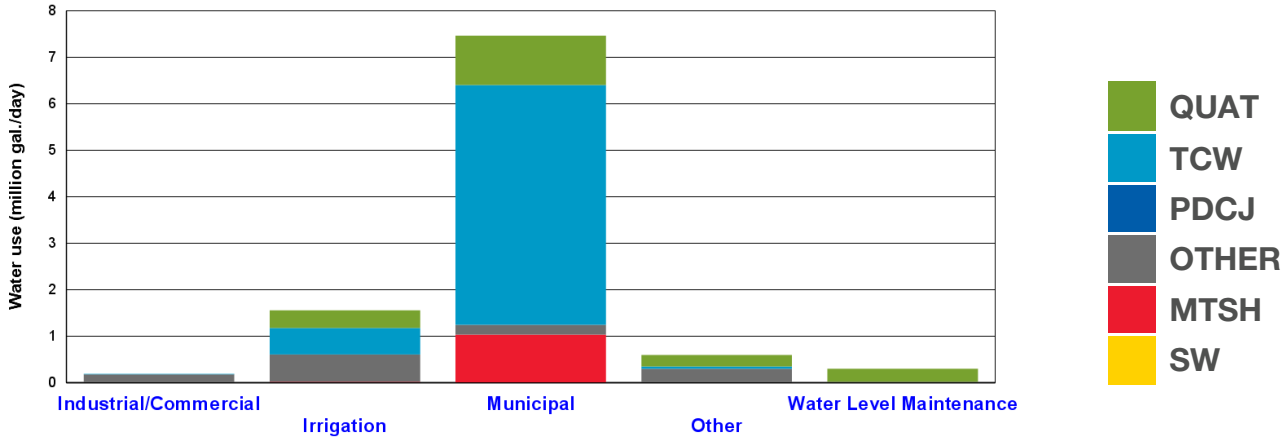
North Metro Water Supply Profile

Available approaches to meet current and future demand

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Reclaimed wastewater
5. Enhanced recharge
6. Surface water sources

Amount of water used, on average, by water appropriation permit holders in key water use categories



Projected municipal water use

	2020	2030	2040
Population Served	61,331	75,761	90,992
Total Population	108,300	124,200	139,200
Projected Average Daily Water Use (Million Gal./Day), Plus or Minus 20%	1.55	1.90	2.27
Total Per Capita Water Use (Gal./Person/Day)	152	151	150
What per capita water use would be, if population grew without changing total water use:	104	87	73

Water resource plans and permits that address the following issues support more sustainable water supplies

- State and federal requirements, such as Safe Drinking Water Act standards, conditions identified on water appropriation permits issued by the DNR, water quality permits issued by the MPCA and others
- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in this area may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated in the area
  - A Special Well and Boring Construction Area has been designated in the area
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Part of the area may not be well-represented by a Minnesota Department of Health aquifer test
  - Part of the area may not be represented by a Minnesota Department of Natural Resources or community observation well

Note: Local studies may be underway or completed to provide more information about these issues.

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

As appropriate, incorporate the following actions into plans and programs, consistent with your organization's roles and responsibilities

- Acknowledge the issues above and support partnerships to address them in local water supply plans and water appropriation permit applications.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropolitan Council Water Conservation Toolbox can support these efforts.
- Promote the evaluation of water conflict and well interface as part of the water appropriation permit request and review process. Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an analysis of existing water level/water withdrawal data to identify where future drawdowns could affect domestic wells.
- Support collaborative efforts to evaluate the likelihood of significant declines in aquifer water levels before water appropriation permits are requested. The analysis may be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Work with partners to evaluate relationships between aquifer withdrawals and surface water features. If a connection is likely, management plans should include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Collaborate with partners, including MDH, to support local actions that prevent the spread of contamination. This may include implementation of source-water protection plan measures to mitigate public health risks. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers in the area may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of contaminant plumes.
- Work with partners to identify opportunities for sharing information, reducing duplicate work, and partnering on projects that improve understanding about aquifer productivity and extent.
- Support collaborative efforts to periodically review local water supply risks and potential alternatives to mitigate those risks. Technical advances, regulatory adjustments and sub-regional developments can present new opportunities for local water suppliers to enhance the resiliency, sustainability, and affordability of their water supplies.
- Continue to work with local, state and federal agencies, as required.

