Roseville Public Works, Environment and Transportation Commission
Meeting Agenda

Tuesday, August 28, 2012, at 6:30 p.m.
City Council Chambers, 2660 Civic Center Drive
Roseville, Minnesota 55113

6:30 p.m. **1. Introductions/Roll Call**

6:35 p.m. **2. Public Comments**

6:40 p.m. **3. Approval of July 24, 2012 Meeting Minutes**

6:45 p.m. **4. Communication Items**

6:55 p.m. **5. CSWMP**

8:20 p.m. **6. Possible Items for Next Meeting – September 25, 2012**

8:25 p.m. **7. Adjourn**

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Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: August 28, 2012 **Item No:** 3

Item Description: Approval of the July 24, 2012 Public Works Commission Minutes

Attached are the minutes from the July 24, 2012 meeting.

Recommended Action:

Motion approving the minutes of July 24, 2012, subject to any necessary corrections or revision.

July 24, 2012 minutes

Move**:** _____

Second**:** _____

Ayes**:** _____

Nays**:** _____

Roseville Public Works, Environment and Transportation Commission Meeting Minutes

Tuesday, July 24, 2012, at 6:30 p.m.
City Council Chambers, 2660 Civic Center Drive
Roseville, Minnesota 55113

1. Introduction / Call Roll

Chair Jan Vanderwall called the meeting to order at approximately 6:30 p.m.

Members Present: Chair Jan Vanderwall; and Members Jim DeBenedet; Joan Felice; Steve Gjerdingen; and Dwayne Stenlund

Staff Present: Public Works Director Duane Schwartz; and City Engineer Debra Bloom

2. Public Comments

No one appeared to speak at this time.

3. Approval of June 26, 2012 Meeting Minutes

Member DeBenedet moved, Member Felice seconded, approval of the June 26, 2012, meeting as amended.

Corrections:

- **Page 1, Line 32 (DeBenedet)**
  Correct to read County Road "C-2" (May 22, 2012 Minutes as well)
- **Page 14, Line 610 (DeBenedet)**
  Correct to read "constantly," rather than "consistently.
- **Page 15, Lines 653 and 654 (DeBenedet and Gjerdingen)**
  Correct "fences" to "fenced" and "wee" to "were."

Ayes: 5
Nays: 0
Motion carried.

4. Communication Items

Public Works Director Duane Schwartz noted that updates on various construction projects were included in tonight's meeting packet or available on-line at the City's website at www.cityofroseville.com/projects, and as detailed in the staff report dated July 24, 2012.

Mr. Schwartz and City Engineer Debra Bloom responded to specific questions regarding the Rice Street/Ramsey County project delays due to project funding and preferred pathway locations as the project proceeds; Phase II of the Fairview Pathway Project defined; and safety concerns of several heavily-trafficked intersections for pedestrian traffic and possible resolution.

Mr. Schwartz advised that the City Council recently adopted the Neighborhood Traffic Management Policy as recommended by the Public Works, Environment, and Transportation Commission (PWETC), and that they had asked that he relay their appreciation to the PWETC for their valuable work on this policy.

Mr. Schwartz also advised that the City Council had approved the Final Plat for the proposed Wal-Mart Development in Twin Lakes at their meeting last night, and a draft Development Agreement providing for additional conditions for the project to proceed. Mr. Schwartz advised that all indications are that the project most likely will move forward, prompting additional infrastructure improvements at County Road C, Cleveland Avenue and Twin Lakes Parkway, as well as a portion of the I-35W ramp.

Chair Vanderwall expressed interest for the PWETC to see the drawings of the ramp when they become available.

Member Stenlund suggested, as part of a post-construction Capstone project for the County Road C-2 connection, that staff contact the U of MN to determine their interest in this as a student project; volunteering to write a study proposal and serve with students on such a collaborative mentoring project for the Cleveland intersection and pathways.

5. Pathway Master Plan

Mr. Schwartz noted that, following past PWETC discussions, staff had provided an updated map showing the Pathway Master Plan and the Parks Master Plan pathway priorities. Mr. Schwartz advised that these revisions are up-to-date with projects constructed since the plan was adopted in 2008, and provided as a foundation for tonight's discussion. Mr. Schwartz noted that Member Gjerdingen's comments had been included on the maps as well.

Mr. Schwartz noted that the original Pathway Committee had done the scoring and ranking, and were intended to provide background information for the PWETC. Mr. Schwartz noted that the Parks Master Plan priority list had been provided by their Trails and Natural Resources Subcommittee; and recommended that the PWETC meet with Parks and Recreation Director Lonnie Brokke to discuss their build-out plan. To-date, Mr. Schwartz advised that staff had not spent too much time on this endeavor, but following tonight's discussion, would follow the direction of the PWETC as to the process, ranking, criteria and other components to proceed.

Ms. Bloom noted that 4.6 miles of pathway had been added since 2008, a considerable amount given the limited funding available for such projects. At the request of Chair Vanderwall, Ms. Bloom pointed out the new areas since 2008; with Mr. Schwartz noting that they were constructed basically using MSA or grant dollars for their respective construction, since no dedicated, tax-supported funding had been provided since 2002 for new pathway construction.

Member Felice expressed her concern with safety in crossing Snelling at Roselawn, based on the timing of the lights. Member Felice opined that the lights seemed to be timed more for night, but during the day, the timing was very short, causing pedestrians to push through quickly. Member Felice asked staff to address this area of safety to Ramsey County.

Ms. Bloom advised that staff would bring it to the attention of Ramsey County and MnDOT to see if they could make any adjustments; however, she noted that the entire Snelling Avenue corridor was a challenge, with many other safety concerns along it as well.

Discussion ensued regarding areas throughout the community where a grade separation or a pedestrian bridge would provide greater pedestrian safety; however Members noted that something needed to be done in the interim.

Mr. Schwartz noted that there were approximately twenty-six (26) miles of off-road facilities still proposed on the maps as presented; with Ms. Bloom estimating a cost of approximately $400,000 per mile, excluding storm water, right-of-way, landscaping, and other amenities, with the construction cost alone totaling approximately $10.1 million.

One area, identified by the Pathway Committee, provided for a recommended grade separation at County Road C-2 at I-35W; with Ms. Bloom noting that County Road C-2 provided a great east/west route for bicycles and pedestrians because of the location of parks along that route; but due to the grade changes, lends itself for an ADA bridge.

Ms. Bloom noted the considerable need but difficulty of getting a pedestrian facility built along Snelling due to numerous loops and ramps, with a preferred option to build a bridge across Snelling, but stymied due to the costs and limited rights-of-way available.

Member Gjerdingen suggested a cost-benefit analysis for locating a pedestrian bridge across Snelling, specifically near Highway 36, but taking into consideration various crossing areas.

Chair Vanderwall suggested that a location further west, near the Rosedale Mall transit hub may prove more beneficial.

Member Stenlund opined that another ramp or parking facility (on the other side of County Road B) would be needed once the Rosedale parking was no longer available. Member Stenlund noted the need to include the School Districts in the discussions to ensure any future pathway system adequately got children to and from schools.

Chair Vanderwall noted the difficulties in addressing school needs without a County Road B-2 pathway, since that alone affected four (4) different public and two (2) private schools in the community. Chair Vanderwall noted the great benefit to Brimhall School from the Fairview Pathways.

Ms. Bloom noted that a County Road B-2 pathway had been identified by the Parks Master Plan Implementation group as their priority for 2013-2016, for a section from Lexington Avenue to Rice Street. Mr. Schwartz noted that, to-date, most of the planning discussions had been internal; however, some park connections needed to be included as part of the discussion as well.

At the request of Chair Vanderwall, Mr. Schwartz confirmed that the MN Supreme Court had chosen to not take up the appeal for the Port Authority bond issue, which should allow more determined planning on proposed projects to proceed.

At the request of Member DeBenedet, Mr. Schwartz and Ms. Bloom noted that the Parks Master Plan process had been coordinated using the original 2008 Pathway Master Plan allowing for coordination of the two; in addition to the other information received during the Parks Master Plan process itself. Ms. Bloom advised that this was represented on Attachment D in tonight's meeting packet, identifying four (4) priority projects under discussion by the Parks Pathway and Natural Resource Committee. Ms. Bloom noted that she had met with their group numerous times as they developed their priorities; with $2 million of the total $19 million bonds designated for the Parks Implementation Program specifically for pathways.

Discussion included the condition and lack of funding for roads prior to being acceptable to the City for turnback potential from Ramsey County; current traffic with the closed access on County Road B to Highway 280, but the limitations for pedestrian and/or bicycle facilities along this ¾ mile strip even with traffic counts lowered by approximately 1/3.

Member DeBenedet opined that, an alternative from his perspective for a bicycle lane from County Road B to the northern city limits would be on Victoria from County Road C, noting the considerable pedestrian safety concerns and excessive vehicle speed along that stretch.

Ms. Bloom noted that the Victoria route is a significant challenge for off-road access, given the deep ditches along it.

However, Member DeBenedet opined that based on safety interests alone, this had to become a priority.

Mr. Schwartz noted that another consideration was a reasonable timeframe for build-out based on funding, and the complexities of some of the projects, with roughly twenty-six (26) miles remaining, and whether a ten (10) or twenty (20) year plan was more feasible.

Member DeBenedet opined that he would like to see a maximum ten (10) year build-out for the entire Plan, noting his original service on the Pathway Committee thirty (30) years ago, suggesting a twenty (20) year build-out at that time, with little progress to-date on that Master Plan.

Member Felice noted, as someone benefiting from the recent Fairview Pathway improvements, what a huge difference it made and opined that it was well worth working toward.

If the City considered one (1) mile of pathway per year, Member Stenlund noted it would take twenty-six (26 years to completed; and questioned if that was reasonable, or if it was more reasonable to expect two (2) miles annually. Member Stenlund noted that it all came down to available funding and commitment to the overall project.

Chair Vanderwall opined that, whether reasonable or not, a two (2) mile per year milestone seemed appropriate to accomplish this community-wide goal, of significant interest to the entire community as frequently voiced.

If Chair Vanderwall's two (2) year milestone was to be achieved, Member Stenlund noted the need to identify funding sources to accomplish that goal.

Member Gjerdingen opined that it was not unreasonable to attempt this accomplishment over a ten (10) year period, comparing other proposed park improvements being considered.

Chair Vanderwall cautioned that all of the Parks Implementation Program projects are good projects for the community, not just the pathway portion; and should not be viewed as competing for dollars or priority. Chair Vanderwall noted the need to work in partnership, and continue the great job of public involvement achieved by the Parks and Recreation Commission throughout the Master Plan process. Chair Vanderwall opined that the entire $19 million was absolutely worth it to the community, and would provide benefit back to the public overall.

Ms. Bloom and Mr. Schwartz defined that, of the twenty-six (26) total pathway miles yet to be constructed, and the total $13 million estimated dollar amount, the initial bond funds of $2 million designated for pathway construction as prioritized, would leave $11 million remaining unfunded over the next ten (10) years, if that was the timeframe determined by the PWETC. In reviewing the table included in the staff report, Member DeBenedet noted that in review of build-out and ranking criteria for those of 100 or higher, it was approximately half of the total projects. Member DeBenedet opined that it would a great accomplishment if that half could be built in the next seven (7) to eight (8) years.

Staff noted that they had only provided rough estimates of some of the proposed build-outs, without more detailed calculations done yet.

Member DeBenedet opined that it would be interesting to know the total length of those projects up to the 100 ranking; and have another column for the length of projects not included in the Parks Master Plan, further defining those remaining. Member DeBenedet noted his interest in aggressively convincing Ramsey County that they include the pathway priorities in the Rice Street corridor planning for their "Context Sensitive Design."

Mr. Schwartz noted that Ramsey County had discussed it in theory as part of their revised transportation program, to cost-share 50% of actual sidewalk or trail construction.

Member DeBenedet opined that it only made sense that various jurisdictions support public transportation; address how pedestrians accessed bus route areas in the winter months without fighting vehicular traffic and snow banks; and to provide a safe place for pedestrians in the winter. Member DeBenedet suggested a further and more refined review by the PWETC of this list to determine a realistic cost using city tax dollars; and how those figures could be used to convince the City Council that this is not only beneficial, but affordable.

Mr. Schwartz suggested that, as this discussion proceeded, this was an exercise for staff to look at lengths and specific construction complexities; and provide the PWETC with a better cost estimate; with Ms. Bloom suggesting a feasibility ranking for those easy to pursue and those more complex.

Chair Vanderwall suggested that staff proceed with that exercise, without expending too much time and effort; but providing a better picture of those areas that would be easier to consider initially.

Further discussion included challenges for crossing Highway280 at Larpenteur Avenue and rights of the City versus rights of the railroad company for their tracks, as well as various jurisdictions involved, with a portion in Minneapolis, and the City's existing right-of-way on the west side of the road.

Member Felice, specific to the Highway 280/Larpenteur Avenue area, suggested a pro-active approach recognizing the importance for safety in this area, and that it be kept as a high priority during the planning process.

Mr. Schwartz advised that another option could be a north/south parallel to Highway 280 through partnering with Midland Hills Golf Course to achieve a connection; all discussed during the Parks Master Plan process.

Members were of a consensus that this would be an important connection.

From a safety perspective, Ms. Bloom noted that there was no question this presented a barrier, opining that a grade differentiation would have been great, but didn't see it on the radar. Ms. Bloom advised that the entire NE Diagonal area came up for discussion on a weekly basis, and would provide a huge benefit for a significant portion of the pathway system, with Walnut providing a great connection. However, Ms. Bloom noted that furthering this was a significant challenge in the southwest area of the community. At the request of Member Gjerdingen, Ms. Bloom reviewed some of the constraints, including the railroad not allowing pathways within fifty feet (50') of their tracks, and the current right-of-way only being fifty feet (50') wide. Ms. Bloom noted that Ramsey County was in agreement with the City to move ahead.

Mr. Schwartz noted that an upcoming project was to resurface with concrete Long Lake Road; with Ms. Bloom advising that this was a definite area of interest for the City partnering with Ramsey County, given its location on the priority list. Ms. Bloom noted that the City had partnered with the County on a past grant application, which had subsequently failed to be awarded.

Chair Vanderwall noted the pieces that are regional, not local, in nature, and questioned why there was not more interest from Ramsey County in pursuing those projects.

Ms. Bloom advised that the original alignment of the County Road B-2 pathway was proposed along the railroad tracks, and the railroad would not work with the City on such a project. Ms. Bloom advised that the City didn't consider easements from adjacent property owners at that time to route a pathway down the south side; however, opined that this might be an easier option than attempting to secure railroad rights-of-way.

Mr. Schwartz questioned the PWETC on how and when they wanted to discuss the pathway system with the Parks and Recreation Commission or their pathway subcommittee. Mr. Schwartz questioned if the PWETC was interested in inviting representatives of either group to their August meeting. Mr. Schwartz noted Mr. Brokke's strong interest in participation in this conversation with the PWETC.

Chair Vanderwall noted that, once the PWETC had more information to work with, as discussed during this discussion, they would have more pieces from which to develop a sense of priorities. Prior to hearing from the Parks and Recreation Commission, Chair Vanderwall suggested that the Sierra Club and other organizations and agencies with off-road interests be approached. Chair Vanderwall opined that they, as stronger users of the system, could provide additional input for the PWETC to consider before discussions went further. Chair Vanderwall suggested that some brief (e.g. ½ hour) discussions with those groups could be held, in addition to other business before the PWETC before a joint meeting with other City commissions or committees, but accomplished within the next few months.

Member Gjerdingen suggested pathway reconstruction projects be categorized separately from new construction to consider different funding sources.

Ms. Bloom noted the request of Member DeBenedet for staff to provide a column for estimated length, and a funding source column. Ms. Bloom suggested a column indicating "funded" to identify a dedicated source of funds, otherwise to leave the column blank.

Chair Vanderwall suggested the "criteria" column be collapsed, since it no longer needed to be part of the discussion as the ranking had already been done, just leaving the actual score itself.

Members were of a consensus that the criteria column be deleted.

Chair Vanderwall suggested, for future discussion, a column providing total scores for judging purposes of the PWETC, and for reference, a brief description for the total weight column.

At the request of Member Gjerdingen, Ms. Bloom advised that the Oasis connection on County Road C-2 had received a lower priority than some, based on Parks priorities established from community discussions and those things that fit with other areas of the park implementation improvements. Ms. Bloom noted that, while County Road C-2 is a major east/west connection for non-motorized connections in Roseville, Oasis Park was a barrier to that connection. Ms. Bloom noted that the City actually owned the land; however, a pond was in the way, originally a maintenance road, but now having vegetation on it, and subject to funding for completion of a pathway connection, basically to get over the ditch.

Member Stenlund questioned if any of the pathways could be considered for construction as part of an unpaved system that would be considered low maintenance and not plowed during the winter months, making them seasonal pathways only, not all-season pathways.

When Ms. Bloom questioned if such a path would be considered an ADA surface, Member Stenlund advised that MnDOT was building some with gravel.

Chair Vanderwall opined that seasonal trails (e.g. ski trails discussed but not included) had not been incorporated into the original Master Plan.

Member Stenlund questioned if it was better to have a seasonal trail, if you already owned the land or no trail at all if funding was not available.

Ms. Bloom noted that there were several well-beaten trails or footpaths identified on the map.

Member DeBenedet opined that Member Stenlund's suggestion made sense, if the public understood that development of the pathway would be a staged process, with it graded, aggregate applied, and compacted for a period of time until and if funding could be found within five (5) years.

Ms. Bloom reminded the PWETC that County Road B might be a conversation, but feedback from property owners was needed before moving too far along.

Member Stenlund suggested another area for "low hanging fruit" may be to consider single-track pathways, or off-road cycling paths in more wooded areas.

Mr. Schwartz advised that this discussion was held as part of the Parks and Recreation Master Plan process, with Member Gjerdingen noting that this was already happening in Reservoir Woods.

Chair Vanderwall noted his observation on a recent visit to Fort Wayne, IN where bike clubs were maintaining off-road bike pathways; and suggested this made sense rather than their maintenance becoming a city obligation; noting that bikers can be highly-motivated to maintain those paths for their enjoyment and use.

Member Gjerdingen opined that a metro area segment of the Minnesota Off-Road Cyclists would jump at such an opportunity.

6. Assessment Policy Revisions

Ms. Bloom presented a revised Assessment Policy (Attachment A) based on discussion at the March 2012 PWETC meeting, and incorporating those changes as well as reorganizing the policy for easier use. Ms. Bloom reviewed and highlighted those revisions, including added language for the Introduction Statement based on previous discussions, based on guidance from language f the League of Minnesota Cities (LMC) Assessment Guide (lines 1-10).

Ms. Bloom addressed special benefit test language (e.g. appraisals); various lot configurations in determining assessable frontage and formulas to calculate that frontage; and clarification of the long side/short side of a lot, also added to the

"Definition" section as well. Further language addressed private driveways; roadway new construction (page 2, line 9) and those costs (e.g. Applewood Point and Josephine Woods); reconstruction projects for R-1 and R-2 zoning designations, and calling out street widths based on whether or not a roadway was an MSA street, but providing an equitable method to determine actual costs to property owners (page 2, lines 22 – 28) and including those terms in the definition section.

Ms. Bloom noted that the sanitary sewer language was a new section not previously discussed by the PWETC, and based on her and Mr. Schwartz' review and finding it to be inconsistent as previously written; and carried over similarly in the water section as well (page 2, line 31 and page 3, lines 12-32). At the request of Chair Vanderwall, Ms. Bloom reviewed new sanitary sewer and/or water main connections for a minimal number of properties not yet connected to City water.

Chair Vanderwall suggested that it be made clearer what "new construction" consists of, with Ms. Bloom suggesting "new connections."

Ms. Bloom also reviewed upsizing needs for larger capacity mains and how those would be assessed (page 2, line 36), above and beyond typical capacity versus actual need and examples of such situations.

Ms. Bloom advised that she would also further define storm sewer construction (page 3, line 9) as well as water main cost responsibilities.

An example of upsizing needed to prevent or correct neighborhood flooding (e.g. Woodland Hills) but not assessed to property owners above what was typical was further reviewed by staff.

Member Stenlund noted (page 2, lines 36-45) areas where upsizing downstream sections to facilitate business or residential needs; and suggested this be addressed more clearly to address the function of what needed to be addressed; and how to approach commercial properties where capacity doesn't exist and connection to a residential system.

Ms. Bloom and Mr. Schwartz expanded on that situation (e.g. new building on Ameritech Site) for this new development property where an undersized main was already in place, and assessing 10)%. Ms. Bloom concurred with Member Stenlund that further definition and clarity was needed to make that determination.

Member Stenlund suggested separating that section for fairness factors; and Ms. Bloom advised that staff would consider it further.

Chair Vanderwall opined that it made sense to treat residential the same no matter where they lived; and if a larger flow was needed, the source property of the larger flow should be assessed, not those downstream, but with typical flow.

Other examples were reviewed (e.g. Rainbow, lift stations with greater capacity needed); and discharge rates taken into consideration.

Member Stenlund opined that, as densities increased with future construction trends, or as people moved based on the availability of transportation, this situation would only continue to evolve.

Mr. Schwartz noted that, when that happened, they are required to ensure the City's system could handle their needs, and if they were unable to demonstrate capacity exists, they needed to pay for any upsizing.

Ms. Bloom noted that such a development would and could not be successful without engineering for their needs in advance.

Member DeBenedet opined that he found several areas of potential conflict in the policy as currently drafted that might open up a situation for their engineer and attorney to use those inconsistencies as a solution for them. Member DeBenedet pointed out those areas of his concern (page 2) for sanitary construction (a) and the exception listed in subd. b, and suggested a similar exception be listed under c). Member DeBenedet suggested this would further clarify and eliminate any potential inconsistencies; or rephrase the language similar to that used in the water main discussion. Member DeBenedet opined that this was more likely the case with respect to sanitary sewer connections, as pointed out by Member Stenlund, in overloading the sanitary sewer, but further opined that it did happen, and in the case of a water main, it would be much less likely to require upsizing beyond 8". However, since larger buildings need to be sprinklered, Member DeBenedet noted that it took less water, but provided a higher pressure but would be much less of an issue if those changes were made.

Regarding storm sewer construction (page 3, line 6), questioned new development being unable to increase peak runoff; and things that could change with on-site storage to maintain peak runoff rates, and might serve to increase total volume and discharge for a longer period and impact downstream storage.

Ms. Bloom noted that those situations would be contrary to Roseville rules, as well as those for the Capitol Region Watershed District and the Rice Creek Watershed District.

Member DeBenedet questioned if that would be true for significant rain events, such as 6" or 9" rainfalls; and suggested it be given further consideration by staff.

Member Stenlund opined that, even though there are rules to follow, there could be some situations where a variance was forced to be granted or move into a penalty fee; and further opined that there were always exceptions to the rules, and just because something wasn't supposed to happen, didn't mean it can't happen.

Member DeBenedet strongly encouraged that staff include something to address downstream impacts in case of a new development.

Ms. Bloom noted the need to include such language consistently for all three (3) utilities, which was not done at this time.

Member DeBenedet suggested including language, similar to that in the storm water ordinance language requiring new development and/or redevelopment to reduce their rate of runoff.

Ms. Bloom noted that part of the City's comprehensive surface water management plan would include language specific to problem areas and their proportionate shares of the problem areas; with Mr. Schwartz providing examples past examples (e.g. Rainbow, Rosedale, and Har Mar Mall).

In conclusion, Ms. Bloom noted, in the pathway area of the Assessment Policy, a new section addressed the new TMP component for assessing on a 25/75% split for neighborhood petitions for sidewalks that are not included in the Pathway Master Plan map.

At the request of Member DeBenedet, Ms. Bloom concurred that a redevelopment clause needed to be incorporated into the Assessment Policy language to address those areas not included in the priority map and not a priority segment, but requested by a neighborhood and addressing zoning code requirements.

Members concurred that, with the changes outlined during tonight's discussion, the Policy was close enough to complete that the PWEC didn't need to see another draft, and directed staff to proceed with presentation of the Policy to the City Council once final revisions were incorporated.

Member Gjerdingen moved, Member DeBenedet seconded, formally recommending the revised Assessment Policy to the Roseville City Council, amended as per tonight's discussion to the format presented by staff (Attachment A); ***as amended.***

Ayes: 5
Nays: 0
Motion carried.

7. **Draft Complete Streets Policy**

Member DeBenedet provided, a bench handout, attached hereto and made a part hereof, entitled "Resolution for Complete Streets Policy for the City of Roseville, MN." Member DeBenedet apologized for not getting it to the PWETC for their review prior to tonight's meeting; and for sending it in PDF format to staff, rather than as a Word document to allow changes.

Recess

Chair Vanderwall briefly recessed the meeting at approximately 8:07 p.m. for member review of the handout, and reconvened at approximately 8:10 p.m.

Ms. Bloom noted the staff report providing discussions to-date and links to various policies for PWETC review; with the proposed draft Policy developed by staff (Attachment A) staff based on one recently completed for the City of Falcon Heights. Ms. Bloom advised that she would defer to Member DeBenedet to address his suggestions and submitted policy.

Member DeBenedet summarized his policy, based on an earlier presentation to the PWETC and City Council by Green Step Minnesota, noting that the City had already accomplished a number of required steps in adopting a Complete Streets Policy, and resulting in development of his draft Policy. Member DeBenedet advised that he detailed those steps already taken and well documented from other various documents already in place and tying to such a Policy. Member DeBenedet noted that all components be initially considered, including finance and revenue components for initial construction and/or reconstruction.

