Demands

2. How were historical MDD numbers determined?
3. The WSP states that the City's water supply contract with the City of Seattle provides for a maximum flow rate of 3,205 gpm at the maximum flow rate up to which the minimum hydraulic gradient applies. Please clarify what this means. It appears that the maximum flow rate per the wholesale contract is less than projected MDD.
4. If not already done, please revise the Water Facilities Inventory to reflect the current number of customer connections.



System Analysis

5. Does the SPU supply lines only feed the reservoirs? How was the supply modeled during the different hydraulic analyses? What is the maximum flow rate that the City can obtain from the SPU supply stations?
6. WAC 246-290-230 (5) refers to providing 30 psi water under a PHD scenario with all equalizing storage depleted. Why was this scenario not modeled? If modeled, what would be the results?

Water Use Efficiency and Source of Supply Analysis

7. Please complete the enclosed water rights self-assessment forms and include them in the appendix and reference the document in the Source of Supply Analysis section of the WSP.

Source Protection

8. A well head protection program will need to be developed in conjunction with the development of the City's emergency well source.

Operation & Maintenance

9. The City is required to monitor the distribution disinfection residual daily. In accordance with WAC 246-290-686 (2): for a system purchasing unfiltered (Cedar supply) surface water, the regulatory requirements are to comply with disinfection, monitoring and reporting requirements under WAC 246-290-692(5)(b), 246-290-694(8)(b) and 246-290-696(4):
 - 246-290-692(5)(b), Disinfection residual is detectable in at least ninety-five percent of the samples taken each month.
 - 246-290-694(8)(b): Purveyor shall measure residual with coliform sample or once a day, whichever is greater.
 - 246-290-696(4): Report results of disinfection system residuals to the Department (we have not currently enforcing the reporting requirement with purchasing systems).

For systems purchasing filtered surface water (Tolt supply), refer to WAC 246-290-664 (6): The purveyor shall measure the residual disinfectant concentration at representative points within the distribution system on a daily basis or as otherwise approved by the department.

10. If the City would like to receive approval for the submittal exception for distribution mains (WAC 246-290-125(2), please submit a copy of the City's standard construction specifications.

11. SPU's Direct Service Area Coliform Monitoring Plan does not include the City. Please include a copy of the appropriate Coliform Monitoring Plan. Please confirm that the City feels that the sample stations selected in the plan best represent the distribution system (WAC 246-290-300(3)).

Other Documentation

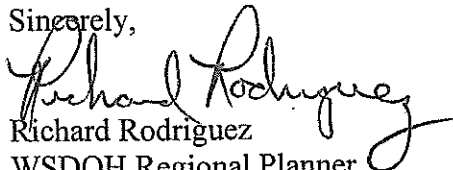
12. The water system must meet the consumer input process outlined in WAC 246-290-100(8). Please include documentation of a consumer meeting discussing the WSP, prior to DOH approval of the WSP.
13. Has Seattle Public Utilities (SPU) had the opportunity to review and comment on this document?
14. Please provide a signed Determination of Non-Significance (DNS) and signed SEPA checklist with the revised WSP.

We hope that you have found these comments to be clear, constructive and helpful in the development of your final draft WSP. We ask that you submit the revised WSP on or before **June 28, 2008**. In order to expedite the review of your revised submittal, please include a cover letter summarizing how each of the above comments was addressed in the revised WSP and where each response is located (i.e., page numbers, Appendices, etc.)

Regulations establishing a schedule for fees for review of planning, engineering and construction documents have been adopted (WAC 246-290-990). Please note that we have included an invoice in the amount of \$3584.00 for the review of the Water System Plan. This fee covers our cost for review of the initial submittal, plus the review of one revised document. Please remit your complete payment in the form of a check or money order within thirty days of the date of this letter to: **DOH, Revenue Section, and P.O. Box 1099, Olympia, WA 98507-1099.**

Thank you again for submitting your draft Water System Plan for our review. If you have any comments or questions concerning our review, please contact me.

Sincerely,


Richard Rodriguez
WSDOH Regional Planner
(253) 395-6771

cc: Sheri Miller DOH
Paul Fabiniak, DOE, NWRO
Steve Hirschey, King County UTRC



MAINTENANCE DEPARTMENT
9601 S.E. 36th Street • Mercer Island, WA 98040
(206) 236-3613

May 15, 2008

Washington State Department of Health
20435 72nd Avenue SE
Suite 200, K17-12
Kent, WA 98032-2358

Attn: Richard Rodriguez, WSDOH Regional Planner

RE: City of Mercer Island Water System Plan - 2008
Submittal #:08-0201

Dear Mr. Rodriguez,

Thank you for your review of the City's Water System Plan (WSP). This letter is a response to your review comments which were provided to us in your letter dated March 28, 2008. If you find the following response acceptable, we will immediately submit a revised Plan to you. The WSP was also reviewed by Seattle Public Utilities (SPU) and their comments have also been incorporated in the WSP and a copy of the City's comment response letter to SPU is included in Appendix C of the WSP.

Following is a summary of how each of your comments has been addressed and where each response is located.

System Description

1. The City of Mercer Island has prepared a Consistency Statement, a copy of which is included in Appendix B **Approvals**.