Note: The actions listed above may be underway or completed, and information may be available from local public water suppliers, planners, or water resource managers.

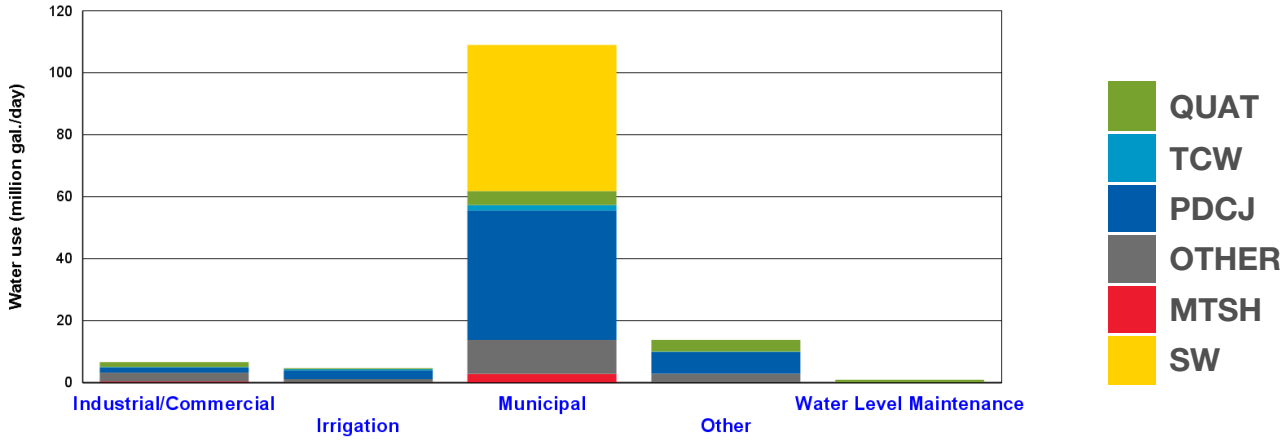
Additional information and guidance is provided in the Local Planning Handbook. Metropolitan Council staff can also provide technical and planning assistance.

North and East Metro Water Supply Profile

Available approaches to meet current and future demand

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Reclaimed wastewater
5. Enhanced recharge
6. Surface water sources

Amount of water used, on average, by water appropriation permit holders in key water use categories



Projected municipal water use

	2020	2030	2040
Population Served	1,001,556	1,083,960	1,169,542
Total Population	906,320	975,010	1045,500
Projected Average Daily Water Use (Million Gal./Day), Plus or Minus 20%	3.45	3.66	3.88
Total Per Capita Water Use (Gal./Person/Day)	110	108	106
What per capita water use would be, if population grew without changing total water use:	103	94	87

Water resource plans and permits that address the following issues support more sustainable water supplies

- State and federal requirements, such as Safe Drinking Water Act standards, conditions identified on water appropriation permits issued by the DNR, water quality permits issued by the MPCA and others
- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - A nearby DNR observation well documents a declining trend in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen has been mapped nearby
  - A state-designated trout stream has been mapped nearby
  - Surface waters in this area may be directly connected to regional groundwater system
  - A spring has been mapped nearby
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped nearby
  - A vulnerable Drinking Water Supply Management Area has been designated in the area
  - A Special Well and Boring Construction Area has been designated in the area
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Part of the area may not be well-represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Part of the area may not be represented by a Minnesota Department of Natural Resources or community observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

Note: Local studies may be underway or completed to provide more information about these issues.