Chair Vanderwall noted that the Comprehensive Plan had been adopted in 2010, and asked that the date be incorporated into Member DeBenedet's policy.

Member DeBenedet noted his reference to other jurisdictions and their respective policies; and hid elimination of the "opt out" section included in staff's proposed Policy (page 5), opining that this would be too easy, since this policy recognizes the need for flexibility. Member DeBenedet noted his additional language (5) addressing that necessary flexibility.

Chair Vanderwall questioned whether "federal" should be included as another jurisdiction in Member DeBenedet's new paragraph.

Member Stenlund concurred, noting that federal jurisdiction would address the railroad and gas utilities.

While sometimes crossing gas lines, Ms. Bloom questioned if it had ever impacted plans.

Member Stenlund opined that a missing component was "green corridor connections;" since the gas utility corridor forced green corridors, he felt it was part of the Complete Streets program; and a wildlife corridor needed to be maintained to avoid increased traffic issues with animals from a safety and traffic

movement perspective – both for animals and people (page 4, incorporate "perpetuate wildlife" as an element) with green corridors making for healthier transportation corridors.

Chair Vanderwall opined that a more defined element was needed and this made some sense.

Member Stenlund noted that it was in "Context Sensitive Design" included natural pathways for how wildlife moved, typically along water corridors.

Chair Vanderwall suggested "wildlife corridor" would provide better language.

In the context of road construction projects, Ms. Bloom questioned how wildlife would be taken into consideration (e.g. Lexington Avenue reconstruction).

Member DeBenedet suggested the addition of a bullet point (page 4) in the list of elements entitled: ***"environmental corridors and wildlife movement."***

Member Stenlund concurred, noting that this included human movement on green space, but also provided for wildlife movement as well.

On Page 5, Member DeBenedet noted Member Stenlund's suggested to include ***"federal"*** as a primary jurisdiction or public entity. Members concurred.

Member DeBenedet questioned how to address this as a City of Roseville plan for the overall community versus a vocal minority or one neighborhood, and how to best define overall project costs.

Ms. Bloom agreed that this would be a challenge, and used street lights as an example of consensus building, and when costs are found to be excessive, but how best to define excessive.

Chair Vanderwall noted the options available for lighting alternatives, diminishing the opinion of a select few or one individual.

Member DeBenedet concurred, noting that the Assessment Policy, as revised, addressed that, and if an option was chosen they would pay applicable assessment costs.

Member DeBenedet reviewed other bullet points (page 5) and his decision to strike out "topographic" (e.g. Dale Street) as a cost, and natural resources included within the environmental safety risks.

In the last sentence of page 5 regarding resources available beyond the City's Capital Improvement Plan (CIP), Member DeBenedet opined that this would

avoid excessive, unplanned for costs; with Chair Vanderwall concurring that this would be based on community wants/needs and part of the context definition.

Member Gjerdingen, for public clarity, suggested that the last sentence of the first paragraph of the policy (page 1) be better explained as discussed tonight addressing flexibility for incorporating Complete Street principles.

Chair Vanderwall opined that it was sufficiently clarified at the end of the Policy, where approval by the City Council and procedures were addressed, with exceptions specifically addressed and identified (page 5, last sentence). Member Gjerdingen noted Member Stenlund's comment (page 4) under water, and the need to modify the first four (4) paragraphs above that, specific to transporting water, not just people.

Member DeBenedet noted language provided storm water drainage as an element.

After further discussion, consensus was that additional language was not necessary, as the discussion was at a higher level related to surface transportation for safe, accessible and multi-model transportation networks without additional specificity needed since those infrastructure issues were dealt with under separate policies with some of those revisions currently underway at the staff level.

Regarding the variance discussion, Ms. Bloom asked Member DeBenedet – for clarity purposes – how he would look at the policy itself to be followed, under an "included, but not limited to" perspective under that scenario of potential variances. Ms. Bloom noted these would need to be addressed as part of a "finding of fact" discussion and consideration of why they may not be included.

Member DeBenedet opined that some things don't' need to be said, but if not included with the plan and on a Master Plan somewhere, and if found not in compliance, those findings needed to state why not.

Member Gjerdingen suggested in terms of safety, the word "detailed" planning effects be included.

Member DeBenedet advised staff that he would provide the document in a Word format for revisions to be incorporated.

Member Gjerdingen suggested including language (page 4) in elements for "on and off-road crossings."

After further discussion, it was PWETC consensus to include that language, as well as a separate bullet point entitled "crosswalks" and "crossings."

Chair Vanderwall moved, Member Stenlund seconded, recommendation to the Roseville City Council to adopt the Complete Streets Policy (DeBenedet draft; ***as amended.***

Ayes: 5
Nays: 0
Motion carried.

Chair Vanderwall thanked Ms. Bloom and Member DeBenedet for their work on the draft.

8. Possible Items for Next Meeting – August 28, 2012

- **Comprehensive Surface Water Management Plan Review (continued)**

Mr. Schwartz advised that Ms. Bloom would be representing staff at the August meeting, but that he would be out-of-town.

Chair Vanderwall suggested this be a one subject meeting, concentrating only on finalizing the Storm Water Master Plan.

Ms. Bloom thanked members for their great feedback provided at the last meeting, even though time ran out before discussions were completed.

At the request of Chair Vanderwall to keep the meeting time short, Ms. Bloom committed to providing the latest draft to the PWETC at least one (1) week in advance of the August meeting.

At the request of Member DeBenedet, Mr. Schwartz updated the PWETC on street light discussions with Xcel Energy and a potential presentation in the future to the PWETC, possibly for their October meeting.

9. Adjourn

Member Stenlund moved, Member DeBenedet seconded, adjournment of the meeting at approximately 8:50 p.m.

Ayes: 5
Nays: 0
Motion carried.

Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: August 28, 2012 **Item No:** 4

Item Description: Communication Items

- Projects update-
  - Josephine Woods– All but one of the single family home lots are sold. The only item remaining for public improvements is some short sections of sidewalk and the second lift of bituminous. These will be completed this fall.
  - Josephine Lift Station– Work is anticipated to start the second week of September and be complete by September 30.
  - Rice Street Reconstruction Phase 2- Staff continues to meet with Ramsey County regarding this project. The project has been delayed to at least 2014. Recent discussion focuses on project scope, funding, and schedule challenges due to MnDOT's proposed work on 35E from 2013-2015.
  - 2012 Pavement Management Project- the majority of the work on this project has been completed at this time. The only remaining street segment is Lydia Avenue. Paving is scheduled for the last week of August. For more information go to: www.cityofroseville.com/2012PMP
  - Fairview Pathway, Phase 1- The contractor has completed most of the work on this project.
  - Fairview Pathway, Phase 2- Bids were opened on August 8. The low bidder was TA Schifsky. Work is anticipated to start after Labor Day and be completed by October 31, 2012.
  - Skillman Drainage improvements- Bids were opened on July 25. The low bidder is GF Jedlicki, Inc. Construction will begin after Labor Day. It will take 3 weeks to complete the project.
  - Staff is beginning preliminary survey work on 2013 pavement projects and Park Renewal Program projects.
  - Staff has been participating in selecting a lead consultant for the Park Renewal Program utilizing Best Value Procurement.
  - Staff presented an updated Department Strategic Plan at the City Council meeting on August 20, 2012.
  - Staff is working on final plans for the following projects:
    - Waterman lining project

Recommended Action:
None

Attachments:
A. County Road D Newsletter

County Road D Reconstruction Project

Number 1 July 26, 2012

In the Capital Improvement Program approved by the City Council, County Road D has been scheduled for reconstruction in the 2013 construction season. To address these needs, the City is working on developing a 2013 reconstruction project. You are invited to a kick-off meeting on:

Tuesday, August 7, 2012
6:00 p.m.
Shoreview City Hall
4600 Victoria Street

We hope you will be able to attend. If you are not, please consider sending an e-mail or calling to discuss your thoughts. Since County Road D is a city street on the border of Shoreview and Roseville, this will be a joint project between the two cities.

Public Input Process

Over the next 6 months, city staff will hold four information meetings to discuss the proposed project with affected neighbors. Using input from these meetings, we will develop a design for the new street, including items such as a sidewalk on the south side, sanitary sewer, watermain, and storm sewer. A summary of the meetings:

August 7, 6:00 pm - Staff will present general information about street reconstruction projects and a chance for staff to listen to the property owner's questions and concerns that they would like addressed as a part of the project. These usually include; street width, parking, sidewalk, utilities, and rain gardens.

September meeting - This is an open house where we will have a preliminary design for the project. Property owners will be able discuss the project with city staff.

October meeting - Neighborhood "walk thru" meeting held on site. City staff uses spray paint to mark out the edges of the new road along with pathway so that people can understand where the improvements will be located within the right of way. It is a moving meeting; staff walks down the street and property owners come out to discuss the project as we pass by their property.

November meeting - We will have completed the final design along with an engineer's estimate for the project and be able to share with property owners what the cost and proposed assessments are for the project.

How does a road project get approved?

Staff will use the information gathered from the public input meetings and later investigations to design the project and prepare a feasibility study that will be presented to the City Council in December 2012, which will be followed by a public hearing in January 2013. All owners of property affected by the construction will receive a formal notice of the public hearing.

At the hearing, the findings of the feasibility study will be presented and residents will have an opportunity to speak to the City Council about the proposed project. Following the public hearing, the City Council will vote on whether to move forward with the project. If approved, staff will prepare construction documents for the 2013 summer construction season.

Project Contacts:
Deb Bloom, Roseville City Engineer
(651) 792-7042
deb.bloom@ci.roseville.mn.us

What will the new street look like?
The standard design for residential streets is 32 feet wide with an asphalt surface. A six inch (6") high, straight-face concrete curb and gutter is installed at the same time.

How long will the work take?
Construction usually takes about 5 months. Contractors are required to keep the road passable and provide driveway access whenever possible. If you have special access needs, let us know as soon as possible.

What will happen to my driveway and sod?
The new street will be constructed to match the elevation of existing driveways as closely as possible. It will be necessary, however, to replace the end of your driveway to ensure a smooth transition to the street. This replacement will be in gravel, asphalt or concrete depending on what material existed prior to construction.

Similarly, in order to match the new curb and gutter to your yard, sod will be replaced adjacent to the street. There is no additional charge for these replacements.

Can I have my driveway replaced?
As long as your proposed changes conform to the City's driveway code, additions or changes to your driveway can be made with the street project. These include:

- Widening your driveway.
- Replacing/ changing existing driveway pavement.

You must, however, pay any additional costs for extra work prior to the work starting. Additional information regarding this option will be provided if the project is approved.

Can I have my sanitary sewer service replaced?
The maintenance of your sewer service from the sewer main to the building is your responsibility. If you have a history of back-ups or have to clean your service frequently, it may be to your advantage to get an estimate to replace your service under the street as a part of the project. Additional information regarding this option will be provided if the project is approved.

Will mail delivery be disrupted?
The contractor will work closely with the post office to ensure uninterrupted mail delivery. Mail boxes will be grouped together at a nearby corner. Following construction, your mailbox will be replaced as close as possible to its original location or a location specified by you.

What about my sprinkler system/ invisible fence?
Removal of underground sprinkler systems and invisible fences in the boulevard is the property owner's responsibility.

Utility Flags
To protect against underground utility damage, the City has called in utility locates. This is required by anyone digging a hole, whether it is for planting a tree or reconstructing a road. The City, Xcel Energy, Comcast and Century Link will locate their underground utilities by spray painting and placing flags in the boulevard. The City needs this information for project design.

TYPICAL RECONSTRUCTION SCHEDULE

2-3 d	Mailboxes are removed and temporary mailboxes installed at a neighborhood central location
2-4 wk	Xcel replaces gas mains prior to city contractor starting work
1 wk	Contractor removes the existing street (street access limited to through traffic only. Some contractors remove street after sewer repair – see next item)
2 wk	Watermain replacement
2 wk	Sanitary sewer main and property owner sewer line repairs done, if needed
2 wk	Storm sewer construction and/or modifications
1 wk	Gravel base is installed
1 wk	Concrete curbs built (entry into driveways not possible for 5 days – you will be able to park in the street adjacent to your property)
1 wk	Concrete/Bituminous driveways are poured (concrete driveways not useable for 5 days; bituminous 1-2 hours)
1 wk	First layer of asphalt placed on street (street access near normal)
1 wk	Manhole castings set back in place
1 wk	Boulevards sodded
1 wk	Final layer of asphalt placed
2-3 d	Mailboxes reinstalled

How will the drainage be addressed?

Under traditional practice of storm water management, rainwater is allowed to flow out into the street and into storm sewers. Eventually it flows into Lake Owasso. This storm water carries pollutants such as sand, chemicals, and fertilizers from our lawns and driveways. By infiltrating the rainwater as close as possible to where it falls, we can reduce the impact on our lakes, as well as the local wildlife.

As part of the project, we will construct Best Management Practices (BMPs) to improve storm water quality and collect runoff. Through the design process, we will be identifying locations on the project suited for a BMP. The proposed BMPs would be constructed within the City right-of-way, which extends approximately 16 feet behind the edge of the road. The cost will be paid for with city storm water funds.

Rainwater is routed to the BMP and allowed to percolate down into the ground and be filtered by the plants. This trapping of water and the filtration process removes nutrients and pollutants.

By acting as a micro-detention pond, the plants and soils provide an easy, natural way of reducing the amount of water that flows from rooftops, lawns, and driveways. Then, using the concept of bio-retention, these gardens remove pollutants from storm water and help restore natural infiltration. BMPs are design to overflow into the storm sewer system during larger rain events.

Storm water best management practices are tools that can be used to address water volume and quality. Like any tool, they should only be used where they will be effective. Factors that can impact their success are; soils, topography, and property owner support. Some brief descriptions of the types of BMPs we are considering with this project:

- Rain Garden: A rain garden is a relatively small area of plantings near a paved area. Rain water is routed to the garden where it is used by the plants and infiltrates naturally into the soil of the garden.
- Biofiltration Basin: A biofiltration basin is similar to a rain garden in that it is a relatively small area of plantings near a paved area. However, these are constructed in areas where the soils do not infiltrate into the ground quickly. Rainwater is routed to the garden and filtered naturally by plants, but there is an overflow to the storm sewer system.

Rain garden in City street boulevard

- Infiltration trench: An infiltration trench is located underground. This shallow excavation is filled with porous material to create an underground reservoir for storm water runoff. The runoff gradually percolates through the bottom and the sides of the trench into the surrounding subsoil over a period of days.

Would you like a rain garden?

Rain gardens constructed in conjunction with reconstruction projects are a partnership between the property owners and the City of Roseville. All costs for materials, excavation and backfill are paid for by the City. The size, location, and planting plan are coordinated with the homeowner. The City's contractor will prepare the site for the garden (excavate and make sure suitable soils are within the proposed rain garden) and deliver the plants. We ask that the homeowner plant and maintain the rain garden. We find this most effective, because the homeowner can modify the design if they want, and they learn what each plants look like when planting them. This way, they know what to leave and what to pull when weeding. Homeowners are asked to sign a maintenance agreement for the rain gardens that are installed by the City.

The City is looking for volunteers. If you are interested in having the City construct a rain garden in your boulevard, please contact Deb Bloom at 651-792-7042 or deb.bloom@ci.roseville.mn.us .

How much will the project cost me?

A portion of the cost is proposed to be assessed to adjacent property owners. Your assessment depends on the size of your lot and the total project cost. For street projects, Roseville's policy is to assess 25% of the street reconstruction costs. The assessment rate is determined by dividing the total cost by the total assessable frontage. The City does not include pathway and utility costs in the assessment totals.

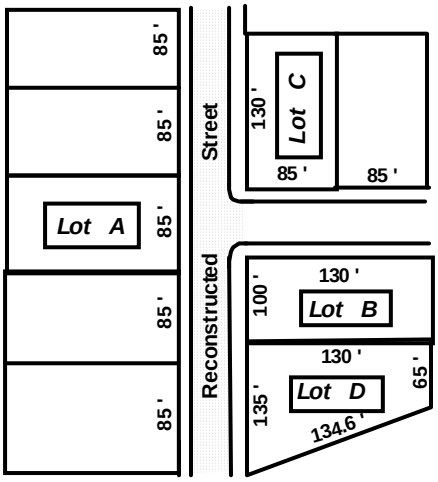
The following are examples of how assessments are calculated for residential lots assuming $50 per assessable foot. (Numbers are not actual costs.) The examples represent the most common situations. Lots that have a unique situation are examined separately.

Lot A = Interior lot
85 ft of assessable frontage
85 ft x $50/ft = $4,250

Lot B = Corner lot short side
100 ft assessable frontage
100 ft x $50/ft = $5,000

Lot C = Corner lot long side 10%
or 13 ft of assessable frontage
13 ft x $50/ft = $650

Lot D = Odd lot with rear dimension
differs from the front by more than 25%
Lot has 11,375 sq ft
11,375 sq ft / (130 ft + 134.6 ft) = 86 ft
2
of assessable footage
86 ft x $50/ft = $4,300



Assessment Deferral

Assessment costs can be deferred for seniors and disabled citizens for whom the assessments would cause a financial hardship. For specific information on qualifying, call the City of Roseville's Finance Director at 651-792-7031.

Assessment Schedule

Approximately one year after the project has been completed; you will receive a notice inviting you to a public assessment hearing on the project. This hearing is usually held in September. It is after this hearing that the final assessments will be adopted by the City Council. Following the hearing, you can pay your assessment in one of two ways:

- If you wish, you may pay your assessment in full within 30 days following the assessment hearing and avoid interest charges.
- If you choose not to prepay, your assessment will be collected with your property taxes over a 15-year period with interest.

Contact Us!

If you have any questions, concerns, or comments please contact us at 651-792-7003 between 8 am and 4:30 pm.

Throughout the next 6 months, we will keep you informed through direct mailing and by updating information on the project website:
http://www.cityofroseville.com/CoRdD
If you would prefer to receive an electronic copy of these newsletters instead of paper, please let us know.

Notify Me list

To receive notifications of website updates and other project related news, sign up for the County Road D reconstruction "Notify Me" List at:
http://www.ci.roseville.mn.us/list.aspx
Signing up for this list does not automatically remove you from our newsletter mailing list.

Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: August 28, 2012 **Item No:** 5

Item Description: Storm Water Management Plan Update Discussion

Background:
The City has recently initiated an update to its Comprehensive Surface Water Management Plan (CSWMP) which was originally developed in 1990 and was last updated in 2002. The CSWMP is a document that is required to be updated to maintain consistency with local watershed standards and with the Metropolitan Surface Water Management Act. The CSWMP is a required chapter of the City's overall Comprehensive Plan and establishes the City's vision and practices for managing storm water and surface water drainage throughout the City. The Commission provided feedback to the consultant at last month's meeting after an introduction of the process for this update. Ron Leaf, the Project Manager from SEH will be in attendance to give a brief presentation of the first draft of the plan and to lead the discussion.

Attached is the second draft of the CSWMP. Staff would like feedback from the commission regarding the draft including the goals, policies and implementation plan.

Recommended Action:
Discuss Storm Water Management Plan Update

Attachments:
A. Comprehensive Surface Water Management Plan- Draft #2

Comprehensive Surface Water Management Plan

PWETC REVIEW DRAFT #2

City of ROSEVILLE Minnesota, USA

SEH No. ROSEV120222

August 16, 2012

Comprehensive Surface Water Management Plan

SEH No. ROSEV120222

August 16, 2012

Short Elliott Hendrickson Inc.
3535 Vadnais Center Drive
St. Paul, MN 55110-5196
651.490.2000

Acknowledgements

- City of Roseville City Council
- City of Roseville Parks and Recreation Commission
- City of Roseville Public Works, Environment, and Transportation Commission
- Rice Creek Watershed District
- Capitol Region Watershed District
- Ramsey-Washington Metro Watershed District
- City of Roseville Public Works Department and Engineering Division

Executive Summary

[To be completed after Completion of Plan Draft #2]

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Comprehensive Surface Water Management Plan

PWETC REVIEW DRAFT #2

Prepared for the City of Roseville, MN

1.0 Introduction

The City of Roseville (City) is an established suburban community of approximately 34,000 people in the northern Minneapolis/St. Paul metropolitan area. As an inner ring suburb, Roseville is conveniently located within close proximity to both downtown areas. The City is located in Ramsey County, Minnesota and is bordered by County Road D to the North, Larpenteur Avenue to the Southeast, Roselawn Avenue to the Southwest, Highcrest Road to the West, and Rice Street to the East (see Figure 1).

Roseville was incorporated as a city in 1948 and experienced dramatic growth in the 1950's and 1960's. Today, the City is almost completely built up and has achieved a stable population. It is expected, therefore, that the focus in the future will be on preservation, restoration and enhancement of natural resources and redevelopment of older parts of the City. This Comprehensive Surface Water Management Plan (CSWMP) will serve as a guide to protect the City's water resources, address current water resource related issues, and manage the surface water system throughout the City as redevelopment occurs.

1.1 Purpose

There are two primary programs that establish the regulatory need to update the City's Comprehensive Surface Water Management Plan. First, Minnesota Statutes, Sections 103B.201 to 103B.255 and Minnesota Rule, Chapter 8410 comprise the State's Metropolitan Surface Water Management Program (MSWMP). These Statutes and Rules require the preparation of watershed plans by watershed management organizations (WMOs) and the preparation of local (City) water management plans.

The purposes of the water management programs required by Minnesota Statutes §103B.205 to 103B.255 are to:

- *Protect, preserve and use natural surface and groundwater storage and retention systems;*
- *Minimize public capital expenditures needed to correct flooding and water quality problems;*
- *Identify and plan for means to effectively protect and improve surface and groundwater quality;*
- *Establish more uniform local policies and official controls for surface and groundwater management;*
- *Prevent erosion of soil into surface water systems;*

- *Promote groundwater recharge;*
- *Protect and enhance fish and wildlife habitat and water recreational facilities; and*
- *Secure the other benefits associated with the proper management of surface and groundwater.*

A third regulatory program, very much related to the goals, policies and standards of this Plan, is the National Pollutant Discharge Elimination System (NPDES) Phase II Storm Water Permit Program for Municipally Separate Storm Sewer Systems (MS4) that is administered in the State by the Minnesota Pollution Control Agency (MPCA) (http://www.pca.state.mn.us). The goals, policies and standards of this plan were developed to be consistent with the requirements of the City's NPDES MS4 permit and associated Surface Water Pollution Prevention Plan (SWPPP) as well as the respective WMO plans. The implementation program included in this plan and the SWPPP are intended to be a coordinated effort to realize combined efficiencies.

1.2 Organization and Scope

This plan builds upon the City's previous Surface Water Management Plans (SWMP) completed in 1990 and 2003. The 1990 SWMP included detailed hydrologic TR-20 modeling for the entire City and the 2003 SWMP focused on updating and translating the 1990 modeling into a HydroCAD® model and analyzing select problem areas in the City. For this 2012 plan update hydrologic/hydraulic modeling has been completed for problem areas as separate efforts and the focus is on pulling together existing information related to the City's surface water systems into one easy to use management tool. A GIS-based mapping tool which organizes and inventories studies, projects, and current issues of the City's surface water resources accompanies this plan document.

The CSWMP was developed through a process of soliciting input from City Commissions, Council and the public on water resources issues, specific problem areas and potential new topic areas and/or actions that the plan should address. Input was obtained through a series of meetings and providing plan information on the City's stormwater web page. A summary of those efforts follows:

- Parks and Recreation Commission Meeting
- Public Works, Environmental and Transportation Commission – 3 Meetings
- Public Open House Meeting
- City Council Review and Adoption of the Plan

This CSMWP is organized into the following sections:

- Section 1.0 describes the plan purpose, organization and scope as well as sustainability within the plan.
- Section 2.0 describes the physical environment including climate, drainage, soils, geology, land use, water resources, and wildlife.
- Section 3.0 describes the entities responsible for water resource management.
- Section 4.0 describes the City's goals and policies regarding surface water management.
- Section 5.0 describes resolved and ongoing issues.
- Section 0 describes the implementation plan and funding program.
- Section 7.0 describes the plan adoption and amendment process.

1.3 Sustainability

Roseville is committed to the preservation and enhancement of its environment, and to the principle that each generation of residents must meet the needs of the present without compromising the ability of future residents to meet their own needs. This approach to *sustainability* is a thread that is woven throughout the City's Comprehensive Plan. Upon adoption of this Comprehensive Surface Water Management Plan (CSWMP) by Council, the CSWMP will become an integral component of the City's Comprehensive Plan. As in the Comprehensive Plan, this CSWMP will serve as a guide towards improving sustainability across all aspects of the City's surface water management program and activities.

This CSWMP includes sustainability in three of the Plan sections including this introduction; Section 4.0 Goals and Policies; and Section 0 While the previous section provided just a few of the many project examples and accomplishments the City has made in the 20 plus years since completing its first surface water management plan, there is also more work ahead. Many of the flooding issues of that past have been addressed, but some remain. New water quality issues and concerns are emerging each year, requiring varying levels of effort by the city to address. And, the ongoing maintenance and operation of the storm water system has grown much more complex over the years due to new regulations and a better understanding of what is necessary to keep the treatment ponds and filtration systems functioning properly. This section of the plan provides an overview of some of the more significant of these ongoing issues that will require substantial efforts and resource commitments. Location specific issues such as localized flooding issues and ongoing impairments are identified in Figure 19.

