APPENDIX 3A: Level of Service
Appendix 3A  |  LEVEL OF SERVICE

Level of Service

One of the key objectives of an asset management program is to manage infrastructure assets in a way that balances the organizational risk and cost of owning and operating these assets with delivery of a desired level of service. To do this, an organization needs to define the desired level of service targets for key metrics of asset performance, which are known as performance indicators. The MMSD asset management team, in conjunction with MMSD executive staff and key stakeholders, developed these targets from various sources, cited as applicable.

This appendix describes the process that MMSD followed to identify level of service categories, performance indicators, and key performance indicators. It also provides the level of service targets that were established. These targets were guided by the permit requirements outlined in Wisconsin Administrative Code Chapter NR 110, Sewerage Systems [1] and WPDES permit requirements [2] as well as MMSD’s internal goals, including its 2035 Vision [3] and 2050 Foundational Goals.

**LEVEL OF SERVICE CATEGORIES**

Level of services categories offer a convenient way to group various performance indicators into broader service areas. To identify appropriate level of service categories for its asset systems, MMSD started by reviewing general asset management industry standards and then customized them as appropriate to meet the specific requirements of MMSD and its stakeholders.

MMSD follows a triple bottom line approach in the management and evaluation of its asset infrastructure. In the triple bottom line approach, an organization broadens its focus to consider not only the financial bottom line, but also the social and environmental aspects of any investment. Evaluating investments using this approach allows MMSD to identify and implement the highest value option (not necessarily the lowest cost). In order to align measurement of organizational performance with the triple bottom line methodology, the level of service categories and associated performance indicators have been grouped to fall under the triple bottom line measures of Environmental, Economic or Social.

The results of this development process identified seven level of service categories, which align to the triple bottom line measures as follows:

**TABLE 1: LEVEL OF SERVICE CATEGORIES**

<table>
<thead>
<tr>
<th>TRIPLE BOTTOM LINE MEASURES</th>
<th>LEVEL OF SERVICE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>Permit Requirements</td>
</tr>
<tr>
<td></td>
<td>Energy</td>
</tr>
<tr>
<td></td>
<td>Environmental Improvements</td>
</tr>
<tr>
<td>Economic</td>
<td>Fiscal Responsibility</td>
</tr>
<tr>
<td></td>
<td>Management Effectiveness</td>
</tr>
<tr>
<td>Social</td>
<td>Safety</td>
</tr>
<tr>
<td></td>
<td>Customer Service, Communication and Employee Development</td>
</tr>
</tbody>
</table>
Performance Indicators and Level of Service Targets

Approach

Once level of service categories were identified, MMSD identified performance indicators that are used to measure business activity (e.g., amount of energy usage from landfill gas). These performance indicators were identified based on a review of regulatory, internal, and stakeholder goals that are impacted by performance of MMSD’s asset systems.

Each performance indicator was then assigned to the applicable level of service category. This was done to allow review of performance indicators that relate to similar service categories such as safety, customer service, and fiscal responsibility. Then the required level of service target was identified for each performance indicator. This target describes the specific goal that is intended to be achieved (e.g., 80 percent of annual energy usage from MMSD-generated renewable sources). The level of service target was typically taken directly from a regulatory-defined requirement or previously-defined internal goals.

MMSD then narrowed down this list by identifying the key performance indicators, which are those metrics that demonstrate how effectively an organization is achieving key business objectives; in other words, those business performance metrics that are aligned with organizational strategy and measure performance against a goal.

The result is a hierarchical structure from triple bottom line measure down to the key performance indicator. This provides a “line of sight” to understand how the achievement of specific asset-level key performance indicator targets contribute to the achievement of organizational service goals and how those goals are grouped into triple bottom line measures.

The following subsections describe in more detail the regulatory and internal drivers that were reviewed and served as inputs during the development of MMSD’s key performance indicators and level of service targets. Specific source documents used to develop level of service targets for specific key performance indicators are described under the subsections below.