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As appropriate, incorporate the following actions into plans and programs, consistent with your organization's roles and responsibilities

- Acknowledge the issues above and support partnerships to address them in local water supply plans and water appropriation permit applications.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropolitan Council Water Conservation Toolbox can support these efforts.
- Promote the evaluation of water conflict and well interface as part of the water appropriation permit request and review process. Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an analysis of existing water level/water withdrawal data to identify where future drawdowns could affect domestic wells.
- Support collaborative efforts to evaluate the likelihood of significant declines in aquifer water levels before water appropriation permits are requested. The analysis may be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Work with partners to evaluate relationships between aquifer withdrawals and surface water features. If a connection is likely, management plans should include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Collaborate with partners, including MDH, to support local actions that prevent the spread of contamination. This may include implementation of source-water protection plan measures to mitigate public health risks. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers in the area may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of contaminant plumes.
- Work with partners to identify opportunities for sharing information, reducing duplicate work, and partnering on projects that improve understanding about aquifer productivity and extent.
- Partner with DNR and neighboring water users to use water in accordance with the approved Groundwater Management Area plan.
- Support collaborative efforts to periodically review local water supply risks and potential alternatives to mitigate those risks. Technical advances, regulatory adjustments and sub-regional developments can present new opportunities for local water suppliers to enhance the resiliency, sustainability, and affordability of their water supplies.
- Continue to work with local, state and federal agencies, as required.

Note: The actions listed above may be underway or completed, and information may be available from local public water suppliers, planners, or water resource managers.

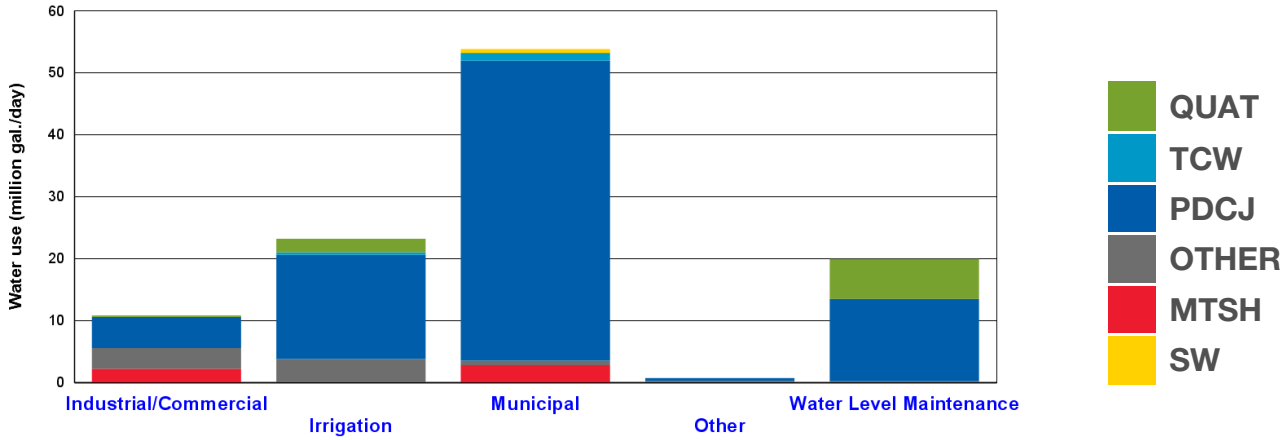
Additional information and guidance is provided in the Local Planning Handbook. Metropolitan Council staff can also provide technical and planning assistance.