1.3.1 Localized Flooding Issues

While many of the known flooding areas have been addressed by infrastructure improvements over the past 20 years, some remain and are identified in the implementation section of the plan. Unfortunately, the very nature of storm water management means that at some point new issues will likely present themselves due to the plugging of a storm system from debris, for example, or simply a larger or more intense rainfall event than the City has previously experienced. The flooding in Duluth, Minnesota in June 2012 is a notable example of how a storm larger than anticipated can create problems where none existed in the past and will require extensive repair and restoration work for months to years.

1.3.2 Water Quality Impairments

Earlier sections of this plan presented the current known and confirmed impairments to waters within the City. The plan also discussed a few of the emerging water quality issues that have the potential to significantly alter the quality and characteristics of water resources. Much like some localized flooding issues that won't be identified until the next big rainfall, new water quality issues may not be known for years to come. Researchers throughout the country are identifying new issues on a regular basis and regulators and policy makers are developing requirements and guidance to manage these new pollutants. The City's plan is to focus resources on the pollutants that they can best address, such as total suspended solids and total phosphorus and at the same time recognize that new issues may arise that requires adjustment to the current approach.

1.3.3 Operation and Maintenance

With more than 140 public storm water treatment systems (ponds, infiltration basins, etc.), more than 120 miles of storm pipe and an extensive road system on which to complete street sweeping and deicing, the overall stormwater system operation and maintenance needs of the

City is significant. In fact, the resources needed to maintain the system will likely grow due to more treatment devices being installed each year and the need to conduct maintenance on those that have been in service for 20 years or more. One of the most challenging ongoing maintenance needs will be the pond cleanout work that relates to requirements of the NPDES MS4 Permit Program. The MPCA recently published Managing Stormwater Sediment Best Management Practice Guidance for Municipalities (June 2012) and describes when the dredged sediment can be used as unregulated clean fill and when it is considered regulated solid waste. The cost difference can be significant depending on the levels of contaminants of concern found in tested sediment samples.

1.3.4 Education and Outreach

Managing storm water is no longer just the responsibility of the City. A coordinated approach with residents, local interest groups, developers, City and watershed staff, and elected officials is needed in order to achieve local water quality improvements and meet the goals of this plan. The City is required to complete public education efforts as part of its NPDES MS4 Permit Program. The City has also conducted and supported a number of educational programs such as rain water garden workshops that help residents contribute to community efforts. These efforts will continue to be critical towards improving management of grass clippings, fertilizers, chemicals and yard waste. The efforts will help to reduce the chances of a residential backyard grading project that might change the flow of storm water, and they will help inform the public of fish consumption advisories on area lakes and invasive species issues.

Implementation Program and Funding. These Sections of the Plan provide additional background on what sustainability is and how it is a critical part of this Plan and what actions and approaches the City will take, related to its surface water management program, towards being more sustainable.

2.0 Physical Environment

2.1 Climate and Precipitation

The climate of Roseville is considered to be continental and subhumid. Because of its location near the center of the North American continent the Twin Cities metropolitan area (and Minnesota) experiences a wide variation in climate conditions (e.g., droughts and floods, heat and cold). However, even with these wide variations, climatologists have found four significant climate trends in the Upper Midwest (Minnesota Weather Almanac, Seeley, 2006):

- Warmer winters
- Higher minimum temperatures
- Higher dew points
- Changes in precipitation trends

Estimates from the National Weather Service (NWS) TP-40 publication for the precipitation depth of a 24-hour duration event for various return frequencies are presented in Table 1. The NWS is currently in the process of producing updated rainfall frequency estimates using a longer period of rainfall observations and state-of-the-art statistical methods. Updated estimates for Minnesota are anticipated in the spring of 2013.

Table 1
Precipitation Event Frequency

Return Frequency	Percent Probability	Precipitation Depth (inches)
1-year	100%	2.4
2-year	50%	2.8
5-year	20%	3.6
10-year	10%	4.2
25-year	4%	4.8
50-year	2%	5.3
100-year	1%	5.9

In recent years, there has been more debate and discussion around the topic of rainfall depths and the frequency of larger storm events. As described in an issue paper on this topic prepared during the development of the Minnesota Stormwater Manual, precipitation in Minnesota has been rising since the 1930s. This increase is attributed to an increased frequency of heavy to extreme precipitation events (Karl and Knight 1998). The State Climatologist suggests that the amount of precipitation occurring as large events has been increasing in recent decades, and that about 100 years ago that fraction was similar to or even higher than what it is today.

The trends are changing and will likely continue to change. From a stormwater management perspective, these changes in precipitation may require larger pipes and ponds to capture, convey and treat the runoff from more intense events. The City will continue to monitor the outcomes of the changes in design guidance as well as review its standards for design of extreme event overflow areas for new and redevelopment projects.

2.2 Topography and Drainage

More than 10,000 years ago, Roseville evolved into a series of bluffs and upland hills that defined the adjacent lowlands, a network of drainage ways, lakes and marshes. The topography of northern Ramsey County (and Roseville) is irregular with ground elevations varying approximately 160 feet: from 1,000 feet above Mean Sea Level (MSL) near County Road B2 and Western Avenue to a low of 840 feet above MSL south of Lake McCarrons. Because of its topographic characteristics, the City of Roseville lies at the headwater of three subwatersheds:

- The western part of the City drains northerly toward Rice Creek that drains into the Mississippi River, which falls under the jurisdiction of Rice Creek Watershed District;
- The southeasterly part of the City drains to the south and east into the Trout Brook interceptor and then to the Mississippi River, a part of the Capitol Region Watershed; and
- The east-central and northeast areas drain northeasterly into Lake Owasso which overflows into Grass Lake in Shoreview. This area is a part of the Ramsey-Washington-Metro Watershed District.

In order to better understand how the surface-water system works, the CSWMP divides the city into sub-watershed areas based on surface drainage features and the storm sewer system. The City's sub-watershed areas are shown in Figure 2.

The City's storm sewer network and overall conveyance system is in place. Future changes to the system will primarily involve retrofitting to address flooding problems, to incorporate water quality treatment, or incorporate improvements at the time of redevelopment. This storm sewer system consists of:

- 124 miles of pipe,
- 4719 catch basins,
- 2728 manholes,
- 128 ponds,
- 13 special features (infiltration, biofiltration, water reuse, raingardens, ect.)
- 739 inlets and outlets, and
- six storm-sewer lift stations.

The citywide storm sewer map (Figure 3) shows the locations of the majority of these facilities and general direction of flow through the system.

2.3 Soils and Geology

A large portion of the landscape is dominated by Urban land-Zimmerman complex (859B) and Urban land-Hayden-Kingsley complex (860C), as identified in the Ramsey County Soil Survey. The Natural Resource Conservation Service (NRCS) also classifies soils by the Hydrologic Soil Group (HSG) based on estimates of runoff potential (Figure 4). These are:

- Hydrologic Soil Group A – Low runoff potential – high infiltration rate
- Hydrologic Soil Group B – Moderate infiltration rate
- Hydrologic Soil Group C – Slow infiltration rate
- Hydrologic Soil Group D – High runoff potential – very slow infiltration rate

The surficial geology consists of unconsolidated glacial sediments deposited during the Quaternary geologic period of two glacial ice lobes: the Superior lobe and the Grantsburg sublobe of the Des Moines lobe. The glacial deposits found in Ramsey County are primarily in the form of outwash, till, and stream and lake sediments ranging in thickness from 10 to 400 feet. Below the unconsolidated glacial sediment lies consolidated bedrock formed during the early Paleozoic age. Bedrock units from youngest to oldest in Roseville include: Decorah Shale, Platteville-Glenwood Formation, St. Peter Sandstone, Prairie Du Chien Group, and Jordan Sandstone. Maps of the surficial geology and bedrock geology from the Ramsey County Geological Atlas can be found on Figure 5 and Figure 6, respectively.

2.4 Land Use and Land Cover

The City of Roseville encompasses an area of 13.8 square miles which today is made up of mixed-land uses including established neighborhoods, parks and open space, and significant retail, commercial and industrial development. Some key aspects of the existing landuse pattern are:

- Low-density residential is the dominant land use. This form of housing occupies more than 34% of Roseville's total land area.

- Roadways have been a major factor in shaping the development pattern of Roseville. Business (commercial and industrial) uses are primarily concentrated in the western third of Roseville, along the I-35W and Highway 36 corridors. Commercial areas can also be found along major street corridors (e.g. Rice Street and Snelling Avenue) and at major street intersections.
- Lakes, parks, and open spaces are defining characteristics of Roseville.

Table 2 below provides a summary of the existing land use by category. For more detailed information about the future planned land-use refer to Chapter 4 of the City's *2030 Comprehensive Plan.*

Table 2
Existing Land Use

Land Use Category	Acres	% Total
Single-Family Detached	2925	33.0%
Single-Family Attached	126	1.4%
Manufactured Home Park	9	0.1%
Multifamily	279	3.1%
Common Areas	59	0.7%
Business/Retail	486	5.5%
Office	192	2.2%
Light Industrial	396	4.5%
Heavy Industrial	471	5.3%
Institutional	510	5.8%
Parks and Open Space	1089	12.3%
Right of Way	1810	20.4%
Railroad	96	1.1%
Vacant	33	0.4%
Vacant Developable	129	1.5%
Water	251	2.8%
Total	**8861**	**100%**

Figure 7 and Figure 8 display the current and planned future land use maps which describe the activities that occur on a piece of land and the function that land serves. In contrast, the land cover is the characterization of the features covering the ground surface which can be either natural or manmade. The Minnesota Land Cover Classification System (MLCCS) is a vegetation oriented classification system designed to identify natural and cultural land cover types using a standardized methodology. Roseville's land cover map is shown in Figure 9 which also includes overlays of regionally significant ecological areas and metro conservation corridors identified by the Minnesota Department of Natural Resources (DNR).

Closely related to water resources management and land cover is the management of parks and open space throughout the City. Many of the parks and open spaces are located around the City's surface water resources and may provide opportunities for stormwater management. Table 3 lists the parks and open spaces throughout Roseville.

Table 3
Parks and Open Space

Park Name	Area (acres)	% of Parks Area	% of City Area	Address
City Parks - Owned				
Acorn	44.60	6.8	0.5	286 County Road C W
Applewood Overlook	2.42	0.4	0.0	1478 Terrace Drive W
Applewood Park	2.09	0.3	0.0	2838 Arona Street N
Autumn Grove	6.54	1.0	0.1	1365 Lydia Avenue W
B-Dale Fields	7.95	1.2	0.1	2100 Dale Street N
Bruce Russell	1.95	0.3	0.0	1175 Roselawn Avenue W
Central Park-Arboretum	18.97	2.9	0.2	2525 Dale Street N
Central Park-Dale West	16.98	2.6	0.2	2555 Dale Street N
Central Park-Lexington	63.47	9.7	0.7	2540 Lexington Avenue N
Central Park-North	17.47	2.7	0.2	816 Heinel Drive N
Central Park-Nature Center	52.28	8.0	0.6	2520 Dale Street N

Table 3 (Continued)
Parks and Open Space

Park Name	Park Name	Park Name	Park Name	Park Name
Central Park-Victoria Ballfields	37.52	5.7	0.4	2490 Victoria Street N
Central Park-Victoria West	2.31	0.4	0.0	2495 Victoria Street N
Concordia	4.77	0.7	0.1	2394 Dale Street N
Cottontail	6.48	1.0	0.1	1281 County Road C2 W
Howard Johnson	9.56	1.5	0.1	1260 Woodhill Drive W
John Rose Oval	9.76	1.5	0.1	2661 Civic Center Drive N
Keller Mayflower	2.26	0.3	0.0	2070 Fernwood Street N
Ladyslipper	17.48	2.7	0.2	299 S Owasso Boulevard W
Langton Lake	62.72	9.6	0.7	*3 park location/addresses*
Lexington	8.18	1.2	0.1	2131 Lexington Avenue N
Mapleview	3.28	0.5	0.0	2917 Matilda Street N
Materion	8.51	1.3	0.1	225 Minnesota Avenue W
Memorial Park	NA	NA	NA	2660 Civic Center Drive N
Oasis	15.37	2.3	0.2	1700 County Road C2 W
Owasso Hills	8.53	1.3	0.1	593 Owasso Hills Drive W
Pioneer Park	13.52	2.1	0.2	1966 Chatsworth Street N
Pocahontas	5.67	0.9	0.1	2540 Pascal Street N
Rosebrook	8.28	1.3	0.1	2590 Fry Street N
Sandcastle	3.43	0.5	0.0	3060 Patton Road N
Tamarack	6.93	1.1	0.1	1745 Farrington Street N
Valley	10.58	1.6	0.1	3110 Avon Street N
Veterans	3.59	0.5	0.0	1135 Woodhill Drive W
Villa	33.10	5.1	0.4	2055 Cohansey Boulevard
Willow Pond	14.88	2.3	0.2	1283 County Road B2 W
Woodhill	1.33	0.2	0.0	2724 Western Avenue N
Unnamed Parks	4.18	0.6	0.0	
Subtotal	**536.96**	**82.0**	**6.1**	
City Parks - Leased				
Evergreen	3.94	0.6	0.0	1810 County Road B W
Owasso Ballfields	4.40	0.7	0.0	2659 Victoria Street N
Reservoir Woods	109.42	16.7	1.2	1901 Alta Vista Drive N
Subtotal	**117.76**	**18.0**	**1.3**	
Golf Courses				
Cedarholm - City Owned	25.79		0.3	2323 Hamline Avenue N
Midland Hills Country Club	155.45		1.8	
Subtotal	**181.24**		**2.0**	

Ramsey County Parks				
Lake Josephine	75.37		0.9	
McCarrons	8.71		0.1	
Subtotal	**84.08**		**0.9**	
Open Space				
City Open Space Other	3.57		0.0	
County Open Space	48.50		0.5	
Open Space Ponding	62.61		0.7	
Open Space Cemetery	135.79		1.5	
Subtotal	**250.47**		**2.8**	
Total Parks/Open Space	**1,170.51**		**13.2**	

A map of the parks and open spaces in Roseville is displayed in Figure 10. Parks and open space have historically played an important role in managing stormwater in Roseville. Many of the parks and open space areas are built around ponds and water bodies, with many of these water bodies functioning as flood detention areas as well as providing water quality treatment. Parks play an important role in water resources management in the City.

As part of the planning process for this Plan update, Public Works staff met with the Parks and Recreation Commission to coordinate the problem areas and issues that need to be addressed and to discuss what opportunities Parks may provide in the future for storm water. The following major themes were identified at that meeting:

- The Parks and Recreation Commission is supportive of continuing to collaborate with Public Works on incorporating storm water features into parks and open space areas where the improvements are feasible and practical and provide an opportunity to more efficiently use City funds to meet the regulator requirements and the goals of this plan.
- There was strong consensus that the City should not convert active park areas (e.g., soccer fields or other active play areas) to stormwater management functions. However, some discussion related to the potential for underground facilities that could serve both purposes. The cost effectiveness of the combined function would be a critical factor in the determining the feasibility of such systems.
- There was strong consensus that the parks and open spaces can and should play a key role in the educational aspects of the CSWMP. For example, a stormwater exhibit or example stormwater treatment features could be created at the Harriet Alexander Nature Center. This would better educate the public on the need for storm water management throughout the City, and help them understand what their role can be in helping the City achieve its goals to manage stormwater and improve water quality.

2.5 Water Resources

2.5.1 Surface Water

Roseville has a significant number of lakes, ponds, and wetlands within its boundaries. Summary information on each of the priority lakes in the City is displayed in Table 4 below and detailed information is provided in the interactive mapping tool.

Table 4
Lake Data Summary

Lake Name	DNR Identification Number	Watershed Area (Acres)	Surface Area (Acres)	Maximum Depth (Feet)	Ordinary High Water
Bennett	62-0048	756[3]	28	9	887.6[4]

Little Johanna	62-0058	NA	18	28	NA
Josephine	62-0057	839[1]	116	44	884.4[4]
Langton (N&S)	62-0049	257[1]	30	5	906.6[5]
McCarrons	62-0054	1070[2]	73	57	842.2[4]
Owasso	62-0056	3022[3]	375	37	887.1[4]

Source: DNR Unless otherwise noted
Notes: [1]RCWD, [2]CRWD, [3]GLWMO, [4]MSL 1912 datum, [5]NGVD 29

Figure 11 illustrates the Public Water Inventory (PWI) for the City with all water basins and watercourses that meet the criteria set in Minnesota Statutes, Section 103G.005, subd. 15. Additionally, Figure 12 illustrates the lake and wetland systems from the National Wetlands Inventory (NWI) program of the US Fish and Wildlife Service.

Of the lakes and wetlands within the City, five of them are classified as impaired (not meeting state water quality standards) by the MPCA. Figure 14 displays the impaired waters map and Table 5 summarizes each of the water body impairments. Section 303(d) of the Federal Clean Water Act (CWA) requires that states establish total maximum daily loads (TMDLs) of pollutants to water bodies that do not meet water quality standards. Each TMDL includes an implementation plan that establishes a list of actions that will be needed to manage the pollutant(s) with the goal of eliminating the impairment. For more information about impaired waters and TMDLs see www.pca.state.mn.us/.

Table 5
Impaired Water Bodies Summary

Name	Year Listed as Impaired	Affected Designated Use	Pollutant or Stressor	Approved TMDL
Little Johanna[1]	2012	Aquatic Consumption	Perfluorooctane Sulfonate (PFOS) in Fish Tissue	NA
Little Johanna	2004	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	Target Start Date – 2012
Bennett	2006	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	Target Start Date – 2012
Bennett[1]	2012	Aquatic Consumption	Mercury in Fish Tissue	2008
McCarrons	2010	Aquatic Consumption	Mercury in Fish Tissue	2008
Owasso	1998	Aquatic Consumption	Mercury in Fish Tissue	2008
Josephine	1998	Aquatic Consumption	Mercury in Fish Tissue	2008

(1) New listing from draft 2012 Impaired Waters List

2.5.2 Floodplains

Areas of Roseville prone to larger regional flooding near surface water sources have been identified and mapped by the Federal Emergency Management Agency (FEMA) through the National Flood Insurance Program (NFIP). Flood Insurance Rate Maps (FIRMs) for the City of Roseville were recently published on June 6th, 2010. Figure 14 displays the special flood hazard areas mapped by FEMA.

While the 1 percent chance flood hazard areas (Zones A and AE) are mapped in Figure 14, it is important to recognize that the areas designated as Zone X (the remaining portions of the City) may still have potential for flooding.

2.5.3 Groundwater

Roseville is served by the St. Paul Regional Water Services (SPRWS) which supplies drinking water to the City of St. Paul and neighboring communities. The St. Paul Regional Water Service is supplied primarily by surface water from the Mississippi River, but approximately 7% of all the water they provide is groundwater. In Ramsey County, both porous unconsolidated sand and gravel glacial deposits and fractured, weathered limestone or sandstone bedrock formations act as aquifers. The primary public drinking water aquifer is the Prairie du Chien-Jordan (Ramsey County Groundwater Protection Plan, 2009). In order to protect groundwater aquifers and public drinking water sources, the Minnesota Department of Health (MDH) delineates wellhead protection areas and drinking water supply areas which are shown in Figure 15.

2.5.4 Pollution Sources

Information on individual pollutant sources is available from the MPCA's "What's In My Neighborhood?" (WIMN) online tool. This detailed information has not been included here as it is subject to frequent change and may be obtained by calling the MPCA or by visiting the MPCA's website (www.pca.state.mn.us) which has information on various pollutant sources and related regulatory programs. A map identifying site locations (as of 07/16/12) is displayed in Figure 16. The MPCA WIMN tool identified the following types of sites within the City of Roseville:

- Air Permits
- Hazardous Waste, Large Quantity Generators
- Hazardous Waste, Small to Minimal Quantity Generator
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) sites
- Unpermitted Dump Site
- Voluntary Investigation & Cleanup (VIC) Site
- Landfill, Permitted By Rule
- Leak Site
- Petroleum Brownfield
- Tank Site
- Construction Stormwater Permit
- Industrial Stormwater Permit
- Wastewater Dischargers
- Multiple Activity sites

2.6 Recreation, Fish, and Wildlife

The City manages a variety of recreation, leisure and sport facilities and offers more than 1,000 annual recreation and leisure programs and events. Along with many athletic programs, the City also offers recreational opportunities to connect to the nature and wildlife through the following programs:

- Family fishing clinic
- Minnesota Horticultural Society gardening classes
- Harriet Alexander Nature Center naturalist programs
- Kids Gardening Club

The natural communities that remain in Roseville are largely located in city parks. The major natural community types in Roseville are:

- Prairie and Savanna Communities: Sand-Gravel Prairie, Sand-Gravel Oak Savanna, Mesic Prairie and Wet Prairie
- Forest Communities: Dry Oak Forest, Mesic Oak Forest, Oak Woodland-Brushland, and Lowland Hardwood Forest
- Wetland Communities: Deep Marshes, Shallow Marshes, Wet Meadows, Shrub Swamps, Wooded Swamps, and Seasonally flooded basins.

For more information on each of the natural community classifications refer to *Minnesota's Native Vegetation, A Key to Natural Communities* (Minnesota Department of Natural Resources, 1993) and *Wetland Plants and Plant Communities of Minnesota & Wisconsin* (Eggers and Reed, US Army Corps of Engineers, 1997).

Roseville is fortunate to have several lakes within the city that serve as important recreational and habitat resources. Langton Lake features a nature trail, an accessible fishing pier and is great for canoeing. Bennett Lake is great for shore fishing and features a new fishing pier with lowered rail sections making it easier for children to fish. It is stocked with walleye fingerlings, channel catfish yearlings, and large adult bluegills. Lake Josephine has public shoreline access at the Ramsey County park. Fishing at Lake Josephine has been limited to angling for bass, small bluegill and the occasional northern pike but stocking of walleye fingerlings is anticipated to provide additional angling opportunities.

McCarrons Lake has a designated shore fishing area along the south shore of the lake near the intersection of South McCarrons Boulevard and Western Avenue accessed by a flight of stairs. Lake Owasso is accessible by a Ramsey County owned boat ramp on North Owasso Boulevard but shore fishing is limited. Owasso is a managed Muskie lake, however, it is most popular with recreational boaters and water skiers.

3.0 Water Resource Management

This section of the CSWMP presents a synopsis of the current organizational entities whose programs and regulations are relevant to the management of water resources within Roseville. The City is committed to the preservation and enhancement of its water resources through full compliance with local, state, and federal regulations.

3.1 County, State and Federal Agencies

There are numerous County, State, and Federal agencies which play a role in managing water resources within the City. Among them are:

- Federal Emergency Management Agency – the Federal Emergency Management Agency (FEMA) operates the National Flood Insurance Program (NFIP). To participate in the NFIP and receive federally backed flood insurance, communities must adopt and enforce floodplain management ordinances to reduce future flood damage.
- Metropolitan Council – the Metropolitan Council is responsible for collecting and treating wastewater for the Twin Cities metro area, monitoring the metro area surface water quality, and leads watershed planning through the authority provided by state law to review and comment on metro area watershed management organization (WMO) or watershed district (WD) plans and local water resources plans as part of local comprehensive plans.

- Minnesota Board of Water and Soil Resources – the Minnesota Board of Water and Soil Resources (BWSR) relevant core functions include water resource planning with comprehensive land use planning, implementing the comprehensive local water management acts, and administering the Wetland Conservation Act.
- Minnesota Department of Health – the Minnesota Department of Health (MDH) is responsible for operating the state's drinking water protection program and implementing the federal Safe Drinking Water Act (SDWA) in Minnesota. The MDH produces source water assessments and drinking water supply management areas as well as aid in the development of local wellhead protection plans.
- Minnesota Department of Natural Resources – the Minnesota Department of Natural Resources (DNR) is responsible for protecting public waters and managing water supply. It regulates activities below the ordinary high water level (OHW) of public waters and public waters wetlands through public water works permits. It also oversees and administers the National Flood Insurance Program (NFIP) for the State of Minnesota
- Minnesota Pollution Control Agency – the Minnesota Pollution Control Agency (MPCA) is charged with administering the federal Clean Water Act (CWA) in Minnesota. Functions relevant to this CSWMP include regulating stormwater through the National Pollutant Discharge Elimination System (NPDES) permits, monitoring and assessing water quality, listing impaired waters, and conducting total maximum daily load studies/reports (TMDLs).
- United States Army Corps of Engineers – the U.S. Army Corps of Engineers permits all work in, over, or under navigable waters of the US under Section 10 of the federal Rivers and Harbors Act. Under Section 404 of the federal CWA, a Corps permit is also required for the discharge of dredged or fill material into waters of the U.S.
- United States Environmental Protection Agency – the U.S. Environmental Protection Agency (EPA) enforces the federal CWA and SDWA, provides support for municipal wastewater treatment plants, and takes part in pollution prevention efforts aimed at protecting watersheds and sources of drinking water.
- Ramsey Conservation District - the Ramsey Conservation District (RCD) is the local agency charged with groundwater protection and under Minnesota Statute Section 103B.255 the authority is provided to prepare and adopt county groundwater plans and implement their policies.

3.2 Watershed Districts

The City of Roseville falls under the jurisdiction of three watershed management agencies. They are the Rice Creek Watershed District (RCWD), the Ramsey-Washington Metro Watershed District (RWMWD), and the Capitol Region Watershed District (CRWD). The geographical extent of each organization's jurisdictional boundaries within the City of Roseville is shown in Figure 17. Note that the jurisdictional boundaries differ slightly from the hydrologic boundaries shown in Figure 2. While hydrologic boundaries represent where the water flows in different directions, jurisdictional boundaries generally follow parcel lines and road alignment to provide a more efficient approach to the administration of the watershed management organization programs.