Permit Requirements

MMSD identified the performance indicators and associated permit requirements by reviewing the permits issued by the Wisconsin Department of Natural Resources (WDNR):

- WPDES Permit No. WI-0036820-04-0 [2]
- Air Pollution Control Operation Permit – Jones Island Water Reclamation Facility (JIWRF) #241029250-P11 [4]
- Air Pollution Control Operation Permit – South Shore Water Reclamation Facility (SSWRF) #241228350-P11 [5]
- JIWRF Air Pollution Control Construction Permit # 10-POY-005 [6]

WPDES Permit

The U.S. Environmental Protection Agency (U. S. EPA) delegated the authority to administer the federal National Pollutant Discharge Elimination System (NPDES) permitting in Wisconsin to the WDNR. The WPDES permit, which incorporates requirements from the NPDES, regulates sanitary sewer, combined sewer and water reclamation facility discharges, the disposal of biosolids, and industrial pretreatment.
JIWRF Air Pollution Control Operation Permit

The Air Pollution Control Operation Permits regulate air emission sources at each of the WRFs. The JIWRF Air Pollution Control Operation Permit was last issued on August 26, 2013. MMSD submitted the renewal application for this operation permit to WDNR on May 23, 2016. Permit requirements from the 2013 permit apply until the new permit is issued.

SSWRF Air Pollution Control Operation Permit

The Air Pollution Control Operation Permit for SSWRF was last issued on August 26, 2013. MMSD submitted the renewal application for this operation permit to WDNR on October 6, 2015. Permit requirements from the 2013 permit apply until the new permit is issued.

JIWRF Air Pollution Control Construction Permit

The JIWRF Air Pollution Control Construction Permit 10-POY-005 dated May 25, 2012 authorizes updates to the power generation system on site. In a letter dated July 25, 2015 MMSD sent an operation permit revision application to WDNR to incorporate the provisions of the construction permit 10-POY-005 into the Jones Island permit.

Internal Drivers

MMSD identified the performance indicators and associated level of service targets set by internal drivers through input from various internal stakeholders, including staff, Veolia Water Milwaukee, LLC (Veolia), and the MMSD Commission, as well as the review of existing organizational objectives documented in prior plans and relevant policies, operations, and programs, as identified below.

2035 Vision

The 2035 Vision and Strategic Objectives [3] include organizational objectives, which were reviewed to identify performance indicators. 1

Annual Budget

MMSD’s annual budget was reviewed to identify performance indicators. The budget, which is published in the annual Organizational & Maintenance and Capital Budgets report on the MMSD website, documents organizational financial goals and outside factors (political, social, and economic) that influence the financial resources available for both short-term asset needs and long-term planning purposes.

Relevant Policies, Operations, and Programs

MMSD reviewed the following source documents to identify the performance indicators and associated level of service targets set by policies, operations, and programs:

- The 2018-2028 operating contract with Veolia, which outlines requirements for how the MMSD system should be operated. [7]
- MMSD policies, which were reviewed to identify goals that should be performance indicators. Specifically, Commission Policy 1-51.04, Safety and Security was used to identify the performance indicator/level of service target for employee safety.

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1 One of the performance indicators that was derived from the 2035 Vision objectives was noted to have a very lofty target: the goal to achieve zero combined sewer overflows (CSOs). Therefore, MMSD recognizes that it also needs to establish an interim goal of maintaining the baseline CSO frequency as a phased-in approach to achieving this goal. Baseline CSO frequency is established in Chapter 4.
External Drivers

The expectations of external stakeholders were identified based upon a review of existing goals, objectives, strategic plans [8] [9], and other sources of expectations under which MMSD operates. Input from external stakeholders was primarily obtained through existing documentation; however, feedback was also obtained under the 2050 FP public outreach effort that included meetings with the Technical Advisory Team (TAT) and Southeastern Wisconsin Watersheds Trust, Inc. (SWWT, also known as Sweet Water).