South and East Metro Water Supply Profile

Available approaches to meet current and future demand

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Reclaimed wastewater
5. Enhanced recharge
6. Surface water sources

Amount of water used, on average, by water appropriation permit holders in key water use categories



Projected municipal water use

	2020	2030	2040
Population Served	492,747	552,147	613,747
Total Population	498,750	557,480	618,030
Projected Average Daily Water Use (Million Gal./Day), Plus or Minus 20%	3.22	3.59	3.97
Total Per Capita Water Use (Gal./Person/Day)	118	117	116
What per capita water use would be, if population grew without changing total water use:	106	94	86

Water resource plans and permits that address the following issues support more sustainable water supplies

- State and federal requirements, such as Safe Drinking Water Act standards, conditions identified on water appropriation permits issued by the DNR, water quality permits issued by the MPCA and others
- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - A nearby DNR observation well documents a declining trend in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen has been mapped nearby
  - A state-designated trout stream has been mapped nearby
  - Surface waters in this area may be directly connected to regional groundwater system
  - A spring has been mapped nearby
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped nearby
  - A vulnerable Drinking Water Supply Management Area has been designated in the area
  - A Special Well and Boring Construction Area has been designated in the area
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Part of the area may not be well-represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Part of the area may not be represented by a Minnesota Department of Natural Resources or community observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

Note: Local studies may be underway or completed to provide more information about these issues.

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

As appropriate, incorporate the following actions into plans and programs, consistent with your organization's roles and responsibilities

- Acknowledge the issues above and support partnerships to address them in local water supply plans and water appropriation permit applications.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropolitan Council Water Conservation Toolbox can support these efforts.
- Promote the evaluation of water conflict and well interface as part of the water appropriation permit request and review process. Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an analysis of existing water level/water withdrawal data to identify where future drawdowns could affect domestic wells.
- Support collaborative efforts to evaluate the likelihood of significant declines in aquifer water levels before water appropriation permits are requested. The analysis may be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Work with partners to evaluate relationships between aquifer withdrawals and surface water features. If a connection is likely, management plans should include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Collaborate with partners, including MDH, to support local actions that prevent the spread of contamination. This may include implementation of source-water protection plan measures to mitigate public health risks. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers in the area may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of contaminant plumes.
- Work with partners to identify opportunities for sharing information, reducing duplicate work, and partnering on projects that improve understanding about aquifer productivity and extent.
- Partner with DNR and neighboring water users to use water in accordance with the approved Groundwater Management Area plan.
- Support collaborative efforts to periodically review local water supply risks and potential alternatives to mitigate those risks. Technical advances, regulatory adjustments and sub-regional developments can present new opportunities for local water suppliers to enhance the resiliency, sustainability, and affordability of their water supplies.
- Continue to work with local, state and federal agencies, as required.

Note: The actions listed above may be underway or completed, and information may be available from local public water suppliers, planners, or water resource managers.

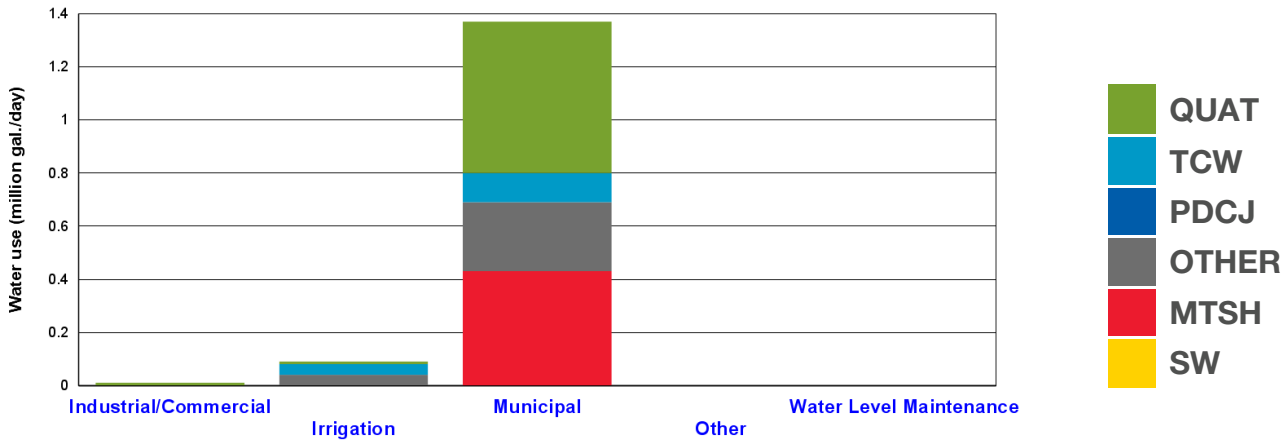
Additional information and guidance is provided in the Local Planning Handbook. Metropolitan Council staff can also provide technical and planning assistance.