All three of the Watershed Districts have jurisdictional authority within the City, and therefore each must review the City's Plan to ensure consistency with the respective Watershed District Plan. A generalized overview of the requirements of each organization is presented in Table 6. This is not intended to represent a full analysis of Watershed District rules, each organization should be contacted directly to obtain the most up-to-date information on their goals, policies, and rules.

Table 6
Watershed District Standards Summary

Standard	Rice Creek Watershed District	Capitol Region Watershed District	Ramsey-Washington Metro Watershed District
Project size applicability	Development or redevelopment 1-acre or greater, single family residential development 5-acres or greater; size thresholds do not apply if the site is within the 100-yr floodplain, within 1000' of a public water or wetland, or within 300' or Rice Creek, Clearwater Creek, or a public ditch. (See additional applicability for ESC).	Projects disturbing greater than one acre of land, or 10,000 square feet of land adjacent to a waterbody and repairs, replaces, or creates impervious surface.	Projects disturbing greater than one acre of land.
Water Quality	BMPs sized to treat runoff from a two-year (2.8") storm under the developed condition. For redevelopment disturbing less than 50% of the existing impervious surface and increasing the impervious surface by less than 50% the standard is the 0.8" event rather than the 2.8" event.	Stormwater BMPs shall remove 90% of total suspended solids from the runoff generated by a 2.5-inch rainfall event (NURP water quality storm).	Developments shall incorporate effective non-point source pollution reduction BMPs to achieve 90% total suspended solids removal from the runoff generated by a NURP water quality storm (2.5" rainfall).
Volume Control		Stormwater runoff volume reduction shall be achieved onsite in the amount of one inch of runoff from impervious surfaces.	Stormwater runoff volume retention shall be achieved onsite in the amount equivalent to the runoff generated from a one inch rainfall over the impervious surfaces of the development.
Rate Control	Proposed runoff rates at the site boundary, in aggregate, must not exceed existing rates for the critical two-year and 100-year frequency events.	Runoff rates shall not exceed existing runoff rates for the 2-year, 10-year, and 100-year critical storm events.	Runoff rates for the proposed activity shall not exceed existing runoff rates for the 2-year, 10-year, and 100-year critical storm events.
Wetland bounce/ inundation	Permitted bounce and inundation period based on susceptibility classification of wetland (see Rule C paragraph 7).	Wetlands shall not be drained, filled wholly or in part, excavated, or have sustaining hydrology impacted such that there will be a decrease in the inherent (existing) functions and values of the wetland.	All stormwater must be treated to the water quality standard outlined in Rule C.d.3 before discharge to a wetland.
Wetland buffer	NA	A minimum buffer of 25 feet of permanent District approved non-impacted vegetative ground cover abutting and surrounding a wetland is required.	Wetland buffers shall be required for all developments adjacent to a wetland whether or not the wetland is located on the same parcel as the proposed development. See Rule E, Table 4 for average and minimum wetland buffer widths.

Table 6 (Continued)
Watershed District Standards Summary

Standard	Rice Creek Watershed District	Capitol Region Watershed District	Ramsey-Washington Metro Watershed District
Flood control	No person may alter or fill land below the 100-year flood elevation of any public water, public water wetland or other wetlands without first obtaining a permit from the District. New structures and stormwater basins must be constructed so that the lowest floor and lowest entry elevations comply with district Rule C paragraph 8(e)	Placement of fill within the 100-year floodplain is prohibited unless compensatory storage is provided. All habitable buildings, roads, and parking structures on or adjacent to a project site shall comply with flood control and freeboard requirements (see Rule D, Table 3)	Placement of fill within the 100-year floodplain is prohibited unless compensatory storage is provided. All habitable buildings, roads, and parking structures on or adjacent to a project site shall comply with flood control and freeboard requirements (see Rule D, Table 3)
Erosion and Sediment Control	Site erosion and sediment control practices must be consistent with the Minnesota Pollution Control Agency document "Protecting Water Quality in Urban Areas" (1994), as amended, and District-specific written design guidance and be sufficient to retain sediment on-site. Required for surface soil disturbance or removal of vegetative cover on between one-quarter and one acre of land, if any part of the disturbed area is within 300 feet of the OHW of a lake, stream, wetland or ditch.	Erosion and sediment control measures shall meet the standards for the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program except where more specific standards are required.	Erosion and sediment control measures shall meet the standards for the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program except where more specific standards are required.
Illicit Discharge and Connection	NA	No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water. The construction, use, maintenance or continued existence of illicit connections to the storm drain system without a District permit is prohibited.	No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water. The construction, use, maintenance or continued existence of illicit connections to the storm drain system without a District permit is prohibited.

3.3 City of Roseville

One of the primary means for the City to manage surface water is through this plan which is legally enforceable through city ordinances and standards such as Shoreland, Wetland, Storm Water Management and Floodplain Regulations. City code chapters and sections relevant to surface water management have been included in Appendix C. In addition to City ordinances, Roseville enforces stormwater design standards through development review, building permits and erosion control permits. For example, currently, all sites that are greater than 10,000 square feet or land adjacent to a water resource are required to get an Erosion Control Permit. Further detail regarding design standards can be found in Appendix A.

Enforcement of the City's ordinances and standards goes hand-in-hand with compliance with local, state, and federal regulations. Closely related to surface water management is the NPDES MS4 permit program. As of March 2003, all cities in the Twin Cities metropolitan area are permittees under the NPDES Phase II MS4 Storm Water permit and must therefore meet certain requirements related to stormwater pollution control. The six minimum control measures and associated BMPs of the NPDES MS4 program are included in the City's Storm Water Pollution Prevention Plan (SWPPP) found in Appendix D.

4.0 Goals and Policies

Minnesota Rules, Part 8410.0170, subpart 5 (italics below), relating to Surface Water Management, requires local governments to establish goals and policies for the effective management of water resources.

M.R. 8410.0170, Subpart 5. Establishment of policies and goals (Local Plans). Each local (SWMP) plan must state specific goals and corresponding policies related to the purpose of these plans, be consistent with the policies and goals of the organization plans within the City or township, and address the relation of the local plan to the regional, state, and federal goals and programs outlined in Part 8410.0070.

A **goal** is the specific end point which is desired and **policies** are guiding principles which altogether form a strategy to attain the goals. Plan standards (or storm water development criteria) are an extension of the goals and policies that provide detailed criteria on storm water management practices. This section of the CSWMP outlines goals and policies related specifically to surface water management in the City of Roseville. These goals and policies are a reflection of the City Council's desire to reach and sustain a high quality of life for the City's residents.

4.1 Flood Protection and Runoff Management

Development and the related changes in land use can increase runoff rates and volumes due to additional impervious surface. As areas develop or redevelop at a higher density, storm water runoff generally increases. In addition, and as discussed briefly in Section 2.1, changes in the characteristics of rainfall events are trending toward more intense rainfall and greater depth storms. Whatever the cause, this increase in runoff rates and volumes can result in localized and/or large scale flooding issues in the downstream system. It is important to manage these increased runoff rates and volumes in order to ensure reduction of flooding in the downstream system and to control the potential effects of erosive flows on streams and waterways.

As an established community with a developed built environment, Roseville has dealt with and continues to deal with numerous flooding issues as a result of development altering the

natural hydrology and infiltration characteristics of the land. These resolved and ongoing issues are further elaborated upon in Section 5.0 and the interactive mapping tool accompanying this document.

The City of Roseville has policies and standards that require volume reduction and rate control for new and redevelopment. The City has also adopted a floodplain ordinance, and has adopted policies that regulate minimum building elevations in regards to proximity to surface waters. The City has developed the flood protection and runoff management policies listed in Table 7 to support the flood protection and runoff management goals of this Plan.

Table 7
Goal 1 – Flood Protection and Runoff Management

Goal Statement: Provide flood protection to the maximum extent practicable for all residents and structures and to protect the integrity of our drainage and detention systems through runoff management.	
Policy No.	**Goal 1: Flood Protection and Runoff Management - Policies**
1	The City shall require runoff rate control for land disturbing activities exceeding one-half acre or creating new impervious area of 5,000 square feet or more.
2	The City shall require volume reduction for development and redevelopment projects in accordance with watershed district rules and City standards.
3	For development and redevelopment projects affecting storm water problem areas, the City shall require developers to incorporate practices to resolve a proportionate share of the problem through a reduction based on existing runoff volumes.
4	The City shall require structure freeboard elevations in accordance with watershed district rules and City code (Section 1017.17).
5	The City shall enforce its Floodplain regulations (City Code Chapter 1021) which are designed to minimize flood losses and requires no net loss of storage volume.
6	For newly constructed stormwater retention ponds, the City shall require an emergency overflow spillway to safely convey flows in excess of the 100-year (1% probability) event to the maximum extent practicable.
7	The City encourages reduction of, or minimizing increases in, the amount of impervious surface created as a result of land development or redevelopment activities through City Code, development review processes, and a stormwater utility fee.
8	The City shall cooperate and collaborate with adjacent municipalities and watershed districts to address intercommunity drainage issues.
9	The City shall seek to enhance or maintain existing drainage facilities in a sustainable manner taking into consideration available personnel and financial resources.

4.2 Surface Water Protection

The City of Roseville seeks to maintain and improve the water quality in its lakes, ponds and wetlands. Water quality is often directly related to the water clarity (suspended solids) and level of available nutrients in a water body. While nutrients comprise only one category of substances that can affect water quality, nutrients (principally phosphorous) must be controlled to achieve the water quality goals of this Plan. Phosphorous is most often the limiting factor for plant growth, and increases in available phosphorous allow plant species to dominate the lakes, ponds and wetlands.

Many people do not realize that when organic materials, like leaves, grass clippings, fertilizer and pet waste, enter a waterbody, they can disrupt the ecosystem. Once in the water these organic materials decay, releasing phosphorus. Excess phosphorus increases algae growth, inhibiting the growth of other aquatic plants. When algae die and decay, they exert a biological oxygen demand on the lake, depleting available oxygen for fish and other aquatic species. Limiting nutrient loading to surface waters is one of the keys to maintaining and improving water quality.

There are several activities that can be followed to minimize the delivery of suspended solids and phosphorus into the City's water bodies. These activities include better management of construction site erosion control measures, reducing the level of impervious cover, reducing the extent of managed lawn areas and replacing them with native vegetation, reducing bank erosion, and requiring more infiltration and volume control best management practices for storm water treatment. Residents can also do their part by keeping grass clippings, fertilizer and pet waste out of the streets where it has a direct route into the storm sewer systems and ultimately into lakes, ponds, and wetlands.

To reduce the impacts to shoreland and wetlands the City as adopted a Shoreland, Wetland, and Stormwater Management ordinance. The purpose of the ordinance is to control and guide future development within and surrounding those land areas which are contiguous to designated bodies of public water and areas of natural environmental significance. Any water resource on property to be developed will be subject to these management policies, as well as the rules and requirements of the Wetland Conservation Act, the City and the watershed management organizations.

Table 8
Goal 2 – Surface Water Protection

Goal Statement: Maintain or improve the water quality and ecological integrity of the City's lakes, ponds, and wetlands.	
Policy No.	**Goal 2: Surface Water Protection - Policies**
1	The City shall enforce the Erosion and Sediment Control ordinance (City Code Section 803.04) for all land disturbing activity greater than 10,000 square feet or adjacent to a water resource.
2	The City shall require stormwater treatment for land disturbing activities exceeding one-half acre or 5,000 square feet new impervious. The level of treatment provided shall comply with the infiltration/volume reduction standards or if infiltration is not feasible remove 90% of total suspended solids and 60% of total phosphorus.
3	The City shall enforce the Shoreland, Wetland, and Storm Water Management ordinance to regulate alterations of shorelands and wetlands and to maintain

	existing aquatic, vegetation and wildlife conditions to the maximum extent possible.
4	The City delegates administration of the Wetland Conservation Act (WCA) to the Watershed Districts which will act as the Local Government Units (LGUs) for enforcing the regulations of WCA. The City shall be informed of and provide informal review of all wetland impacts within the City.
5	The City shall cooperate and collaborate with the MPCA and local agencies in conducting and implementing TMDL projects for impaired waters within the City.

4.3 Groundwater Protection

Unlike surface water resources, which can be managed within well defined and limited physical boundaries, groundwater is a natural resource feature of large geographic areas. For this reason, groundwater must be managed by a local government agency that has authority outside of the City's jurisdiction. In Ramsey County, the Ramsey Conservation District has been delegated the responsibility to write and administer the Ramsey County Groundwater Protection Plan. Because drinking water in the City is provided by the St. Paul Regional Water Service and the City does not own any public water supply wells, the City has not prepared a Wellhead Protection Plan.

Table 9
Goal 3 – Groundwater Protection

Goal Statement: Protect the quality and quantity of groundwater through collaboration with local and state agencies managing groundwater resources.	
Policy No.	**Goal 3: Groundwater Protection – Policies**
1	The City will follow the Minnesota Department of Health's (MDOH) guidance on evaluation of stormwater infiltration projects in vulnerable wellhead protection areas (WHPAs) and drinking water source management areas (DWSMAs) to determine if infiltration practices are appropriate.
2	The City acknowledges the potential for stormwater infiltration practices to mobilize soil contaminants and shall support alternate volume reduction practices in areas of known or suspected soil contamination.
3	The City will cooperate with Ramsey Conservation District to develop and revise land-use regulations as necessary in DWSMAs to protect drinking water and public health.
4	The City shall encourage Low Impact Development (LID) to minimize imperviousness and promote naturally occurring groundwater recharge.

4.4 Public Education and Outreach

Public involvement and outreach is a strategy and an effort that recognizes people want to be involved in decisions that affect any facet of their life. Public involvement creates opportunities for the residents and the general public to participate in the processes that

impact them directly which often leads to more informed decision making. Public involvement also allows the City to reach residents that might be looking for educational information on water resources or opportunities to get involved in local improvement projects.

The City's web site is an alternative medium to provide municipal information to both City residents and those people who live outside Roseville. An electronic version of this Plan is accessible on the City's stormwater webpage. Because the Plan has such a wide audience, including engineers, planners, developers, citizens, scientists and educators; electronic access to the text and mapping creates a better understanding of the goals, policies and activities of this Plan, as well as links to previous studies and tools that will help to make better decisions on projects ranging from a development site plan to a backyard landscaping project.

The City will make an ongoing effort on both a City-wide and watershed level toward educating the public by distributing information to its residents on responsible practices they should employ to protect water resources throughout the City. The program can also educate residents on better land use practices such as the benefits of using phosphorus-free fertilizer and keeping grass clipping out of the streets. Educational information will also be provided regarding the proper use of a wide range of lawn chemicals and installing and maintaining rain water gardens.

Table 10
Goal 4 – Public Education and Outreach

Goal Statement: Promote stewardship and increase awareness of land and water resources through public education and outreach.	
Policy No.	**Goal 4: Public Education and Outreach – Policies**
1	The City will continue to implement an education and outreach program using a variety of media, including use of notices, mailings, local cable television, newsletters, articles in Roseville City News, web sites, workshops and/or presentations to inform the community about water resource issues.
2	The City will continue to conduct a public annual stormwater meeting as described in the City's SWPPP for the MS4 NPDES permit.
3	The City shall make this Plan available to the residents of Roseville and general public through the City's stormwater webpage.
4	The City will use a public involvement process in water resource management decision-making (i.e., the Public Works, Environment, and Transportation Commission).
5	The City will make an ongoing effort on both a local and regional level by distributing information to residents on responsible practices to protect water resources such as alternative landscapes, phosphorus free fertilizer, aquatic plant management, proper use of a wide range of lawn chemicals and proper disposal of hazardous household materials etc.
6	The City will work with existing public and private resources to increase public participation in water resources management and disseminate information regarding each of the local watershed management organizations having jurisdiction within the City.

7	The City will cooperate with other organizations and consider establishment of model interpretative sites for public education.
8	The City will continue to educate elected officials on water resources management needs and issues.

4.5 Pollution Prevention and Maintenance

Housekeeping practices, such as removing leaves from streets and storm drains and limiting the use of phosphorus fertilizers, are examples of simple ways individuals (residents) and the City can prevent pollution and make improvements in water quality. Although suspended solids and nutrients are traditionally what come to mind regarding surface water quality pollutants, there are a number of other pollutants that harm surface waters and aquatic ecosystems. The following list summarizes additional water quality pollutants of concern to regional surface waters:

- **Chloride.** Chloride is a main component of most deicing products such as road salt. Once in the water, it is a conservative pollutant making it difficult to remove. It can be toxic to aquatic plants and organisms and can reduce or delay vertical mixing in lakes. Using properly calibrated equipment to apply deicing products is one of the ways City crews reduce the amount of chlorides applied to City streets.
- **Pathogens.** Pathogens are disease causing organisms such as Giardia and Cryptosporidium. They are difficult to identify and thus fecal coliform and *E. coli* bacteria are used to indicate the possible presence of pathogens. Sources are human, pet, livestock, and wildlife excrement.
- **Mercury.** Mercury is naturally occurring element which finds its way to surface waters primarily through atmospheric deposition. The primary regional source of atmospheric mercury is from burning coal. Once in the water, it is converted to methylmercury which bioaccumulates up the food chain and is a known neurotoxin which impacts the central nervous system. Several of the City's lakes are impaired for mercury resulting in fish consumption advisories.
- **Other heavy metals** (e.g. lead, zinc, copper and cadmium). Heavy metals are primarily found bound to suspended solids in stormwater and surface waters although they are also present in dissolved forms. They can be toxic in certain concentrations to animals and humans.
- **Polycyclic aromatic hydrocarbons (PAHs)**. PAHs are a class of chemicals that harm fish and, with prolonged exposure, pose a risk of cancer in humans. Common sources are coal-tar based sealcoat, petroleum products and oil. A current challenge for many cities, including Roseville, is how to cost-effectively remove sediments from stormwater ponds that have PAH levels that require disposal at a landfill.
- **Polychlorinated biphenyls (PCBs).** PCBs are a class of chemicals manufactured and commonly used from 1930 to 1979 in electrical and hydraulic products. They do not readily break down in the environment and bioaccumulate in organisms, fish, and ultimately humans who ingest the fish. The EPA and other organizations consider PCBs to be probable human carcinogens.
- **Perfluorochemicals (PFCs).** PFCs are a family of chemicals used to make products resist heat, oil, stains, grease, and water. Examples of PFCs are perfluorooctane sulfate (PFOS) and perfluoroocanic acid (PFOA) which are extremely resistant to breakdown in the environment and bioaccumulate in animals and humans. In animal studies high

concentrations of PFCs have been shown to have adverse health effects but he effects in humans are still unclear.

- **Endocrine disrupting compounds (EDCs).** EDCs are not a discrete class of chemicals but rather a chemical which mimics or blocks normal hormonal function in animals and humans (a process called endocrine disruption). In animals, exposure to EDCs has been associated with reduced reproductive success, reduced survival, altered sex typing, and developmental abnormalities. Potential EDCs include chemicals such as PCBs, polybrominated biphenyls (PBBs), bisphenol A (BPA), phthalates, and many others found in a range of products from pharmaceuticals and personal care products to pesticides.

Many of the pollutants listed above are either already in the environment (e.g. PCBs, PFCs) or are found in many commonly used products (e.g. Chloride, PAHs, EDCs) and are difficult to remove from the aquatic environment once introduced with traditional treatment methods. To avoid potentially expensive remediation/treatment costs associated with many of these substances, the City will need to take a proactive approach with preventing/reducing the use of such substances through considerable educational efforts and public policies.

Examples of efforts the City has already made towards pollution prevention include reducing road salt usage and prohibiting the use of coal-tar based sealers. The City also has an illicit discharge ordinance which prohibits illicit discharge of non-stormwater into the storm sewer system and intentionally disposing of grass, leaves, dirt, or landscape material into a water resource, natural conveyance, or street/road/alley.

Complementing pollution prevention is performing routine maintenance of existing stormwater treatment and drainage systems. As sediment builds up over time, it reduces the capacity of drainage systems and the pollutant removal capabilities of ponds by reducing dead storage volume (i.e., the volume below the outlet elevation). Sediment from erosion can also significantly reduce infiltration rates in basins or BMPs designed for volume control and/or groundwater recharge. Extending the life of these facilities involves source control and elimination of material that causes the problem, and maintenance of the systems on a regular basis. Better construction methods and maintenance efforts will control a major portion of the sediment at the source, and an effective street sweeping program will also have a positive impact.

Table 11
Goal 5 – Pollution Prevention and Maintenance

Goal Statement: Protect the quality of the City's water resources through pollution prevention, good housekeeping practices, and routine maintenance.	
Policy No.	**Goal 5: Pollution Prevention and Maintenance – Policies**
1	The City encourages residents to take advantage of the free Ramsey County yard waste collection sites, Roseville Leaf Recycling Center or backyard composting to prevent these potential sources of TSS and nutrients from reaching the storm sewer system and downstream receiving water bodies.
2	The City encourages residents to properly dispose of household hazardous waste (cleaning products, automotive fluids, lawn and garden chemicals, ect.) at a Ramsey County collection site to prevent these potential sources of pollutants from reaching the storm sewer system and downstream receiving

	water bodies.
3	The City prohibits non-storm water discharges to the storm drainage system to the maximum extent practicable as described in the Section 803.03 (Storm Water Illicit Discharge and Connection) of the City Code.
4	The City shall conduct street sweeping at least three times a year. The first sweep shall be as soon as practical in the spring. Storm water sensitive areas are priority and swept first throughout the year.
5	The City prohibits the use of coal tar-based sealer on asphalt driveways and parking lots within the City to prevent Polycyclic Aromatic Hydrocarbons (PAHs) present in coal tar from contaminated stormwater runoff and downstream receiving water bodies (City Code Chapter 410).
6	Appropriate City staff shall have training and equipment available to deal with small spills of hazardous material on City property. All spills which cause pollution of the air, land, or water resources must be reported immediately to the State Duty Officer at 651.649.5451.
7	Appropriate City staff shall have training on best management practices for the application of road salt and de-icing materials and shall reduce the amount of chlorides to the maximum extent practicable. The City also encourages property owners to reduce salt usage and offers tips to cut salt usage on the City website.
8	The City limits phosphate application within the City and prohibits application during certain periods and on impervious surfaces. The fertilizer ordinance (City Code Chapter 408) also includes licensing requirements for commercial applicators.
9	The City shall annually inspect and clean all structural pollution control devices. A minimum of 20 percent of the MS4 outfalls, sediment basins and ponds are inspected annually on a rotating basis in accordance with its SWPPP. Cleaning, sediment and debris removal will be performed as necessary.
10	The City requires private storm water systems to be maintained in proper conditions consistent with the performance standards for which they were originally designed (City Code Section 1017.26 Subp. B.4). Clean up and removal of settled materials is required every five years.

4.6 Coordination and Collaboration

A successful surface water management program requires extensive coordination with the many regulatory agencies having jurisdiction in the City as well as close collaboration with the local watershed organizations and the developers proposing projects within the City. The best solutions are often found through combined efforts and from building on what others have learned from similar projects and/or similar management activities. Coordination and collaboration will be accomplished through a variety of methods including meetings and

discussions with project partners and regulators on a project-specific basis; ongoing posting and updates of this plan on the City's webpage; posting design standards and historical surface water studies and resources on the City's webpage; and participating in organizational programs like the Public Works Forum and the Minnesota Cities Stormwater Coalition.

The three watershed management organizations (Capitol Region, Ramsey-Washington-Metro and Rice Creek) all have very active programs with a wealth of resources and staff to assist the City towards meeting the goals of this plan. The watersheds have funding programs that can assist the City with its municipal projects as well as residents on their individual projects.

The City will continue to collaborate with residents by providing an opportunity for residents to recycle yard waste and obtain compost and woodchips for landscape projects.

Table 12
Goal 6 – Coordination and Collaboration

Goal Statement: To simplify and streamline processes and draw upon the expertise and resources of other local, state, and federal agencies in water resources management efforts.	
Policy No.	**Goal 6: Coordination and Collaboration – Policies**
1	The City will endeavor to inform developers about Federal, State, and local stormwater management regulations including the NPDES requirements, watershed district rules, floodplain regulations, and WCA rules.
2	The City shall utilize educational materials and activities from watershed districts and other entities to deliver a consistent message regarding water resources and stewardship.
3	City staff will be encouraged to attend watershed district hosted education programs directed at municipal officials and staff.
4	The City shall seek opportunities to leverage limited available funding through project partnerships.
5	The City shall encourage landscaping practices that promote infiltration and promote existing programs that meet this goal such as the leaf recycling center, which includes compost and woodchips for property owners to use.

4.7 Sustainability

Sustainability means many things to many people. For some it is an opportunity, for others it is an obligation, and in many cases, it is an expectation of communities, businesses and citizens. The most basic definition of sustainability is "meeting our current needs without sacrificing the ability of future generations to meet their own needs." In a very basic sense, this is accomplished by balancing environmental, economic, and social (quality of life) considerations. A sustainable approach inherently achieves efficiencies that balance environmental, economic, and social demands.

As mentioned previously in this Plan, *sustainability* is a thread that is woven throughout the City's Comprehensive Plan, and this CSWMP is an integral component of the City's Comprehensive Plan. As in the Comprehensive Plan, this CSWMP will serve as a guide towards improving sustainability across all aspects of the City's surface water management program and activities. Sustainability represents an approach that strives to achieve the most

efficient use of community resources. It is a complicated concept that includes many facets of City government and includes areas such as waste reduction, water conservation, and carbon-emission reduction.