External stakeholders include:

- Member and non-member municipalities
- TAT
- WDNR
- SWWT
- Southeastern Wisconsin Regional Planning Commission (SEWRPC)
- Customers and the general public

The process of gathering stakeholder input was initiated with the development of MMSD’s direction regarding the 2050 FP that was approved by the MMSD Commission in February 2015 entitled Policy Direction Regarding 2050 Facilities Plan (2050 FP Policy Direction). [10] This document was extensively reviewed by MMSD staff and commissioners.

Summary of Performance Indicators

The performance indicators that were identified during this process are outlined in the following tables:

- **Table 2** shows the 10 key performance indicators, referred to as KPIs in later chapters.
- **Table 3** lists an additional 13 performance indicators that were identified during this process, referred to as PIs in later chapters.

The tables identify the following for each performance indicator/key performance indicator:

- **Triple Bottom Line Measure.** Each indicator fits into either an environmental, economic, or social triple bottom line measure.
- **Level of Service Category.** The applicable level of service category.
- **Permit Requirements/MMSD Targets.** Some performance indicators and key performance indicators have specific permit requirements; if so, those are listed. In addition, MMSD has defined its own targets. MMSD targets are often more stringent than any corresponding regulatory limits. Note: some targets are listed as TBD (to be determined) where MMSD has not yet officially determined a realistic target.
- **Source of Limits and Targets.** Indicates the source of the regulatory permit requirement or MMSD target.
- **Applicable Asset System.** Not all performance indicators/key performance indicators apply to each asset system. The applicable asset systems are identified.
<table>
<thead>
<tr>
<th>Key Performance Indicator (KPI)</th>
<th>Triple Bottom Line Measure</th>
<th>Level of Service (LOS) Category</th>
<th>Level of Service Permit Requirement</th>
<th>KPI/LOS Target</th>
<th>Applicable Asset System</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of annual overall capture of flow into MMSD system</td>
<td>Environmental Permit Requirements Environmental Improvements</td>
<td>Permit Requirements</td>
<td>85</td>
<td>100</td>
<td>WPDES Permit Section 4.3.4 2035 Vision</td>
</tr>
<tr>
<td>Effluent permit violations/year (multiple parameters)</td>
<td>Environmental Permit Requirements</td>
<td>Permit Requirements</td>
<td>0</td>
<td>0</td>
<td>WPDES Permit Section 6.3</td>
</tr>
<tr>
<td>MG of permit qualifying green infrastructure retention capacity installed in planning area</td>
<td>Environmental Permit Requirements Environmental Improvements</td>
<td>Permit Requirements</td>
<td>50 MG (20 MG in CSSA) by March 31, 2024 740 MG by 2035</td>
<td>WPDES Permit Section 4.3.4.3.1 2035 Vision</td>
<td>X</td>
</tr>
<tr>
<td>% of annual energy from renewable sources</td>
<td>Environmental Energy</td>
<td>Energy</td>
<td>--</td>
<td>100</td>
<td>2035 Vision</td>
</tr>
<tr>
<td>% of annual energy from MMSD-generated renewable sources</td>
<td>Environmental Energy</td>
<td>Energy</td>
<td>--</td>
<td>80</td>
<td>2035 Vision</td>
</tr>
<tr>
<td>% of annual total biosolids that are beneficially reused</td>
<td>Environmental Environmental Improvements</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>100</td>
<td>Internal Goals</td>
</tr>
<tr>
<td>Annual tax levy increase (%)</td>
<td>Economic Fiscal Responsibility</td>
<td>Fiscal Responsibility</td>
<td>--</td>
<td>0 - 4</td>
<td>Annual Budget</td>
</tr>
<tr>
<td>Annual user charge billing increase (%)</td>
<td>Economic Fiscal Responsibility</td>
<td>Fiscal Responsibility</td>
<td>--</td>
<td>0 - 2.5</td>
<td>Annual Budget</td>
</tr>
<tr>
<td>Total number of plumbed structures in 1% annual probability floodplain</td>
<td>Social Safety</td>
<td>Safety</td>
<td>--</td>
<td>0</td>
<td>2050 FP Commission Direction/2035 Vision</td>
</tr>
<tr>
<td>Count of odor issues/year (total count of complaints and notices of violation)</td>
<td>Social Customer Service, Comm, Employee Development</td>
<td>Customer Service, Comm, Employee Development</td>
<td>0</td>
<td>0</td>
<td>CCO Reports/WPDES Permit</td>
</tr>
</tbody>
</table>