Southwest Scott County Water Supply Profile

Available approaches to meet current and future demand

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Reclaimed wastewater
5. Enhanced recharge
6. Surface water sources

Amount of water used, on average, by water appropriation permit holders in key water use categories



Projected municipal water use

	2020	2030	2040
Population Served	14,700	18,400	22,500
Total Population	14,700	18,400	22,500
Projected Average Daily Water Use (Million Gal./Day), Plus or Minus 20%	0.71	0.89	1.08
Total Per Capita Water Use (Gal./Person/Day)	96	96	96
What per capita water use would be, if population grew without changing total water use:	79	63	52

Water resource plans and permits that address the following issues support more sustainable water supplies

- State and federal requirements, such as Safe Drinking Water Act standards, conditions identified on water appropriation permits issued by the DNR, water quality permits issued by the MPCA and others
- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems

  - Surface waters in this area may be directly connected to regional groundwater system
  - A spring has been mapped nearby
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated in the area
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Part of the area may not be well-represented by a Minnesota Department of Health aquifer test
  - Part of the area may not be represented by a Minnesota Department of Natural Resources or community observation well

Note: Local studies may be underway or completed to provide more information about these issues.

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- Work with partners to evaluate relationships between aquifer withdrawals and surface water features. If a connection is likely, management plans should include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
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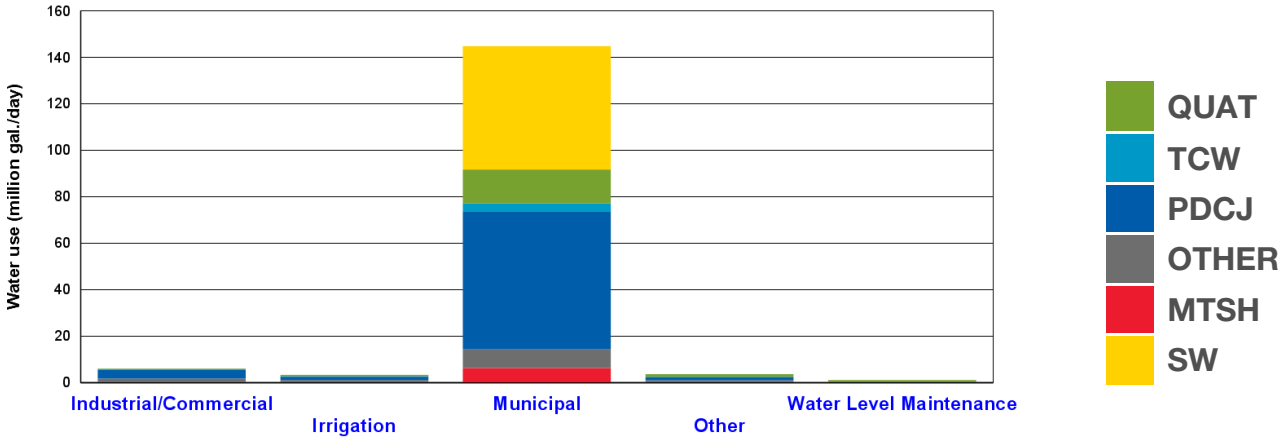
West Central Metro Water Supply Profile

Available approaches to meet current and future demand

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Reclaimed wastewater
5. Enhanced recharge
6. Surface water sources

Amount of water used, on average, by water appropriation permit holders in key water use categories