Nature is a good example to follow as it works to reduce runoff volumes by infiltration, reduce soil loss through vegetation, enhance habitat, and reduce pollutants in storm runoff by infiltration and biological uptake. When we develop land, we change the natural system. Often, we increase both the peak runoff rate as well as the volume of runoff. The increase in both developed runoff rate and volume can be harmful to downstream channels, resulting in degradation. This degradation has effects on habitat as well as water quality by increasing sediment loads.

In addition to increasing runoff, we also introduce new sediment loads and pollutants into the natural system through the development process. During construction, we can introduce new sediment loads by exposing previously vegetated soil. After development is completed, we often see a whole new set of pollutants in storm runoff.

The primary objectives of stormwater sustainability are to mitigate these changes to the natural system. The City goals and policies for sustainable stormwater management area listed in Table 13.

Table 13
Goal 7 – Sustainability

Goal Statement: Achieve the water quality and water resources needs of the City based on the foundation of efficient use of community resources. In this approach both capital costs and long-term operational costs will be considered as well as the overall costs of a given project towards protection and/or improvement of the City water resources.	
Policy No.	**Goal 7: Sustainability – Policies**
1	The City will use the recently completed Stormwater Reuse Guide (Metropolitan Council, Fall 2011) as a guide in considering water reuse on City projects.
2	The City will strive to incorporate construction, building, and landscape designs that mimic natural systems, and infiltrate, retain, detain rainfall onsite, or can reduce excess flows into our sewers, streets, and waterways.
3	The City shall consider using trenchless technologies to reduce the impact on the ground surface and expose less disturbed area to erosion and runoff when appropriate.
4	The City shall consider tree trenches for stormwater treatment and encourage the installation of trees in boulevards and parking lots for stormwater management.
5	The City shall seek to collaborate efforts with the Parks Renewal Program and incorporate multi-use green space.
6	The City shall endeavor to incorporate pretreatment, treatment trains, and maintenance access for new and retrofit public stormwater treatment facility projects.

5.0 Issues Assessment

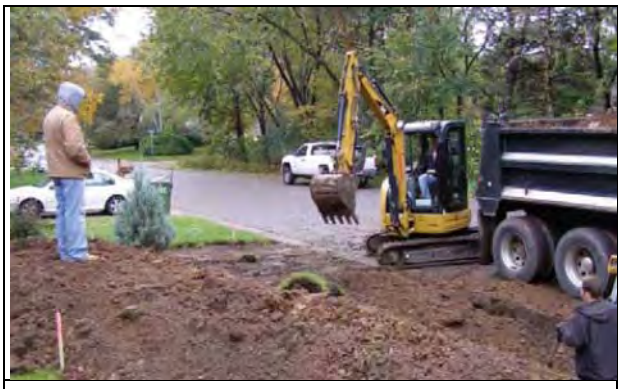
5.1 Resolved Issues & Past Project Examples

The following sections provide descriptions of past example projects and resolved issues. Figure 18 identifies the locations of the following examples.

5.1.1 Rosewood Neighborhood Drainage Improvements

The existing storm sewer system in the Rosewood neighborhood consists of a network of pipes that lead to a manhole at Draper Avenue and Midland Hills Road. From this manhole, the storm water runoff flows through a dual pipe system west to Walsh Lake. The existing storm sewer system was built in the 1970's and additional build-out of the neighborhood, which included the filling of wetlands, resulted in an under-sized storm sewer system for today's conditions.

The pipe configuration at Draper Avenue and Midland Hills Road creates a bottleneck on the system, which causes localized street flooding. The streets in this neighborhood are in good condition; upsizing the entire storm sewer system wouldn't have been a cost-effective manner in which to improve the drainage conditions, as it would have required significant pavement removal and excavation. In addition to costs, upsizing the pipe would increase flow rates into Walsh Lake. Since the outlet of Walsh Lake is controlled by a lift station, increased flow to Walsh Lake could cause significant problems downstream and localized flooding



Rain garden being constructed in Rosewood Neighborhood

Instead, the City of Roseville installed 19 neighborhood raingardens in the Walsh Lake area to encourage infiltration of stormwater runoff and alleviate frequent local flooding problems. Additionally, a large underground storage/infiltration device was installed and Rosewood Wetland was expanded to provide additional stormwater storage and treatment capacity in this area. Creating additional storage possibilities throughout the existing storm sewer system alleviated the stress on the existing system; reduced the threat of flooding, while also improving water quality. By creating additional storage to reduce the risk of flooding, street flooding has also been reduced.

5.1.2 Aladdin Street Bioinfiltration Basin Retrofit Installation

A long urbanized area along Aladdin Street in Roseville drains to a wetland which is hydraulically connected to Lake Owasso. To provide water quality treatment for this area, the Grass Lake Watershed Management Organization, in cooperation with the Ramsey Conservation District and City of Roseville, installed a bioinfiltration basin with funding provided by the Clean Water Land & Legacy Amendment Fund.

Aladdin Street Bioinfiltration Basin Retrofit
(Source: Ramsey Conservation District)

5.1.3 Arona Pond Reconstruction

Arona pond is located within the Applewood Pointe redevelopment area. Prior to development, this pond was a landlocked basin. For years, the normal water level of the pond was governed by infiltration. As the surrounding area developed, the basin became a part of

the storm water system. An outlet was installed around 1979 that enabled the basin to pass runoff from extreme events. Approximately 112 acres contribute runoff to Arona Pond. Over the years, the sandy bottom of this pond became sealed with sediment, eliminating the infiltration capacity of the basin. This resulted in localized flooding of the surrounding properties.

As a part of the Applewood Pointe redevelopment project in 2003, the City reconstructed this pond. The reconstruction project nearly doubled the capacity of the basin. Years of sediment accumulation was excavated, restoring the infiltration capacity that had been sealed. In addition, a lift station was constructed to provide a secondary outlet for extreme events. The new pond serves as a regional storm water treatment facility for the subwatershed.

5.1.4 South Owasso Boulevard

As a part of the 2006 South Owasso Boulevard Reconstruction project, the City constructed the improvements for the storm water runoff being discharged into Ladyslipper Park. Between Rice Street and Western Avenue, approximately 160 acres of single family residential property drain into Lake Owasso through a drainage ditch that cuts through Ladyslipper Park in a north south direction. This ditch was constructed in 1971 as a canoe access to Lake Owasso. In the 1991 Lake Owasso Survey report, it was determined that the removal efficiency of this system is very limited. Only 30 to 50% of suspended solids and 9% of the total phosphorus were removed before being discharged into Lake Owasso.

In 2005, the City constructed a two cell pond system north of the road as well as three wetland/ biofiltration basins south of the road. These basins increased the TSS removal to 81% and Phosphorus removal to 52%. This is a significant improvement to this subwatershed area.

5.2 Ongoing Issues

While the previous section provided just a few of the many project examples and accomplishments the City has made in the 20 plus years since completing its first surface water management plan, there is also more work ahead. Many of the flooding issues of that past have been addressed, but some remain. New water quality issues and concerns are emerging each year, requiring varying levels of effort by the city to address. And, the ongoing maintenance and operation of the storm water system has grown much more complex over the years due to new regulations and a better understanding of what is necessary to keep the treatment ponds and filtration systems functioning properly. This section of the plan provides an overview of some of the more significant of these ongoing issues that will require substantial efforts and resource commitments. Location specific issues such as localized flooding issues and ongoing impairments are identified in Figure 19.

5.2.1 Localized Flooding Issues

While many of the known flooding areas have been addressed by infrastructure improvements over the past 20 years, some remain and are identified in the implementation section of the plan. Unfortunately, the very nature of storm water management means that at some point new issues will likely present themselves due to the plugging of a storm system from debris, for example, or simply a larger or more intense rainfall event than the City has previously experienced. The flooding in Duluth, Minnesota in June 2012 is a notable example of how a storm larger than anticipated can create problems where none existed in the past and will require extensive repair and restoration work for months to years.

5.2.2 Water Quality Impairments

Earlier sections of this plan presented the current known and confirmed impairments to waters within the City. The plan also discussed a few of the emerging water quality issues that have the potential to significantly alter the quality and characteristics of water resources. Much like some localized flooding issues that won't be identified until the next big rainfall, new water quality issues may not be known for years to come. Researchers throughout the country are identifying new issues on a regular basis and regulators and policy makers are developing requirements and guidance to manage these new pollutants. The City's plan is to focus resources on the pollutants that they can best address, such as total suspended solids and total phosphorus and at the same time recognize that new issues may arise that requires adjustment to the current approach.

5.2.3 Operation and Maintenance

With more than 140 public storm water treatment systems (ponds, infiltration basins, etc.), more than 120 miles of storm pipe and an extensive road system on which to complete street sweeping and deicing, the overall stormwater system operation and maintenance needs of the City is significant. In fact, the resources needed to maintain the system will likely grow due to more treatment devices being installed each year and the need to conduct maintenance on those that have been in service for 20 years or more. One of the most challenging ongoing maintenance needs will be the pond cleanout work that relates to requirements of the NPDES MS4 Permit Program. The MPCA recently published Managing Stormwater Sediment Best Management Practice Guidance for Municipalities (June 2012) and describes when the dredged sediment can be used as unregulated clean fill and when it is considered regulated solid waste. The cost difference can be significant depending on the levels of contaminants of concern found in tested sediment samples.

5.2.4 Education and Outreach

Managing storm water is no longer just the responsibility of the City. A coordinated approach with residents, local interest groups, developers, City and watershed staff, and elected officials is needed in order to achieve local water quality improvements and meet the goals of this plan. The City is required to complete public education efforts as part of its NPDES MS4 Permit Program. The City has also conducted and supported a number of educational programs such as rain water garden workshops that help residents contribute to community efforts. These efforts will continue to be critical towards improving management of grass clippings, fertilizers, chemicals and yard waste. The efforts will help to reduce the chances of a residential backyard grading project that might change the flow of storm water, and they will help inform the public of fish consumption advisories on area lakes and invasive species issues.

6.0 Implementation Program and Funding

The Implementation Program intended to provide guidance in carrying out the Plan goals and objectives. The Implementation Program and funding section summarizes capital improvement projects, studies and ongoing maintenance, inspection, monitoring and other management activities. This Plan is intended to serve the City for at least the next ten years and many of the program activities will continue at least out to the year 2030.

Except for the activities that are taken from the City NPDES SWPPP, the Implementation Program is not a hard and fast commitment to complete each and every activity in the time frame suggested. Rather, it is a suggested course of action that will help to accomplish the major goal of this plan.

Table 14 (at the end of this section) summarizes the activities and efforts of the overall implementation program. Information in the table is not the entire body of work the City conducts or will do in the area of storm water management. Rather, the table provides a summary of the some of the key efforts needed to help achieve the goals of this Plan. Estimated planning-level costs of recommended actions are provided with a cautionary note that they are not intended to set unrealistic expectations of the actual costs of projects and/or activities. The costs provided are intended to serve as an order-of-magnitude look at what the activity may require.

Paying for water management projects and administrative activities has become more complex in recent years. In addition, public improvement and private development projects are seeing a higher percentage of their planning and construction budget being needed for water resources and environmental protection efforts. In the past, special assessments against benefited properties financed most of the necessary improvements. However, the financial options have broadened considerably. The question is which method or methods best suit the needs of the City. The major categories of funding sources are: Ad Valorem Taxes; Special Assessments; Storm Water Utility; and Grants, as summarized below.

- *Ad Valorem Tax*. General taxation is the most common revenue source used to finance government services, including minor maintenance measures for drainage and water quality facilities. Using property tax has the effect of spreading the cost over the entire tax base of a community. A special tax district can also be used to raise revenue. The special tax district is similar to the administrative structure under general taxation except that all or part of the community may be placed in the tax district. The principle is to better correlate improvement costs to benefited or contributing properties.
- *Special Assessments*. Municipalities are familiar with the use of special assessments to finance special services from maintenance to construction of capital improvements. The assessments are levied against properties benefiting from the special services. The philosophy of this method is that the benefited properties pay in relation to benefits received. The benefit is the increase in the market value of the properties.
- *Trunk Storm Sewer/Development Fees.* Fees charged to new development that generates runoff can be charged to finance infrastructure needed to serve the development. This is a useful tool in communities that are rapidly developing.
- *Storm Utility Fee*. A utility is a service charge or fee based on usage, similar to the fees charged for sanitary sewer or potable water supply. The fee is typically charged against improved parcels based on the concept of contributors (or users) pay. The rate structure is based on the land use type, density, and parcel size to reflect the typical runoff contributed by a given parcel. In some cases parcels may be eligible for a credit to reduce their fee.
- *Grants*. State grants are available for surface water management and non-point source pollution. However, it is generally not a good financial practice to rely on grants for a service program. This source of revenue is not dependable and requires constant speculation as to its availability. Grants are useful but should only be used to supplement a planned local revenue source. Some of the agencies and programs that may have available grant funds include:
  - Environmental Protection Agency
  - Watershed Districts
  - U. S. Fish and Wildlife Service
  - Minnesota Department of Natural Resources

- Metropolitan Council
- Ramsey Conservation District
- Minnesota Board of Water and Soil Resources
- Minnesota Pollution Control Agency

The City currently has a storm drainage utility fee in place which funds storm water management related costs such as educational programs, construction of treatment systems and maintenance of the overall storm water treatment and conveyance systems (storm sewer maintenance and street sweeping). Using a combination of all available funding sources will be continued in order to fund surface water management activities within Roseville. The charges and fees will be reviewed and adjusted annually to ensure adequate funding for the activities set forth in this plan and those required by law.

Table 14
Implementation Plan

Applicable Goal	Activity/Project	Schedule (Priority)	Location	Estimated Cost
Flood Protection and Runoff Management	Expand the drainage analysis of the I-35W corridor at Co. Rd. C and evaluate options for upstream storage/volume reduction potential to alleviate flooding at Cleveland Avenue and the ponds at the highway ramps.		35W-3	
Flood Protection and Runoff Management	Investigate alternatives for the Walsh Lake outlet and/or explore opportunities to provide upstream volume control at the Midland Hills golf course.		WL-6	
Flood Protection and Runoff Management	Construct storage capacity within the Fairview Avenue trunk storm sewer drainage area to alleviate flooding at the Trunk Highway 36 low point and provide system – wide surcharge relief.		OP-1	
Flood Protection and Runoff Management	Construct an alternative drainage outlet for the Dellwood/Sherren neighborhood to the Highway 36 ditch system and/or provide additional storage capacity/volume reduction upstream in the Willow Pond drainage area to provide surcharge relief.		WP-1	
Coordination and Collaboration	Collaborate with CRWD on improvements for the Villa Park sub-watershed.		ML-9	
Coordination and Collaboration	Collaborate with the City of Maplewood and CRWD to resolve storm sewer capacity issues at Center Street which discharges into the Trout Brook Interceptor storm system.		TB-2	
Coordination and Collaboration	Explore with RCWD the potential to incorporate BMPs in the Rosedale Mall area to reduce flooding and improve water quality.		OP-1	
Surface Water Protection	Track load reductions of BMPs in watersheds of impaired waters as a condition of the requirements for the MS4 NPDES (draft 2012) permit and TMDLs.		Citywide	
Public Education and Outreach	Collaborate with Parks and Recreation to create a stormwater exhibit at the Harriet Alexander Nature Center to educate visitors on the impacts non-point sources have on water quality and wildlife.		LO-8	

Pollution Prevention and Maintenance	Monitor sedimentation in city storm water ponds. Implement a pond cleanout and dredging program to restore design capacity.		Citywide	
Public Education and Outreach	Develop education for property owners on how to manage snow removal to minimized water quality and quantity concerns.		NA	
Public Education and Outreach	Investigate the potential for developing an electronic public photo database of unique features/BMPs and before & after examples of City water resource projects.		NA	
Pollution Prevention and Maintenance	Develop Standard Operating Procedure (SOP) documents in compliance with requirements of the (draft 2012) MS4 NPDES permit.		NA	
Surface Water Protection	Review and update as necessary the City's design standards for water quality treatment, rate control and volume reduction. Update the design standards for design events when the NWS publishes updated rainfall frequency estimates.		NA	
Public Education and Outreach	Investigate opportunities to collaborate on developing unique public education opportunities such as a stormwater geocache.		NA	
Sustainability	Incorporate water resources elements of the Complete Streets Policy into city projects.		NA	
Coordination and Collaboration	Collaborate with the Parks and Recreation Commission to incorporate stormwater BMPs, above and beyond required levels, concurrent with the parks renewal program while maintaining active park space.		Citywide	
Coordination and Collaboration	Investigate and seek opportunities to partner with WDs, RCD, and local entities (e.g., religious groups, schools, and service clubs) on water quality improvement projects.		Citywide	
Sustainability	Monitor the Twin Lakes water reuse system and develop a water reuse policy.		NA	
Flood Protection and Runoff Management	Conduct analysis to identify vulnerable areas where 100-yr flood protection is not possible and prepare emergency response plan.		Citywide	
Public Education and Outreach	Expand the City's website to include this plan, identify citizen involvement opportunities, and provide additional storm water management resources.		NA	

Public Education and Outreach	Explore an annual City Council recognition program for environmental projects completed in the City.		NA	
Groundwater Protection	Explore the potential for a policy regarding monitoring requirements of underground storage and infiltration BMPs treating large commercial/industrial areas.		NA	
Coordination and Collaboration	Explore requirements to transfer the LGU authority for administering the WCA to the Waterhshed Districts having jurisdiction in the City.		NA	
Surface Water Protection	Effectively update Shoreland, Wetland, and Stormwater Management ordinance to meet the goals of the CSWMP		NA	
Surface Water Protection	Establish ordinary high water or boundaries for all waterbodies within the City for purposes of effectively implementing the Shoreland, Wetland, and Stormwater Management ordiance.		NA	
Pollution Prevention and Maintenance	Develop a private BMP agreement and incorporate into City asset management system for tracking.		NA	
Flood Protection and Runoff Management	Develop a stormwater utility fee credit.		NA	

7.0 Plan Adoption and Amendments

7.1 Formal Plan Review and Adoption

Minnesota Statute 103B.235, Subd. 3 (italics below) describe the required formal review process for local water management plans.

Subd. 3. ***Review.*** *After consideration but before adoption by the governing body, each local unit shall submit its water management plan to the watershed management organization for review for consistency with the watershed plan adopted pursuant to section 103B.231. If the county or counties having territory within the local unit have a state-approved and locally adopted groundwater plan, the local unit shall submit its plan to the county or counties for review. The county or counties have 45 days to review and comment on the plan. The organization shall approve or disapprove the local plan or parts of the plan. The organization shall have 60 days to complete its review; provided, however, that the watershed management organization shall, as part of its review, take into account the comments submitted to it by the Metropolitan Council pursuant to subdivision 3a. If the organization fails to complete its review within the prescribed period, the local plan shall be deemed approved unless an extension is agreed to by the local unit.*

Subd. 3a. ***Review by Metropolitan Council.*** *Concurrently with its submission of its local water management plan to the watershed management organization as provided in subdivision 3, each local unit of government shall submit its water management plan to the Metropolitan Council for review and comment by the council. The council shall have 45 days to review and comment upon the local plan or parts of the plan with respect to consistency with the council's comprehensive development guide for the metropolitan area. The council's 45-day review period shall run concurrently with the 60-day review period by the watershed management organization provided in subdivision 3. The Metropolitan Council shall submit its comments to the watershed management organization and shall send a copy of its comments to the local government unit. If the Metropolitan Council fails to complete its review and make comments to the watershed management organization within the 45-day period, the watershed management organization shall complete its review as provided in subdivision 3.*

The following organizations will receive Agency Review Drafts of this plan for the formal review and comment:

- Rice Creek Watershed District (60-day review period)
- Capitol Region Watershed District (60-day review period)
- Ramsey-Washington Metro Watershed District (60-day review period)
- Ramsey County (45-day review period)
- Metropolitan Council (45-day review period)

After the City receives formal comments on the Agency Review Draft, the City's consultant will make necessary revisions to the plan to receive agency approval. Upon approval of the plan the City Council must formally consider and adopt the Final Plan through a Council Action.

7.2 Amendment Process

The Comprehensive Surface Water Management Plan is intended to extend approximately through the year 2022. In conjunction with this Plan, the NPDES SWPPP activities will be reviewed and evaluated annually in a public meeting and the permit program itself will be updated as required by the MPCA NPDES permit program. For this plan to remain dynamic, an avenue must be available to implement new information, ideas, methods, standards, management practices, and any other changes which may affect the intent and/or results of this Plan. Amendment proposals can be requested at any time by any person or persons either residing or having business within the City.

7.2.1 Request for Amendments

Any individual can complete a written request for a Plan amendment and submit the request to City staff. The request shall outline the specific items or sections of the Plan requested to be amended, describe the basis and need for the amendment and explain the desired result of the amendment towards improving the management of surface water within the City. Following the initial request, staff may request that additional materials be submitted in order for staff to make a fully-informed decision on the request.

The City may also initiate an amendment to respond to amendment to a local watershed organization plan or following the completion and approval of a TMDL implementation plan.

7.2.2 Staff Review

Following a request for Plan amendments, staff will make a decision as to the completeness and validity of the request. If additional information is needed by staff to determine the validity of the request, staff will generally respond to the requestor within 30 days of receiving the request.

Following receipt of sufficient information such that validity of the request can be evaluated, there are three options which are described below:

a. Reject the amendment. Staff will reject the amendment if the request reduces, or has the potential to reduce, the Plan's ability to achieve the goals and policies of the Plan, or will result in the Plan no longer being consistent with one or more of the watershed district's plans.

b. Accept the amendment as a minor issue, with minor issues collectively added to the plan at a later date. These changes will generally be clarifications of plan provisions or to incorporate new information available after the adoption of the 2012 Plan. Minor changes will generally be evaluated on the potential of the request to help staff better implement and achieve the goals and policies the Plan. Minor issues will not result in formal amendments but will be tracked and incorporated formally into the Plan at the time any major changes are approved.

c. Accept the amendment as a major issue, with major issues requiring an immediate amendment. In acting on an amendment request, staff should recommend to the City council whether or not a public hearing is warranted. In general, any requests for changes to the goals and policies or the development standards established in the Plan will be considered major amendments.

Staff will make every attempt to respond to the request within 30-60 days of receiving sufficient information from the requestor. The timeframe will allow staff to evaluate the request internally and gather input from the WD/WMOs and other technical resources, as

needed. The response will describe the staff recommendation and which of the three categories the request falls into. The response will also outline the schedule for actions, if actions are needed to complete the requested amendment.

7.2.3 Watershed District Approval

All proposed major amendments must be reviewed and approved by the appropriate Watershed Districts prior to final adoption of the amendments. Major amendments would include changes to the goals and policies of the Plan. Staff will review the proposed amendments with the WDs to determine if the change is a major amendment and if determined to be major amendment, then will assess the ability of the requested amendment to maintain consistency with WD plans.

7.2.4 Council Consideration

Major amendments and the need for a public hearing will be determined by staff and if identified as a major amendment, the request will be considered at a regular or special Council meeting. Staff recommendations will be considered before decisions on appropriate action(s) are made. The requestor will be given an opportunity to present the basis for, and intended outcomes of, the request at the public hearing and will be notified of the dates of all official actions relating to the request.

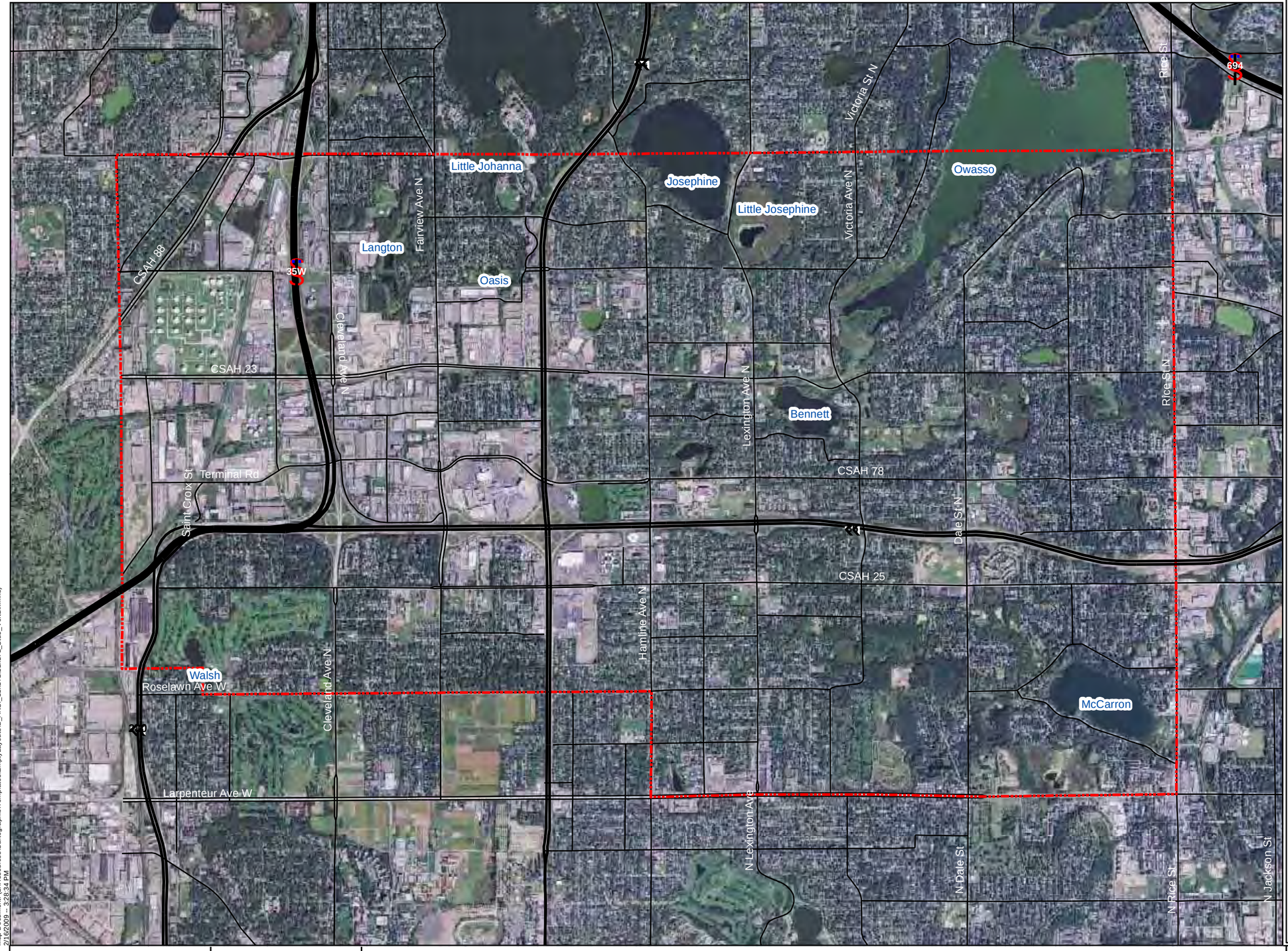
7.2.5 Public Hearing and Council Action

The initiation of a public hearing will allow for public input or input based on public interest in the requested amendment. Council, with staff recommendations, will determine when the public hearing should occur in the process. Consistent with other formal Council actions and based on the public hearing, Council would adopt the amendment(s), deny the amendment(s) or take other action.