Water Demands

2. The City's historical MDD numbers were collected by the City's DMS (Data Management System). This language is now included on page 2.6.
3. We have clarified the language concerning the City's water supply contract with SPU. SPU provided comments similar to yours, as well as suggested language which the City chose to utilize. This clarifying language can be found on pages E.2, 3.3, 3.9 and 4.1. The language now states *"The contract will supply water at the minimum hydraulic gradient up to a maximum flow of rate that totals 3,205 gallons per minute (gpm) for the three services to the City."* The maximum flow rate applied across an entire day will yield 4,615,200 gallons, which is less than the projected MDD in all scenarios. While the maximum flow rate is indeed less than the projected MDD, adequate equalizing storage volume is provided per the Design Manual guidance, yielding a storage surplus in all analyzed years. See Table 4.3 on page 4.7.
4. Per telephone conversation between Sheri Miller and Rona Lin on May 8, 2008, Sheri indicated that no update of the WFI form is required (since the City has recently updated the form). Rather, the City is asked to provide an explanation to describe the difference of the service connection numbers between the WFI form and the 2008 WSP.



The projected service accounts (same as service connections) in Table 2-6 include domestic, fire, and irrigation connections while the numbers on WFI form are for domestic connections only. In addition, under the multi-family category, WFI form asks for number of residential unit and it considers each unit is a connection. This is the main reason for the discrepancy because in reality one multi-family water service can serve up to dozens of residential units.

5. The SPU supply lines feed directly into the reservoirs. A statement to this effect has been added on page 1.3 at the bottom of the page.
6. The City's water modeling consultant has run the 30 psi PHD scenario with all equalizing storage depleted yielding a resultant change in the water surface elevation of only 1.4 feet, or 0.6 psi. A new paragraph has been added on page 4.24 under the heading Peak Hour Demand Analysis. The supporting technical memorandum in Appendix R has also been revised on pages 4 and 5 to reflect this scenario.

Water Use Efficiency and Source of Supply Analysis

7. The water rights self assessment forms have been completed and are included in Appendix D. Language has been added to page 2.1 directing the reader to these forms in Appendix D.

Source Protection

8. Language has been added to page 6.2 stating that the City has begun the process of developing a wellhead protection plan for the emergency water supply well.


Operation & Maintenance

9. Beginning in 2007 Mercer Island obtained & recorded pre & post chlorine readings during all of its annual routine water main flushing. In addition, on April 17, 2008 a Rosemount Analytical water monitor was installed at the reservoir site which provides recorded hourly chlorine readings for both of the Seattle Public Utilities reservoir inlets, in addition to both of the reservoir outlets. Reference to this new equipment has been added on page 6.11. In addition, the City has prepared a Coliform Monitoring Plan in compliance with WAC 246-290. A copy of the Coliform Monitoring Plan is included in Appendix K and reference to this plan has been added on pages 6.8 and 6.11.
10. The City has added its Standard Construction Specifications to Appendix H. Reference to these standards has been to page 3.8 under the heading Design and Performance Standards.
11. The City has developed a Coliform Monitoring Plan, a copy of which is included in Appendix K. This plan is referenced on pages 6.8 and 6.11. The City hereby confirms that it believes the sampling locations included in the Coliform Monitoring Plan provide the best representation of the system.
12. The Water System Plan was discussed at publicly-advertised meetings of the City's Utility Board on February 12, 2008, and in a Study Session with the City Council on March 3, 2008. Documentation of these 2 meetings are included in Appendix C.
13. SPU provided comments on March 7, 2008 and copies of both their comment letter and the City's responses are included in Appendix C.
14. Signed copies of both the SEPA Environmental Checklist and SEPA Determination are included in Appendix A.

Richard Rodriguez
May 15, 2008
Page 3

We hope you will find the above response acceptable. Please contact me if you have any questions or need further clarification on any item. We look forward to your approval.

Sincerely,


City of Mercer Island
Rona Lin
Utilities Engineer

cc: Scott Goss, Greg Hill - Roth Hill Engineering Partners, LLC

**CITY OF MERCER ISLAND
RESOLUTION NO. 1399**

**A RESOLUTION OF THE CITY OF MERCER ISLAND, WASHINGTON
ADOPTING THE CITY OF MERCER ISLAND 2008 WATER SYSTEM PLAN**

WHEREAS, the City of Mercer Island's comprehensive Water System Plan describes the existing water system and service area, forecasts future demands, identifies policies and design criteria for water system operation and improvements, describes the operations and maintenance program, and identifies a schedule of improvements; and

WHEREAS, the City of Mercer Island's previous Water System Plan revisions were approved by the Washington State Department of Health, Office of Drinking Water in 2001; and

WHEREAS, the Washington State Department of Health administers the Safe Drinking Water Act, RCW 43.21A.445; and

WHEREAS, the Washington State Department of Health Public Water Supplies Rules, WAC 246-290-200, require that the City update its comprehensive Water System Plan every 6 years; and

WHEREAS, the City of Mercer Island Maintenance Department has reviewed the City of Mercer Island Water System Plan, the existing water system, and its operation; and

WHEREAS, the City of Mercer Island Maintenance Department has studied the current and projected conditions by computer modeling and developed a comprehensive plan to meet the City's water system needs to the year 2028 and beyond; and

WHEREAS, the City of Mercer Island Maintenance Department, on the basis of said review, has created the 2008 Water System Plan, dated June, 2008, to update the existing Water System Plan to address the needs of the City of Mercer Island; and

WHEREAS, the City of Mercer Island Maintenance Department has submitted the 2008 Water System Plan to the Washington State Department of Health and obtained preliminary approval of that plan.

NOW, THEREFORE, IT IS HEREBY RESOLVED by the City Council of Mercer Island that the 2008 Water System Plan, dated June, 2008, is hereby adopted as the official Water System Plan for the City of Mercer Island.

ADOPTED BY THE CITY COUNCIL OF THE CITY OF MERCER ISLAND, WASHINGTON AT ITS REGULAR MEETING ON THE 7TH DAY OF JULY, 2008.

Jim Pearman, Mayor

ATTEST:

Allison Spietz, City Clerk