Asset System Definitions:
- CS – Conveyance and Storage
- WRF – Water Reclamation Facilities and Biosolids
- WCFM – Watercourse and Flood Management
- GI – Green Infrastructure

\(^1\)CSSA – Combined Sewer Service Area
<table>
<thead>
<tr>
<th>Performance Indicator (PI)</th>
<th>Triple Bottom Line Measure</th>
<th>Level of Service (LOS) Category</th>
<th>Level of Service</th>
<th>PI/LOS Target Source</th>
<th>Applicable Asset System</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSO events/year</td>
<td>Environmental</td>
<td>Permit Requirements</td>
<td>0</td>
<td>0</td>
<td>CS² WPDES Permit Section 9.3.1.1 X</td>
</tr>
<tr>
<td>CSO events/year</td>
<td>Environmental</td>
<td>Permit Requirements</td>
<td>6</td>
<td>0²</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td></td>
<td>Environmental</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>2035 Vision</td>
<td></td>
</tr>
<tr>
<td>Air operating and construction permit violations/year</td>
<td>Environmental</td>
<td>Permit Requirements</td>
<td>0</td>
<td>0</td>
<td>Construction Permit 10-POY-005; Operating Permits 241029250-P11 and 241228350-P11</td>
</tr>
<tr>
<td>Biosolids permit violations/year</td>
<td>Environmental</td>
<td>Permit Requirements</td>
<td>0</td>
<td>0</td>
<td>WPDES Permit Section 8.2</td>
</tr>
<tr>
<td>Effluent operating contract limits exceeded/year (multiple parameters)</td>
<td>Environmental</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>Multiple</td>
<td>VWM 2008-2018 Operating Contract</td>
</tr>
<tr>
<td>Reduction in annual MMSD GHG emissions from 2010 baseline (%)</td>
<td>Environmental</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>90</td>
<td>2035 Vision</td>
</tr>
<tr>
<td>Total acres of Greenseams/river buffers</td>
<td>Environmental</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>Acquire 10,000 acres by 2035</td>
<td>2035 Vision</td>
</tr>
<tr>
<td>% of annual N recovered</td>
<td>Environmental</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>TBD</td>
<td>Stakeholder Expectations</td>
</tr>
<tr>
<td>% of annual P recovered</td>
<td>Environmental</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>TBD</td>
<td>Stakeholder Expectations</td>
</tr>
<tr>
<td>Percent by count of assets with estimated cost of rehabilitation/replacement and estimated year of rehabilitation/replacement in Asset Information Management System</td>
<td>Environmental</td>
<td>Environmental Improvements</td>
<td>--</td>
<td>100</td>
<td>Asset documentation gap identified in AM Strategy</td>
</tr>
<tr>
<td>Basement backups due to MIS capacity/year</td>
<td>Social</td>
<td>Safety</td>
<td>--</td>
<td>0</td>
<td>2035 Vision</td>
</tr>
<tr>
<td>Annual MMSD employee safety severity rate</td>
<td>Social</td>
<td>Safety</td>
<td>--</td>
<td>0</td>
<td>VWM 2008-2018 Operating Contract</td>
</tr>
</tbody>
</table>

3 Asset System Definitions:
CS – Conveyance and Storage
WRF – Water Reclamation Facilities and Biosolids
WCFM – Watercourse and Flood Management
GI – Green Infrastructure

2 The interim goal is to maintain baseline CSO frequency, which is established in Chapter 4.
REFERENCES