7.2.6 Council Adoption

Final action on any major amendments, following approval by the Watershed Districts, is Council adoption. Prior to the adoption, an additional public hearing may be held to review the Plan changes and notify the appropriate stakeholders.

List of Figures



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Project: ROSEV 120222
Print Date: 08/15/2012

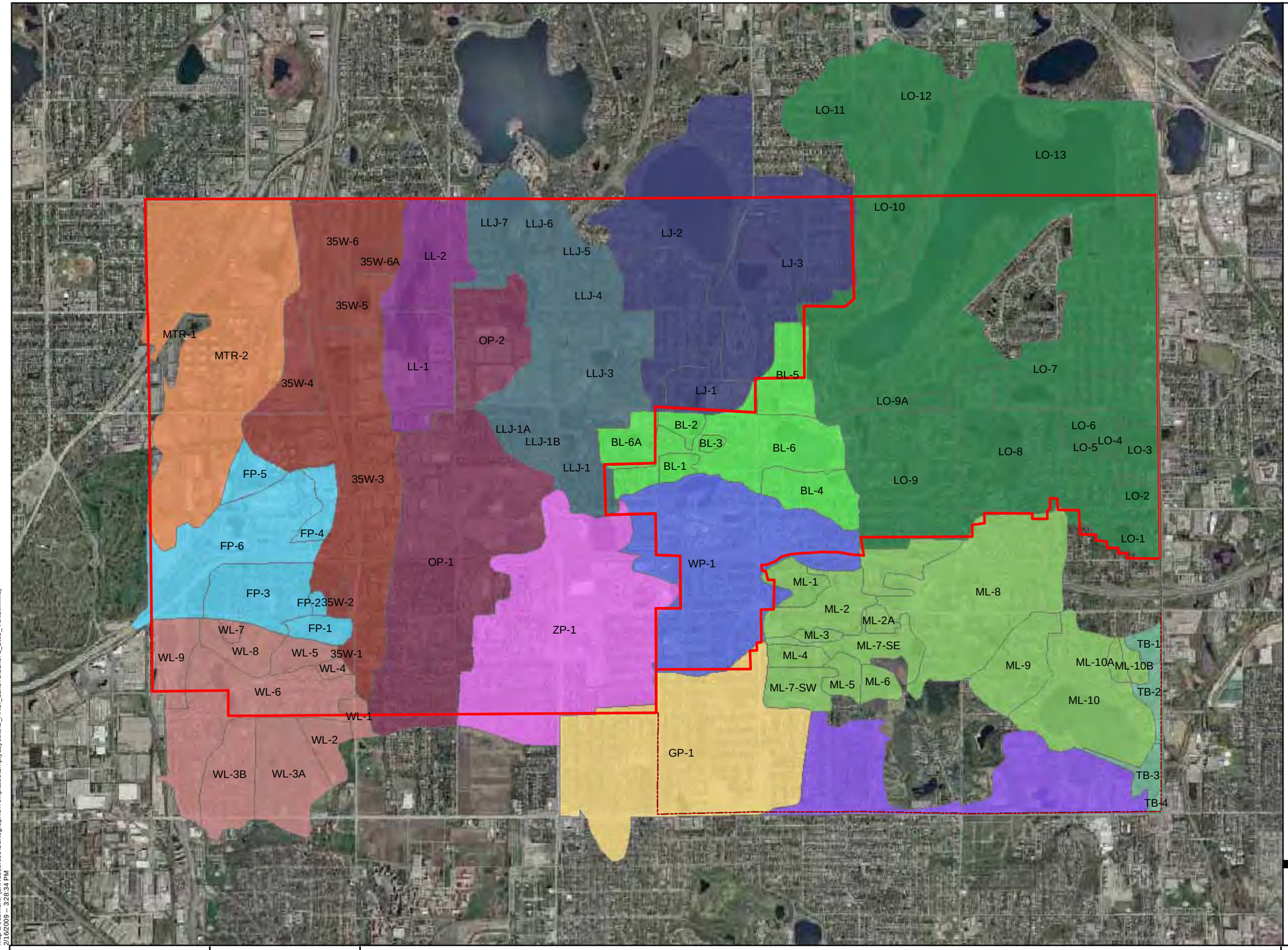
Map by: ah
Projection: Transverse Mercator
Source: City of Roseville

Comprehensive Surface Water Management Plan

Roseville, MN

Location

Figure 1



Legend

City Boundary

SubWatersheds

MAJORDIST

- 35-W
- BENNETT LAKE
- CO. DITCH NO. 10
- FULHAM POND
- GODFREY PIT
- LAKE JOSEPHINE
- LAKE OWASSO
- LANDLOCKED
- LANGTON LAKE
- LITTLE LAKE JOHANNA
- MCCARRON LAKE
- MTR POND
- OASIS POND
- TROUT BROOK
- WALSH LAKE
- WILLOW POND
- ZIMMERMAN LAKE

N

1,250 2,500 5,000 Feet

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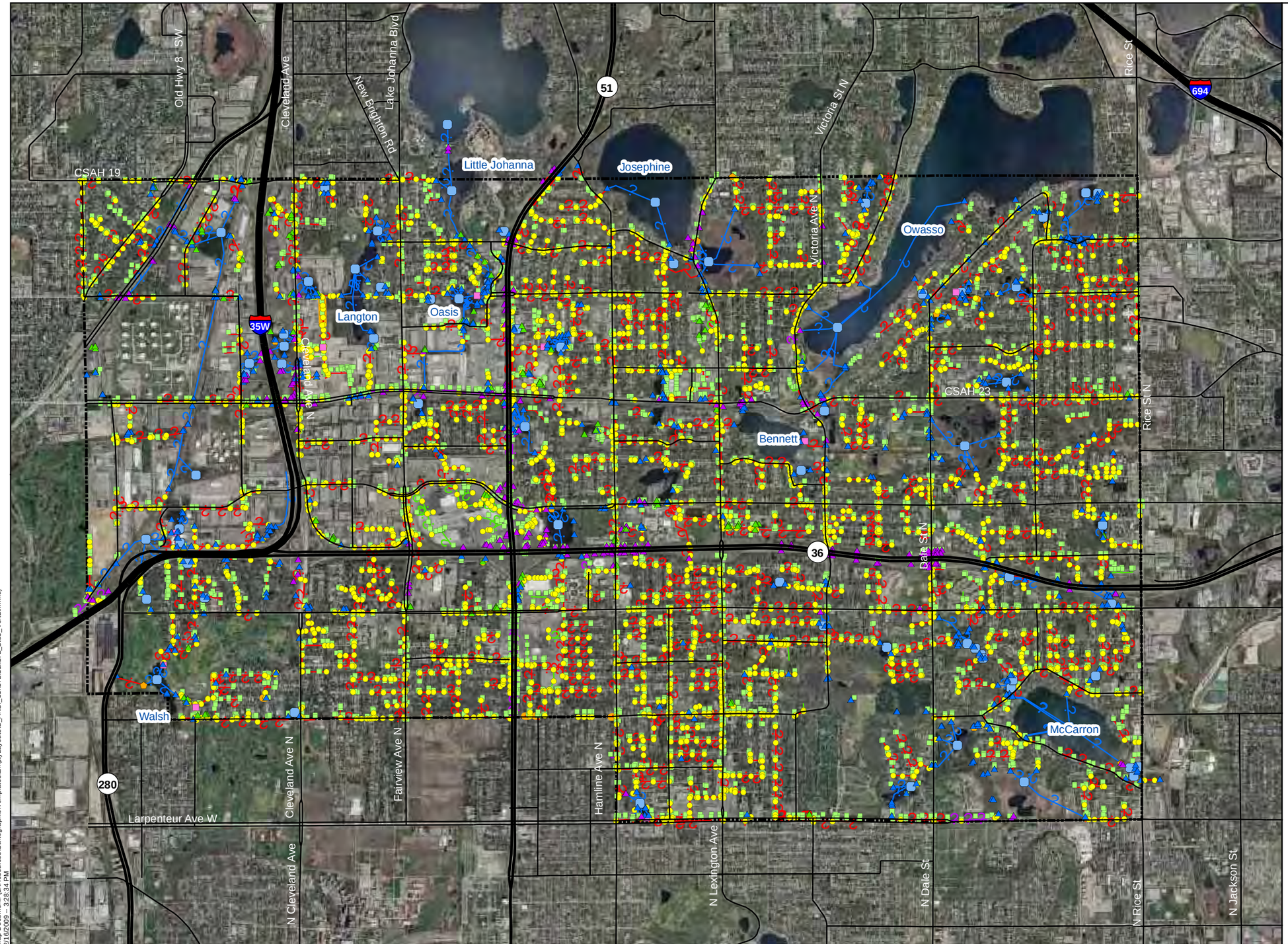
Comprehensive Surface Water Management Plan

Roseville, MN

Sub-Watershed Map

Figure 2



Legend

- City Boundary
- Special Structure
- Catch Basin
- Control Structure
- Manhole
- Pond
- Lift Station

Inlet/Outlet Structure Jurisdiction

- City
- State,County,OtherCity
- Private

Storm Pipe Type

- Abondoned
- City
- CityForce
- County; State
- Drainage
- Private
- PrivateForce

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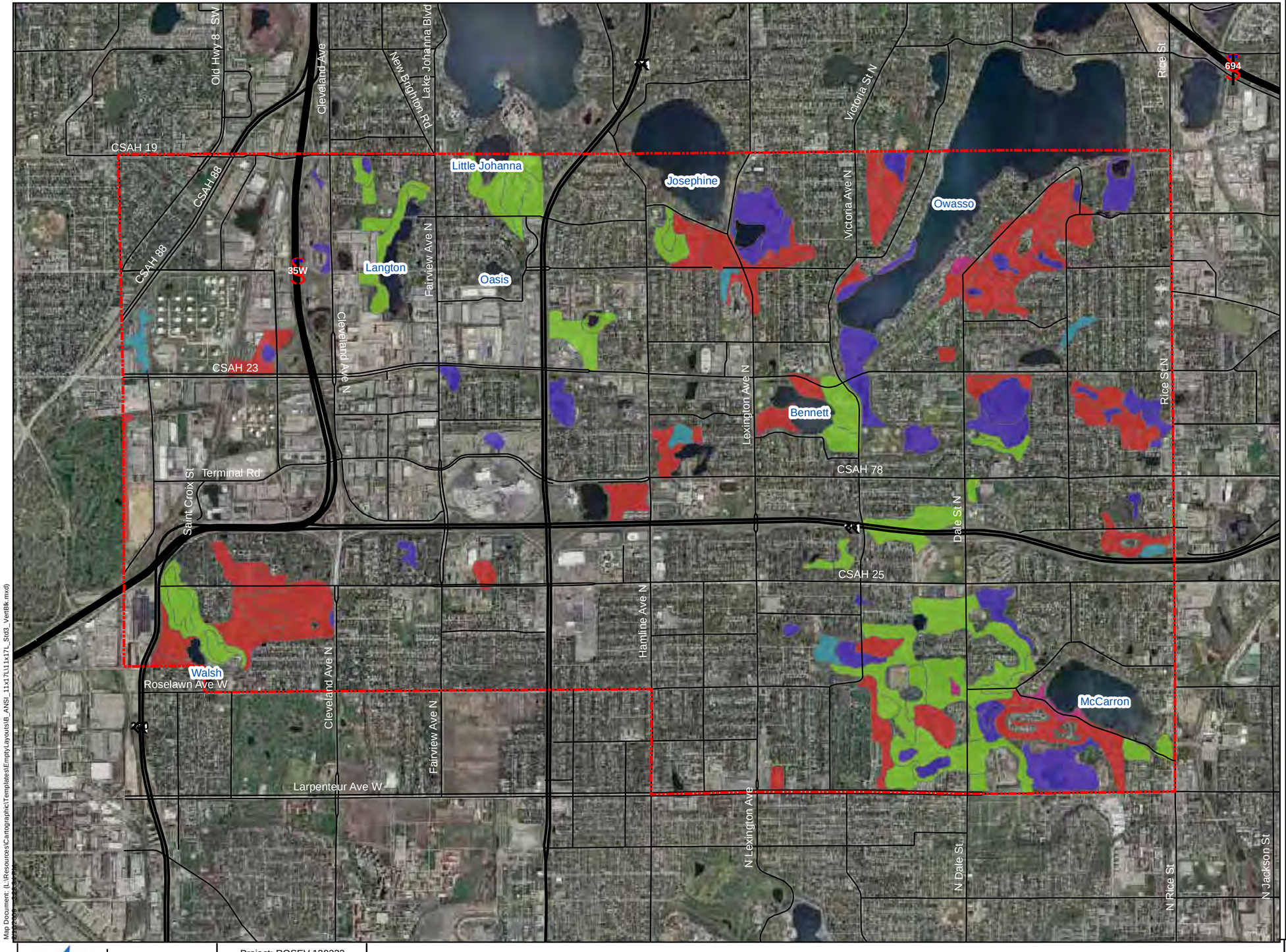
Comprehensive Surface Water Management Plan

Roseville, MN

Storm Sewer

Figure 3



Legend

City Boundary

Hydrologic Soil Group Classification

- A
- A/D
- B
- B/D
- C

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

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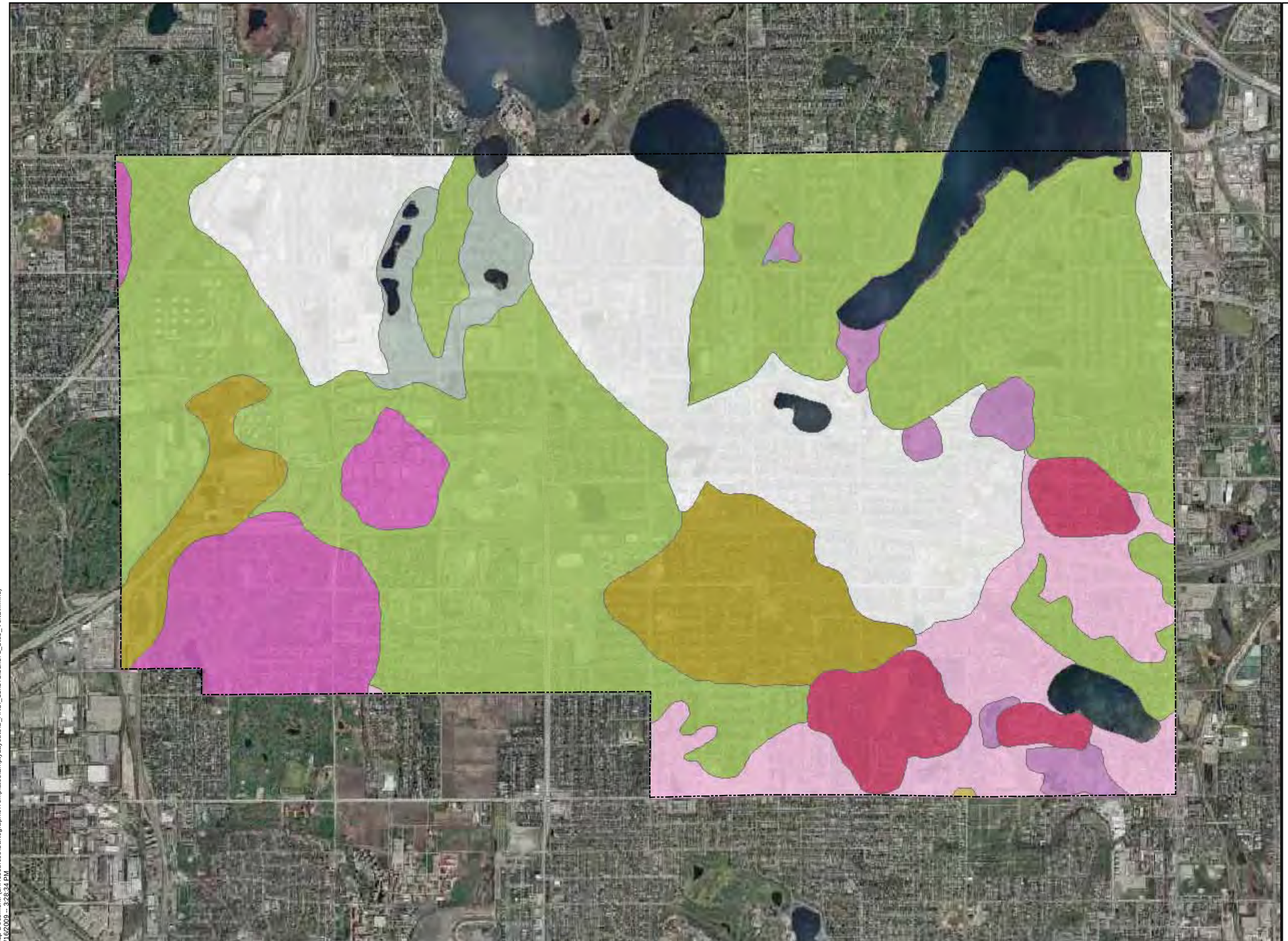
Projection:Transverse Mercator
Source: U.S. Department of Agriculture

Comprehensive Surface Water Management Plan

Roseville, MN

Hydrologic Soil Group

Figure 4



Legend

City Boundary

Surficial Geological Classification

- Organic sediment
- Sandy lake sediment
- Meltwater stream sediment
- Till
- Till with stream-modified surface
- Till beneath stream sediment
- Till beneath sandy lake sediment
- Coarse meltwater stream sed.
- Buried, coarse meltwater stream sediment

0

0 1,000 2,000 4,000
Feet

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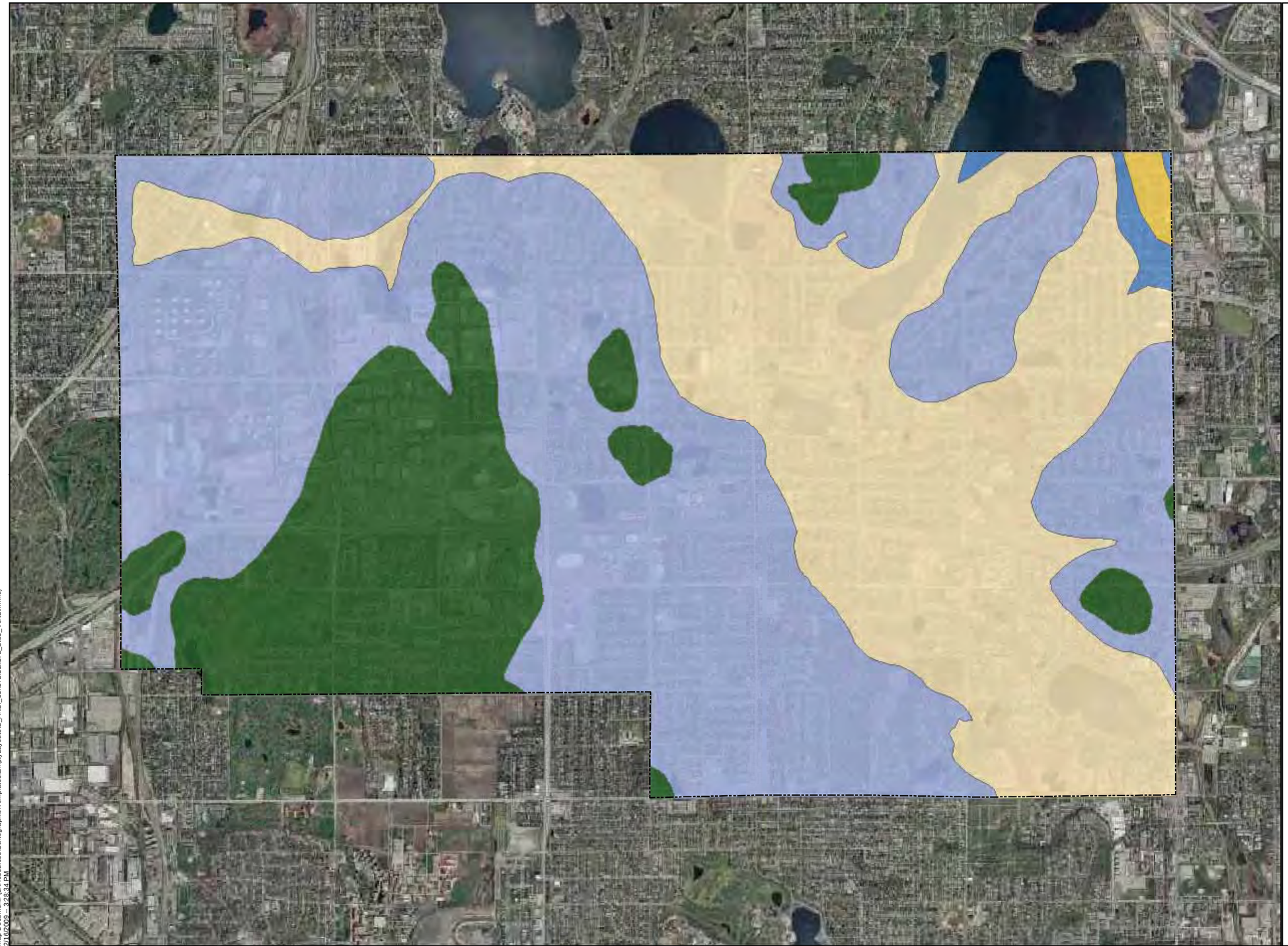
Source: Minnesota Geological Survey

Comprehensive Surface Water Management Plan

Roseville, MN

Surficial Geology

Figure 5



Legend

City Boundary

Bedrock Classification

- Decorah Shale
- Platteville-Glenwood Formation
- St. Peter Sandstone
- Prairie Du Chien Group
- Jordan Sandstone

N

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Source: Minnesota Geological Survey

Comprehensive Surface Water Management Plan

Roseville, MN

Bedrock Geology

Figure 6

Old Hwy 8 - SW
Cleveland Ave
New Brighton Rd
Lake Johanna Blvd
CSAH 19
Little Johanna
Josephine
Owasso
Victoria St N
Rice St
694
35W
Fairview Ave N
Cleveland Ave N
Walsh
Roselawn Ave W
Larpenteur Ave W
Hamline Ave N
McCarron
W Larpenteur Ave
N Lexington Ave
N Dale St
N Rice St
N Jackson St

Legend

City Boundary

Existing Land Use Type

- Business/Retail
- Heavy Industrial
- Institutional
- Light Industrial
- Multi Family
- Manufactured Housing Park
- Office
- Parks and Open Space
- Right of Way
- Railroad
- Single Family Attached
- Single Family Detached
- Vacant
- Vacant Developable
- Water