Projected municipal water use

	2020	2030	2040
Population Served	1,251,729	1,332,638	1,438,682
Total Population	1273,730	1354,880	1439,670
Projected Average Daily Water Use (Million Gal./Day), Plus or Minus 20%	4.71	5.05	5.49
Total Per Capita Water Use (Gal./Person/Day)	128	129	130
What per capita water use would be, if population grew without changing total water use:	120	110	103

Water resource plans and permits that address the following issues support more sustainable water supplies

- State and federal requirements, such as Safe Drinking Water Act standards, conditions identified on water appropriation permits issued by the DNR, water quality permits issued by the MPCA and others
- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - A nearby DNR observation well documents a declining trend in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen has been mapped nearby
  - A state-designated trout stream has been mapped nearby
  - Surface waters in this area may be directly connected to regional groundwater system
  - A spring has been mapped nearby
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped nearby
  - A vulnerable Drinking Water Supply Management Area has been designated in the area
  - A Special Well and Boring Construction Area has been designated in the area
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Part of the area may not be well-represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
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- Collaborate with partners, including MDH, to support local actions that prevent the spread of contamination. This may include implementation of source-water protection plan measures to mitigate public health risks. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

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West Metro Water Supply Profile

Available approaches to meet current and future demand

1. Conservation
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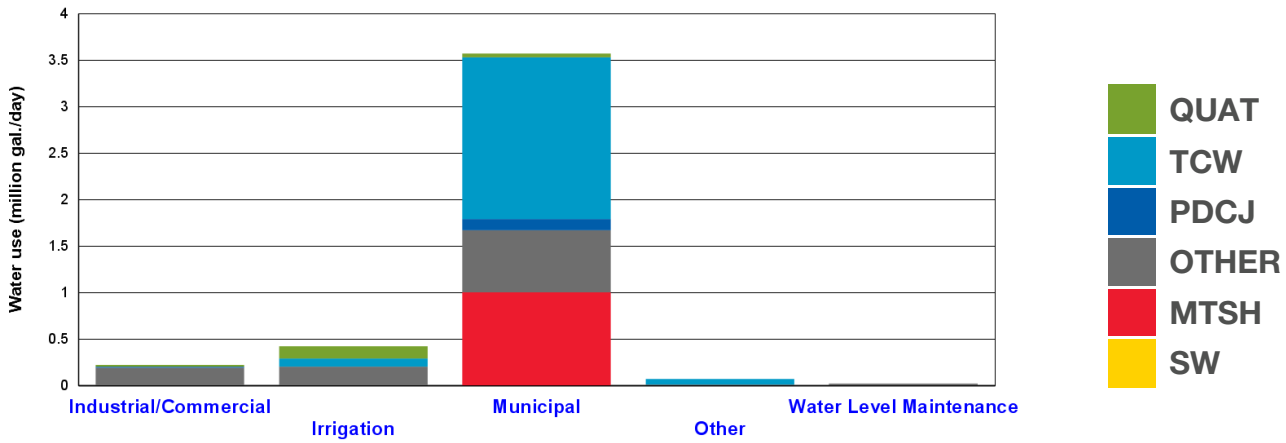
5. Enhanced recharge
6. Surface water sources

Amount of water used, on average, by water appropriation permit holders in key water use categories



Projected municipal water use

	2020	2030	2040
Population Served	46,659	65,379	81,199
Total Population	53,800	72,450	87,960
Projected Average Daily Water Use (Million Gal./Day), Plus or Minus 20%	0.48	0.67	0.83
Total Per Capita Water Use (Gal./Person/Day)	114	113	112
What per capita water use would be, if population grew without changing total water use:	71	51	41

Water resource plans and permits that address the following issues support more sustainable water supplies

- State and federal requirements, such as Safe Drinking Water Act standards, conditions identified on water appropriation permits issued by the DNR, water quality permits issued by the MPCA and others
- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems

  - Surface waters in this area may be directly connected to regional groundwater system
  - A spring has been mapped nearby
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated in the area
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Part of the area may not be well-represented by a Minnesota Department of Health aquifer test
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