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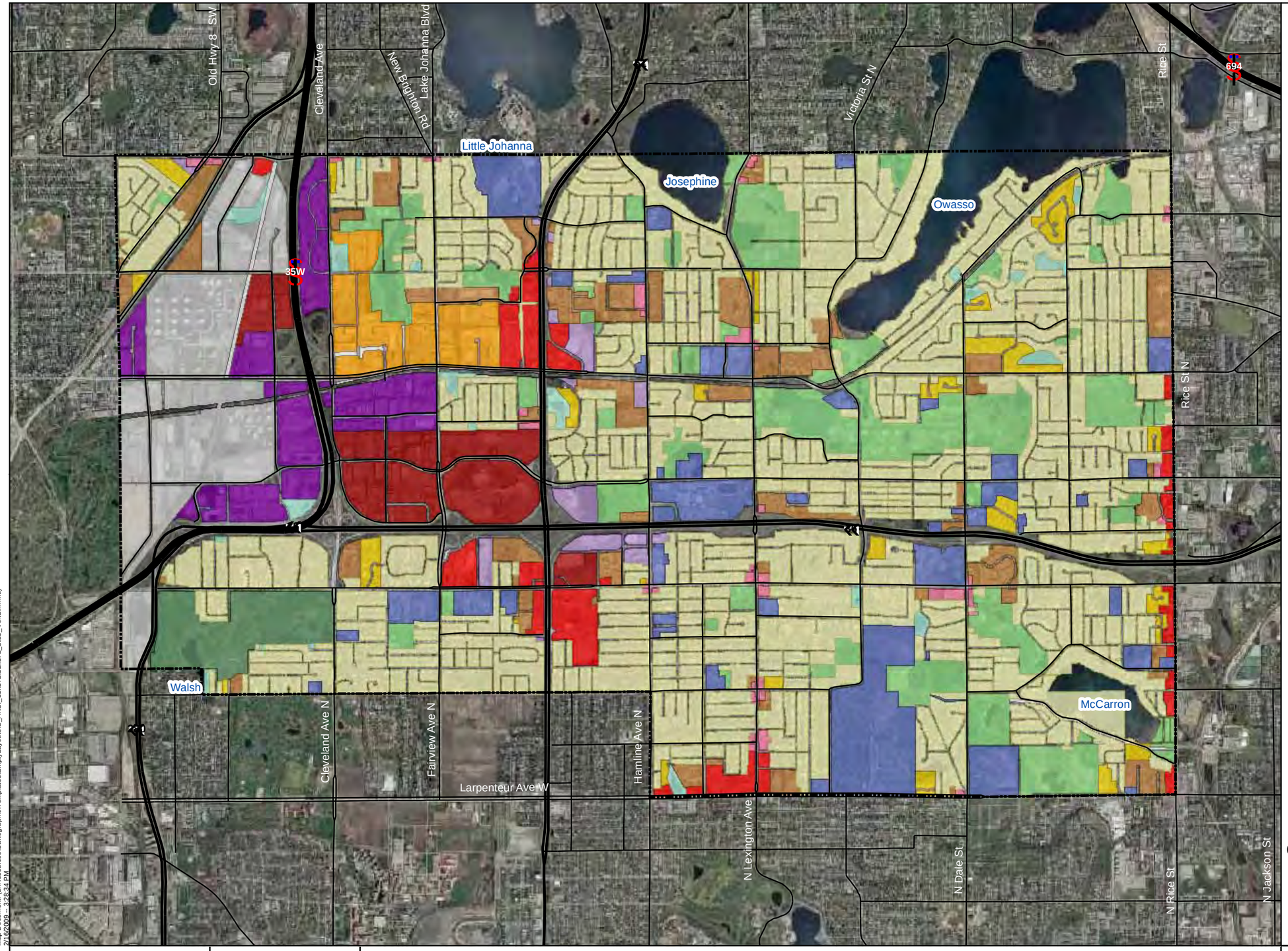
Projection: Transverse Mercator
Source: City of Roseville

Comprehensive Surface Water Management Plan

Roseville, MN

Current Land Use

Figure 7



Legend

City Boundary

Comprehensive Plan

Residential

- LR - Low Density Residential
- MR - Medium Density Residential
- HR - High Density Residential

Mixed Use

- CMU - Community Mixed Use

Commercial

- NB - Neighborhood Business
- CB - Community Business
- RB - Regional Business

Employment

- O - Office
- BP - Business Park
- I - Industrial

Public / Institutional

- IN - Institutional
- POS - Park/Open Space
- GC - Golf Course
- ROW - Right of Way
- RR - Railroad
- W - Water Ponding
- Lake

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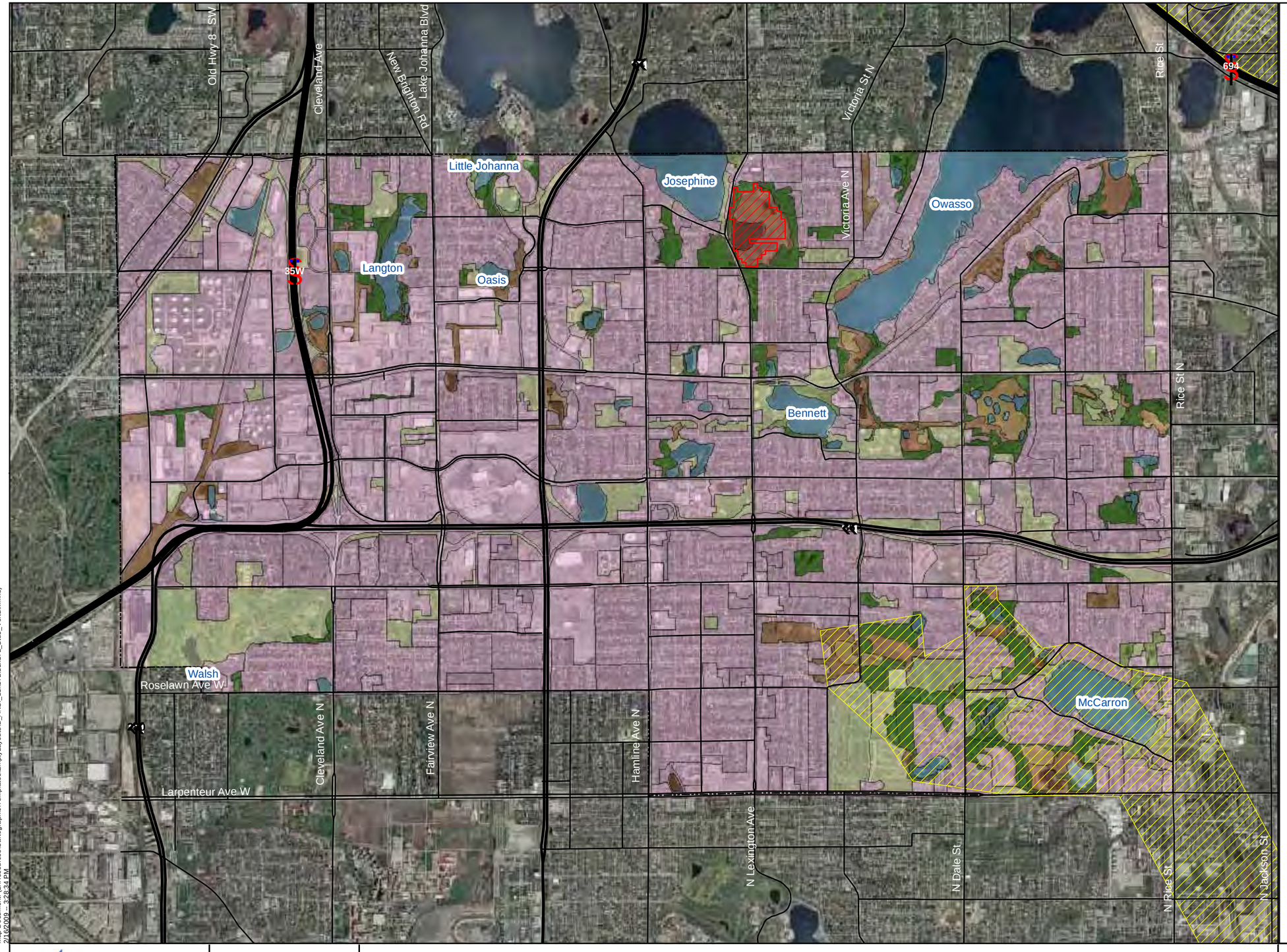
Comprehensive Surface Water Management Plan

Roseville, MN

2030 Planned Landuse

Figure 8



Legend

- City Boundary
- Regionally Significant Ecological Areas
- MetroConservationCorridors

Land Cover Classification System

- Undefined
- Impervious surfaces
- Cultural vegetation
- Forests
- Woodlands
- Shrublands
- Herbaceous
- Non-vascular veg.
- Sparse vegetation
- Water

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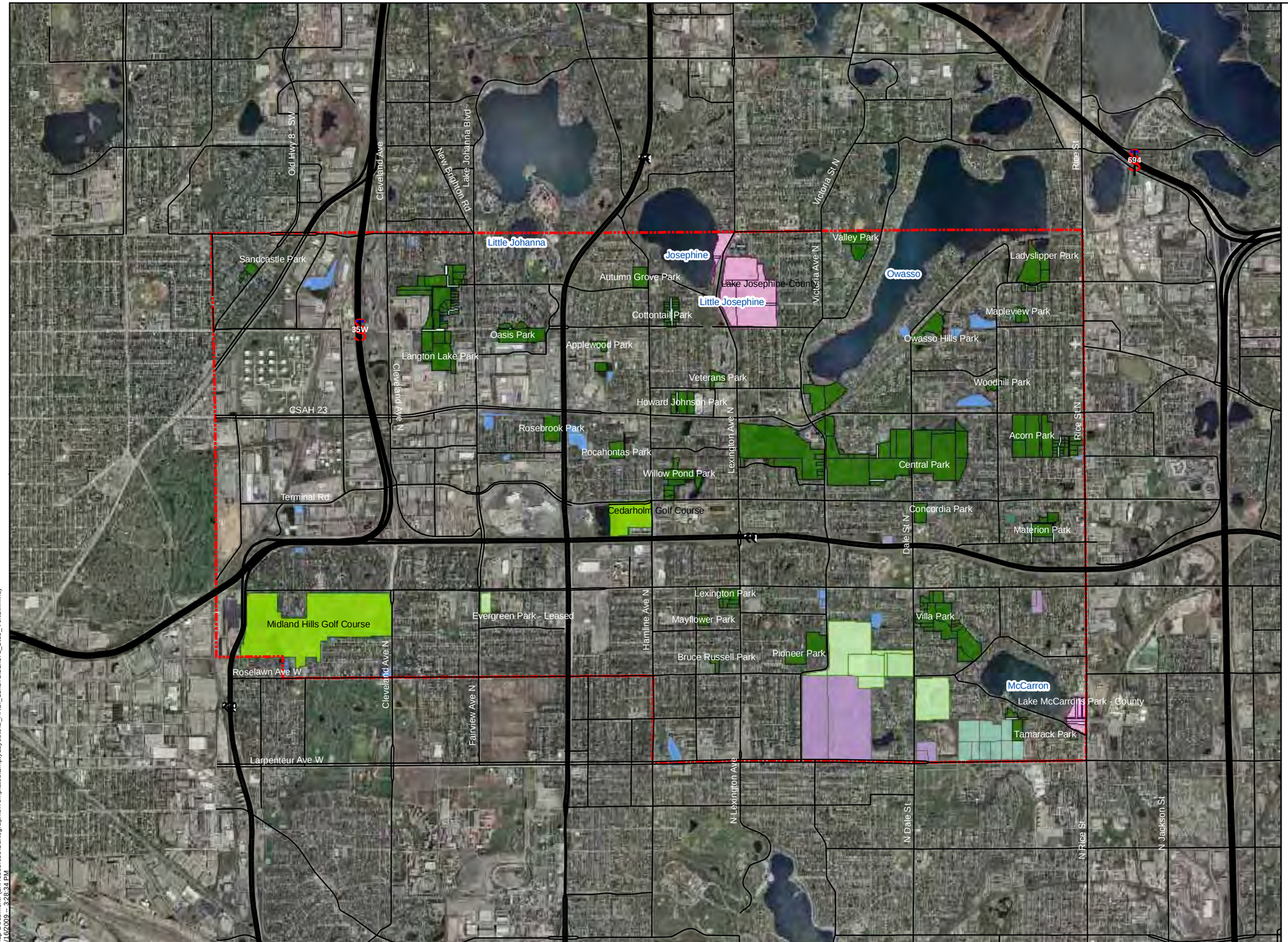
Comprehensive Surface Water Management Plan

Roseville, MN

Land Cover

Figure 9



Legend

- City Boundary
- City Parks Right of Way
- County Parks Right of Way

Park Types

- Parks - City of Roseville
- Golf Courses
- Parks - Leased
- Parks - Ramsey County
- Open Space - Cemetery
- Open Space - City Other Uses
- Open Space - County
- Open Space - Water Ponding

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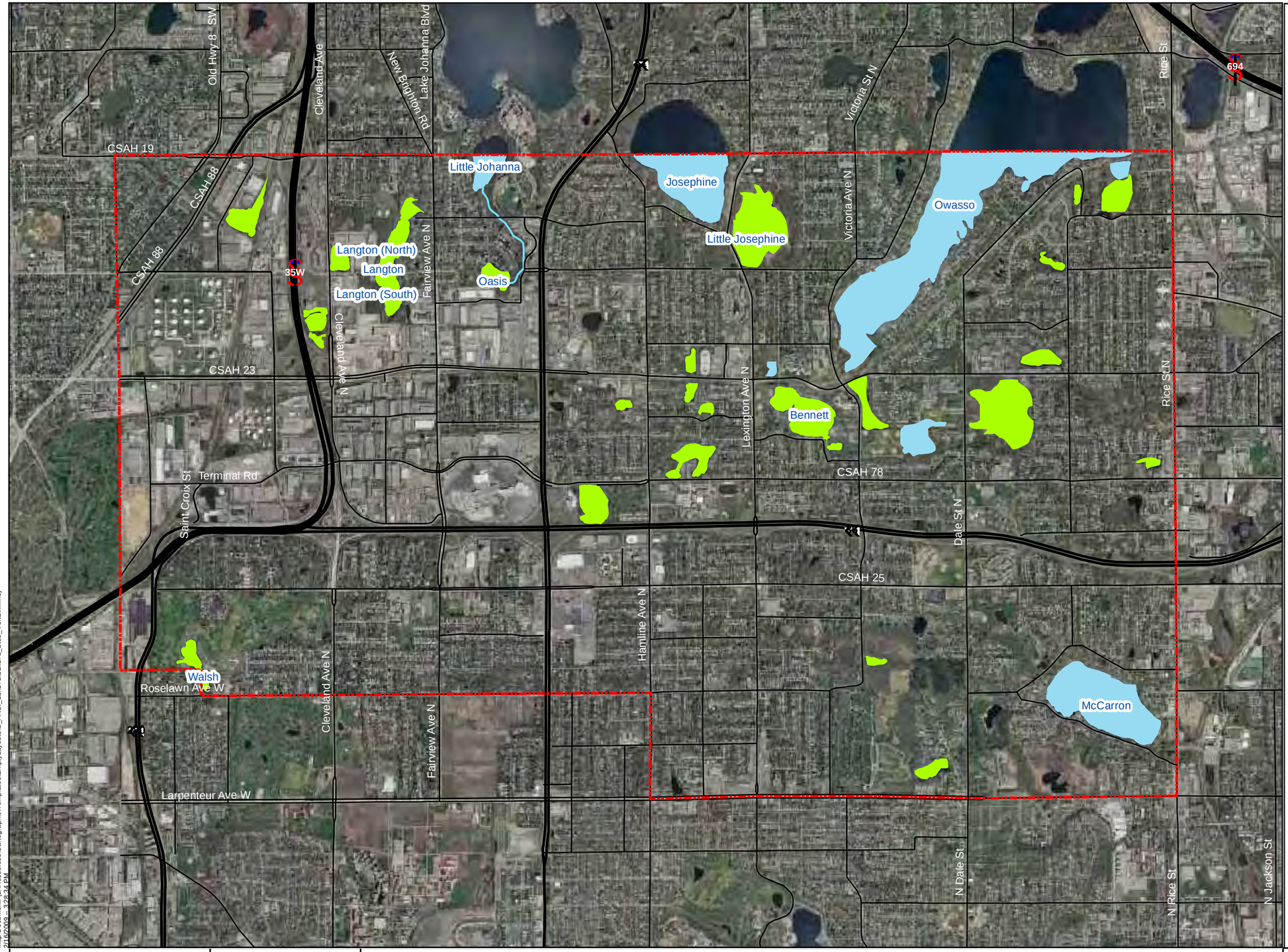
Source: City of Roseville

Comprehensive Surface Water Management Plan

Roseville, MN

Parks and Open Space

Figure 10



Legend

- City Boundary
- Public Watercourse

Public Waters Classification

- Public Water Basin
- Public Water Wetland

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Print Date: 08/15/2012

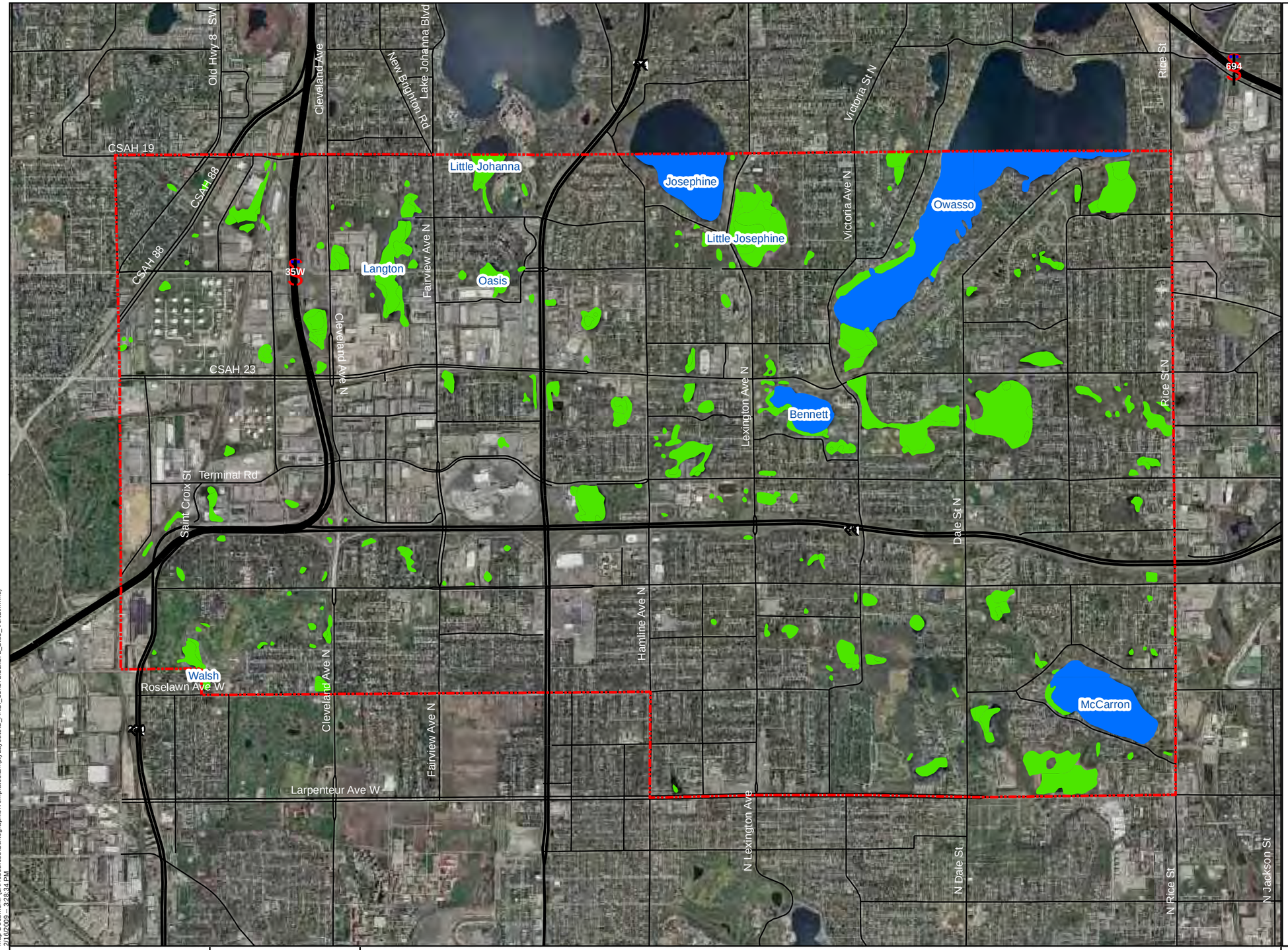
Map by:ah
Projection:Transverse Mercator
Source: MN Department of Natural Resources

Comprehensive Surface Water Management Plan

Roseville, MN

Public Waters Inventory

Figure 11



Legend

City Boundary

National Wetlands Inventory Classification

Lacustrine

Palustrine

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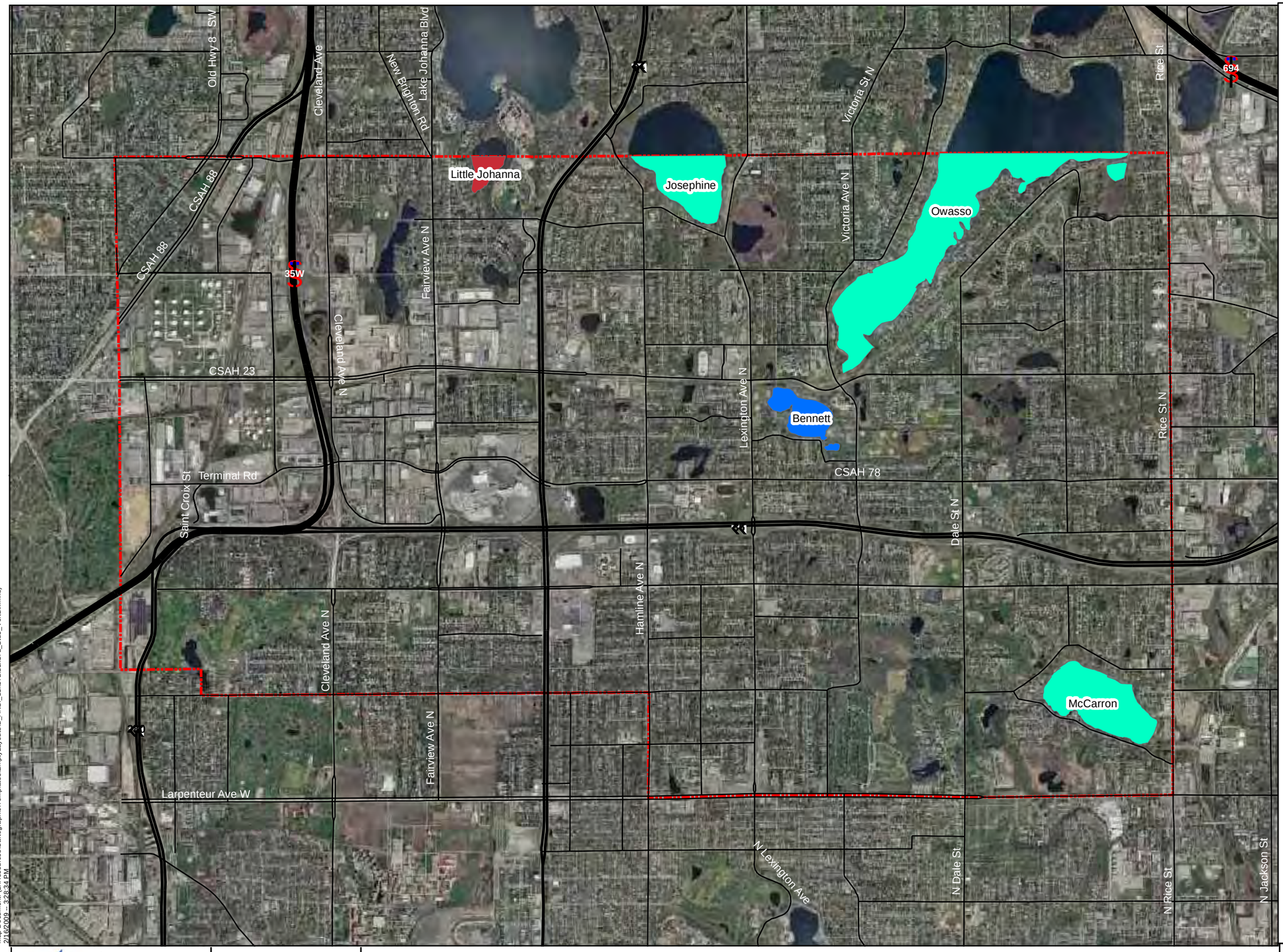
Map by:ah
Projection:Transverse Mercator
Source: US Fish and Wildlife Service

Comprehensive Surface Water Management Plan

Roseville, MN

National Wetlands Inventory

Figure 12



Legend

City Boundary

Impairment Parameter

- Mercury
- Nutrients & Mercury
- Nutrients & PFOS

0

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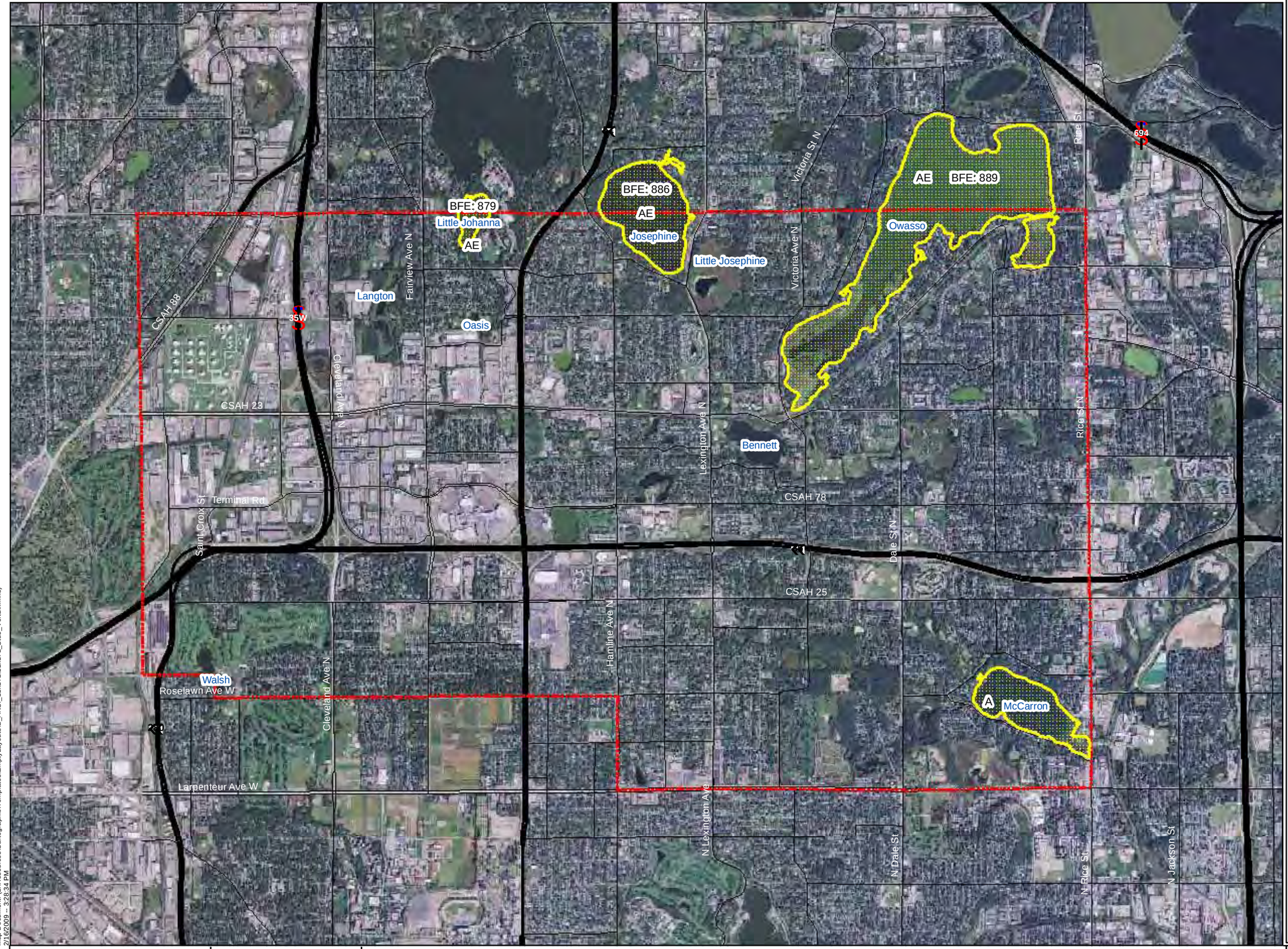
Map by:ah
Projection:Transverse Mercator
Source:MN Pollution Control Agency

Comprehensive Surface Water Management Plan

Roseville, Minnesota

Impaired Waters

Figure 13



Legend

City Boundary

Special Flood Hazard Areas (SFHA's) Subject to Inundation by the 1% annual Chance Flood

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard includes Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

Zone A No Base Flood Elevations determined
Zone AE Base Flood Elevations determined

0

0 1,500 3,000 6,000 Feet

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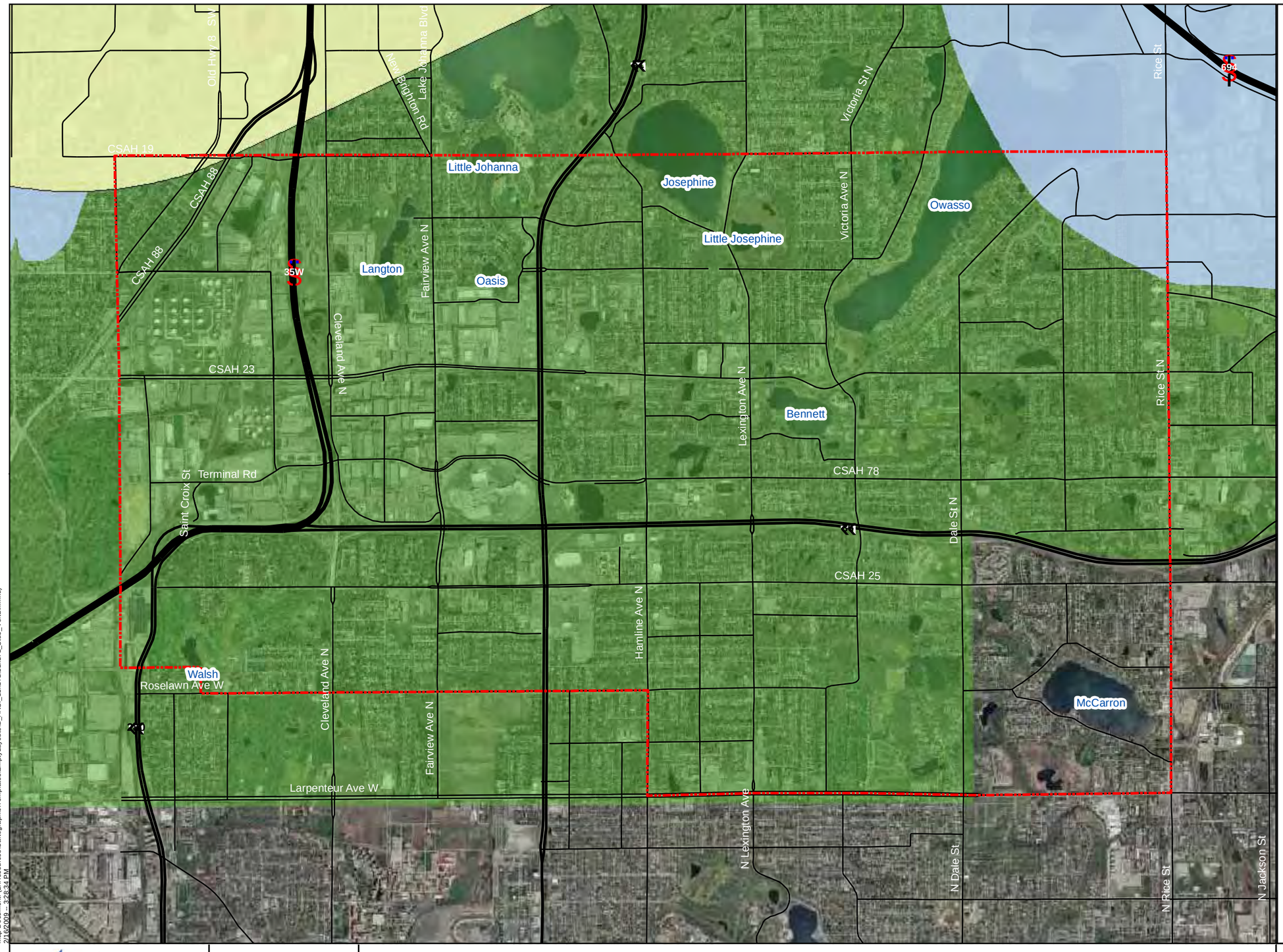
Source: City of Roseville

Comprehensive Surface Water Management Plan

Roseville, MN

Flood Hazard Areas

Figure 14



Legend

City Boundary

City Boundary

Well Head Protection Area Type

Aquifer

Fractured Rock, Conjunctive

Drinking Water Surface Management Area

Minneapolis

0

0 1,150 2,300 4,600 Feet

Map Document: (L:\Resources\Cartographic\Templates\EmptyLayouts\B_ANSI_11x17L11x17L_Std3_VertBk.mxd)
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SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

Project: ROSEV 120222
Print Date: 08/15/2012

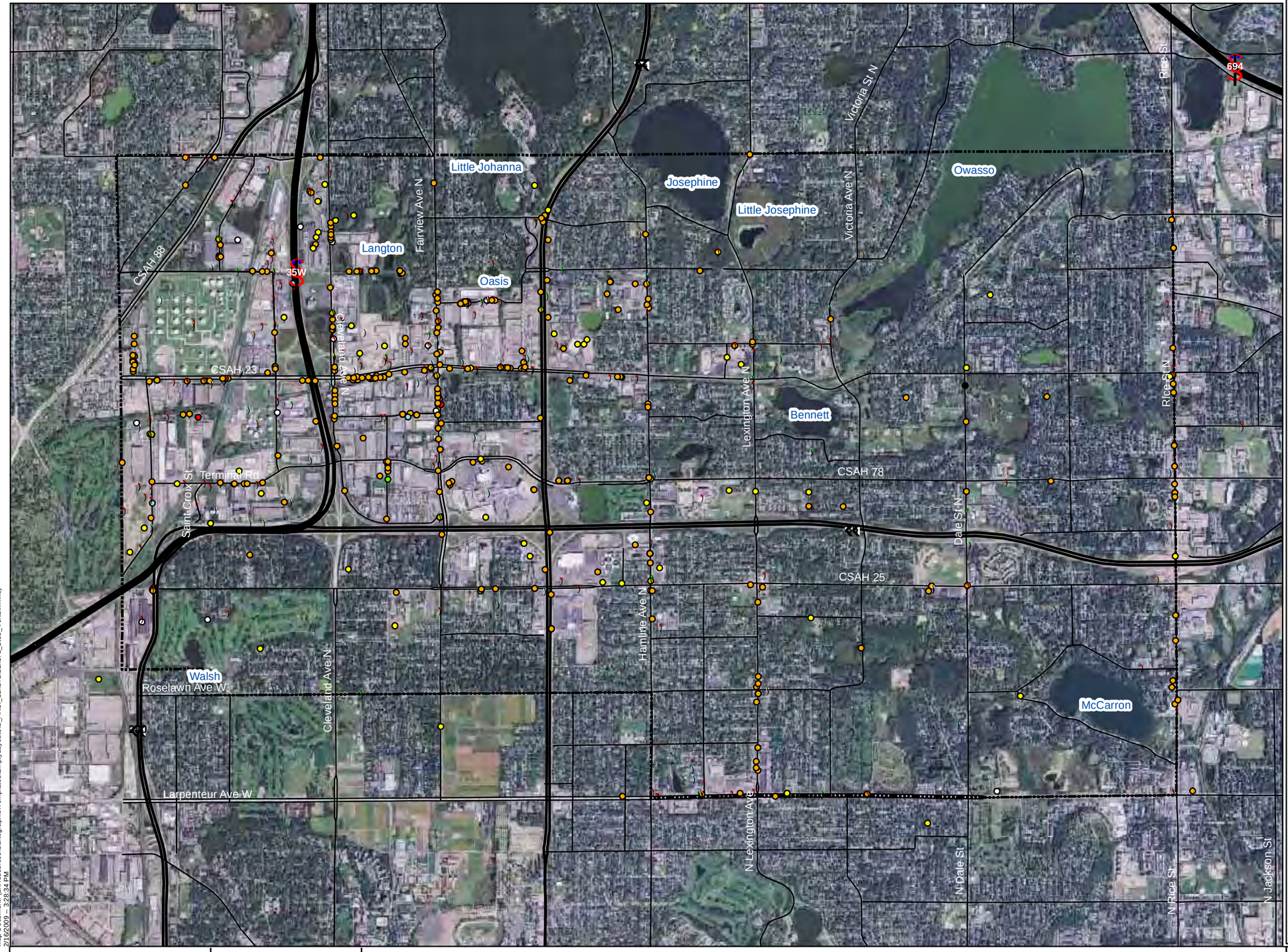
Map by:ah
Projection:Transverse Mercator
Source: Minnesota Department of Health

Comprehensive Surface Water Management Plan

Roseville, MN

Groundwater Protection

Figure 15



Legend

City Boundary

Pollution Sources

ACTIVITY

- Air Permit
- CERCLIS Site
- Construction Stormwater Permit
- Hazardous Waste, LQG
- Hazardous Waste, Small to Minimal QG
- Industrial Stormwater Permit
- Landfill, Permitted By Rule
- Leak Site
- Multiple Activities
- Petroleum Brownfield
- Tank Site
- Unpermitted Dump Site
- VIC Site
- Wastewater Discharger

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0 1,150 2,300 4,600 Feet

Map Document: (L:\Resources\Cartographic\Templates\EmptyLayouts\B_ANSI_11x17\11x17L_Std3_VertBk.mxd)
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Print Date: 08/15/2012

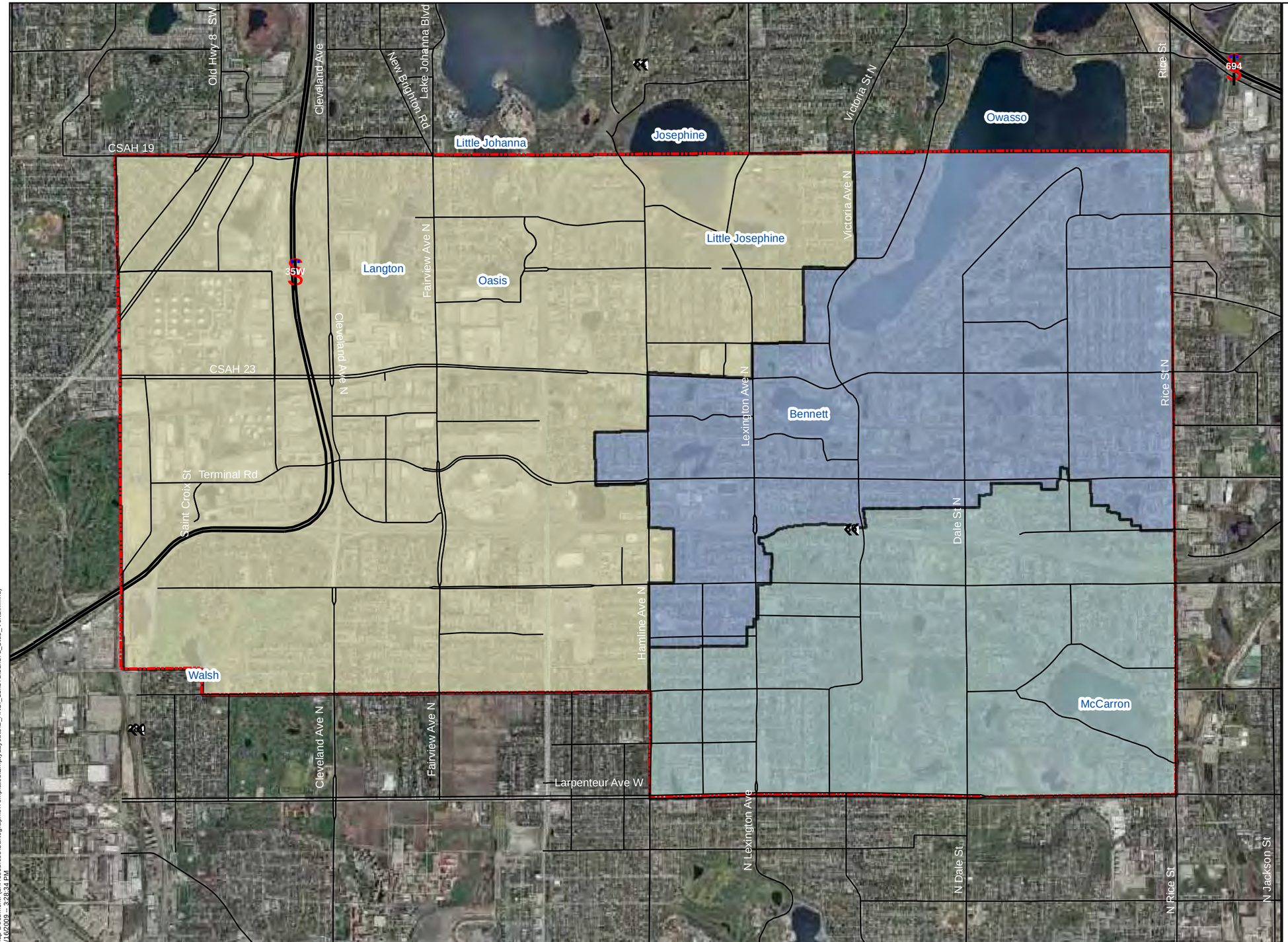
Map by: ah
Projection: Transverse Mercator
Source: City of Roseville

Comprehensive Surface Water Management Plan

Roseville, MN

Pollution Sources

Figure 16



Legend

- City Boundary

Watershed District Name

- CAPITOL REGION
- RAMSEY WASHINGTON METRO
- RICE CREEK
- Watershed Jurisdictional Boundary

0

0 1,250 2,500 5,000 Feet

Map Document: (L:\Resources\Cartographic\Templates\EmptyLayouts\B_ANSI_11x17L11x17L_Std3_VertBlk.mxd)
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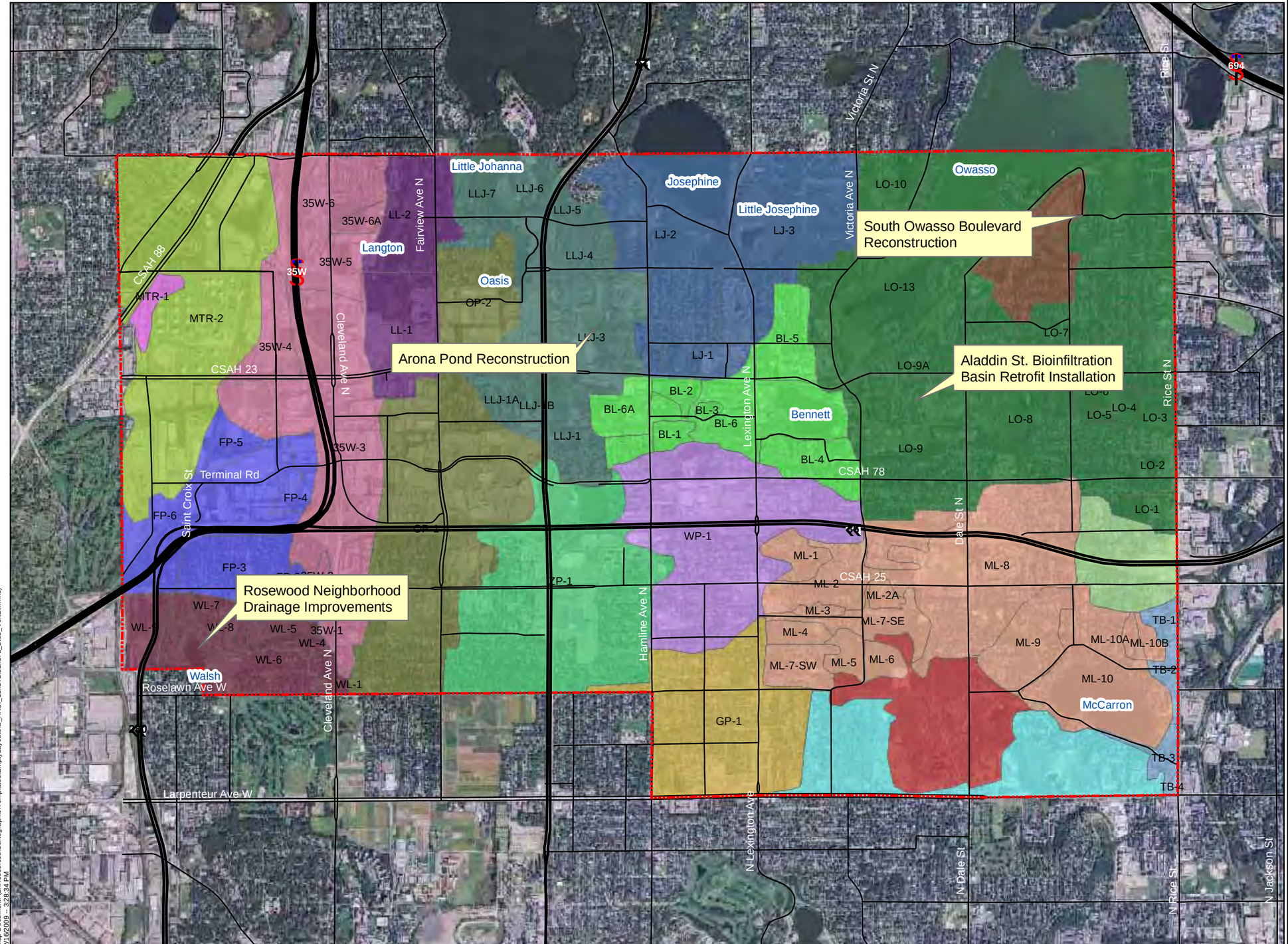
Map by:ah
Projection:Transverse Mercator
Source: MN Department of Natural Resources

Comprehensive Surface Water Management Plan

Roseville, MN

Watershed District Map

Figure 17



Legend

City Boundary

Major Sub-watershed Districts

- 35-W
- BENNETT LAKE
- CO. DITCH NO. 10
- FULHAM POND
- GODFREY PIT
- LAKE JOSEPHINE
- LAKE OWASSO
- LANDLOCKED
- LANDLOCKED-1
- LANDLOCKED-2
- LANDLOCKED-4
- LANGTON LAKE
- LITTLE LAKE JOHANNA
- MCCARRON LAKE
- MTR POND
- OASIS POND
- TROUT BROOK
- WALSH LAKE
- WILLOW POND
- ZIMMERMAN LAKE

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Map Document: (L:\Resources\Cartographic\Templates\EmptyLayouts\B_ANSI_11x17L11x17L_Std3_VertBlk.mxd)
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Print Date: 08/15/2012

Map by: ah
Projection: Transverse Mercator
Source: City of Roseville

Comprehensive Surface Water Management Plan

Roseville, MN

Past Project Examples

Figure 18

Nutrients and PFOS Impairments

Mercury Impairements

Mercury Impairments

1-35W and Co. Ro C Flood Protection and Runoff Management

Nutrient and Mercury Impairements

Dellwood/Sherren neightborhood Drainage Improvements

Nature Center Stormwater Exhibits

Fairview Ave.Stormsewer Drainage Improvements

Rosedale Mall BMP Improvements

Villa Park Improvements

Walsh Lake Outlet and Midland Hills Golf Course Volume Control

Center Street Storm Sewer Capacity

Mercury Impairments

Little Johanna
Josephine
Little Josephine
Owasso
Langton
Oasis
Bennett
McCarron
Walsh
Roselawn Ave W
Larpenteur Ave W
CSAH 88
CSAH 23
CSAH 78
Terminal Rd
Victoria St N
Victoria Ave N
Cleveland Ave N
Hamline Ave N
Lexington Ave
N Lexington Ave
Dale St N
N Dale St
Rice St N
N Rice St
N Jackson St
Saint Croix St
35W
694

LLJ-7 LLJ-6 LLJ-4 LLJ-3 LLJ-1A LLJ-1B
LJ-2 LJ-3
LO-10 LO-13 LO-9A LO-7 LO-8 LO-6 LO-5 LO-4 LO-3 LO-2 LO-1
BL-1 BL-2 BL-3 BL-4 BL-5 BL-6 BL-6A
ML-1 ML-3 ML-4 ML-5 ML-6 ML-7-SW ML-7-SE ML-8 ML-9 ML-10
MTR-1 MTR-2
35W-1 35W-2 35W-3 35W-4 35W-5
FP-3 FP-4 FP-5 FP-6
WL-1 WL-4 WL-6
GP-1
TB-3 TB-4
ZP-1

Legend

- City Boundary
- 35-W
- BENNETT LAKE
- CO. DITCH NO. 10
- FULHAM POND
- GODFREY PIT
- LAKE JOSEPHINE
- LAKE OWASSO
- LANDLOCKED
- LANDLOCKED-1
- LANDLOCKED-2
- LANDLOCKED-4
- LANGTON LAKE
- LITTLE LAKE JOHANNA
- MCCARRON LAKE
- MTR POND
- OASIS POND
- TROUT BROOK
- WALSH LAKE
- WILLOW POND
- ZIMMERMAN LAKE

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0 1,000 2,000 4,000 Feet

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Map by: ah
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Source: City of Roseville

Comprehensive Surface Water Management Plan

Roseville, MN

Ongoing Issues

Figure 19

Appendix A

Acronym Dictionary

ACRONYMS

BMP	Best Management Practice
BPA	Bisphenol A
BWSR	Board of Water and Soil Resources
CRWD	Capitol Region Watershed District
CSWMP	Comprehensive Surface Water Management Plan
CWA	Clean Water Act
DNR	Department of Natural Resources
EDC	Endocrine Disrupting Compound
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
LGU	Local Government Unit
MDH	Minnesota Department of Health
MPCA	Minnesota Pollution Control Agency
MS4	Municipal Separate Storm Sewer System
MSL	Mean Seal Level
NFIP	National Flood Insurance Program
NPDES	National Pollution Discharge Elimination System
NURP	National Urban Runoff Program
NWI	National Wetland Inventory
NWS	National Weather Service
OHW	Ordinary High Water
PAH	Polycyclic Aromatic Hydrocarbons
PBB	Polybrominated Biphenyls
PCB	Polychlorinated Biphenyls
PFC	Perfluorochemicals
PFOA	Perfluoroocanic Acid
PFOS	Perfluorooctane Sulfate
PWI	Public Water Inventory
RCD	Ramsey Conservation District
RCWD	Rice Creek Watershed District
RWMWD	Ramsey-Washington-Metro Watershd District
SDWA	Source Drinking Water Area
SPRWS	Saint Paul Regional Water Service
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TSS	Total Suspended Solids
WCA	Wetland Conservation Act
WD	Watershed District
WIMN	What's In My Neighborhood
WMO	Watershed Management Organization

Appendix B

Development Standards

Appendix C

Applicable City Code

- Chapter 408 Lawn Fertilizer/Pesticides
- Chapter 803 Storm Water Drainage
- Chapter 1017 Shoreland, Wetland and Storm Water Management
- Chapter 1021 Floodplain Regulations

Appendix D

SWPPP

Appendix E

Water Resource Related Agreements

Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: August 28, 2012 **Item No:** 6

Item Description: Look Ahead Agenda Items/ Next Meeting September 25, 2012

Suggested Items:

-
-

Recommended Action:
Set preliminary agenda items for the September 25, 2012 Public Works, Environment & Transportation Commission meeting.